December 18, 1969

To: Bill Morrill

From: Tom Whitehead

Here's the package
which we have sent out
for comment.

December 18, 1969

To: Robert Mayo

From: Tom Whitehead

I am not sure the Bureau has any direct concern in this matter but wanted you to be aware of what was going on.

December 18, 1969

MEMORANDUM FOR

THE ATTORNEY GENERAL

Attached is a proposed memorandum from the White House to the Chairman of the Federal Communications Commission regarding policy for domestic applications of communications satellites. We anticipate the release early next week.

Could you advise whether there are any legal problems with the proposed policy statement.

Clay T. Whitehead
Staff Assistant

Attachment

CTWhitehead:ed

December 18, 1969

MEMORANDUM FOR

THE POSTMASTER GENERAL

Attached is a proposed memorandum from the White House to the Chairman of the Federal Communications Commission regarding policy for domestic applications of communications satellites. We anticipate the release early next week.

We have made no explicit reference to the possibility that the Post Office may desire to establish its own satellite system or to procure satellite services from commercial entities. I believe this in no way prejudices the Post Office Department's position. However, I would appreciate knowing if you see any problems.

Clay T. Whitehead
Staff Assistant

Attachment

cc: Mr. Whitehead

CTWhitehead:ed

December 18, 1969

To: Don Baker

From: Tom Whitehead

Attached is a copy of
our proposed memorandum
to the Chairman of the
Federal Communications
Commission.

THE WHITE HOUSE

WASHINGTON

December 18, 1969

MEMORANDUM FOR

Honorable Dean Burch
Chairman
Federal Communications Commission

The Federal government is concerned with development of the Nation's communications capabilities in many ways: as custodian of the public interest; as regulator of radio spectrum usage; and as a major user of communications services for national security, public safety, and other governmental functions. To be consistent with these responsibilities, national communications policies should assure that new communications services and lower-cost facilities are authorized in a timely way as they are developed and become economically viable.

Federal policy on domestic satellite communications has not met these tests. The Administration is concerned that the delay not be prolonged and that the policies adopted reflect all important dimensions of the public interest, including the international aspects of geostationary orbital and radio resources. Based on our review of relevant technical and economic factors and public interest considerations, the Administration offers the following comments and recommendations to the Commission.

Public Policy Objectives

In telecommunications, the government's responsibility to safeguard and promote the public interest involves primarily the encouragement of reliable communications services for public, business, and government use at reasonable rates, and the assurance of a healthy environment for continuing innovations in services and technology.

This general goal must, of course, be made more specific for particular policy issues. In our review of the domestic satellite issue, we have concentrated on the following objectives:

-- assure full benefit to the public of the economic and service potential of satellite technology.

-- insure maximum learning about the problems and possibilities of satellite services.

-- minimize unnecessary regulatory or administrative impediments to technological and market development by the private sector.

-- encourage more vigorous innovation and flexibility within the communications industry to meet a constantly changing spectrum of public and private communications requirements at reasonable rates.

-- discourage anti-competitive practices -- such as discriminatory pricing or interconnection practices and cross-subsidization between public monopoly and private service offerings -- that inhibit the growth of a healthy structure in communications and related industries.

The Technical Framework

The establishment and operation of domestic satellite communications facilities is technically feasible within the present state of the art, and readily foreseeable technological advances will further enhance this capability. Technical considerations, such as maximum utilization of the radio spectrum and compatibility and interconnectability among systems, place no serious constraints on policies governing the ownership or mode of operation (single- or multi-purpose) of domestic satellite communications facilities. These technical considerations, though of great importance in the detailed engineering, operations, and economics of specific systems, can be dealt with effectively under any foreseeable ownership arrangements.

The issue of radio resource scarcity for satellite communications has been overstated to a significant degree. While the communications capacity of this resource is undoubtedly finite, the ability to accommodate additional radio services is greatly expandable through administrative, technological, and operational innovation. For example, the Commission may wish to establish a minimum acceptable earth station antenna diameter in order to ensure immediate capacity for a particular number of satellites.

Since some of the orbital locations and associated spectrum usage of interest for United States domestic satellites might also be potentially useful to other western hemisphere nations, a question of United States monopolization could conceivably arise. However, even 10 to 12 United States domestic satellites (a high estimate of likely early system development) would represent only a small fraction of the number which could be accommodated for western hemisphere use with the current state of the art. Therefore, orbital capacity is not expected to be a problem at this time. As demand for satellite communication expands, it may become necessary to evolve additional international coordinating mechanisms; even this would likely involve the establishment of appropriate technical standards rather than the rationing of orbital positions. This is expected to be a subject for discussion at the 1971 World Administrative Radio Conference.

The Economic Framework

The most immediate potential for domestic satellite communications seems to lie in long-distance specialized transmission services -- such as one-way distribution of radio and television programs, two-way exchange of high speed data or other wideband signals among thinly dispersed users, etc. Common carriers have informed us that the routine transmission of public message traffic does not appear economic for satellites at present. For the foreseeable future, satellite communications systems will require large initial investments, careful technical and economic planning, and complex technical management capabilities. The extensive, reliable, and low-cost terrestrial communications network in the United States make domestic satellite systems competitive only where their unique capabilities offer significant advantages over terrestrial transmission. For all these reasons, we expect the initial number of potential offerors of domestic satellite services to be small.

In the absence of clear economies of scale and overriding public interest considerations to the contrary, the American economy has relied on competitive private enterprise rather than regulated monopoly to assure technical and market innovation, long-run optimum use of resources, and industry flexibility. These are all conditions this Nation has found to encourage higher-quality, lower-cost services responsive to consumer demand.

At this stage of domestic satellite planning, it is not possible to identify major economies of scale. Rather, it appears that a diversity multiple satellite system as well as multiple earth stations will be required to provide a full range of domestic services.

Further, we find no public interest grounds for establishing a monopoly in domestic satellite communications. The provision of specialized transmission services and the carriage of bulk message traffic is quite different in character from the provision of switched public message service upon which much of our monopoly theory of telecommunications regulation is based. Competition in the offering of satellite services appears to hold forth greater benefit to the public than would a single chosen instrument.

Detailed regulation of service rates and commercial rates of return are similarly predicated on natural monopoly conditions. As just noted, such conditions should not exist with domestic satellite communications in the immediate future. Not only is competitive entry possible but terrestrial communications pricing would act as an upper limit on prices chargeable for satellite services. In these circumstances, competitive pressure, rather than regulatory constraints, should be permitted to limit rates for specialized services via domestic satellites.

The historical development of telecommunications policy, regulation, and industry structure has resulted in a blurred distinction between public and private interests. A confusing patchwork of cross-subsidization between public message and specialized service offerings has become the norm rather than the exception. It, therefore, is possible that satellite services could, through cost-reducing

innovation and competition, cause some existing services now surviving on a cross-subsidized basis to become uneconomic. Even if the benefits of such cross-subsidization accrue to the public users rather than to private service offerings, however, there seems to be no merit in protecting suppliers of such services from fair competition. Should such competition result in curtailment of some public services that are necessary as a matter of public policy, a direct public subsidy to continue such services would in most cases be less costly to the public than forced cross-subsidization and restraint of competition.

Recommendation

Government policy should encourage and facilitate the development of commercial domestic satellite communications systems to the extent that private enterprise finds them economically and operationally feasible. We find no reason to call for the immediate establishment of a domestic satellite system as a matter of public policy. Government should not seek to promote uneconomic systems, to dictate ownership arrangements, nor to force coordinated planning or operation of such facilities except as essential for the avoidance or harmful radio interference. In particular, it should not require as a condition of authorization the creation of or participation in joint planning forums among prospective operators, users, or suppliers of such facilities.

Basic policies governing the establishment and operation of domestic satellite communications facilities should be essentially the same as those for terrestrial facilities. Subject to appropriate conditions to preclude harmful interference and anticompetitive practices, any financially qualified entity should be permitted to establish and operate domestic satellite facilities for its own needs; join with related entities in common-user, cooperative facilities; establish facilities for lease to prospective users; or establish facilities to be used in providing specialized carrier services on a competitive basis. Subject to the constraints outlined below, common-carriers should be free to establish facilities for either switched public message or specialized services, or both.

The number or classes of potential offerors of satellite services should not be limited arbitrarily. Nor should there by any a priori ranking of potential types of systems (common-carrier vs. specialized carrier vs. private; or satellite vs. terrestrial). Only in the event that specific applications pose immediate and irreconcilable conflict in the use of radio and orbital resources would an a priori public interest exclusion of proposals be warranted. In particular, the potential economic impact of private or common-user satellite systems on terrestrial common-carriers or specialized carriers should not be a factor in the authorization of such systems.

During this period, the Commission could use its existing authority under the Communications Act of 1934 to prevent unjustified rate discrimination. Subsequently, the Commission should review the industry structure and service offerings to determine whether any monopoly conditions exist that warrant rate regulation for specialized satellite services. To avoid restraints on competition, the opportunity to participate in common-user satellite systems should be open without discrimination to all potential users of similar services.

All prospective entrants should be ensured equal opportunity to establish and operate domestic satellite communications facilities by adoption of the following guidelines.

(1) Facilities to be established by independent entities for their own private use should be required to demonstrate only the financial qualifications to implement their system proposals. There is no valid public interest requirement in such cases to require a showing of economic viability or optimization, nor should the potential economic impact of such operations on common or specialized carriers be weighed in the authorization of such facilities.

(2) Facilities to be established as part of a common user cooperative system should be authorized in accord with the same principles as for fully independent facilities. However, to avoid restraints on competition, the opportunity for all potential users of similar services to participate without discrimination in such cooperatives should be made a condition of their authorization.

(3) Facilities to be used by specialized carriers (i.e., carriers having no monopoly over switched public message services) should be authorized under essentially the same terms and conditions as private or common user facilities. Furthermore, such specialized carriers should not be constrained to serve as a "carrier's carrier" nor to share ownership of either space or earth station facilities with other carriers, common or specialized. Specialized carriers should, however, be required to serve similar users at equal rates and on a nondiscriminatory basis.

(4) Facilities to be used by common carriers solely for the transmission of switched public message services should be authorized under the same terms and conditions that apply for terrestrial radio facilities. However, facilities to be used by such carriers in the transmission of specialized message services should be authorized only after a determination by the Commission on each application, based on public evidentiary hearings, that no cross-subsidization would take place in either the development, manufacture, installation, or operation of such facilities. This should not be interpreted, however, to preclude the legitimate economies of joint-use facilities.

(5) The use of leased facilities (satellite and/or earth stations) should be considered under the same terms and conditions as owned facilities, with the responsibility for adherence to these conditions resting with the lessee.

(6) Local communications common carriers should be required to provide leased interconnection services for user access to earth stations, with reasonable rates and without discrimination.

(7) Potential harmful interference between satellite systems and terrestrial installations should be resolved by the Commission according to established procedures. Satellite operating entities should have equal status with terrestrial users in interference problems and in access to the radio spectrum. Where appropriate, the Commission should affirm its authority to modify or rescind the operating rights of established spectrum users (satellite or terrestrial) where this would not significantly impair the quality of service or impose undue economic burdens; we believe the Commission should require compensation of the established users to be paid by the new entrant in such situations.

(8) The Commission may wish to establish a minimum acceptable earth station diameter, such as 30 feet, in order to accommodate a given number of initial United States domestic satellites using the 4 and 6GHz spectrum allocations. Although it is very unlikely that the initial filing period will approach the limit such a standard would impose, the standard should be raised. Conversely, if applications were well below this number, and a reasonable case were made on economic and operational grounds, the standard could be released in specific cases. To the extent possible within the state of the art, the satellite antenna radiation pattern should encompass only the specific land areas to be served.

In a time of rapid technological, economic, and social change, we would be ill-advised to adopt a definitive policy without the flexibility for future review or to adopt an overly restrictive policy simply because of our inability to predict future developments. We, therefore, recommend that the above policies be adopted on an interim basis, such as three to five years, to permit vigorous exploration and development of satellite service possibilities. During this period, the Commission should monitor the industry structure and service offerings to determine if the natural monopoly or other conditions develop that require more restrictive entry conditions or warrant direct rate regulation for specialized satellite services. At the end of the interim period, a full review of the policy and industry structure should be made.

It is most important that the establishment and operation of domestic satellite communications facilities be consistent with our obligations and commitments to INTELSAT and to the International Telecommunications Union, with other foreign policy considerations, and with national security communications planning and requirements. With respect to INTELSAT, it is particularly important that domestic systems not threaten the operational integrity or economic viability of the global services provided through this system. We are satisfied that domestic satellite communications facilities authorized in accordance with the preceding recommendations will meet all these conditions. We further see no reason why the Communications Satellite Corporation, established by Congress as the chosen instrument for United States participation in INTELSAT, should not be permitted to compete for domestic satellite service on an equal basis with other United States corporations.

12/17/69

SUMMARY OF ECONOMIC AND TECHNICAL COMMITTEE REPORTS DOMESTIC SATELLITE WORKING GROUP

The Working Group has limited its deliberations to technical and economic issues bearing on domestic communications satellite policy. Before formulating such policy, other matters must also be considered. Among these other considerations are:

-- the impact on social, economic, and national security objectives;

-- the impact on INTELSAT and other international considerations with regard to orbital and spectrum usage;

-- the importance to the national interest of early establishment of a domestic satellite system;

-- the desirability of introducing competitive forces into the domestic communication industry and the effect of such forces on rate making practices now pursued in landline services;

-- the effect on services now being furnished by terrestrial means, but which may not be economically viable under conditions of competitive alternatives since they are currently subsidized by more profitable services.

The report is considered to be a sound basis for policy decisions insofar as technical and economic matters are concerned. * However, since no examination of the problems beyond these areas was undertaken, no recommendations with respect to policy are offered.

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* However, not all members of the technical committee agree fully with the conclusions of the economic committee, so that this composite summary does not represent a unanimous point of view.

The Technical Framework

The establishment of U. S. domestic communications satellite facilities is technically feasible within the present state of the art, and there are spectrum and orbital resources available to accommodate several Western hemisphere satellite systems within the presently allocated 4 and 6 GHz bands. At least one transmit/receive earth station can be located in or near most urban areas, although the most suitable locations may be a number of miles from dense communications centers. A larger number of receive-only stations can be located in proximity to urban areas, particularly if some degradation of signal quality is not important. The exact number and location of earth stations is a subject for detailed engineering on a case-by-case basis.

Radio relay networks and satellite earth stations can share the 4 and 6 GHz frequency bands without harmful interference, provided reasonable precautions are taken in the design, location, and operation of the systems. To permit a large number of satellites, it is desirable that earth station antenna be as large as economically feasible. It, therefore, may be necessary to set minimum antenna standards based on geographic location in conjunction with satellite orbital location.

Technical considerations place no serious constraints on the formulation of policies for the ownership or mode of operation (single- or multi-purpose) of domestic communication facilities. Though of great importance in the engineering, operations, and economics of specific systems, these considerations can be dealt with effectively under any reasonable ownership structure.

The Economic Framework

The most immediately apparent potential for domestic communication satellites is to provide transmission and routing functions for long-haul television distribution. A second possibility is to provide highly specialized broad band services for thinly dispensed and highly specialized broad band users.

Several institutional arrangements for satellite service were considered. The two primary alternatives were: 1) a single system in which all satellites are established and managed by a chosen instrument, for which relatively detailed system characteristics and operating rules would be specified by the FCC and to which conventional regulatory

constraints would be applied; and 2) a more flexible industry structure permitting relatively open entry and where government involvement in technical design, operations, and management would be minimized.

These two basic options were evaluated from the standpoint of maximum contribution to the public interest in reliable, low-cost telecommunications services. Five criteria were used for this purpose: reasonableness of rates; service flexibility; technical and service innovation; efficient use of satellite facilities and radio resources; and new opportunities for learning.

1) The U. S. experience is that with multiple suppliers, competitive market forces tend to keep rates at reasonable levels. Even in regulated industries, competition has been a useful complement to regulation. The lack of evidence for economies of scale in satellite service and the competitive availability of large capacity, low-cost terrestrial networks suggests that excessive rates would be both unlikely and untenable under conditions of open entry. On the other hand, a chosen instrument would receive close scrutiny by the regulatory authorities, and it could be expected that rates allowed would restrict earnings to a reasonable level.

2) A large organization has greater resources and capability for service flexibility than a small organization. Yet, several smaller organizations may be more responsive to customer needs than a single large organization; this is especially true in areas of rapid technological and economic change. It is also true that the mere opportunity for competitive entry will provide incentives for initial entrants to explore new services that they otherwise might ignore. Unless the only entrant is a dedicated television distribution system, therefore, the competitive entry option can be expected to offer the greatest flexibility in meeting customer demands.

3) Technical innovation is more likely to occur where there are several competing manufacturers, and this is in turn more likely to occur with multiple operating entities than with a single chosen instrument. A chosen instrument may well be very innovative in offering new services, yet there is somewhat more opportunity for new services to be offered when entry is not sharply restricted.

4) Efficient satellite use requires both economic efficiency and efficient use of orbital and spectrum resources. Since there does not appear to be evidence of strong economies of scale or of specialization, either of the two options appear comparable in terms of economic efficiency. The type of regulatory control associated with a chosen instrument might avoid wasteful use of orbital capacity; and the current state of the art is such that reasonable standards for earth station and satellite design could be specified by the FCC to assure that the same result is achieved under conditions of open entry. The development of an open entry structure would be well suited to the transfer of systems and spectrum resources to more productive uses in the future without detailed Federal intervention in corporate operations that would be required with a single chosen entity.

5) A final objective of a domestic satellite policy is to increase learning about possible uses, costs, and services. A chosen instrument could be assigned certain public interest responsibilities to explore and offer potentially unecomic services and to carry on technical research. However, the primary uncertainties relate to cost and to market and service innovations. The incentives provided by competition among a number of entities are expected to result in a more vigorous examination of these uncertainties than would be expected from a chosen instrument.

Under either of the two basic options considered here, the FCC will exercise its licensing authority over spectrum usage. Interference with existing terrestrial microwave installations represents a potential problem area for any prospective domestic satellite operator, and future satellite systems may cause interference with one another. Procedures for resolving differences over interference questions between satellite services and terrestrial carriers should receive careful attention. Satellite operating entities should have equal status with respect to access to radio spectrum as the terrestrial users.

Under either policy option, a potential exists for cross-subsidization of services and for limiting entry through interconnection and access restrictions. Such practices could result in inequitable rate structures or anticompetitive practices and should be minimized.

Although there are substantial uncertainties as to the economics and technical operation of domestic communication satellite services, these are not so great as to justify any delay in proceeding with licensing of such services. For this reason, it may be desirable to adopt a policy on an interim basis with subsequent review in the light of actual experience.

12/17/69

MEMORANDUM FOR
Peter Flanigan
Lee DuBridge
Paul McCracken
George Lincoln

As you know, we have been reviewing the issue of what the government's policy should be with regard to the use of satellites for domestic communications services. A working group was established in August to review the economic and technical considerations; a summary of their reports is attached. Also attached is a proposed memorandum for the FCC stating the Administration's policy recommendations. I would appreciate your comments as soon as possible since we would like to plan for a December 22nd release. The working group made no recommendations because of factors other than economic and technical considerations needed to be considered in formulating policy. These are discussed below:

Social, economic, and national security objectives

Our economy and our society are become increasingly dependent on telecommunications. The telephone, television, and radio, and now data communication, are an integral part of our commercial and social way of life. However, apart from the content of public broadcasting, the government's prime concern is that the telecommunications industries operate efficiently, do not engage in

discriminatory or other anti-competitive practices, do not realize excessive monopoly profits, and vigorously pursue innovations in lower-cost technology or new services. Apart from government-owned telecommunications facilities, the natural security interest implies the same objectives.

There are, of course, specific objectives the government may declare as with any industry. For example, it has always been government policy to encourage widespread access to telephone service and to broadcast stations; and the military services may require particularly reliable, redundant, or survivable communications capabilities. No such special objectives appear at this time to suggest negating or compromising the basic objective of a healthy and vigorous industry structure for domestic satellite services.

Intelsat and other international considerations

The primary consideration with respect to Intelsat is that the economic viability of the global system not be jeopardized and that the announcement of a U.S. policy at this time not upset our negotiations on permanent arrangements for the Intelsat consortium. While it is true that a domestic U.S. system would take away some traffic between the mainland and Hawaii, Puerto Rico, and later Alaska, this is not sufficiently large to impair the economic strength

of Intelsat -- especially in view of the growing demand for international communications. Further, Governor Scranton, who heads the U.S. delegation to the Intelsat conference does not feel the proposed domestic satellite policy will cause any problems in our negotiations; to the contrary, it may be of some assistance.

12/16

Mr. Hinchman called with a few more changes to the draft memo to FCC.

Page 5, line 4

Change "potential" to "opportunity."

Page 5, line 9

Change "carriage of bulk" to "transmission of public."

Page 6, second paragraph, second line

Change "accrue to the public users rather than to private service offerings" to "may accrue directly to the public rather than to private interests."

Page 8, second sentence

Should be as follows:

Consequently, the number or classes of potential entrants should not be limited arbitrarily; nor should there be any a priori ranking of potential types of systems (common-carrier vs. specialized carrier vs. private; nor satellite vs. terrestrial). Only in the event that specific applications pose immediate and irreconcilable conflict in the use of radio and orbital resources would an a priori public interest exclusion of proposals be warranted. Furthermore, we can find no justification for weighing the potential economic impact of private or common user systems on common carriers or specialized carriers, in considering the authorization of such systems.

and the existence of large economies of scale. Since neither of these conditions is readily apparent in the case of domestic satellite communications facilities, and since relatively large, high-risk investments will be required, even relatively open entry will be largely self-regulating. Consequently, the number or classes of potential entrants should not be limited arbitrarily. In particular, the potential economic impact of private or common-user systems on terrestrial common carriers or specialized carriers should not be a factor in the authorization of such systems.

Nor should there be any a priori ranking of potential types of systems (common-carrier vs. specialized carrier vs. private; nor satellite vs. terrestrial). Only in the event that specific applications pose immediate and irreconcilable conflict in the use of radio and orbital resources would an a priori public interest exclusion of proposals be warranted.

Except for common carriers, the public interest does not require that the venture be economically optimum or even viable; thus no such showing should be required.

Detailed regulation of service rates and commercial rates of return are similarly predicated on natural monopoly conditions. Such conditions should not exist with domestic satellite communications in the immediate future. Competitive entry is possible; and terrestrial communications pricing would act as an upper limit on prices chargeable

Monday 12/15/69

5:30 Walt Hinchman dictated some suggestions for the draft of the memo which will be going to the FCC on Domestic Satellites. He said there were several other major changes made through the 12/10 draft which we should be getting in the mail.

Dictated over Telephone 12/15/69

Proposed first paragraph of the Recommendations section to replace existing first paragraph:

Government policy should encourage and facilitate the development of commercial domestic satellite communications systems to the extent that private interests consider them economically and operationally attractive. It should not seek to promote uneconomic systems, to dictate ownership arrangements, nor to force coordinated planning or operation of such facilities as essential for the avoidance of harmful radio interference. In particular, it should not require as a condition of authorization the creation of or participation in joint planning forums among prospective operators, users, or suppliers of such facilities.

Page 4, Last Paragraph

No nation is entitled to monopolize the use of the international radio spectrum resources -- including the important parameter of satellite orbital positions. Since some of the orbital space of interest for US domestic satellites might also be of valid interest to other western hemisphere nations -- though not to European or Asian nations -- a claim of monopolization could conceivably arise. However, since even 10 to 12 US domestic satellites (a high estimate of probable early system development) would represent only a small fraction of the number which could be accommodated for western hemisphere use,

such claims would have little justification. As demand for satellite communication expands, it may become necessary to evolve additional international coordinating mechanisms; even this would likely involve the establishment of appropriate technical standards rather than the rationing of orbital positions.

Page 3, Next to last paragrpah, 6th line, sentence beginning "For example..."

For example, it may be desirable to establish a minimum acceptable earth station diameter (e.g., 30 feet) in order to accommodate a given number (e.g., 10 - 12) of initial US domestic satellites, using the 4 and 6GHz spectrum allocations. If applications during a specified initial filing period exceeds this number, the standard could be raised (e.g., to 40 or more), or the Commission could rank applications either by arrival time or valid public interest criteria. Conversely, if applications were well below this number, and a reasonable case were made on economic or operational grounds, the standard could be released in specific cases (e.g., 15 - 20 ft.).

Page 9, Next to Last Paragraph starting "To avoid the ..." replaced with the following.

All prospective entrants should be ensured equal opportunity to establish and operate domestic satellite communications facilities by adoption of the following guidelines:

(1) Facilities to be established by independent entities for their own use should require no showing of economic viability or

optimization, nor should the potential economic impact of such operations on common or specialized carriers be weighed in the authorization of such facilities. There is no valid public interest requirement for such conditions.

(2) Facilities to be established as part of a common user cooperative system should be authorized in accord with the same principles as for fully independent facilities. However, to the extent required to prevent restraint of competition, the right of all potential users of like services to participate without discrimination in such cooperatives should be made a condition of their authorization.

(3) Facilities to be used by specialized carriers (i.e., carriers having no monopoly over switched public message services) should be authorized under essentially the same terms and conditions as private or common user facilities. Furthermore, such specialized carriers should not be constrained to serve as a "carrier's carrier" nor to share ownership of either space or earth station facilities with other carriers, common or specialized. Specialized carriers should, however, be required to serve like users the equal rates and on a nondiscriminatory basis.

(4) Facilities to be used by common carriers solely for the transmission of switched public message services should be authorized under the same terms and conditions that apply for terrestrial radio facilities. However, facilities to be used by such carriers in the

transmission of specialized message services should be authorized only after a determination on each application, based on public evidentiary hearings that no cross-subsidization would take place in either the development, manufacture, installation, or operation of such facilities.

(5) The use of leased facilities (satellites and/or earth stations) should be considered under the same terms and conditions as owned facilities, with the responsibility for adherence to these conditions resting with the lessee.

(6) Local communications facilities should be required to provide leased interconnection services for user access to earth stations, with reasonable rates and without discrimination.

Mr. Hinchman called with a few more changes to the draft memo to FCC.

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The Technical Framework

-- The establishment and operation of domestic satellite communications facilities is technically feasible within the present state-of-the-art, and readily foreseeable technological advances will enhance this capability. Technical considerations, such as maximum utilization of the radio spectrum and compatibility and interconnectability among systems, impose minimal constraints on policies governing the ownership or mode of operation (single- or multi-purpose) of domestic satellite communications facilities. Though of great importance in the detailed engineering, operations, and economics of specific systems, these technical considerations can be dealt with effectively under any foreseeable ownership arrangements.

-- The issue of radio resource scarcity for satellite communications has been overstated to a significant degree. While the communications capacity of this resource is undoubtedly finite, the ability to accommodate additional radio services is at present greatly expendable through administrative, technological, and operational innovation. ~~For example, the Commission may wish to establish a minimum acceptable earth station antenna diameter in order to ensure immediate capacity for a particular number of U.S. domestic satellites.~~

To the extent that applicants are few, as is most likely, presently allocated spectrum resources should accommodate all likely applicants

without conflict under reasonable technical standards. However, should the Commission receive a large number of applications during the specified initial filing period, higher standards (such as larger antenna diameter) could be adopted to accommodate more satellites or applications can be awarded priority on public interest standards.

Should additional applicants come forward subsequent to the initial filing period, other options are available.

Later systems could be authorized to use additional spectrum resources now being cleared with appropriate international agencies for satellite use.

Later applicants also could be authorized either to "buy out" some existing user's resources or to compensate an existing user for modifications such as larger antennas and relocation of satellites and/or earth stations to accommodate the new entrant.

While no one nation is entitled to monopolize the orbital and radio resources required for satellite communications, the number of U. S. domestic satellites is expected to be quite small in relation to the total capacity of these resources. However, should the U. S. domestic use of these resources grow larger over time, the long-term requirements of Intelsat as well as other Western Hemisphere nations for space and

frequency usage in the relevant portions of the geo-stationary orbit will have to be taken into account.

The Economic Framework

-- The most immediate ~~potential~~ opportunity for domestic satellite communications seems to lie in long-distance specialized transmission services -- such as one-way distribution of radio and television programs, two-way exchange of high speed data or other wide-band signals among thinly dispersed users, etc. Common carriers have informed us that the routine ~~carriage~~ transmission of ~~bulk~~ Public message traffic does not appear economic for satellites at present.

-- At this stage of domestic satellite planning, it is not possible to identify major economies of scale. Rather, it appears that a diversity multiple satellite systems as well as multiple earth stations will be required to provide a full range of domestic services.

-- In the absence of overriding public interest considerations to the contrary and clear economies of scale, it is widely accepted in this country that freely competitive private enterprise is more conducive than regulated monopoly to technical and market innovation, long-run optimum use of limited resources, and industry flexibility. These are all conditions which typically produce higher-quality, lower-cost services.

Recommendation

Government policy should be directed toward the encouragement and facilitation of satellite systems as they become feasible on a commercial basis. We find no reason to call for the immediate establishment of a system as a matter of national policy. Therefore, no enforced coordinating or planning forum of prospective operators, users, and suppliers is necessary.

Basic policies governing the establishment and operation of domestic satellite communications facilities should be essentially the same as those for terrestrial facilities. Subject to appropriate conditions to preclude anticompetitive practices, any financially qualified entity should be permitted to establish and operate domestic satellite facilities for its own needs; join with related entities in common-user, cooperative facilities; establish facilities for lease to prospective users; or establish facilities to be used in providing specialized-carrier services on a competitive basis. Subject to the constraints outlined below, common-carriers should be free to establish facilities for either switched public message or specialized services, or both.

Regulatory limitations on entry into the communications industry are predicated largely on the limited availability of radio resources

and the existence of large economies of scale. Since neither of these conditions is readily apparent in the case of domestic satellite communications facilities, and since relatively large, high-risk investments will be required, even relatively open entry will be largely self-regulating. Consequently, the number or classes of potential entrants should not be limited arbitrarily. In particular, the potential economic impact of private or common-user systems on terrestrial common carriers or specialized carriers should not be a factor in the authorization of such systems. Nor should there be any a priori ranking of potential types of systems (common-carrier vs. specialized carrier vs. private; nor satellite vs. terrestrial). Only in the event that specific applications pose immediate and irreconcilable conflict in the use of radio and orbital resources would an a priori public interest exclusion of proposals be warranted.

Except for common carriers, the public interest does not require that the venture be economically optimum or even viable; thus no such showing should be required.

Detailed regulation of service rates and commercial rates of return are similarly predicated on natural monopoly conditions. Such conditions should not exist with domestic satellite communications in the immediate future. Competitive entry is possible; and terrestrial communications pricing would act as an upper limit on prices chargeable

for satellite services. In these circumstances, we urge that competitive pressure, rather than regulatory constraints, should be permitted to set the limit on prices for specialized services via domestic satellites -- at least during an initial operating period. During this period, the Commission could use its existing authority under the Communications Act of 1934 to prevent unjustified rate discrimination. Subsequently, the Commission should review the industry structure and service offerings to determine whether any monopoly conditions exist that warrant rate regulation for specialized satellite services. To avoid restraints on competition, the opportunity to participate in common-user satellite systems should be open without discrimination to all potential users of similar services.

To avoid the possibility of anti-competitive practices, we suggest the following additional guidelines for common-carrier establishment and use of domestic satellite communications facilities.

(1) Common-carriers should be authorized to establish and operate domestic satellite communications facilities for use in providing switched public message services under the same conditions which apply for terrestrial facility operations.

(2) Common-carriers should be authorized to establish and operate facilities which will handle specialized services (i.e., all other than switched public message services) only after a case-by-case determination by the Commission -- based on a public, evidentiary hearing -- that no cross-subsidization would be involved in either the development, manufacture, installation, or operation and maintenance of such facilities.

(3) Common-carriers should be authorized to lease satellite transmission services for public message or specialized services from specialized carriers or independent systems, and specialized carriers should be required to provide such services as are available on a competitive, nondiscriminatory basis.

(4) Common carriers should be required to provide leased interconnection services to earth stations at reasonable rates and on a nondiscriminatory basis.

It is most important that the establishment and operation of domestic satellite communications facilities be consistent with our obligations and commitments to Intelsat and to the International Telecommunications Union, with other foreign policy considerations, and with national security communications planning and requirements. With respect to Intelsat, it is particularly important that domestic systems not

Toni Lee suggested shuffling on pp 7-8

Walt 12/12/69

THE WHITE HOUSE

WASHINGTON

December 6, 1969

MEMORANDUM FOR

Attached are:

(1) A discussion of the executive branch organization for telecommunications and a recommended reorganization.

(2) A description of the responsibilities of a new Office of Telecommunications Policy.

Both the Bureau of the Budget and the staff of the President's Advisory Council on Executive Organization have assisted in the preparation of this recommendation. We would like to have your comments before submitting a final recommendation to the President. I would appreciate having your comments by December 13.

Peter Flanigan
Assistant to the President

Attachments

RESPONSIBILITIES OF THE OFFICE OF TELECOMMUNICATIONS POLICY

The Director of the Office of Telecommunications Policy develops the executive branch position on national telecommunications policy, coordinates the planning and operation of the telecomunications systems of the Federal government, discharges responsibilities assigned to the President in the areas of spectrum management and satellite communications, and performs emergency planning and control functions for telecommunications.

The Director serves as the President's principal advisor on telecommunications policy, including:

(1) The organization, practices, and regulation of the U. S. domestic and international communications industry.

(2) The allocation, use, and management of the radio spectrum resource for government use, and preparation of recommendations to the FCC on spectrum allocation and assignment for civilian use.

(3) The preparation of U. S. positions for international communication conferences, conventions, and organizations.

(4) Federal research and development programs in support of the above.

The Director assures that the executive branch position on telecommunication policy issues is effectively presented to the Congress and to the Federal Communications Commission in the form of legislative proposals, recommendations, and testimony as required.

The Director's responsibilities for the planning and operation of Federal government telecommunications systems include:

(1) Development of government-wide standards for equipment and procedures, as required in the interest of economy or effectiveness.

(2) Evaluation of the ability of national communications resources adequately and efficiently to meet established national security and emergency communications requirements.

(3) Recommendations to the Bureau of the Budget concerning the funding of communications systems and research and development programs.

(4) Preparation of guidelines for the most economical procurement of Federal telecommunications services.

The Director exercises the authority, delegated by the President, to assign radio frequencies for use by the government. He is assisted in this responsibility by the Telecommunications Research and Analysis Center to be established in the Department of Commerce and the Interdepartmental Radio Advisory Committee. He carries out the responsibilities conferred on the President by the Communications Satellite Act. The Director coordinates the development of plans and programs for the mobilization and use of telecommunications resources in an emergency, and prepares to administer national telecommunications resources in the event of war under the overall policy guidance of the Director, OEP.

The Director coordinates assistance in telecommunications matters provided by the Federal government to State and local governments. He appoints scientists, engineers, and economists from outside government to advise on telecommunications matters.

To carry out these responsibilities, the Director must have the following qualifications:

(1) A thorough grasp of the social, economic, engineering, and national security factors which must be considered in formulating telecommunications policies and standards.

(2) Familiarity with telecommunications needs and opportunities of government, industry, and the public, and with the structure of private and governmental telecommunications institutions, both national and international.

(3) The ability to initiate and coordinate telecommunications policy matters on an interdepartmental basis in cooperation with industry and public interest groups, and to define and analyze those key policy issues requiring Presidential involvement.

(4) The ability to direct studies utilizing systems analysis, systems engineering, and economics needed for the systematic analysis of telecommunications policies and opportunities, their impact, their effectiveness, and their costs.

EXECUTIVE BRANCH ORGANIZATION FOR TELECOMMUNICATIONS

In spite of the rapidly growing importance of telecommunications to the Nation and for the government's own missions, there is no effective policy-making capability for telecommunications in the executive branch. The Administration is therefore largely unable to exert leadership or take initiatives in spite of vulnerability to criticism for FCC policies. Government-wide coordination of its own telecommunications activities has not been adequate. These problems have been manifested in several ways:

1. There is a serious lack of effective machinery for dealing expeditiously with domestic telecommunications issues. The government has been grappling for several years, with only limited success, with such issues as "foreign attachments" to the public telephone network, cable TV and pay TV, the possible uses and industry structure for a domestic satellite communications system, and policies for computer communications. There is a current tendency to resolve such issues by past precedents and by compromises between the FCC and various agencies in the executive branch, but the increasingly rapid rate of technological change and introduction of new services makes policy-by-precedent increasingly less relevant, more restrictive, or counterproductive. Neither the FCC nor the executive branch has a significant capability for systematic economic and technical analysis.

2. Efforts to coordinate the procurement and use of telecommunications facilities and services by the Federal government have had limited success. The current coordination arrangements, embodied in the National Communications System (NCS) structure, have achieved certain desirable interconnections and operating procedures, but have not produced the desired assurances that the government is procuring the services needed in an efficient manner. Although present policies call for a "unified" NCS, there is little agreement on what further unification is needed, or what it would cost or accomplish.

3. The current procedures for spectrum allocation and assignment are highly inflexible and are increasingly creating a spectrum shortage crisis. The shortage is especially severe in the land mobile radio allocations, which are becoming increasingly important to local police and fire protection services, among many other claimants.

Current organization for communications policy-making and coordination

The Director of Telecommunications Management (DTM) in the Office of Emergency Preparedness is now charged by Executive Order and Presidential memor andum with the responsibility for coordinating telecommunications activities in the executive branch. The DTM also is designated Special Assistant to the President for Telecommunications. However, the history of the organization reveals that attempts by the DTM to exercise leadership in communications policy have been largely ineffectual. The responsibilities and authority of the DTM are questioned by agencies with operating responsibilities. This situation results from a number of factors including organizational location, inadequate staff, and lack of clear authority.

There is now no office in the executive branch with the responsibility or the capability to review the whole range of national telecommunications policies as expressed in legislation and in FCC policies. The Antitrust Division of the Department of Justice has occasionally filed briefs on the competitive aspects of decisions before the FCC, but these derive largely from antitrust considerations rather than from familiarity with communications issues. The Department of Commerce has a telecommunications research capability, but no responsibility or familiarity with communications policy. Neither the Council of Economic Advisers nor the Office of Science and Technology are equipped to address the fundamental economic and institutional problems of the communications industry and its regulation by the FCC, or the problems of the government's own telecommunications.

Studies of Federal organization

Since World War II, there have been a number of studies of Federal communications organization and a number of reorganizations and shifts of responsibilities within the executive branch. None has proved particularly satisfactory, and, indeed, there is no ideal solution. This is due in part to the quasi-independence of the FCC from the executive branch and in part to the conflicting individual agency mission responsibilities within the executive branch.

The study of the Federal government communications organization completed in December 1968 by the Bureau of the Budget provides

a good statement of the shortcomings of our current organization. The Bureau of the Budget reported a need for:

(1) a strengthened organization for policy planning, formulation and direction of Federal communications activities.

(2) a reorganized and strengthened National Communications System (NCS) within the Department of Defense.

(3) an improved procurement and technical assistance effort in communications on behalf of those Federal agencies which do not now have adequate resources in this field.

(4) a unified frequency spectrum management process.

(5) a coordinated technical assistance program for State and local government in this area.

The recently released report of the Government Accounting Office focused on the government's communications and evaluated the progress toward establishment of a unified National Communications System as directed by the President in 1963. The GAO found a need for stronger coordination of government telecommunications planning, and recommended a single entity be responsible for policy direction and control of the Government's telecommunications systems. The GAO also recommended clarification of what a "unified" NCS is intended to be.

Reorganization issues

The Budget Bureau study of Federal communications organization made a number of major recommendations and was recently distributed to the departments concerned. Agency views on this study have the common themes (1) that stronger coordination from the top is required in establishing Government policy for its own telecommunications requirements, and (2) that the Federal government should take a stronger role in the evolution of national telecommunications to deal with the increasingly rapid rate of technological change and industry growth. There is also agreement that a much stronger analytic capability within the executive branch is needed to achieve these goals.

There are a variety of possible ways in which telecommunications responsibilities could be reshuffled or strengthened. As a starting point, there is widespread agreement that a single office should bear ultimate responsibility for:

(1) analyses and formulation of overall telecommunications policy for the executive branch.

(2) policy-level coordination of Federal government procurement and use of telecommunications services and equipment.

(3) allocation and assignment of spectrum resources to government users.

There are several further issues.

The first is where such a single office should be located. There are two competing sets of considerations. Further expansion of telecommunications activities within the Executive Office of the President would force undesirable growth in the size of the Executive Office of the President, while telecommunications does not require the frequent direct Presidential attention implied by a location within the Executive Office. On the other hand, placing the central office within an executive department (e.g., Commerce or Transportation) raises serious questions about the impartiality of frequency allocation and assignment among government users and assurance of vital national security interests. Both sides of this issue have considerable merit, but from the standpoint of practicality and the need to minimize even temporary disruptions of our policy machinery, the policy functions should for the time being remain in the Executive Office. However, as much of the operational and research responsibilities as possible should be carried out in the departments and agencies.

Another issue is whether the authority to allocate and assign frequency spectrum to nongovernment uses, now vested in the FCC, should be transferred to the central, executive branch policy office.

Consolidation of spectrum allocation authority would permit greater flexibility in assignment policies and eventually, even more efficient spectrum use. However, such a move requires legislation, it raises concerns about political interference in the assignment of frequencies, and it would inundate the new office with a highly routine workload. (The FCC now processes 800,000 applications yearly, compared to 37,000 now handled by the DTM.) For these reasons, immediate consolidation of these responsibilities is not recommended, but planning for eventual consolidation should be started.

A third issue concerns organizational arrangements for management of Federal communications networks to implement policy guidance. This is currently done through the National Communications System (NCS) structure. Both the BOB and GAO studies concluded that changes should be made in the NCS arrangements. However, the issues involved are too detailed and too complex to be settled in the context of reorganization of policy machinery. Therefore, the NCS arrangements should not be changed at this time, but should be studied as a priority matter by the new central policy office as soon as it is established. The study would review the objectives, system concepts, organizational arrangements, and effectiveness of the NCS structure, and should include a thorough examination by the National Security Council of national security objectives for telecommunications. Recommendations should be developed for the President regarding the best objectives and management arrangements for overall coordination of Federal telecommunications activities.

Recommendation

I. An Office of Telecommunications Policy should be established as an independent entity in the Executive Office of the President. The Director of this office, appointed by the President, would have primary executive branch responsibility for both national telecommunications policies and Federal administrative telecommunication operations. The responsibilities of the Office of Telecommunications Policy would include:

-- conduct economic, technical and systems analysis of telecommunications policies and opportunities in support of national policy formulation and U. S. participation in international telecommunications activities.

-- develop executive branch policy on telecommunications matters including, but not limited to, industry organization and practices, regulatory policies, and the allocation and use of the electromagnetic spectrum for both government and nongovernment use.

-- advocating executive branch policies to the FCC, and through the President to the Congress; and representing the executive branch in FCC proceedings.

-- exercising final authority for the assignment of the spectrum to government users, and developing with the FCC a long-range plan for improved management of the total radio spectrum.

-- reviewing and evaluating the research and development for, and planning, operation, testing, procurement, and use of all telecommunication systems and services by the Federal government; developing appropriate policies and standards for such systems; and making recommendations to the Bureau of the Budget and responsible departmental officials concerning the scope and funding of competing, overlapping, or inefficient programs.

-- exercising the functions conferred on the President by the Communications Satellite Act.

-- under the policy guidance of the Director, Office of Emergency Preparedness, coordinating plans and programs for testing of and preparing to the use of telecommunications resources in a state of national emergency.

-- test, review, and report to the President, through the National Security Council, on the ability of national communications resources to meet established national security requirements efficiently and responsively.

-- coordinating Federal assistance to state and local governments in the telecommunications field.

In performing these functions, the Director, Office of Telecommunications Policy, will be assisted by a small staff, augmented as required by: (1) ad hoc, interagency and nongovernment task groups, (2) independent consultants, (3) contract studies, (4) a new Telecommunications Research and Analysis Center, (5) the Interdepartment Radio Advisory Committee, and (6) a new Telecommunications Advisory Committee composed of experts from outside of the government. So long as the NCS structure is retained, he will also be assisted by the Executive Agent of the NCS.

Insert from pp 7-8 →

How about a name change, to something like "Telecommunications Engineering Agency"? The "TRAC" name evolved under different assumptions, i.e. as part of a larger package in Commerce. The list of functions seems to better fit under an engineering rather than research label.

II

A Telecommunications Research and Analysis Center (TRAC) should be established in the Department of Commerce, reporting to the Assistant Secretary for Science and Technology. The TRAC would provide a centralized research, engineering, and analysis capability in support of spectrum management and such other areas as may be required. Specific functions of the TRAC would be to:

all Rec. II

-- conduct research and analysis in the general field of telecommunication sciences in support of other government agencies or in response to specific directives from the Office of Telecommunications Policy, with particular emphasis on radio propagation, radio systems characteristics, and operating techniques leading to improved utilization of the radio resource.

-- develop and operate a national electromagnetic compatibility analysis facility under the general policy guidance of the Director, OTP.

-- provide the administrative and technical support required by the Interdepartment Radio Advisory Committee. This support will operate in accordance with policies and criteria laid down by the OTP, and will be responsive to OTP requests for information and special frequency assignment actions.

The Office of Telecommunications Policy should be established with an initial strength of up to 30 professionals, including up to 15 at supergrade levels. The position of Director, Office of Telecommunications Policy should be established at executive pay level III. Provision should be made within the budget of the office for adequate consulting fees and contractual support; and for administrative support to, and space for, task groups and personnel on short-term detail.

move to bottom of p. 6, including ¶ on next page (8).

The Office of Telecommunications Management in the OEP should be abolished. All policy functions of that office not directly related to emergency preparedness should be transferred to the Office of Telecommunications Policy, along with appropriate emergency planning functions, final spectrum management authority, and NCS responsibilities. The major portion of the Frequency Management Directorate of the OTM should be transferred to the Department of Commerce to provide the ~~technical~~ management and clerical support functions described above. The position of Special Assistant to the President for Telecommunications should be abolished.

move to precede Sec II

The Office of Telecommunications Policy will exercise the policy functions of the Executive Office of the President with respect to the planning, integration, and emergency use of the telecommunications systems of the executive branch, subject to general policy guidance on appropriate matters from the National Security Council and the Director, OEP. This function will continue to be exercised through the mechanism of the National Communications System (NCS). until such time as changes in that mechanism are suggested by the policy review recommended above and approved by the President.

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF TELECOMMUNICATIONS MANAGEMENT
WASHINGTON, D.C. 20504

Date: December 11, 1969

Subject: Alternate Satellite and Submarine Cable Facilities

To: Mr. Clay T. Whitehead
Presidential Staff Assistant

I am replying to your memorandum of December 10 regarding future policies for satellites and cable overseas communications capability.

My letter of November 14 to FCC Chairman Burch was designed to focus attention on the importance to the Nation of having, wherever practicable, alternate means of communication to provide for vital overseas circuits of both the Federal Government and public users, in case of loss of the primary service. We must not allow all, or the preponderance, of vital circuits to be via a single cable or a single satellite and, if we can help ourselves, on a single route. Broadcasting Magazine of December 1 expressed it well as, "Don't put all of your eggs in one basket."

Prior to transmittal of my letter several discussions were held between staff members of the FCC and the OTM. These discussions produced a clear understanding to all participants that no arbitrary ratio or division of traffic between modes or arithmetical formula for provision of channels in each mode was a desirable goal. Rather, it was agreed that a statement of Executive Branch policy to the effect that a judicious mix of cable and satellite facilities was desirable, would be welcomed by the FCC staff and would strengthen their position in any future actions they might take. Our views were expressed to assist the Commission which is not expected to be expert in national security and defense in an emergency.

Your statement of what the proper balance of facilities depends upon is fundamental. Be assured that these considerations, among others, are taken into account in all system engineering activities in which this office becomes involved.

Determination of the appropriate balance, or better put, the relative mix or division of circuits among several modes of telecommunication, is complex. It involves the factors which you mentioned and others

such as: the characteristics of each mode involved; whether the foreign terminal or continuation lines are in or traverse unfriendly countries; whether alternate modes exist or would have to be established; and the traffic density. It might be necessary on routes where satellite capacity greatly exceeds cable capacity to plan to reaccommodate only the few highest priority circuits by cable in the event of satellite service disruption.

As a result of our letter the FCC has the determination of a rational mix of cable and satellite circuits under active consideration. The Commission staff believes that the review now underway may result in a formal inquiry. We will monitor their progress in this area and, at the propitious time probably will provide them with further guidance.

You will be kept informed of further developments.

Bill
W. E. Plummer
Acting

cc: Gen. George A. Lincoln
Director, OEP

DRAFT 12/10/69

MEMORANDUM

-- The Federal government is concerned with development of the Nation's capabilities as custodian of the public interest; as a major user of communication services for national security, public safety, education, and other governmental functions; and as a major contributor to telecommunications research and development. To be consistent with the responsibilities, our national communications policies should assure that new communications facilities are authorized whenever there is the opportunity for benefit to the public directly or through the facilitation of commerce.

-- The development of a Federal policy on domestic satellite communications has experienced undue delay, attributed in large part to technical and economic uncertainties, and to the potential impact on various private interests. The Administration is concerned that this delay not be prolonged and that the policies adopted reflect all important dimensions of the public interest, including the international aspects of geostationary orbit resources. Based on our review of relevant technical and economic factors and public interest considerations, the Administration offers the following comments and recommendations to the Commission.

Public Policy Objectives

-- The principal goal of public policy is to safeguard and promote the total public interest. In telecommunications, this means primarily the encouragement of reliable low-cost communications services for government, business, and public use, and the assurance of a healthy environment for continuing technical and service innovations.

Several important objectives contribute to this goal:

(a) to promote the long-run optimum use of radio and orbital resources;

(b) to avoid unnecessary regulatory or administrative constraints on private initiative and enterprise;

(c) to encourage maximum flexibility within the communications industries -- development, manufacturing, operations, and services -- to meet a constantly changing multiplicity of public and private communications requirements at reasonable rates;

(d) to prevent anticompetitive practices -- such as cross-subsidization between public monopoly and private service offerings or discriminatory interconnection and pricing practices -- that could inhibit the development of a healthy structure in communications and related industries.

The Technical Framework

-- The establishment and operation of domestic satellite communications facilities is technically feasible within the present state-of-the-art, and readily foreseeable technological advances will enhance this capability. Technical considerations, such as maximum utilization of the radio spectrum and compatibility and interconnectability among systems, impose minimal constraints on policies governing the ownership or mode of operation (single- or multi-purpose) of domestic satellite communications facilities. Though of great importance in the detailed engineering, operations, and economics of specific systems, these technical considerations can be dealt with effectively under any foreseeable ownership arrangements.

-- The issue of radio resource scarcity for satellite communications has been overstated to a significant degree. While the communications capacity of this resource is undoubtedly finite, the ability to accommodate additional radio services is at present greatly expendable through administrative, technological, and operational innovation. For example, the Commission may wish to establish a minimum acceptable earth station antenna diameter in order to ensure immediate capacity for a particular number of U.S. domestic satellites.

To the extent that applicants are few, as is most likely, presently allocated spectrum resources should accommodate all likely applicants

without conflict under reasonable technical standards. However, should the Commission receive a large number of applications during the specified initial filing period, higher standards (such as larger antenna diameter) could be adopted to accommodate more satellites or applications can be awarded priority on public interest standards.

Should additional applicants come forward subsequent to the initial filing period, other options are available.

Later systems could be authorized to use additional spectrum resources now being cleared with appropriate international agencies for satellite use.

Later applicants also could be authorized either to "buy out" some existing user's resources or to compensate an existing user for modifications such as larger antennas and relocation of satellites and/or earth stations to accommodate the new entrant.

-- While no one nation is entitled to monopolize the orbital and radio resources required for satellite communications, the number of U. S. domestic satellites is expected to be quite small in relation to the total capacity of these resources. However, should the U. S. domestic use of these resources grow larger over time, the long-term requirements of Intelsat as well as other Western Hemisphere nations for space and

-- The historical development of telecommunications policy, regulation, and industry structure has resulted in a blurred distinction between public and private interests, and a confusing patchwork of cross-subsidization between public message and specialized service offerings has become the norm rather than the exception. This is particularly difficult to avoid in telecommunications due to the typically complex and interactive design, establishment, and use of common facilities by public and private services. Yet without equitable cost separation, the many benefits of competitive operations cannot be realized even where natural monopoly conditions do not exist.

-- Even if the benefits of cross-subsidization through joint operations accrue to the public users rather than to private service offerings, there seems to be no merit in protecting suppliers of such services from fair competition. In any event, all costs must eventually be covered by the public in one way or another. Should such competition, through cost-reducing innovation, cause an undesirable rate increase or curtailment of some desirable public services, a direct public subsidy to continue such services would result in less cost to society than would internal cross-subsidization between public and private services, and would in most cases be the preferable policy.

Recommendation

Government policy should be directed toward the encouragement and facilitation of satellite systems as they become feasible on a commercial basis. We find no reason to call for the immediate establishment of a system as a matter of national policy. Therefore, no enforced coordinating or planning forum of prospective operators, users, and suppliers is necessary.

Basic policies governing the establishment and operation of domestic satellite communications facilities should be essentially the same as those for terrestrial facilities. Subject to appropriate conditions to preclude anticompetitive practices, any financially qualified entity should be permitted to establish and operate domestic satellite facilities for its own needs; join with related entities in common-user, cooperative facilities; establish facilities for lease to prospective users; or establish facilities to be used in providing specialized-carrier services on a competitive basis. Subject to the constraints outlined below, common-carriers should be free to establish facilities for either switched public message or specialized services, or both.

Regulatory limitations on entry into the communications industry are predicated largely on the limited availability of radio resources

for satellite services. In these circumstances, we urge that competitive pressure, rather than regulatory constraints, should be permitted to set the limit on prices for specialized services via domestic satellites -- at least during an initial operating period. During this period, the Commission could use its existing authority under the Communications Act of 1934 to prevent unjustified rate discrimination. Subsequently, the Commission should review the industry structure and service offerings to determine whether any monopoly conditions exist that warrant rate regulation for specialized satellite services. To avoid restraints on competition, the opportunity to participate in common-user satellite systems should be open without discrimination to all potential users of similar services.

To avoid the possibility of anticompetitive practices, we suggest the following additional guidelines for common-carrier establishment and use of domestic satellite communications facilities.

(1) Common-carriers should be authorized to establish and operate domestic satellite communications facilities for use in providing switched public message services under the same conditions which apply for terrestrial facility operations.

(2) Common-carriers should be authorized to establish and operate facilities which will handle specialized services (i.e., all other than switched public message services) only after a case-by-case determination by the Commission -- based on a public, evidentiary hearing -- that no cross-subsidization would be involved in either the development, manufacture, installation, or operation and maintenance of such facilities.

(3) Common-carriers should be authorized to lease satellite transmission services for public message or specialized services from specialized carriers or independent systems, and specialized carriers should be required to provide such services as are available on a competitive, nondiscriminatory basis.

(4) Common carriers should be required to provide leased interconnection services to earth stations at reasonable rates and on a nondiscriminatory basis.

It is most important that the establishment and operation of domestic satellite communications facilities be consistent with our obligations and commitments to Intelsat and to the International Telecommunications Union, with other foreign policy considerations, and with national security communications planning and requirements. With respect to Intelsat, it is particularly important that domestic systems not

threaten the operational integrity or economic viability of the global services provided through this system. We are satisfied that domestic satellite communications facilities authorized in accordance with the preceding recommendations will meet all these conditions.

Domsat

Thursday 12/11/69

12:00 Nick Zapple would like you to call him when you're free. 225-6627

Is wanting to discuss the domestic satellite problem and wants to know when you're coming out with the rpt.

Domsat
Chron

December 10, 1969

MEMORANDUM FOR

Mr. William Plummer
Acting Director
Office of Telecommunications Management

Thank you for the copy of your letter of November 14th to Dean Burch regarding future policies for satellites and cable overseas communications capacity.

I agree fully that a balance needs to be struck between these two modes of transmission. However, I am concerned that the Commission not have the impression that it is the executive branch view that this balance should be determined through some arbitrary ratio or division of traffic between the two modes. The proper balance depends on the interplay of costs, failure modes and probabilities, the number of circuits any one failure is likely to interrupt, and the consequences of interruptions for the various types of communications being carried. The Defense Department, for example, requires extremely high reliability and can be expected to be willing to pay a premium for redundancy and reliability that most commercial or private interests would not.

I agree with you that this is a most important matter. Should the Commission request any further guidance from the executive branch, I hope you will keep me informed so that we can work together in formulating our position.

Clay T. Whitehead
Staff Assistant

cc: Mr. Flanigan
Mr. Whitehead
Mr. Kriegsman
Central Files

CTWhitehead:jm

FROM: DIRECTOR OF TELECOMMUNICATIONS MANAGEMENT

TO: Dr. Clay T. Whitehead DATE: December 3rd

Forwarded for your information.

T. White
for W.E. Plummer
Acting

Atchs. (2)

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF TELECOMMUNICATIONS MANAGEMENT
WASHINGTON, D.C. 20504

OFFICE OF THE DIRECTOR

November 14, 1969

Honorable Dean Burch
Chairman
Federal Communications Commission
Washington, D.C. 20554

Dear Mr. Chairman:

We reviewed with interest the Commission's letter of September 18, 1969 to the AT&T Company requesting deferral of negotiations with foreign correspondents concerning the construction of future submarine cables, and the interchange of correspondence with the Communications Satellite Corporation, the AT&T, and others, with respect to their system augmentation plans.

This is a matter of grave concern to us. The executive departments, particularly the Defense Department, as a matter of policy, rely primarily upon the common carriers for international communications. In times of crises it is vital that the U.S. have the combination of means of communicating overseas which will provide the greatest overall reliability of service. Reliability of service is also of essential importance to U.S. commercial interests and to the general public.

Intercontinental communications services are presently provided mainly through the application of communication satellites and submarine cables. The desirability of considering the two technologies as complementary rather than competitive has been recognized and incorporated in the TAT-5 and Virgin Islands arrangements directed by the Commission. The wisdom of this approach has been demonstrated by the restoration actions occasioned by the recent TAT-3 and INTELSAT III failures.

The relative physical and transmission vulnerabilities and service reliability characteristics exhibited by cable and satellite systems demonstrate a need for provision of these media in balanced quantities (with adequate margins) in order to achieve maximum availability and reliability of service, and to afford adequate restoration capability in the event of failure of either means.

Additional services will be required to meet the pressures of domestic carriers and foreign administrations for Global DDD, data networks, etc. The advent of new, greatly increased capacity satellites for both the Atlantic and Pacific will require a correspondingly increased capability in cable if we are to retain the advantages which can be realized from diversity of media.

This conclusion considers such factors as retention by the U.S. of primacy in the development and provision of appropriately redundant international media. The exploitation of such technological advances as TASI-B which relies on the existence of balanced quantities of transmission subsystems between cables, and between cables and communications satellites would further optimize the advantages of both systems for increasing reliability.

In the overall national interest, we recommend as a matter of policy, that you support a balanced provision of both satellite and submarine cable systems and stimulate progress in each.

Sincerely,

W. E. Plummer
Acting Director

HHJones:avr:14Nov69
bcc: DTM (2)
NCD Reading
Subj File

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF TELECOMMUNICATIONS MANAGEMENT
WASHINGTON, D.C. 20504

OFFICE OF THE DIRECTOR

November 17, 1969

Honorable Dean Burch
Chairman
Federal Communications Commission
Washington, D. C. 20554

Dear Mr. Chairman:

As a part of the continuing effort to assure the most efficient use of the radio frequency spectrum in the United States, this office is examining the feasibility of making those Government radiolocation bands not already shared with non-Government users also available for such shared use.

A review indicates that the following Government radiolocation bands (all in MHz) are already shared in one way or another with non-Government users:

220	-	225
420	-	450
890	-	942
1,215	-	1,300
2,300	-	2,450
3,100	-	3,300
3,300	-	3,500
5,650	-	5,925
9,200	-	9,300
10,000	-	10,500

The following radiolocation bands (all in MHz) are exclusively allocated for Government use:

5,250	-	5,350
8,500	-	9,000
9,500	-	10,000
13,400	-	14,000
15,700	-	17,700
23,000	-	24,250
33,400	-	36,000

It appears reasonable that these latter bands could also be made available for shared government/non-government radiolocation use, provided vital government operations can be protected. Since the Federal Administrative Procedure Act exempts national security matters from the public hearing process, it is felt that adequate protection could be assured to present and future government radiolocation operations in the event that harmful interference did occur to or from non-government shared use. Immediate cessation would be necessary if such interference were caused to certain government operations.

The views of the Commission as regards the above sharing proposal would be appreciated. If there is concurrence in principle, the details for this sharing can be developed through the FCC/IRAC coordination mechanism.

Sincerely,

W. E. Plummer
Acting

INSERT

Page 6, Line 2

After word "licensing" add:

"authority over spectrum usage.
Interference with existing terrestrial"

before the word "microwave."

THE WHITE HOUSE

WASHINGTON

December 5, 1969

Memorandum for the Domestic Satellite
Working Group Members

Attached is a summary of the reports of the Economic and Technical Committees. If you have any substantial comments, I would like to have them as soon as possible.

Clay T. Whitehead
Staff Assistant

Attachment

November 28, 1969

PERSONAL

To: Bill Morrill

From: Tom Whitehead

To be discussed by the Cabal.

Not for general distribution.

Copies of Memorandum to FCC on
Domestic Satellites - draft 11/21/69

Thursday 12/4/69

10:15 Abbott Washburn called to say that the Governor finds your paper on domestic satellites fine -- he wrote across the top "O.K. by me." Abbott agrees with that assessment.

If you want to discuss it with the Governor, he will be here today and tomorrow.

DEPARTMENT OF STATE

WASHINGTON, D.C. 20520

12/5/69

Tom,

The attached, as relayed to you via phone.

— Abbott

DEPARTMENT OF STATE

Washington, D.C. 20520

November 25, 1969

MEMORANDUM FOR: Governor Scranton

Tom Whitehead gave us the attached in strict confidence. He would like our reactions soon vis-a-vis possible impact on the INTELSAT negotiations.

A.W.

Abbott Washburn

TO Abbott Washburn

OK by me

DRAFT 11/21/69

MEMORANDUM TO FCC ON DOMESTIC SATELLITES

OUTLINE

General

-- Opportunities for domestic satellite communications are very promising; on the basis of existing and projected technological developments, it is reasonable to expect both new services and significant cost savings for some existing services.

-- The Federal government is concerned with national communications development in several ways: as custodian of the public interest; as a major user and supporter of communication services for national security, public safety, education, and other governmental functions; and as a major contributor to telecommunications research and development. National communications policies must be consistent with all these responsibilities. A continuing feature of these policies must be to implement or authorize additional communications facilities whenever or wherever this is required in the national interest.

-- The development of a basic national policy on domestic satellite communications has experienced undue delay, attributed in large part to technical and/or economic uncertainties, as well as the potential impact on various private interests. The Administration

regrets having contributed to this delay, but feels it can now assist substantially in the resolution of these uncertainties, based on a thorough review of relevant technical and economic factors as well as industry views and various public interest considerations.

Public Policy Objectives

-- The principal objective of public policy is to safeguard the total public interest; this involves not only the encouragement of reliable low-cost communications services for public use, but also the assurance of a healthy environment for technical and market innovation leading to new services and to cost savings for established services, for public and private uses alike.

-- Secondary objectives which flow from this include:

(a) to promote the long-run optimum use of limited radio resources (e.g., frequency spectrum, orbital space, etc.);

(b) to avoid unnecessary regulatory or administrative constraints on private initiative and enterprise;

(c) to encourage maximum flexibility within the communications industries -- development, manufacturing, operations, and services -- to meet a multiplicity of public and private communications requirements;

(d) to prevent anti-competitive practices -- such as cross-subsidization between public monopoly and private service offerings -- which could inhibit the development of a healthy industry structure.

Findings of the Administration Review

The Technical Framework

-- The establishment and operation of domestic satellite communications facilities is techni cally feasible within the present state-of-the-art. Readily foreseeable technological advances will enhance this capability, bringing about a greater scope and quantity of satellite communications services.

-- Technical considerations -- such as optimum use of radio resources, compatibility and/or interconnectability among systems, etc. -- will impose minimal constraints on policies governing the ownership or mode of operation (single- or multi-purpose) of domestic satellite communications facilities. Though of great importance in the detailed engineering, operations and economics of specific systems, these considerations can be dealt with effectively under any foreseeable ownership arrangements.

-- There will be technical problems associated with the introduction of domestic satellite communications systems, as with any new technological development. These involve the assignment of

compatible satellite locations and radio frequency usage, compatible location of earth stations and terrestrial radio stations, etc. However, the ability to effect compatible operations seems well within the technological state of the art and the engineering capabilities of industry and the FCC.

-- The issue of radio resource scarcity has been overstated to a significant degree. While the quantity and communications capacity of this resource is undoubtedly finite, at present the ability to accommodate additional radio services is greatly expendable through administrative, technological, and/or operational innovation. This poses less of a classic allocation problem of rationing discrete quantities of finite resource among prospective users than a question of establishing and enforcing technical standards and operating criteria representing optimum trade-offs between economic viability and technical efficiency in the light of projected demand for communications services. For example, the Commission may wish to establish a minimum acceptable earth station antenna diameter in order to accommodate a particular number of U. S. domestic satellites. Should the Commission receive applications in excess of this number during a specified initial filing period, it has the options of:

(a) establishing higher standards (e.g., larger antenna diameter) to accommodate more satellites if this were considered economically justified;

(b) processing applications on a first-come, first-served basis using the existing standards.

-- To the extent that applicants are few -- as we expect -- presently allocated spectrum resources should accommodate all likely applicants without conflict under reasonable technical standards. Should additional applicants come forward subsequent to the initial filing period, other options are available:

(d) authorize later systems to use additional spectrum resources now being cleared with appropriate international agencies for satellite use, based on appropriate technical standards plus either of the above options.

(e) authorize later applicants either to "buy out" some existing system's spectrum claim, or to compensate an existing user for modifications to his system (e.g., larger antennas, relocation of satellites and/or earth stations, etc. to accommodate the new entrant.

-- Since those radio resources required for satellite communications are inherently international in nature, no one nation or group of nations is entitled to monopolize their use. The preceding findings on the characteristics and number of U. S. domestic satellites which could be accommodated take fully into account potential long-term requirements of Intelsat as well as other Western Hemisphere nations for satellite space in the relevant portions of the geostationary orbit.

The Economic Framework

-- The greatest immediate potential for domestic satellite communications seems to lie in long-distance specialized transmission services -- such as one-way distribution of radio and television programs, two-way exchange of high speed data or other wide-band signals among thinly dispersed users, etc. Common-carriers have informed us that the routine carriage of bulk message traffic does not appear economic for satellites at the present technological state-of-the-art. It is thus doubtful that the use of domestic satellites can bring about any significant rate reductions for public message telephone services in the immediate future, at least in the contiguous 48 states.

-- Specialized communications services, which, for the most part, benefit only limited segments of the society, merit considerably less public interest concern than do, switched public message services. While the public derives secondary benefits (e.g., commodities and services) from such services, the direct public interest impact is substantially muted by intermediate factors.

-- At this stage of domestic satellite planning, it is not possible to identify major economies of scale; to the contrary, filings with the FCC tend to indicate that multiple satellites as well as multiple of earth station types and locations will be required to provide a full range of domestic services.

-- In the absence of overriding public interest considerations and clear economies of scale, it is widely accepted that freely competitive private enterprise is more conducive than regulated monopoly to technical and market innovation, long-run optimum use of limited resources, and industry flexibility; conditions which typically produce higher-quality, lower-cost services.

-- The historical development of telecommunications policy, regulation, and industry structure has blurred the distinction between public and private interests and services, to the extent that such anti-competitive practices as cross-subsidization between public and private service offerings are the norm rather than the exception. These conditions are particularly difficult to identify and correct in telecommunications due to the typically complex and interactive

design, establishment, and use of common facilities by public and private services; yet without equitable cost separation, the many benefits of competitive operations cannot be realized.

-- Even where the benefits of cross-subsidization through joint operations might accrue to the public rather than private service offerings, we can find no merit in protecting suppliers of such services from fair competition. Should such competition, through cost-reducing innovation, result in the curtailment of some desirable public services, the authorization of a direct public subsidy to continue such services via the least costly alternative would result in less cost to society than would internal cross-subsidization between public and private services.

Recommendations

-- The Commission should move rapidly to the issuance of a basic policy statement which would open the way for interested parties -- common carriers, specialized carriers, common-user cooperatives, or independent applicants -- to file specific applications for domestic satellite communications facilities (satellites and/or earth stations) directly and independently with the Commission; applications for, and rulings on, space and earth segments facilities should be reparable. No coordinating or planning forum of prospective operators, users or suppliers seems necessary, although parties should not be barred from such coordinated planning if they desire, unless this involves anti-trust violations.

-- Basic policies governing the establishment and operation of domestic satellite communications facilities should be essentially the same as those for terrestrial facilities. Any financially qualified entity should be free to choose between installing a facilities for its own needs; joining with related entities in common-user, cooperative facilities; establishing facilities for lease to prospective users; or establishing facilities to be used in providing specialized-carrier services on a competitive basis. Subject to certain constraints outlined below, common-carriers should be free to establish facilities for either switched public message or specialized services, or both.

-- Regulatory limitations on entry into the communications industry are predicated largely on the limited availability of radio resources and the existence of large economies of scale. Since neither of these conditions is readily apparent in the case of domestic satellite communications facilities, and since relatively large, high-risk investments will be required, even relatively open entry will be largely self-regulating. Except for other considerations relating to common-carrier operations, there seems no reason to limit the number or classes of potential entrants. In particular, the

potential economic impact of private or common-user systems on common-carriers or specialized carriers should not be a factor in the authorization of such systems; nor should there be an a priori determination favoring one use of radio resources over another (e.g., common-carrier vs. specialized carrer vs. private, nor satellite vs. terrestrial, etc.).

-- Detailed regulation of rates and rate-of-return are similarly predicated largely on natural monopoly conditions. In the absence of such conditions and given the discriminatory rate-making authority possible within existing legislation, we urge that competitive pressure -- rather than regulatory constraints-- be permitted to set the limit on earnings from the provision of specialized services via domestic satellites -- at least during an initial operating period (e.g., 3 - 5 years). Subsequently, the Commission should review the industry structure and service offerings to determine whether monopoly conditions then warrant rate regulation for specialized services.

-- Where entities choose to operate their own facilities, to participate in cooperative facilities, to establish facilities for hire, or to compete equitably in the provision of specialized services to others, the public interest does not require that the venture be economically optimum or even viable; thus no such showing should be required.

-- To the extent necessary to avoid restraints on competition, entry into common-user, cooperative satellite communications systems should be open to all potential users of similar services, without discrimination.

-- To avoid the possibility of anti-competitive practices in the provision of potentially competitive services, the following additional guidelines for common-carrier establishment and use of domestic satellite communications facilities are proposed.

(1) Common-carriers should be authorized to establish and operate domestic satellite communications facilities for use in providing switched public message services under the same conditions which apply for terrestrial facility operations.

(2) Common-carriers should be authorized to establish and operate facilities which will handle specialized services (i.e., all other than switched public message services) only after a case-by-case determination by the Commission -- based on a public, evidentiary hearing -- that no cross-subsidization would be involved in either the development,

manufacture, installation, or operation and maintenance of such facilities.

(3) Common-carriers should be authorized to lease satellite transmission services for public message or specialized services from specialized carriers or independent systems, and specialized carriers should be required to provide such services as are available on a competitive, non-discriminatory basis.

(4) Communications utilities (common and/or specialized carriers) should be required to provide leased interconnection services to earth stations and among local users[3] of satellite services as available at reasonable rates and on a non-discriminatory basis.

-- Finally, the establishment and operation of domestic satellite communications facilities must be consistent with our obligations and commitments to Intelsat and to the International Telecommunications Union, with other foreign policy considerations, and with national security communications planning and requirements. With respect to Intelsat, it is particularly important that domestic systems not threaten the operational integrity or economic viability of the basic global services provided through this system. We are satisfied that domestic satellite communications facilities authorized in accordance with the preceding recommendations will meet all these conditions.

Donald

November 28, 1969

PERSONAL

To: Don Baker

From: Tom Whitehead

To be discussed by the Cabal.

Not for general distribution.

Copy of memorandum to FCC on
Domestic satellites -- draft 11/21/69

Monday 12/1/69

11:30 At Tom's request, called Tom Moore's secretary and asked her to add a paragraph to the Preface saying that there is another committee, chaired by Dr. Russell Drew, which investigated the technical aspects of domestic satellite policy. No recommendations are included in either report because the studies were limited to technical and economic considerations only.

Donsat

November 28, 1969

To: Eleanor

From: Eva

Mr. Whitehead has asked if you could see that all copies of the Report of the Economic Committee on Domestic Satellites be marked "Official Use Only". He's afraid there might be a leak otherwise.

Also, could the Preface be re-written to show Gabel (Transportation) and Hinchman (Commerce) -- rather than W.H. Staff.

Sorry about that. I told him I thought they had already been sent out -- he said he would like to have them recalled and changed. Felt it was quite important to show those changes.

November 28, 1969

To: Dr. Tom Moore

From: Tom Whitehead

For comment as soon as possible.

Attachment: Draft summary outline of
Economic and Technical Committee Report
Domestic Satellite Working Group

November 28, 1969

To: Dr. Russell Drew

From: Tom Whitehead

For comment as soon as possible.

Attachment: Draft summary outline
of Economic and Technical Committee Report
Domestic Satellite Working Group

Domsat

Tuesday 11/25/69

2:45 Bob Samuelson of the Washington Post was asking when the Domestic Satellite report might be coming out. 223-6000 Ext. 632

He is planning to leave on Thursday afternoon for the weekend; however, if there might be a release around that time, he will change his plans and stay here so he can prepare his story.

Would appreciate as much word as you can give him.

Domsat

DRAFT 11/21/69

MEMORANDUM TO FCC ON DOMESTIC SATELLITES

OUTLINE

General

-- Opportunities for domestic satellite communications are very promising; on the basis of existing and projected technological developments, it is reasonable to expect both new services and significant cost savings for some existing services.

-- The Federal government is concerned with national communications development in several ways: as custodian of the public interest; as a major user and supporter of communication services for national security, public safety, education, and other governmental functions; and as a major contributor to telecommunications research and development. National communications policies must be consistent with all these responsibilities. A continuing feature of these policies must be to implement or authorize additional communications facilities whenever or wherever this is required in the national interest.

-- The development of a basic national policy on domestic satellite communications has experienced undue delay, attributed in large part to technical and/or economic uncertainties, as well as the potential impact on various private interests. The Administration

regrets having contributed to this delay, but feels it can now assist substantially in the resolution of these uncertainties, based on a thorough review of relevant technical and economic factors as well as industry views and various public interest considerations.

Public Policy Objectives

-- The principal objective of public policy is to safeguard the total public interest; this involves not only the encouragement of reliable low-cost communications services for public use, but also the assurance of a healthy environment for technical and market innovation leading to new services and to cost savings for established services, for public and private uses alike.

-- Secondary objectives which flow from this include:

(a) to promote the long-run optimum use of limited radio resources (e.g., frequency spectrum, orbital space, etc.);

(b) to avoid unnecessary regulatory or administrative constraints on private initiative and enterprise;

(c) to encourage maximum flexibility within the communications industries -- development, manufacturing, operations, and services -- to meet a multiplicity of public and private communications requirements;

(d) to prevent anti-competitive practices -- such as cross-subsidization between public monopoly and private service offerings -- which could inhibit the development of a healthy industry structure.

Findings of the Administration Review

The Technical Framework

-- The establishment and operation of domestic satellite communications facilities is techni cally feasible within the present state-of-the-art. Readily foreseeable technological advances will enhance this capability, bringing about a greater scope and quantity of satellite communications services.

-- Technical considerations -- such as optimum use of radio resources, compatibility and/or interconnectability among systems, etc. -- will impose minimal constraints on policies governing the ownership or mode of operation (single- or multi-purpose) of domestic satellite communications facilities. Though of great importance in the detailed engineering, operations and economics of specific systems, these considerations can be dealt with effectively under any foreseeable ownership arrangements.

-- There will be technical problems associated with the introduction of domestic satellite communications systems, as with any new technological development. These involve the assignment of

compatible satellite locations and radio frequency usage, compatible location of earth stations and terrestrial radio stations, etc. However, the ability to effect compatible operations seems well within the technological state of the art and the engineering capabilities of industry and the FCC.

-- The issue of radio resource scarcity has been overstated to a significant degree. While the quantity and communications capacity of this resource is undoubtedly finite, at present the ability to accommodate additional radio services is greatly expendable through administrative, technological, and/or operational innovation. This poses less of a classic allocation problem of rationing discrete quantities of finite resource among prospective users than a question of establishing and enforcing technical standards and operating criteria representing optimum trade-offs between economic viability and technical efficiency in the light of projected demand for communications services. For example, the Commission may wish to establish a minimum acceptable earth station antenna diameter in order to accommodate a particular number of U. S. domestic satellites. Should the Commission receive applications in excess of this number during a specified initial filing period, it has the options of:

(a) establishing higher standards (e.g., larger antenna diameter) to accommodate more satellites if this were considered economically justified;

(b) processing applications on a first-come, first-served basis using the existing standards.

-- To the extent that applicants are few -- as we expect -- presently allocated spectrum resources should accommodate all likely applicants without conflict under reasonable technical standards. Should additional applicants come forward subsequent to the initial filing period, other options are available:

(d) authorize later systems to use additional spectrum resources now being cleared with appropriate international agencies for satellite use, based on appropriate technical standards plus either of the above options.

(e) authorize later applicants either to "buy out" some existing system's spectrum claim, or to compensate an existing user for modifications to his system (e.g., larger antennas, relocation of satellites and/or earth stations, etc. to accommodate the new entrant.

-- Since those radio resources required for satellite communications are inherently international in nature, no one nation or group of nations is entitled to monopolize their use. The preceding findings on the characteristics and number of U. S. domestic satellites which could be accommodated take fully into account potential long-term requirements of Intelsat as well as other Western Hemisphere nations for satellite space in the relevant portions of the geostationary orbit.

The Economic Framework

-- The greatest immediate potential for domestic satellite communications seems to lie in long-distance specialized transmission services -- such as one-way distribution of radio and television programs, two-way exchange of high speed data or other wide-band signals among thinly dispersed users, etc. Common-carriers have informed us that the routine carriage of bulk message traffic does not appear economic for satellites at the present technological state-of-the-art. It is thus doubtful that the use of domestic satellites can bring about any significant rate reductions for public message telephone services in the immediate future, at least in the contiguous 48 states.

-- Specialized communications services, which, for the most part, benefit only limited segments of the society, merit considerably less public interest concern than do, switched public message services. While the public derives secondary benefits (e.g., commodities and services) from such services, the direct public interest impact is substantially muted by intermediate factors.

-- At this stage of domestic satellite planning, it is not possible to identify major economies of scale; to the contrary, filings with the FCC tend to indicate that multiple satellites as well as multiple of earth station types and locations will be required to provide a full range of domestic services.

-- In the absence of overriding public interest considerations and clear economies of scale, it is widely accepted that freely competitive private enterprise is more conducive than regulated monopoly to technical and market innovation, long-run optimum use of limited resources, and industry flexibility; conditions which typically produce higher-quality, lower-cost services.

-- The historical development of telecommunications policy, regulation, and industry structure has blurred the distinction between public and private interests and services, to the extent that such anti-competitive practices as cross-subsidization between public and private service offerings are the norm rather than the exception. These conditions are particularly difficult to identify and correct in telecommunications due to the typically complex and interactive

design, establishment, and use of common facilities by public and private services; yet without equitable cost separation, the many benefits of competitive operations cannot be realized.

-- Even where the benefits of cross-subsidization through joint operations might accrue to the public rather than private service offerings, we can find no merit in protecting suppliers of such services from fair competition. Should such competition, through cost-reducing innovation, result in the curtailment of some desirable public services, the authorization of a direct public subsidy to continue such services via the least costly alternative would result in less cost to society than would internal cross-subsidization between public and private services.

Recommendations

-- The Commission should move rapidly to the issuance of a basic policy statement which would open the way for interested parties -- common carriers, specialized carriers, common-user cooperatives, or independent applicants -- to file specific applications for domestic satellite communications facilities (satellites and/or earth stations) directly and independently with the Commission; applications for, and rulings on, space and earth segments facilities should be reparable. No coordinating or planning forum of prospective operators, users or suppliers seems necessary, although parties should not be barred from such coordinated planning if they desire, unless this involves anti-trust violations.

-- Basic policies governing the establishment and operation of domestic satellite communications facilities should be essentially the same as those for terrestrial facilities. Any financially qualified entity should be free to choose between installing a facilities for its own needs; joining with related entities in common-user, cooperative facilities; establishing facilities for lease to prospective users; or establishing facilities to be used in providing specialized-carrier services on a competitive basis. Subject to certain constraints outlined below, common-carriers should be free to establish facilities for either switched public message or specialized services, or both.

-- Regulatory limitations on entry into the communications industry are predicated largely on the limited availability of radio resources and the existence of large economies of scale. Since neither of these conditions is readily apparent in the case of domestic satellite communications facilities, and since relatively large, high-risk investments will be required, even relatively open entry will be largely self-regulating. Except for other considerations relating to common-carrier operations, there seems no reason to limit the number or classes of potential entrants. In particular, the

potential economic impact of private or common-user systems on common-carriers or specialized carriers should not be a factor in the authorization of such systems; nor should there be an a priori determination favoring one use of radio resources over another (e.g., common-carrier vs. specialized carrer vs. private, nor satellite vs. terrestrial, etc.).

-- Detailed regulation of rates and rate-of-return are similarly predicated largely on natural monopoly conditions. In the absence of such conditions and given the discriminatory rate-making authority possible within existing legislation, we urge that competitive pressure -- rather than regulatory constraints-- be permitted to set the limit on earnings from the provision of specialized services via domestic satellites -- at least during an initial operating period (e.g., 3 - 5 years). Subsequently, the Commission should review the industry structure and service offerings to determine whether monopoly conditions then warrant rate regulation for specialized services.

-- Where entities choose to operate their own facilities, to participate in cooperative facilities, to establish facilities for hire, or to compete equitably in the provision of specialized services to others, the public interest does not require that the venture be economically optimum or even viable; thus no such showing should be required.

-- To the extent necessary to avoid restraints on competition, entry into common-user, cooperative satellite communications systems should be open to all potential users of similar services, without discrimination.

-- To avoid the possibility of anti-competitive practices in the provision of potentially competitive services, the following additional guidelines for common-carrier establishment and use of domestic satellite communications facilities are proposed.

(1) Common-carriers should be authorized to establish and operate domestic satellite communications facilities for use in providing switched public message services under the same conditions which apply for terrestrial facility operations.

(2) Common-carriers should be authorized to establish and operate facilities which will handle specialized services (i.e., all other than switched public message services) only after a case-by-case determination by the Commission -- based on a public, evidentiary hearing -- that no cross-subsidization would be involved in either the development,

manufacture, installation, or operation and maintenance of such facilities.

(3) Common-carriers should be authorized to lease satellite transmission services for public message or specialized services from specialized carriers or independent systems, and specialized carriers should be required to provide such services as are available on a competitive, non-discriminatory basis.

(4) Communications utilities (common and/or specialized carriers) should be required to provide leased interconnection services to earth stations and among local users[3] of satellite services as available at reasonable rates and on a non-discriminatory basis.

-- Finally, the establishment and operation of domestic satellite communications facilities must be consistent with our obligations and commitments to Intelsat and to the International Telecommunications Union, with other foreign policy considerations, and with national security communications planning and requirements. With respect to Intelsat, it is particularly important that domestic systems not threaten the operational integrity or economic viability of the basic global services provided through this system. We are satisfied that domestic satellite communications facilities authorized in accordance with the preceding recommendations will meet all these conditions.

SUMMARY OUTLINE OF ECONOMIC AND TECHNICAL COMMITTEE REPORT DOMESTIC SATELLITE WORKING GROUP

The Working Group has limited its deliberations to technical and economic issues bearing on domestic communications satellite policy. Before formulating such policy, other matters must also be considered. Among these other considerations are:

-- the impact on Intelsat;

-- the importance to the national interest of early establishment of a domestic satellite system;

-- other international considerations with regard to orbital and spectrum usage;

-- the desirability of introducing competitive forces into the domestic communication industry and the effect of such forces on rate making practices now pursued in landline services.

-- the effect on services now being furnished by terrestrial means, but which may not be economically viable under conditions of competitive alternatives since they are currently subsidized by more profitable services.

The report is considered to be a sound basis for policy decisions insofar as technical and economic matters are concerned.

However, since no examination of the problems beyond these areas were undertaken, no recommendations with respect to policy are offered.

The Technical Framework

The establishment of U. S. domestic communications satellite facilities is technically feasible within the present state of the art, and there are spectrum and orbital resources available to accommodate several satellite systems within the presently allocated 4 and 6 GHz bands. Several transmit/receive earth stations can be located in or near most urban areas. A larger number of receive-only stations can be located in proximity to urban areas, particularly if some degradation of signal quality can be accepted. The exact number and location of earth stations is a subject for detailed engineering on a case-by-case basis.

Radio relay networks and satellite earth stations can share the 4 and 6 GHz frequency bands without harmful interference, provided reasonable precautions are taken in the design, location, and operation of the systems. To permit a large number of satellites, it is desirable that earth station antenna be as large as economically feasible. It, therefore, may be necessary to set minimum antenna standards based on geographic location in conjunction with satellite orbital location.

Technical considerations place no serious constraints on the formulation of policies for the ownership or mode of operation (single- or multi-purpose) of domestic communication facilities. Though of great importance in the engineering, operations, and economics of specific systems, these considerations can be dealt with effectively under any foreseeable ownership structure.

The Economic Framework

The most immediately apparent potential for domestic communication satellites is to provide transmission and routing functions for long-haul television distribution. A second possibility is to provide highly specialized broad band services for thinly dispensed and highly specialized broad band users.

Several institutional arrangements for satellite service were considered. The two primary alternatives were: 1) a single system established by a chosen instrument, for which relatively detailed system characteristics and operating rules would be specified by the FCC and to which conventional regulatory constraints would be applied; and 2) a more flexible industry structure permitting relatively open entry and where government involvement in technical design, operations, and management would be minimized.

These two basic options were evaluated from the standpoint of maximum contribution to the public interest in reliable, low-cost telecommunications services. Five criteria were used for this

purpose: reasonableness of rates, service flexibility, technical and service innovation, efficient use of satellite facilities and radio resources; and new opportunities for learning.

1) The U. S. experience is that with multiple suppliers, competitive market forces tend to keep rates at reasonable levels. The lack of evidence for economies of scale in satellite service and the availability of large capacity, low-cost terrestrial networks suggests that excessive rates would be unlikely. On the other hand, a chosen instrument would receive close scrutiny by the regulatory authorities, and it could be expected that rates allowed would restrict earnings to a reasonable level.

2) A large organization has greater resources and capability for service flexibility than a small organization. Yet several smaller organizations may be more responsive to customer needs than a single large organization. This is especially true in areas of rapid technological and economic change.

3) Technical innovation is more likely to occur where there are several competing manufacturers, and this is more likely to occur with multiple operating entities than with a single chosen instrument. A chosen instrument may well be very innovative in offering new services, yet there is somewhat more opportunity for new services to be offered when entry is not sharply restricted.

4) Efficient satellite use requires both economic efficiency and efficient use of orbital and spectrum resources. Since there does not appear to be evidence of strong economies of scale or of specialization, either of the two options appear comparable in terms of economic efficiency. The type of regulatory control associated with a chosen instrument might avoid wasteful use of orbital capacity; the current state of the art is such that reasonable standards for earth station and satellite design could be specified by the FCC to assure that the same result is achieved under conditions of open entry. Furthermore, the development of an open entry structure would be well suited to the transfer of systems and spectrum resources to more productive uses in the future without detailed Federal intervention in corporate operations that would be required with a single chosen entity.

5) A final objective of a domestic satellite policy is to increase learning about possible uses, costs, and services. A chosen instrument could be assigned certain public interest responsibilities to explore and offer potentially uneconomic services and to carry on technical research. However, the primary uncertainties relate to cost and to market and service innovations. The incentives provided by competition among a number of entities are expected to result in a more vigorous examination of these uncertainties than would be expected from a chosen instrument.

Under either option, the FCC will exercise its licensing authority over spectrum usage. Interference with existing terrestrial microwave installations represents a potential problem area for any prospective domestic satellite operator. Future satellite systems may cause interference with one another. Under an open entry policy, it may be desirable to consider new approaches for resolving differences over interference questions between satellite services and terrestrial carriers. Satellite operating entities should have equal status with respect to access to radio spectrum as the terrestrial users.

A potential exists for cross-subsidization of services and for limiting entry through interconnection and access restrictions under either policy option. Such practices should not be allowed.

Although there are substantial uncertainties as to the economics and operation of domestic communication satellite services, these are not so great as to justify any delay in proceeding with licensing of such services. Whatever policy option is chosen, it should be adopted only on an interim basis. At the conclusion of this interim period, such as three years, the situation should be reviewed to determine what modifications of requirements are necessary.

DRAFT
W. Hinchman

MEMORANDUM TO FCC ON DOMESTIC SATELLITES

OUTLINE

General

-- Future possibilities for domestic communications via satellite are very promising; both new services and significant cost savings in the provision of some existing services can be expected.

-- The Federal government is concerned with national communications development in several ways: as custodian of the public interest; as a major user and supporter of communication services for national security, public safety, education, postal operations, etc; and as a major source and support of telecommunications research and development. National communications policies must be consistent with all these missions; a major feature of these policies must be the continuing option of the government to implement or support special-purpose communications facilities whenever or wherever this is required in the national interest.

-- The establishment and operation of domestic communication satellite facilities must be consistent with our commitments to INTELSAT and the International Telecommunications Union, as well as other foreign policy and national security considerations. In particular, domestic systems should not threaten the economic viability or operational integrity of the basic global services provided through the Intelsat system.

-- The development of a basic national policy on domestic satellite communications has experienced undue delay, attributed in large part to uncertainties regarding technical and/or economic factors, as well as the potential impact on various private interests. The Administration regrets having added marginally to this delay, but feels it can now contribute substantially to the resolution of these uncertainties, based on a thorough review of the relevant technical and economic factors as well as the views of industrial and public interest organizations.

Public Policy Objectives

-- The principal objective of public policy is to safeguard the total public interest; this involves not only an interest in high-quality, low-cost communications services to the public, but also the assurance of a healthy environment for technical and market innovation leading both to new services and to cost savings for established services, for public and private users alike.

-- Secondary objectives which flow from this include:

(a) Promote long-run optimum use of limited radio resources such as the frequency spectrum, orbital space, etc.;

(b) Avoid unnecessary regulatory or administrative constraints on private initiative and enterprise;

(c) Encourage maximum flexibility within the communications industries -- in manufacturing, operations, and services -- to meet the multiplicity of public and private communications requirements which exist; and

(d) Prevent anti-competitive practices -- such as cross-subsidization between public and private service offerings -- which could inhibit the development of a healthy industry structure.

Administration Findings

The Technical Framework

-- The establishment and operation of domestic communications satellite facilities is technically feasible within the present state-of-the-art. Readily foreseeable technological advances will enhance this capability, bringing about a greater scope and quantity of satellite communications services and lower costs.

-- Technical considerations -- such as optimum use of radio resources, compatibility and/or interconnectability among systems, etc. -- provide no meaningful guidance for policies on the ownership or mode of operation (single- or multi-purpose) of domestic satellite communications facilities. Though of

great importance in the detailed engineering, operations and economics of specific systems, these considerations can be dealt with effectively under any foreseeable industry structure.

-- There will be technical problems associated with the introduction of domestic satellite systems, as with any new technological development. These will involve the assignment of compatible satellite locations and radio frequency usage, compatible location of earth stations and terrestrial radio stations, etc. However, the compatible siting of satellite and earth stations seems well within the technological state of the art and the engineering capabilities of industry and the FCC.

-- With regard to the radio resource (which includes satellite orbital space and frequency spectrum as essential parameters), we conclude the issue of scarcity has been overstated. Any limitation on the capacity of this resource is greatly extendable through technological and/or operational innovation, at a price. This becomes less of a classic allocation problem where discrete quantities of a finite resource must be rationed among prospective users according to some economic or public interest criteria, than a question of establishing and enforcing appropriate technical standards, license fees, etc., representing the best judgment of the Commission on optimum trade-offs between economic viability and technical efficiency in the light of projected

demand for communications channels. For example, the Commission may wish to establish a minimum acceptable earth station antenna diameter (e.g., 30 ft.), in order to accommodate a particular number of U. S. domestic satellites. Should the Commission receive applications in excess of this number during a specified initial filing period, it has the options of:

(a) establishing higher standards (e.g., 40 ft. minimum antenna diameter) to accommodate more satellites if this were considered economically justified;

(b) processing applications on a first-come, first-served basis using the existing standards; or

(c) ruling on the relative public benefits of alternative proposals and setting priorities accordingly.

--To the extent that applicants are few--as we expect--presently allocated spectrum resources should accommodate all applicants without conflict under reasonable technical standards, thus the above procedures would not be required. Should additional applicants come forward subsequent to the initial filing period, the Commission has recourse to several additional options;

(d) authorize later systems to use additional spectrum resources now being cleared with appropriate international agencies for satellite use, based on new technical standards plus any of options (a) through (c) above.

(e) authorize later applicants to either "buy out" some existing system's spectrum claim, or compensate an existing user for modifications (e.g., larger antennas, relocation of satellites and/or earth stations, etc.) to his system to accommodate the new entrant.

The Economic Framework

-- The greatest immediate potential for domestic satellite communications seems to lie in long-distance specialized transmission services -- such as one-way distribution of radio and television programs, two-way exchange of high speed data or other wide-band signals among thinly dispersed users, etc. Common-carriers have informed us that the routine carriage of bulk message traffic does not appear economic for satellites at the present technological state-of-the-art. It is thus doubtful that the use of domestic satellites can bring about any significant rate reductions for public message telephone services in the immediate future, at least in the contiguous 48 states.

-- Specialized communications services, which, for the most part, benefit very limited segments of the society, merit considerably less public interest regulation than do, for example, public message exchange services. While it is true that the public derives secondary benefits (e.g., lower cost commodities and services) from the quality and cost of such services, the public interest impact is substantially muted by intermediate factors.

-- At this stage of domestic satellite planning, it is not possible to identify major economies of scale; to the contrary, filings with the FCC tend to indicate that multiple satellites as well as a number of earth station types and locations will be required to provide a full range of domestic services.

-- In the absence of overriding public interest considerations, and lacking clear economies of scale, it is widely accepted that freely competitive private enterprise is more conducive than regulated monopoly to technical and market innovation, long-run optimum use of limited resources, and industry flexibility; conditions which typically produce higher-quality, lower-cost services.

-- The historical development of telecommunications policy, regulation, and industry structure has blurred the distinction between public and private interests and services, to the extent that such anti-competitive practices as cross-subsidization between public and private service offerings are the norm rather than the exception. These conditions are particularly difficult to identify in telecommunications due to the typically complex and interactive

use of common facilities by both public and private services; yet without equitable cost separation, the benefits of competitive suppliers cannot be realized.

Recommendations

-- The Commission should move rapidly to the issuance of a basic policy statement which would open the way for interested parties -- common-carriers, specialized carriers, common-user cooperatives, or independent applicants -- to file specific applications for satellite systems, directly and independently with the Commission; no coordinating or planning forum of prospective operators, users or suppliers seems necessary, although parties should not be barred from such coordinated planning if they desire, unless this involves anti-trust violations.

-- Basic policies governing the establishment and operation of domestic satellite communications facilities should be essentially the same as those for terrestrial facilities. Any financially qualified entity should be free to choose between installing a private system for its own needs; joining with related entities in a common-user, cooperative system; or establishing a system for the for-hire provision of specialized communications services on a competitive basis. Within certain constraints outlined below, common-carriers should be free to establish systems for either public message or specialized services, or both.

-- Regulatory limitations on entry into the communications industry are predicated largely on the limited availability of radio resources and the existence of large economies of scale. Since neither of these conditions is readily apparent in the case of domestic satellite communications facilities, and since relatively large, high-risk investments will be required, entry under a competitive framework will be largely self-regulated. Absent other considerations relating to common-carrier operations, there should be no reason to limit the number or classes of potential entrants. In particular, the potential economic impact of private or common-user systems on common-carriages or specialized carriers should not be a factor in the authorization of such systems; nor should there be a prior determination favoring common-carriers or specialized carrier use of radio resources over private systems.

-- Detailed regulation of rates and rate-of-return are similarly predicated largely on natural monopoly conditions. In the absence of such conditions and given the discriminatory rate-making authority possible within existing legislation, we would urge that competitive pressure be permitted to set the limit on earnings from the provision of specialized services via domestic satellites, rather than regulatory constraints -- at least during an initial operating period of perhaps 3 - 5 years. Subsequently, the

Commission should review the industry structure and service offerings to determine whether monopoly conditions then warrant rate regulation for specialized services.

-- Where entities choose to operate their own systems, to participate in cooperative systems for specialized services, or to compete equitably in the provision of specialized services to others, the public interest does not require that the venture be economically optimum or even viable; thus no such showing should be required.

-- To avoid the possibility of anti-competitive practices in the provision of potentially competitive services, the following additional guidelines for common-carrier establishment and use of domestic satellite communications facilities are proposed:

(1) Common-carriers should be authorized to establish and operate domestic satellite communications facilities for the exclusive carriage of switched public message exchange services without added constraints beyond those imposed on terrestrial facility operations.

(2) Common-carriers should be authorized to establish and operate facilities which will handle specialized services (i.e., other than switched public message exchange) only after a case-by-case determination by the Commission -- based on a public, evidentiary hearing -- that no cross-subsidization is involved in either the research and development,

manufacture, installation, or operation and maintenance of such facilities.

(3) Common-carriers should be authorized to lease satellite transmission services from specialized carriers or independent systems, and specialized carriers should be required to provide such services as are available on a competitive, non-discriminatory basis.

(4) Communications utilities (common and/or specialized carriers) should be required to provide leased interconnection services to earth stations and among local users of satellite services as available at reasonable rates and on a non-discriminatory basis.

Domsat

ELECTRONIC NEWS, MONDAY, NOVEMBER 17, 1969

Nixon Telecom Ruling Near

WASHINGTON. — The Administration will make a decision on telecommunications management policy at about the end of the year, according to a White House official.

He declared flatly that there is little likelihood the Administration will recommend that telecommunications management be made a Cabinet-level post. Reports have been published to that effect.

He would not comment on other possibilities, such as moving radio frequency management to the Commerce or Transportation Departments.

Other solutions would be to centralize management in either the Office of Telecommunications Management in the White House, or in the Federal Communications Commission. The two agencies now share management of the spectrum.

The official predicted also that a decision might be forthcoming from the White House in 2 weeks on management and operation of a domestic communications satellite system. The same 2-week prediction, however, has been made periodically the past 3 months.

Domsat

DRAFT/Gabel 11/17/69

SUMMARY OUTLINE OF ECONOMIC AND TECHNICAL COMMITTEE REPORT __ DOMESTIC SATELLITE WORKING GROUP

The Technical Framework

Technical considerations will set minimal constraints on policy considerations. While of paramount importance in the detailed engineering and economics of specific domestic communications satellite systems, technical considerations are not controlling with respect to basic policies governing the ownership or mode of operation (multiple-purpose or specialized) of such systems.

The establishment of U. S. domestic communications satellite facilities is technically feasible with the present state of the art. There will be technical problems associated with the operation of such facilities. There are, however, available spectrum and orbital resources to accommodate several domestic satellite systems within the presently allocated 4 and 6 GHz bands. These can site on several transmit/receive earth stations near most urban areas. The satellites can site on a much larger number of receive-only stations in proximity to urban areas, particularly if users are willing to accept some degradation of service quality. The exact number and location of earth stations is a subject for detailed engineering on a case-by-case basis.

Radio relay networks and satellite earth stations can share the 4 and 6 GHz frequency bands without harmful interference, provided reasonable precautions are taken in the design, location and operation of the systems. To permit a large number of satellites, it is desirable that earth station antenna be as large as economically feasible. It may be necessary to set minimum standards. These standards should vary by geographic location depending on traffic potential.

The Economic Framework

The greatest immediate potential for domestic communication satellites -- determined by their unique location and visibility -- is in providing transmission and routing functions for long-haul broadcast functions. A second viable possibility for communication satellites is the market for thinly dispersed and highly specialized broad band services. Satellite systems employing demand (?) assigned circuitry is much more adaptable to serve wide fluctuations in demand than fixed terrestrial systems.

In considering an industrial structure to provide domestic communication satellite service, competitive entry was deemed preferable to a government-sponsored chosen instrument. In this regard, it was not possible to determine the extent of any economies of scale from satellite service. On the other hand, salient objectives of public policy -- technical innovation, price competition, service flexibility, and learning -- would be advanced by encouraging competitive entry.

With competitive entry, the regulatory body would issue a frequency license to any applicant possessed of minimal financial ability who did not propose undue spectrum interference and did not monopolize the spectrum. With respect to harmful interference between terrestrial and satellite entities, each should be considered on an equal footing with differences to be resolved through negotiation and, in final resort, by appeal to the FCC.

To thwart the future domination of the industry by any single entity, the FCC must establish conditions over existing common carrier suppliers which will prevent the cross-subsidization of competitive service classifications by revenues derives from monopoly service offerings. Conversely, it may be desirable to encourage the entry of additional communication common carriers using satellite technology. The proferment of government business as incentive to establishment of such system merits serious consideration.

Wide latitude is available within the scope of the Federal Communications Act for modifying regulatory administration under conditions of competitive entry. Maximum rate regulation becomes unnecessary -- in view of thecompetitive offerings of terrestrial carriers; nor is minimum rate regulation required as competing suppliers adjust capacity to develop markets. At the same time, nondiscriminatory interconnection and access to the terrestrial system and by users of the satellite system is required.

A three-month initial period is suggested during which all applications for domestic satellite service can be reviewed. It would be undesirable for any applicant to be allocated more than twenty-five percent of the desirable orbital space.

It is essential at this stage to establish an economic framework wherein the greatest potential benefits of competitive entry can be fostered. However, because of the relatively great investment and high risks, a satisfactory number of entrants may not be realized. After a minimum three-year ~~fihal~~ trial period, it would be well to reassess the picture to determine whether circumstances have altered sufficiently to require modification of governmental conditions.

November 17, 1969

Dear Mr. Smith:

I was pleased to learn of your interest in the domestic satellite question and will be pleased to meet with you at your convenience. My secretary will be in touch with your office in the very near future to see when we can get together.

I look forward to seeing you.

Sincerely,

Clay T. Whitehead
Staff Assistant

Mr. Stanford Smith
General Manager
American Newspaper Publishers
Association
750 Third Avenue
New York, New York 10017

cc: Mr. Whitehead
Mr. Kriegsman
Central Files

CTWhitehead:jm

ANPA AMERICAN NEWSPAPER PUBLISHERS ASSOCIATION
750 Third Avenue • New York, New York, 10017 • Telephone: YUkon 6-8200

November 13, 1969

Dr. Clay T. Whitehead
Special Assistant to the
President
The White House
Washington, D. C.

Dear Dr. Whitehead:

The prospect that COMSAT might provide communications services for news and pictures to newspapers through a domestic satellite system is of intense interest to newspapers and the press wire services.

Along with my colleagues of the wire services, I was very much impressed by a briefing given to us last week by COMSAT Chairman James McCormack and his associates. I am enclosing a report which we are making to our members today through the ANPA General Bulletin. Our membership of more than 1,000 daily newspapers has more than 90% of total U. S. daily newspaper circulation.

Because of the great importance of this matter to the future of newspapers in this country, I would welcome an opportunity to meet with you briefly for the purpose of outlining for your consideration the significance of this development for the press.

I will be at your disposal for a conference at your convenience.

Sincerely yours,

Stanford Smith

Stanford Smith
General Manager

Encl.

AMERICAN NEWSPAPER PUBLISHERS ASSOCIATION
STANFORD SMITH, *General Manager* 750 Third Ave., New York, N.Y. 10017

ANPA General Bulletin No. 52 Nov. 13, 1969

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General Management

Newspapers and Wire Services Support Multi-Purpose COMSAT Domestic System

Representatives of newspapers and press wire services are encouraged by the prospects of sharing in a domestic communications satellite system proposed by Communications Satellite Corporation (COMSAT). Following a meeting at COMSAT headquarters Wednesday, Nov. 5, representatives of ANPA, Associated Press, United Press International and the International Press Telecommunications Committee expressed support for the COMSAT proposal for a high capacity system that could serve a wide variety of U.S. communications users. It would **not** be limited to television transmission as had been proposed long ago by other parties.

Lower communications costs through greater efficiency in utilization of new technology can be foreseen for the AP, UPI, supplemental news services and individual newspapers. The satellite system would be capable of handling all forms of communications, including teletypewriter, pictures, facsimile, data, voice and television.

ANPA has been advocating the principle of access to any domestic satellite system for newspapers and news wire services through participation since 1966 in the Federal Communications Commission domestic satellite proceeding (Docket No. 16495).

Discussions with COMSAT centered on the requirements of the press, and how the proposed domestic satellite system could be used to meet news and picture distribution needs.

COMSAT officials were Chairman James McCormack, President Joseph V. Charyk, Vice President-General Counsel David Acheson, Vice President-Operations George Sampson and Assistant Vice President for Information Matthew Gordon.

In describing the proposed system, COMSAT officials emphasized that it would accommodate not only the needs of the TV networks but would have sizable remaining capac-

ity to handle any other forms of communications in a highly economical manner.

COMSAT said it would provide and operate the satellites and major send-and-receive earth stations, plus other stations as required. But COMSAT suggested that receive-only stations in the system might be owned by individual users or jointly by a number of communication users. COMSAT said it remained flexible on how this should be done.

The ANPA Press Communications Committee will meet soon to discuss the proposed plans further with other press groups. Further conferences with COMSAT are planned after more detailed press requirements are formulated.

Rail Shopcraft Unions Reject Emergency Board Recommendations

Chief negotiator for the railroad unions rejected as inadequate wage increases recommended by a Presidential emergency board in a labor dispute between 48,000 shopcraft workers and the nation's railroads.

The unions will be free to strike on Dec. 3, the expiration date of a 30-day cooling-off period following the emergency board's report. At that time procedures of the Railway Labor Act will have been exhausted and only Congress could prevent the unions from striking or order striking workers back on the job.

[**Last ref.**: General Bulletin No. 47, Oct. 8, p. 275.]

Southern Newsprint Price Differential Appears to Be Reinstated

Reinstatement of a Southern newsprint price differential of $1 per ton appears indicated in announcements by some mills of an increase to $151 per ton in the South effective Jan. 1, 1970.

Southland Paper Mills, Inc. and Kimberly-Clark Corp. announced increases of $4 a ton in the South. The pending increase to $152 per ton elsewhere apparently will go into effect. The old "port price" differential appears to be ending. International Paper Sales followed with the same Southern price revision.

As this Bulletin goes to press, ANPA understands that other manufacturers who sell newsprint in the South are

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Position Wanted

Managing Editor. Recently managing editor daily newspaper. 33 years old, married, considerable editorial talent and experience with other dailies. Highly recommended. For additional information contact ANPA, Box 69, 750 Third Ave., New York, N. Y. 10017.

contacting customers to revise their pricing policy in accord with the Southern differential. The area affected will be the same as the area in which the differential now exists.

[**Last ref.:** Newsprint Bulletin No. 23, Oct. 4.]

U.S. Department of Labor Asks Newspaper Help Against Age Discrimination

U.S. Department of Labor has written letters asking newspapers to assist in the enforcement of the Age Discrimination in Employment Act by conveying information about its provisions to customers who place help wanted classified advertising.

The information which Department of Labor (Wage and Hour and Public Contracts Division) wants passed along to newspaper classified customers follows:

> The Age Discrimination in Employment Act prohibits arbitrary age discrimination in employment for persons between the ages of 40 and 65 and applies to employers with 25 or more employees, employment agencies, and labor organizations.
>
> Help-wanted advertisements placed by such persons which arbitrarily eliminate job applicants between 40 and 65 are in violation of this law. Uses of terms such as "boy," "girl," "young," or designating a specific age group such as "age 35-55," should not be used as they indicate an unlawful age preference.

[**Ed. Note:** ANPA was asked for its advice before the Department of Labor wrote to newspapers about the above matter. ANPA advised that a proposed "standing box" on the classified advertising pages would **not** be a feasible suggestion for many reasons. However, ANPA suggested that Department of Labor convey its message to newspapers, many of whom might include it in subsequent bulletins or memos to regular advertising customers.]

Advertising

Senate Commerce Committee Approves Radio-TV Cigarette Advertising Ban

Senate Commerce Committee Nov. 5 approved and ordered reported an amended version of Bill H. R. 6543, the proposed Public Health Cigarette Smoking Act, which would prohibit cigarette advertising on radio and television after Jan. 1, 1971.

The House passed Bill H. R. 6543 on June 18. That was before cigarette manufacturers had promised to end radio

and television advertising by September, 1970, in exchange for a Congressional antitrust exemption permitting the simultaneous withdrawal.

The Senate Commerce Committee-passed measure does not grant the antitrust exemption. In addition to the radio-tv ban the measure would prohibit the Federal Trade Commission from requiring a health warning in cigarette advertisements before July 1, 1972. This prohibition would cover advertisements in newspapers, magazines, and other non-broadcast media.

[**Last ref.**: Gen. Bulletin No. 50, Oct. 29, p. 290.]

President Signs D.C. Revenue Bill

President Nixon Oct. 31 signed Bill H. R. 12982, the District of Columbia revenue bill. It is Public Law 91-106.

Under terms of the measure, the District sales tax remains at 4% but is extended to include a number of services and products not formerly taxed. As forwarded to the White House, the measure did not contain either the proposed advertising sales tax or the proposed tax on news features.

[**Last ref.**: General Bulletin No. 47, Oct. 8, p. 275.]

N. Y. Court of Appeals Affirms Free Speech Guarantee of Paid Ads

New York State Court of Appeals, in a memorandum, affirmed the State Appellate Division's ruling that an advertisement, which forms the basis for a charge of defamation, constitutes fair comment and is protected under the common law.

Case involved a $9 million libel suit brought by Cole Fischer Rogow advertising agency against 30 other agencies and 22 individuals over an advertisement placed in the Nov. 7, 1966 New York Times. Plaintiff at that time, had been hired to oppose a proposal for a civilian-controlled police review board in New York City and the advertisement, according to plaintiff, attacked its professional integrity.

The state's Appellate Division, on March 26, 1968, dismissed the suit on the grounds that "the Constitutional guarantees of freedom of speech and of the press apply as well to a paid commercial advertisement."

In this latest ruling, the Court of Appeals stated, "It is true, as the plaintiff contends, that proof of malice would defeat that defense. However, treating the applications, made by the defendants on affidavits, as motions for summary judgment . . . the plaintiff has failed to state sufficient evidentiary facts, warranting a trial, to support its allegation that the defendants were motivated by malice."

[**Last ref.**: Gen. Bulletin No. 18, April 3, 1968, p. 152.]

Domsat

THE FORD FOUNDATION
320 EAST 43RD STREET
NEW YORK, NEW YORK 10017

McGEORGE BUNDY
PRESIDENT

November 11, 1969

Dear Mr. Whitehead:

In view of our staff participation on the Corporation for Public Broadcasting's satellite task force, John Macy invited us to share a copy of the proposal that COMSAT submitted to you in a letter dated September 8, 1969. As you know, Mr. McCormack provided copies of the proposal to the four broadcasting organizations. To avoid any misunderstanding -- without repeating the various arguments and proposals that have been submitted to you -- we wish to address one point in COMSAT's letter.

COMSAT discusses the facilities that it would make available to public broadcasting in the second paragraph on page 5 of its letter. That paragraph reads as follows:

> "Such a system would not only provide for commercial communications services, but would also provide the basic network desired by the Corporation for Public Broadcasting for a satellite cities demonstration program, and experiments and demonstrations in transcontinental interconnections and remote production capabilities. To have such a basic network at the start of an expanded domestic service would enhance the possibility of attractive pricing of service, which would favor the early and further growth of satellite utilization."

We think COMSAT has confused the CPB's suggestions to NASA for possible use of satellites in the ATS series with the Corporation's requirements for a basic network. Public broadcasting needs a network not for demonstrations or experiments, but for the full-time interconnection of all public television stations. It requires interconnection of all stations -- which presently number 185 -- 24 hours a day, seven days a week, with adequate provision for regional as well as national hookups. Moreover, domestic satellite arrangements must ensure not only that the current needs of public broadcasting are met, but that there is adequate room for expansion.

The second problem with the paragraph quoted above is the possible implication that public broadcasting would be charged for the services provided to it. (We draw this implication from the reference to the possibility of "attractive pricing" that would

accrue from providing services to the Corporation.) We wish to re-emphasize that public broadcasting should be provided with interconnection free of charge.

Unlike COMSAT, the three commercial networks have recognized public broadcasting's need for equal treatment and for free interconnection. On October 15, 1969, Dr. Frank Stanton proposed that ABC, NBC, and CBS form a consortium to build and operate a domestic satellite system for television and radio broadcasting. Dr. Stanton further proposed "that the Corporation for Public Broadcasting be invited to join this consortium as a fourth member with a voice equal to that of each of the commercial companies in directing the consortium, and that the channels of the system be made available to the Corporation for Public Broadcasting at no charge."

A meeting was held by COMSAT with ABC, CBS, CPB and NBC on October 29. Mr. Macy has told us that he is hopeful that some clarification with regard to CPB may be forthcoming. However, since we understand the matter still to be in the hands of your Task Force, we urge that arrangements for a domestic satellite system guarantee free access to the system for public broadcasting with a permanent priority equal to commercial users. An important opportunity will be lost if such service is not guaranteed at the outset.

Sincerely,

McGeorge Bundy

Mr. Clay T. Whitehead
The White House
Washington, D. C.

Domsat

BROADCASTING, Nov. 10, 1969

Word from on high

Date that special White House intragovernmental committee will complete report on its study of domestic-satellite issue—its original deadline was Oct. 1—remains uncertain. But indications now are that FCC, which has responsibility for establishing policy, will have White House views in week or two. Representatives of number of industry parties, including networks, that have presented their comments to committee have been having follow-up discussions with presidential aide, Dr. Clay T. Whitehead, who is chairman of committee.

Among proposals said to be under consideration is one that would permit establishment of number of domestic-satellite systems. At same time, however, committee is considering impact of satellites on existing terrestrial service. It's understood that committee is concerned principally with technical and economic aspects of various proposals and that Dr. Whitehead will have chief responsibility for drafting report containing White House policy views.

Domsat

Monday 11/10/69

MEETING
11/10
2:30 p.m.

10:05 Marie has scheduled a meeting at 2:30 this afternoon for Jon Rose and you to see Dick Berg -- in Jon's office.

Domestic satellites

Domsat

THE WHITE HOUSE

WASHINGTON

November 7, 1969

MEMORANDUM FOR

Mr. William H. Rehnquist
Assistant Attorney General
Office of Legal Counsel
Department of Justice

In connection with the White House consideration of the domestic satellite issue now pending before the Federal Communications Commission (FCC), we request your consideration of the following questions relating to the Communications Act of 1934 (the 1934 Act), the Communications Satellite Act of 1962(the 1962 Act), and the antitrust laws. We understand that you may, in your consideration of the questions below, wish to consult with other divisions of the Justice Department or with the Federal Communications Commission for their views. Would you please advise us if, for any reason, you feel unable to provide helpful comment on any of the questions posed below.

1. Applicability of the 1962 Act.

(a) Does the 1962 Act govern, in whole or part, the FCC's authority to authorize a domestic communications satellite? (b) If so, does the 1962 Act establish Comsat as the sole entity authorized to construct and operate privately owned communications satellite facilities for domestic use? (c) Does the 1962 Act otherwise preclude the FCC from authorizing the construction and operation of satellite facilities or ground stations for domestic services by either common carriers or non-common carriers other than Comsat?

2. Comsat.

(a) Does Comsat's charter under the 1962 Act provide sufficient authority for it to supply domestic communications services outside the Intelsat system authorized by the 1962 Act under the more general authority of the 1934 Act? (b) If so, would Comsat's competitive entry into the domestic field cause a conflict of interest situation due to carrier representation on its Board? Would this violate either the 1934 Act or the antitrust law?

3. Minimum Regulation.

What is the minimum degree of FCC regulation over a communications system utilizing satellites now required by the 1934 Act (and the 1962 Act if applicable)?

4. Non-Common Carriers.

(a) Has the Federal Communications Commission power to treat any privately owned communications system utilizing satellites as a non-common carrier? (b) What are the consequences of doing so?

5. Impact on Carriers' Services.

(a) In allocating spectrum to non-carrier satellites, must the FCC consider the economic impact of a non-carrier's proposed use on services now offered by a common carrier?

6. Impact on Future Carrier Spectrum Needs.

(a) In allocating spectrum to non-common carrier satellites, must the FCC consider potential common carrier demands for the requested frequencies? (b) If so, what is the standard for measuring carriers' potential needs?

7. Interference.

(a) Does its authority over radio frequency allocations or its general supervisory powers over communications common carriers under the 1934 Act enable the Federal Communications Commission to modify, rescind, or otherwise regulate outstanding domestic point-to-point microwave radio service licenses and construction permits so as to minimize potential radio signal interference among such microwave systems and earth stations employed in providing communications services through satellites? (b) If the Federal Communications Commission has such authority, may it, upon its own initiative or upon application of the satellite operator, compel the locational modification of outstanding domestic point-to-point microwave radio service licenses and construction permits?

(c) Is the exercise of such authority contingent upon provisions of adequate compensation of the affected carrier, and, if so, upon whom does the obligation to provide such compensation rest?

8. Spectrum Allocation.

Does the FCC have sufficient authority either (a) to deny one spectrum applicant's license in favor of another when it can be shown the first can use cable with equal facility while the second cannot; or (b) to rescind licenses under the same conditions ?

9. Interconnection.

Under the 1934 Act (or the 1962 Act, if applicable), does the FCC have jurisdiction and authority to (a) regulate the terms of leases and interconnection arrangements between an existing communications common carrier and either a communications common carrier utilizing satellites or a non-common carrier utilizing satellites; or (b) require that an existing communications common carrier furnish facilities sought by a communications common carrier utilizing satellites or a non-common carrier utilizing satellites ?

10. Access to Network-owned Satellite.

If the three major television networks form a joint venture for domestic broadcast distribution through satellites, what would be the obligation of such a joint venture to supply satellite channels to others in the trade--including either a fourth network or a CATV network, or for one-time broadcasts--assuming (a) that excess system capacity exists or (b) that system capacity is fully utilized by the joint venture participants ?

11. Non-Compensatory Pricing.

(a) What Communications Act and antitrust procedures exist to prevent non-compensatory pricing by existing terrestrial broadcast distributors (principally, such as AT&T) designed to forestall the effective development of a competing broadcast distribution system utilizing satellites? (b) Is the answer different if the "non-compensatory" pricing is below "average" cost but not "marginal" cost?

Clay T. Whitehead
Staff Assistant

cc: Mr. Flanigan
Mr. Whitehead
Mr. Kriegsman
Mr. Jon Rose
Central Files

DBaker(Justice)/CTWhitehead/JRose:cd

November 6, 1969

MEMORANDUM FOR DR. TOM MOORE, CEA

Subject: Comments on Final Draft of Economic Committee's Report dated November 3, 1969

I have commented in detail on Part I, The Role of Satellites in Domestic Communications, and Part II, An Evaluation of the Basic Alternatives. As you can see from my comments, I am in basic disagreement with these two parts of your paper. Therefore, comments on Part III, Policy on Potential Entrants, and Part IV, Policy on Operation of System, and Part V, Effects of Alternatives on the Terrestrial Common Carriers, would be beside the point.

I strongly urge that your Committee take another look at the Technology Report, the ComSat Act of 1962, the ComSat Corp. presentation on November 4, the INTELSAT commitments, the international character of the equatorial slots, the admission cost for a satellite operator, and the probable marketplace environment in which a new user must operate in order to obtain satellite service. I suggest that your evaluation of basic alternatives does not relate to the actual experience available today.

I also feel that the careful sculpturing of proposed policy as discussed in Parts III and IV is indicative that competitive entry will be an extremely difficult mode to administer and still serve the public interest.

I strongly recommend that ComSat Corp. be designated as a chosen instrument to get on with the task of deploying a domestic system. As technology developments continue and new users emerge, and, if circumstances develop that indicate that this was an unwise decision, it can always be modified. The fear of making a mistake should not deter us in making a needed decision.

W. E. Berg

cc - Dr Whitehead
Dr Ken Dam

Comments on Final Draft of Economic Report dated 11/3/69

Page 2

Paragraph 3

The current state-of-the-art in communications technology is a highly transitory state. The rapid progress from INTELSAT I to INTELSAT III and from the DOD IDCSP to the recent TacComSat are clear indications that any policy judgement based on the current state-of-the-art will be obsolete before it can be implemented. The technical report should be used for guidance on the trend of satellite communication technology. There is no reason to consider that INTELSAT IV is the end of the line in terms of capacity, flexibility or types or classes of customers that can be serviced.

Page 3

Paragraph 3

Do not agree with the last sentence. A receive only earth station, located on the user's rooftop for example, certainly is within the range of possibilities offered by the Domestic Satellite System briefed to the committee by ComSat Corporation.

Page 5

Paragraph 1

The link between the earth station and the user could be provided either by the user, a terrestrial carrier, or leased by the satellite entity to complete the circuit for the user. A FCC ruling would undoubtedly be developed to cover this aspect.

Page 9

Paragraph 2

Costs assigned to long distance trunking is an extremely complex matter. In the U. S. network a large portion of the actual costs have to be allocated to the large number of switching centers which complete the desired point-to-point channel through the domestic maze. The actual division of the costs has been a subject of long debate with the FCC. By tying major traffic generating centers

Page 9

Paragraph 2 (continued)

together either by high capacity cable or satellite, the loading on the normally enroute switching centers would be relieved. This "unloading" can have a major impact on the capacity requirements of the switched network to handle peak load conditions and therefore the investment on which the rate is based. This in turn could lower the rates for domestic terrestrial traffic.

Page 10

Paragraph 1

The cost per satellite circuit has been going down drastically in the INTELSAT series, the only "real world" example.

Paragraph 2

Satellites operating with mobile terminals have to provide a fairly strong signal for the receiver. In all likelihood, the frequency would also be different. Both these conditions, and others, would call for a separate spacecraft.

Page 12

Paragraph 1

The use of satellites by the Post Office for an electronic postal system must go through a long and slow public acceptance phase. During this phase the Post Office would undoubtedly buy or lease wide band transmission links. These wide band links can be described as so many megahertz at some signal level. This is completely compatible with normal point-to-point data transmission. There is no reason to consider this as a special case from the normal government ~~use~~ leasing

Paragraph 2

The probable policy on R&D cost sharing can be simple. There are five INTELSAT IV satellites on order. If a domestic satellite system based on INTELSAT IV R&D is established, such a system would very likely require three spacecraft, two in orbit and one on the ground as a spare. Therefore, a logical division of applicable R&D costs in this case would be 5/8 and 3/8 of the total. With ComSat owning over 50% of INTELSAT, more than half of this would come back to ComSat if ComSat were the owner and operator of the three domestic INTELSAT IV. If some other U. S. entity wanted to buy the three spacecraft, they would have to "buy" ComSat's equity in this R&D.

Page 13

Paragraph 1

In cost planning, provision must be made for a nominal number of failures. ComSat Corp. is currently planning on one failure in every four launches. In addition, they are protecting themselves against catastrophic loss by covering a portion of this risk with insurance from Lloyds of London. The number of satellites in a system does not change the risk percentage, nor does the size of the spacecraft. A large spacecraft merely changes the size of the bet - not the percentage of risk. (A small bettor, however, could be wiped out with too large a bet.)

Page 14

Paragraph 1

The important cost of a spacecraft is the total cost in orbit. This, in turn, translates into cost per circuit in orbit. A large high capacity satellite, such as INTELSAT IV, using a much more expensive launch operation, still is able to provide circuits at a much lower cost than the present INTELSAT III. The use of multiple beams allows simultaneous reuse of the same frequency for different geographic areas. The bandwidth allocation, according to the Technical Committee Report, is not a limiting factor within the foreseeable future.

Paragraph 2

Even though the Titan-Centaur may cost more than the Atlas-Centaur its payload capacity is such that a decision to use that launch vehicle may be the economical choice. Such a decision would take into consideration all the related factors such as reliability, cost, payload, weight, form, factor, etc. to arrive at the final in-orbit cost per circuit per year. The need to go to the higher capacity spacecraft would be predicated on traffic forecasts.

Paragraph 3

The present technology, as represented in INTELSAT IV, will provide in two spacecraft the equivalent of 24 color TV channels on a normal basis and 48 color channels for peak loading (week end) requirements. This is considerably more capacity than the projected requirements for the next five years.

Page 15 cont'd.

The conclusion drawn on this page is directly contrary to the facts as they exist. If each satellite in a competitive array of "small" entities had its own complex of earth stations and tracking, telemetry and control centers and earth station interconnections and with the inherently higher in orbit cost per circuit per year for small satellites, the only valid conclusion would be that one large satellite with one complex of earth stations is the most economical. As an added consideration small satellites are inherently wasteful in frequency usage.

Page 16

Paragraph 2

The frequency spectrum is a limited national resource of extremely high value. Automatically granting spectrum and orbital space subject only to anti-trust consideration and spectrum availability is foolhardy to an extreme. Frequency should be allocated only when there is positive assurance that public service will be provided. To open up the spectrum to corporate speculation is not in the public interest.

Page 17 cont'd.

This would be strong motivation for the present terrestrial carriers to locate microwave links through every possible "free spot" surrounding the large metropolitan centers so that only they could afford to pay (or make other accommodations) the costs of locating an earth station in this environment, thereby freezing out any possible new entry.

Page 17

Paragraphs 2 and 3

The thrust of this discussion is to set up a competitive interface between new entities entering the domestic communications field. Because of the high "cost of admission" very few entities could seriously consider entering this field. The hoped-for competitive enterface between these entities would at best be only a very weak market mechanism. A more real and powerful competitive interface can be established between the terrestrial carriers and a chosen instrument satellite carrier. The multi-billion dollar terrestrial institution can only be seriously challenged by a single entity armed with the new space technology. That this can be done has been amply demonstrated in the international scene. Also, as stated in the ComSat Act of 1962, the intent of the Congress was to create competition, not necessarily between

satellites entities but in the communications field. Fragmenting the space systems among many entities would be contrary to the best interests of the taxpayer.

Page 18

Paragraph 2

There is no agreement as to which country owns which slot. Neither does the FCC have jurisdiction in this matter. A sudden emergence of "many" U. S. private entities, each wanting their own slot, would certainly perturb the international scene. It would invite an international "land grab" climate rather than a scene of mature reasonableness.

Page 19

Paragraph 3

A domestic U. S. systems looks like a regional European system. I agree that domestic competitive satellite system would be inconsistent with the U. S. INTELSAT position.

Paragraph 4

If only one entity applied for a license and would be the sole space entity, competitive entry philosophy would leave this entity free from all but the minimum regulatory constraints. It would make more sense to recognize this fact to begin with and decide on the "chosen instrument" approach.

Page 20

Paragraph 2

The experience of INTELSAT is recommended as a "real world" data base in these judgements.

Paragraph 3

Experience has shown that the development of new customers is the key to survival in all industry including communications. The conjecture that a chosen instrument might choose not to do so is out of an "old textbook" and is not valid today. With a strong competitive interface between the satellite communications entity and the terrestrial entity, new customers will be courted with the fervor of a college freshman. Furthermore, the marginal cost of serving a new customer is always less than the admission price of a new user as satellite operating entity or partner.

Page 21

Paragraph 1

With a lower cost threshold, such as could be offered by a chosen instrument, a far greater number of new potential users would move into the eligibility zone.

Paragraph 2

The logic of this paragraph would appear to be valid only if an entry found himself loaded with excess capacity. Because of the high initial cost it is unlikely that a dedicated system would be so burdened. If he had excess capacity he would very likely want to save it for his own growth or to take care of his peak loading. The conditions under which a new user might be accepted may be conditional to the point of unacceptability.

Page 22

Paragraphs 2 and 3

I do not understand these two paragraphs. A satellite which provides the lowest cost per circuit and provides the highest data rate per unit of spectrum at a given power level would seem to be most efficient. Experience to date has shown that large high capacity satellites are more efficient than small satellites. Also, orbital slots are conserved when a small number of satellites are used.

Paragraph 5

The closeness of rates to cost is irrelevant. The objective should be to have the lowest possible costs and then have a reasonable relationship between rates and costs.

Page 23

Paragraph 2

Rate competition can be "real" if the competitive interface is between satellites and terrestrial entities.

Page 24

Paragraph 3

Regulation of the terrestrial system is difficult because of the variety of systems, entities, state versus federal jurisdiction, etc. In the satellite case, however, Congress built into the ComSat Act of 1962 extra controls not applicable to terrestrial systems. The FCC can obtain complete visibility of the satellite system cost structure and therefore is in the position to exercise regulation to whatever degree of precision desired.

Page 25

Paragraph 1

The competition referred to in this paragraph did not take place in the marketplace. It took place in the halls of Congress, in the FCC, and in other departments of the government. I would not recommend this as a desirable pattern for the future.

Page 26

Paragraph 1

Routes assigned to 3 or 4 carriers are normally between high traffic generating points. Routes with only one or two carriers have relatively low traffic. The higher cost on the latter route is not because of the absence of competition but because of the high cost versus available revenue traffic.

Paragraph 2

I suggest that the railroads are a poor example. First of all, they are economically sick, and secondly, during recent years they have been merging in order to maintain some semblence of economic viability. If I were to use the railroads as a lesson they would lead me to conclude that a chosen instrument is probably the right answer.

Page 27

Paragraph 1

Technical innovation is always a departure from the "tried and true" design and represents an added risk factor. This added risk is acceptable only if there is a payoff such as greater capacity, longer life, lower cost, etc. A small entrepreneur would normally insist on a minimum risk operation - the

unavoidable risks are already excessive. A chosen instrument, on the other hand, is forced to provide greater and greater capacity in the same spectrum space, limited orbital space, shared spectrum on the ground - in fact, in order for him to meet his requirements, he (ComSat Corp) has set up a laboratory dedicated to communication satellite innovation.

Paragraph 3

If Alcoa had maintained its monopoly, how many inventions would have occurred?

Paragraph 4

This does not follow.

Page 28 cont'd.

The last sentence is incorrect. Good estimates of costs can be made. There is full visibility of all factors. Cost allocation between services requires judgement of what is the proper percentage for sharing cost between common use elements of the system. In adedicated system a particular service has to pay the total cost rather than a shared cost of the complete system - certainly from a customer's viewpoint, a less desirable situation.

Page 30

Paragraph 1

This implies that AT&T is good at innovation (contrary to an earlier statement)! I agree.

Page 42

Paragraph 3

I do not understand why there should be any question of why the operator in the case of a chosen instrument should not also be the owner.

Page 46

Paragraph 1

No good reason has been given in this report to support the contention that, in the case of a chosen instrument, that there must be user ownership or partial ownership of ground facilities. From a system design and management point-of-view, a far more efficient operation can be conducted with the simplest ownership arrangement.

Page 47

Paragraph 3

I think this procedure would force the Department of State to fend off international repercussion while the FCC ~~covers~~ caves up the "equatorial pie".

Domsat

Thursday 11/6/69

12:20 Called Mr. Earl's office (Sylvania Electronic Systems in Waltham, Mass.) to let them know that the "de-classified plans for a domestic satellite television system" which was mentioned in an article by Jack Gould in the 10/19 New York Times were not available. Advised that the replies to our August letter were treated as sensitive and we had not and would not be releasing these letters -- certainly at this time. That if they wanted a letter from someone in particular, they should contact them directly.

The secretary thanked me for calling.

(617) 893-9200

SYLVANIA
SYLVANIA ELECTRIC PRODUCTS INC.

SYLVANIA ELECTRONIC SYSTEMS
COMMUNICATION SYSTEMS DIVISION
140 First Avenue
Waltham, Mass. 02154

21 October 1969

AIR MAIL - REGISTERED

Dr. Clay T. Whitehead
Special Assistant to the President
White House Offices
Washington, D. C.

Sir:

May I please have a copy of the de-classified plans for a domestic satellite television system that would serve commercial and non-commercial TV networks?

These are the plans mentioned in the 19 October 1969 New York Times by Mr. Jack Gould, and that were stated to have been available in Washington, after de-classification.

Very truly yours,

SYLVANIA ELECTRONIC SYSTEMS
Communication Systems Division

R. J. Earl

R. J. Earl
Program Manager

RJE:DF

Donald

MEMORANDUM OF CALL

TO: CTW

☑ YOU WERE CALLED BY— ☐ YOU WERE VISITED BY—

Ed Morgan

OF (Organization) M.H. Seiden & Associates

☑ PLEASE CALL → PHONE NO. CODE/EXT. 296-3535

☐ WILL CALL AGAIN ☐ IS WAITING TO SEE YOU

☐ RETURNED YOUR CALL ☐ WISHES AN APPOINTMENT

MESSAGE

Wants to know whether there will be any preliminary papers available for public scrutiny before the final report is made on Domestic satellites. NO 11/6 advised him we cannot

RECEIVED BY	DATE	TIME
Judy	11/5	4:00

STANDARD FORM 63
REVISED AUGUST 1967
GSA FPMR (41 CFR) 101-11.6

GPO : 1969—048—16—60341-1 332-389

63-108

Dr whitehead

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF TELECOMMUNICATIONS MANAGEMENT
WASHINGTON, D.C. 20504

Date: November 5, 1969

Subject: Comments on Final Draft Report of the Economic Committee on Domestic Satellites, November 3, 1969

To: Dr. Tom Moore
CEA

The comments contained in this memorandum supplement previous Office of Telecommunications Management comments furnished in my memorandum to you on October 29. We do not concur with all of the findings and conclusions of the final draft Report. Overall, we do not agree with the general thrust of the Economic Report and continue to caution its use in the formulation of national policy. Conceptually, the report seems to be aimed at achieving the objective of promoting competition and innovation as the fundamental goal in the introduction of this new technology in the domestic scene. Rather, we would propose the goal be to organize and pursue a program in which this new technology can make the maximum contribution to the total telecommunications resources available to the American people in both quality and economy.

The Report continues to understate the estimated costs for the design and establishment and operation of a minimum domestic satellite system. These unrealistic low estimates (e.g. $20 M space segment, page 13) thus optimistically overstate the prospects for the establishment of a complete system, particularly for such a risky enterprise. They also distort the realism of a truly competitive environment being feasible in this new industry.

In light of the recognition that whatever is done in the domestic satellite field some degree of regulatory control must be exercised, the labelling of a category as "competitive entry" under minimum regulatory control seems to imply rather a "Regulated entry" category vis-a-vis competitive entry. This situation appears to be recognized in the report under the heading, "The problem of few entries" in which it is acknowledged that the marketplace in the country today is indeed quite limited in potential system (ownership) entrants.

Another area of concern to this office is the overemphasis and detailed theoretical treatment of advantages of dedicated (private) systems and the general derogation of the value of the common carrier or multiple-purpose system approach. This is apparent in the rather arbitrary division of the available orbital space to any one potential entrant. The Office of Telecommunications Management strongly recommends that the national policy avoid policy guidelines which would overemphasize separate dedicated private systems so as to avoid the situation which could occur wherein no viable multiple-purpose system entrant would be realized. The absence of a domestic multiple-purpose system available on a non-discriminatory and direct access to all potential users, private and Government, is, in our view, not in the public interest in its broadest context.

We continue to have difficulty with the highly theoretical conceptual approaches formulated in the report and consider many of the examples from other industries to be irrelevant to the telecommunications field. We cannot understand the applicability of the situation in 1870 in the railroad industry as being applicable to what should be done in the 1970's in telecommunications. We do acknowledge that the report recognizes uncertainty of the future by concluding that a trial period is needed for the introduction of satellite communications domestically.

The position of this office on these matters was outlined in the DTM memorandum to Dr. Whitehead on September 18, 1969. Pertinent extracts from that memorandum include:

> . . "I feel the multiple purpose space segment approach offers a logical method for introducing and integrating satellite communications domestically. If we are to realize an enhancement of the domestic public network through the addition of a satellite communications transmission and distribution system, the system design requires an integrated systems approach. Conceptually, this approach would enable the common carriers to augment their domestic public switched and private line networks and, simultaneously, would allow other dedicated user networks to have direct access to the multiple purpose space segment. This orderly, reasoned and technically sound systems approach for domestic satellite

communications would avoid undesirable proliferation of satellites unnecessarily using valuable frequency spectrum and orbit slots and would optimize operational and economic benefit to users, both private and Government. It would avoid the charge or negate it that the U. S. is preempting (hogging) the radio frequency spectrum without due consideration of its economy or of the needs of other nations."

and

..."I continue to believe that the approach for introducing and integrating satellite technology into the domestic telecommunications environment should be of an evolutionary process. Logically, a modest beginning in the nature of a "pilot project" or "interim network" would help to establish the utility of satellite communications in domestic applications."

Tom Olsson

W. T. Olsson
Colonel, USAF

cc: Dr. Whitehead ✓
Dr. Drew

Donis at
11/7
2pm

Monday 11/4/69

3:10 Robert Scherr of Post Office wants to make the Windup Meeting - however, he has something scheduled for Friday at 2 p.m. and can't change it. Wondered if that meeting could be changed to next week. (He has been in on the previous meeting s and definitely wanted to be in on the windup.) (177) 7472

unable to change

Domsat

Tuesday 11/4/69

6:45 Tom said someone from Don Baker's office would be calling about this. He basically wants to send this to Rehnquist.

7:10 TW said when Baker's office calls about the memo, tell them TW has learned that the Commission can require compensation for damages when it changes the operating license of a broadcast station and this apparently is done as a matter of course under authority of the 1934 Act. You should check that out in looking at the interference question with regard to common carriers.

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

Tom Whitehead

TO : Economic Committee **DATE:** 3 November 1969

FROM : Tom Moore, CEA

SUBJECT: Final Draft Report

Please let me have your comments and suggestions in writing by COB November 5.

Attachment

5010-108

REPORT

OF THE

ECONOMIC COMMITTEE
on
DOMESTIC SATELLITES

Final Draft
11/3/69

INTRODUCTION

The United States has the most comprehensive economical and flexible system of telecommunications in the world. This highly developed and valuable resource provides a wide diversity of telephone, telegraph, TELEX, television, radio, facsimile and data exchange services for the nation's private, public and government users. These services are provided through an intricate complex of private and government-owned facilities and systems including: (a) radio and television broadcast stations and receiving sets; (b) an integrated public switched telephone network including common carrier transmission systems (wire, cable and radio); (c) fixed radio network; and (d) mobile radio network (vehicular, aeronautical and maritime). This enormous infrastructure of systems network and institutions is worth an aggregate of over 50 billion dollars and includes more than 110,000,000 telephones, 6700 broadcast stations, several million mobile radio transmitters, and 200 million miles of voice equivalent circuits interconnecting virtually every town and city in the United States.

The feasibility of long-distance communications via communications satellite is geostationary orbit has been demonstrated and, in fact, such capability is now utilized on an operational basis throughout the

facilities of the International Telecommunications Satellite Consortium (INTELSAT).

The potential for providing domestic telecommunications services by the means of satellite communications technology has been under active consideration by many private and government organizations for several years; however, uncertainty exists as to the policy the Government should follow for satellite communications in domestic applications. Consequently the White House appointed two committees - one dealing with economic factors and the other with technical constraints - to investigate the issues and present the options.

The Economic Committee is charged with examining those factors having economic relevance in the introduction of satellite communications into the domestic telecommunications environment. The Committee, limited its consideration to the near-term time frame using current state-of-the-art and allocated frequency bands (4 and 6 GHz) available for commercial communications satellites. In this examination, the Committee addressed, in part, the following important policy questions:

- What services might satellites perform economically.
- What are the advantages and disadvantages of encouraging competition in this area or providing for monopoly control.
- What difficulties might arise under a competitive approach.
- What policies might be followed to minimize these difficulties.

I. The Role of Satellites in Domestic Communications

The two basic telecommunications functions are interconnection and mass communications. The objective of interconnection is to permit individuals or machines to communicate with each other by telephone, telegraph, teletype, facsimile, dataphone or other similar equipment. This function is performed by both common carriers and private systems, and typically involves switching facilities and trunk routes. Interconnection is not necessarily restricted to bi-directional communications; it also includes the function of transmission of information to one or more receive-only terminals.

Mass communications or the one-way transmission of information is performed by the broadcasting stations and CATV systems which may also use interconnection facilities to convey their program material from points of origin to transmitting stations.

While satellites may some day perform mass communications by transmitting directly to modified or unmodified home receivers, it is unlikely that this function will be performed under an initial domestic satellite program. Such satellites are beyond the proven state-of-the-art and no frequencies have been allocated for such services. Consequently, domestic communications satellites will be used initially in an interconnection role.

Initially satellites for domestic services generally will not directly interconnect user terminals but will interconnect gateway earth stations which in turn will serve one or more user terminals in the adjoining area through land-line or microwave connections. In some instances, notably local broadcasting stations, educational institutions, or large industrial complexes, direct user access may be provided. Although this same interconnecting function can be performed by terrestrial communications facilities through a combination of transmission and switching facilities, the satellite can directly connect any two gateway earth stations, or can relay a signal from any transmitting earth station to all receiving earth stations simultaneously. The exploitation of these capabilities can provide, for some services, greater economy and flexibility of operations.

Any user having a requirement for interconnection is a potential user of domestic satellites so long as he can deliver his signal to the earth station. If he has sufficient traffic to warrant the cost of earth stations and terrestrial links at each of the points with which he wishes to communicate, he could have a system dedicated to his sole use. On the other hand, it would also be possible for him to combine with other users having similar requirements to jointly finance such a system.

A third alternative would be for one entity to provide the required services to all users as a common carrier. Under this last alternative, the common carrier could either be the same as that providing common carrier services between the users' terminals and the earth station (as AT&T, for example), or one limited to transmission of the signal between earth terminals, (as COMSAT, for example) in which case the user would be responsible for providing or obtaining the link to the earth station. The communications functions that could be performed would be identical in each of these cases.

Potential Applications

Some of the potential applications of domestic satellite communications are:

Nationwide and/or Regional Distribution of Television and Radio:

The distribution of television and radio programs from one (or a few) originating points to many local broadcast stations is basically a wide-area, wide-band width broadcast function. This currently performed by long chains of microwave and coaxial cable links, in which the program travels from A to B, where it is both used and forwarded to C, and so on through the country. At each junction, there are both terminating facilities (to pick off the desired signal); retransmission equipment

(to forward the signal along); local distribution lines to each individual broadcast station being served; and, of course, additional terminating equipment at the local station. Additionally, there is a complex network of control circuits and associated switching/routing facilities to provide the sub-network interconnections, or alternate routing in case of a break in the transmission chain, and intermediate testing, monitoring and maintenance equipment with the personnel needed to maintain adequate signal quality through this maze of switching and transmission facilities (which can introduce different distortions to the signal, depending on weather conditions, differing routes, etc.).

To accomplish this same task via satellite requires a single transmission from the originating point through an earth station to the satellite, and a single broadcast transmission from the satellite to an earth station and then to the local stations. To the extent that different local stations desire different program material, it is necessary that the satellite transmit multiple programs, the local station then selecting the particular one it wished to use - as in the case of the home broadcast receiver. Broadcast distribution appears to be the most attractive domestic application of communication satellite technology at the present time.

Despite the occasional requirement of present-day commercial TV networks for simultaneous nation-wide distribution of programs, the normal operation of these networks is that of a series of regional sub-networks, each using delayed broadcast of programs taped earlier and each inserting a variety of both local and regional advertising, news programs, etc., at varying times. Currently a vast amount of switching and capacity must be reserved for subdividing networks and introducing regional advertising. A similar service by satellite would require many additional channels and a switching network. This type of operation, being somewhat closer to interconnection than pure distribution, would therefore provide less opportunity to exploit the satellite distributional advantage.

Several comparisons have been made between satellite and terrestrial systems for TV program distribution and interconnection. These differ appreciably in their assumptions, in the factors compared (some compare satellite system costs with terrestrial system rates, some compare only transmission costs, some include the cost of local loops while others do not, etc.) and, obviously, in their findings. However, without exception, they all found savings from the use of satellites for this purpose.

National/Regional Data Exchange and Video Conferencing Networks:

For the foreseeable future, the market for wide-band data exchange, telemail, and video-conferencing (including Picturephone) appears to be thinly dispersed and limited primarily to business uses, since the terminal equipment is costly and the benefits limited. In addition to demand being thin and widely dispersed, these markets also require very specialized communication interconnections, such as wide-bandwidths (possibly variable) and limited phase shift and distortion. Such services can not easily utilize the existing long-lines transmission and switching network since it is built around the requirements of analog narrow-bandwidths voice signals. To take care of these services new facilities will have to be built or existing equipment extensively modified.

By its very nature, a thinly dispersed communications market is prone to much wider fluctations in traffic loading than a dense market in which customer use is statistically smoothed out. Using fixed capacity, fixed route terrestrial transmission and switching facilities, a high degree of excess system capacity would be often required to handle such a market. On the other hand, satellite systems employing demand-assigned circuit capacity are much more adaptable to meet fluctuating demand.

In effect, a satellite system can reallocate capacity among many routes throughout the country -- which terrestrial facilities cannot do -- and thereby minimize excess circuit capacity. Therefore, it would seem that satellites might be most economical for providing any long-haul, thinly dispersed communications service which requires significantly different bandwidths, distortion, error rate, etc., than the basic analog telephone plant can provide.

Point-to-Point Trunking: Point-to-point trunking appears to represent the least economic utilization of satellites in the domestic environment, in relation to terrestrial alternatives. There are several reasons for this. First, this mode of operation derives no benefit from the routing capability of satellites; hence, they must compete on a straight-transmission basis. Furthermore, terrestrial facilities are themselves most economical in point-to-point trunking, with a sharp downward cost trend with increasing route density. Systems using satellites show much less difference in costs between thin and dense routes, yet dense rather than thin routes are presently most in demand for long-haul point-to-point trunking in the domestic switched network.

Satellites may consequently be useful for point-to-point trunking, but potential cost savings appear slight and may be of fleeting duration unless future developments in satellite technology bring about very significant cost reductions -- which is certainly possible.

In addition to the relay functions described above, there are specialized services which satellites can perform which are uniquely suited to their characteristics. Some of the specialized services could be provided within existing state-of-the-art technology, although they might raise problems of frequency allocation and compatibility with existing ITU regulation and CCIR recommendations. Among such services would be communications with mobile terminals such as aircraft and ships for navigation and air traffic control functions, collection and relay of data from remote terminals and clock coordination for many ground or mobile applications. Whether these services could be incorporated in satellites configured primarily to provide the interconnection function discussed earlier, or would require separate systems, would involve an analysis of the requirements for such services and their technical and operational compatibility with other services that might be provided by the satellite.

Government as User of Satellite Communications Services

The United States Government is dependent upon a very wide range of modern telecommunications services in conducting its functions. Within the coterminous 48 states the Government has followed the policy of obtaining commercial services from common carriers to meet its traffic needs wherever possible and only establishing Government-owned facilities to meet special requirements. Hence, the Government is today by far the largest single customer of common carrier telecommunications services both domestic and international. Government uses include networks for national defense, radio navigation, air traffic control, intelligence, weather reporting, law enforcement, agriculture, medical, research and development, recreational education and many others. In 1968 the Government spent $144 million for non-military leased telecommunications services and $225 million for military leased services.

The most probable candidates for leased satellite telecommunications services include: (a) wideband collection and distribution (video, high-speed data and computer to computer real time); (b) alternate routing of poing to point telephone, dataphone and telephone; (d) possible new applications for the Post Office Department, the Department of Transportation and the Department of Defense.

The Post Office in particular has indicated interest in the use of satellites for an electronic postal system. It is quite possible that at some future date the Postal Service might want to establish its own system or to contract with a domestic satellite licensee. If the Post Office established its own system, it would presumably use that proportion of the spectrum allocated to Government use. In which case it would not occupy any spectrum or orbital space that domestic satellite operators could use. Alternatively, if the Post Office contracts with a potential private satellite operator for a pilot project, an additional satellite operation could be established. This might be desirable if the number of entrants were very few (see section III for more on this point).

Costs

Without specifying system requirements and absent a detailed study, no firm conclusions can be drawn about costs. To adopt any Intelsat satellite for domestic use would require some additional R&D. Moreover, Intelsat would undoubtedly require some compensation for the R&D already invested in existing satellites. Thus a satellite of the size of Intelsat IV can be expected to cost more than the $6.5 million, Intelsat would have to pay for an additional one.

A satellite system would require the purchase of more than one satellite. At a minimum a space would be desired - probably in orbit . An additional spare on the ground might also be necessary. Thus a company entering the satellite business would have to expect to pay for a minimum of two satellites and launches and probably more. In addition, launch failures as well as satellite failures are quite possible and must be considered in estimating costs. The fewer satellites in a system, the greater the impact of a single failure.

On the ground, send and receive and receive-only stations must be constructed. The more earth stations the higher the cost. One advantage of a satellite system is the ability to switch capacity among different routes. But to receive this benefit, at least several send and receive stations must be built.

In general, then, satellite systems are expensive. It is hard to conceive of the simplest system costing initially less than $20 million for the space segment alone while a large complex system might run in the hundreds of millions of dollars for the whole investment.

Economies of Scale

Provided there is a demand for the circuits, high capacity transmission facilities are the most economical per unit of traffic. When applied to satellites, the larger the capacity of the satellite, the lower the cost per circuit.

But helping offset the lower circuit cost of higher capacity satellites is the trade-off between launch cost and satellite weight, which in turn is a rough measure of its capacity. Other important variables that could further affect the relative costs of large and small satellites are the manner by which launch and satellite failure risks are accounted for, the lifetime of the satellites and whether in-orbit or on-ground spares are included. Additionally, a major impediment to further scale economies beyond the INTELSAT IV is the limitation imposed by existing frequency bandwidths allocation.

If communication satellites should continue to grow in size beyond the capability of the Atlas-Centaur, launch costs would make the large incremental step to the Titan-Centaur vehicles and hence introduce problems of risk and redundancy that might well outweigh the advantages of added communications capability.

It should be emphasized that the discussion of economies of scale is predicated on existing technology and the 4-6GH_z bands. In the future larger satellites and higher frequency bands will become available and will change the minimum size satellite that is economical to launch. But in the near future it is quite clear that more than one satellite will be desired and that additional satellites will have additional earth

stations. As was pointed out above, costs will also depend on the need for spares, the need for tracking, telemetry, and control stations, management expenses, and any economies in purchasing multiple satellites. Consequently it is impossible to determine the smallest size system which would also minimize costs for a given use.

II. An Evaluation of the Basic Alternatives

While there are an infinite number of institutional arrangements for a future domestic satellite communications industry, the committee focused on two polar categories. Clearly some position between these extremes could be selected but the arguments are best clarified by discussing these categories.

The first category, called competitive entry, is defined to mean that no economic criteria other than minimum financial capability would be used to screen potential entrants, but that antitrust considerations could be used to restrict the manner in which some firms would be allowed to participate. Subject to that caveat and the availability of spectrum and orbital space, authorization would be automatically granted. In other words, the FCC would issue a license to any applicant to use the frequency allocations appropriate to his service provided that the proposed satellite system would not create undue interference problems with other systems or would not monopolize the spectrum. The location of each transmitting earth station would, of course, have to be considered and licensed. The criteria for licensing would be whether such an earth station might cause interference with either terrestrial users or other satellite systems. If interference were

expected to result from the use of such an earth station or developed after installation, the applicant could be required to pay the cost of relocating the terrestrial equipment, to provide equipment to eliminate interference, or to relocate his earth station.

The competitive entry category represents a straightforward extension of the policies now followed with respect to the use of terrestrial radio facilities, where the prospective user of telecommunications services has the option of either installing his own private system, joining a cooperative consumer-user system, or obtaining services from a communications carrier. However, the major thrust of this option is to permit competition among communications carriers. Thus, no protection against competitive inroads would be offered either to existing terrestrial carriers or to new satellite operators. While current law does not require that existing carriers be protected, the FCC must insure that necessary public services are maintained. This point is elaborated below in Section IV.

Even under the competitive entry approach, existing law would compel the Commission to make a finding that competition - the basic feature of the competitive entry policy - would produce some economic benefit to the public. We believe that the Commission would be able to make such a finding in this industry, where rate and technical

competition is possible. In other words, while the FCC has certain statutory responsibilities, we would expect the FCC to minimize its activity in this field to give competition forces the maximum free play consistent with the law.

Underlying the competitive entry option is the assumption that spectrum and orbital capacity exceeds for the near and mid-term future the needs of potential operators. In fact, the technical committee has found that with existing technology, the orbital space could accommodate at least 16 satellites covering all of the contiguous 48 States. However, not all of these "slots" are available to the U. S. Canada is planning two satellites; Intelsat may desire space for North America-South America service. Nevertheless, it appears that in the near future all proposed systems could be installed. If, however, proposed systems require more than the available orbital capacity, the FCC would have to allocate space among entrants or chose between entrants. *

* Several solutions to that problem exist: first-come, first-served (with the option of selling a system), or having the FCC allocate the space to those with the most desirable attributes.

Since this appears to be unlikely at this point in time, that problem will not be considered further.

While no test of profitability of entrants would be involved in competitive entry, certain classes of companies, e.g, terrestrial common carriers, might be restricted for antitrust or regulatory reasons. This point is elaborated below in Section III, Policy on Potential Entrants.

Competitive entry does involve an implicit contradiction in U. S. policy. In the past we have strongly supported the monopoly of Intelsat by opposing regional systems. Allowing domestic competition would appear to be inconsistent with that position.

The other category, called a chosen instrument, would involve management of all satellites by one entity. Such a single management could either involve the system being a common carrier, or alternatively, could in fact be a combination of users organized under one agent, thus a common user system with common carrier obligations. Any chosen instrument would clearly provide common carrier services and might in addition have some specialized satellites or earth stations. It is, of course, quite possible that under a competitive entry policy a single system might result. It could be that only a single firm would apply for a license to run a satellite system or it could be

that after an initial trial of several rivals, economies of scale might be so pronounced as to result in the combination of all the systems.

Evaluation

The Committee has attempted to evaluate each of these categories according to some desirable criteria. Much of the evaluation must perforce depend on theoretical considerations which may not be borne out in all situations. Some of the evaluation is based on evidence from other industries or studies of a wide variety of industries. Nevertheless we cannot be dogmatic about our conclusions. They are the probable results as forecasted by theory and evidence but they might not result for future satellite services.

Service Flexibility - The first criterion for evaluating the alternative policy options is which policy offers the greatest flexibility in providing the public with a wide variety of services. A chosen instrument can of course offer any service but would it? A monopoly may prefer to offer a few broad categories of services rather than many specialized ones tailored to customer needs. A single entity may not conceive of some potentially profitable service or may be unwilling to take the risk of offering such a service. On the other hand, if several firms are offering satellite communications and

and other entities can enter, there will be more incentive to search out alternative services. The first firm to offer a service may secure a lucrative market. Moreover with a number of firms in the business, there will be more groups generating ideas and so more likelihood new ideas will be tried.

On the other hand, if only one or two specialized carriers enter, some potentially profitable services might be neglected - at least temporarily. Some service that would be potentially profitable as an adjunct to other offerings but which could not support its own system might not be offered by specialized carriers which did not want to be classified as common carriers, or which were primarily concerned with their specialized customer needs. If many such services were neglected, however, it would be possible and profitable for a common carrier to enter and service them. Moreover, except for possibly a system dedicated to television distribution, any entrant would very likely be sufficiently hungry for business that it would search out potentially profitable service offerings. Thus unless the only entrant is one dedicated to television we would expect the competitive entry alternative to offer the greatest flexibility in meeting customer demands.

The options open if the only entrant is a dedicated television distribution system are discussed below in Section III under the heading The Problem of Few Entrants.

Efficient Satellite Use - A second criterion is to insure that satellites and satellite communications are used efficiently both economically and technically. Technological efficiency is compatible with multiple entry provided that the regulatory control recommended in the Technical Committee report is followed.

Economic efficiency is related to the question of economies of scale. As was concluded above, any multiple purpose system would involve multiple satellites which could be owned by separate entities, without economic penalty. We have been unable to determine the extent of any economies of scale. However, if economies of scale were substantial there would be significant gains from combining systems and it is likely that potential satellite operators would recognize these gains and would establish a single unified system.

It may be argued that a chosen instrument would be better able to avoid overcapacity and redundancy. Any excess capacity that might develop under competitive entry, however, would probably be of short duration. Demand will probably grow to meet the capacity. Moreover satellites have a limited life and excess capacity would not be replaced. Thus, in the long run, competitive entry could be expected to be about as economically efficient as the other alternative.

Low Rates - A third criterion is which alternative will keep the rates lower and closer to costs. If many firms enter - a long run possibility - competition can be expected to keep rates close to costs.

On the other hand, if economies of scale were substantial for a specific service, and economies of specialization negligible, a chosen instrument would be lower cost and could offer lower rates.

Even under competitive entry we would not expect a large number of systems. Thus, any competition in satellite service offering would at best tend to be among a few oligopolists (as well as with the terrestrial common carriers). Such competition is unlikely to lead to vigorous rate competition. It is quite possible that initially only a television distribution system and a common carrier system might enter. Even in this situation some price competition might develop. A TV distribution system would likely have excess capacity on weekdays during working hours. Consequently a profitable alternative for such a system might be to offer weekday private line wide band data service in competition with the common carrier. In addition, the common carrier might attempt to secure CATV and independent station business in competition with the TV system.

There are almost unlimited ways that satellite services can be "packaged" and sold. Different rates probably would develop for interruptible service, continuous service, on demand service, when space is available service, peak service, and so forth. Such differentials

will promote active competition in offering the various services at various rates. Thus even under oligopoly conditions considerable. competition can be expected among the various entrants.

It should also be noted that for almost all uses of satellites, terrestrial carriers compete. Thus, a maximum rate is imposed by terrestrial service. Nevertheless, there may be a few uses for satellites which are unique. In these areas rates could conceivably be high relative to costs. Yet, since these services are now unavailable, the public would still gain even if rates were high. It is possible that maximum rate regulation could be imposed in these areas, but such a step could deter entry by many firms.

Conceivably, regulation of a chosen instrument could keep prices closely related to costs. Regulation, however, suffers from the difficulty of measuring costs accurately, of a necessarily long process involved in achieving rate reductions, and of limited resources. In a number of regulated areas, competition has been found decidedly helpful in keeping rates down and in improving services.

Competition in international telecommunications has had the result of deferring rate increases in times of low earning, expediting rate decreases for certain services, particularly leased voice grade channels, and encouraging innovations in service. Thus, after World War II when the international telegraph carriers were faced with increased costs and major decreases in traffic volumes, they were unable because of the existence of competition to effectuate rate increases to compensate for their traffic losses for a considerable period of time. After the Commission's Authorized User decision, the international carriers engaged in a series of competitive activities seeking the business of leased circuit users. As a result of this competition, rates across both the Atlantic and Pacific for leased circuits were successively reduced so that now they are some 25 to 35 percent below levels of a few years ago. After the Commission indicated that it would authorize competing direct radio traffic circuits, RCA Communications which previously had enjoyed a virtual monopoly was forced to seek other means of maintaining and increasing its revenues. It then pioneered the international telex service which today accounts for a substantial percentage of the total revenues of the international telegraph carriers.

Experience in the commercial aviation industry also indicates that an oligopoly leads to some beneficial competition. In routes with 3 or 4 carriers, competition is considerably more vigorous and prices considerably lower than in markets with fewer carriers. The natural gas pipeline industry is another example where even under regulation, competition among two or three lines has benefited consumers.

Even prior to the antitrust laws, a three-firm oligopoly could not control prices. In the early 1870's only two railroads competed between New York and Chicago. With the entry of a third line, prices declined substantially. Even with periodic attempts to stabilize price with formal cartel meetings and even though there was no legal barrier to collusion, price competition continued to break out and prices could not be maintained for long. While examples from other industries can never be completely persuasive, the railroad case may be quite similar to the satellite case. Both can offer homogeneous services, have large fixed investment, and have small incremental costs.

Promoting Innovations. A fourth major criterion is which option would most promote innovation in communications. Marketing innovations were discussed above in the section on flexibility of service. Technical innovations would appear to come more readily from the manufacturer rather than the satellite operating entities. Yet the

choice between the policy alternatives may have an impact on technological innovations. A single chosen instrument is likely to result in only one or two suppliers since suppliers would either feast or famine. Thus competitive entry that resulted in more than one domestic satellite company would probably also result in several suppliers.

There is good evidence that within limits the existence of several manufacturers is likely to result in more innovations than if output is controlled by a very few suppliers. Several economic studies have examined the relationship between the degrees of monopoly in an industry and its innovativeness. In general, comparing similar industries, they have found that the very monopolistic industries are less innovative than less concentrated ones.

A major case study concluded that the introduction of two new firms in the aluminum industry after World War II led to more inventions in the postwar period than would have occurred if Alcoa had maintained its monopoly. Thus, competition in the provision of satellite communication services should stimulate innovations.

Increased Learning - The final objective of a domestic satellite system is to increase the learning about possible uses, costs and services. Again it is clear that the more competitive and the more open the market, the greater the possibilities are of learning about new uses, about the true costs, -------

and about potential service. Thus, competitive entry would provide the greatest possibility of learning. While it is possible that a single system or a limited entry system could have imposed on it some requirements for experimentation, it is unlikely that these requirements could or would cover all the possibilities and might overlook some important uses. Moreover, it would not be possible under a single system to derive very good estimates of costs of particular services.

III. Policy on Potential Entrants

While COMSAT would prefer to be the chosen instrument, it is a likely entrant regardless of conditions of entry or service terms. COMSAT with large cash reserves needs investment outlets. Moreover, its business and its expertise lie in satellites and consequently it would be very unlikely to pass up an opportunity to enter the market even if it expected to face competition.

Among the terrestrial carriers, the magnitude of the project would restrict the possibilities to three firms: General Telephone & Electronics, Western Union, and AT&T. General Telephone has expressed little interest in establishing a satellite system and can probably be discarded at the outset, as an independent entrant, as can be Western Union, whose small size and all-consuming interest in developing its data processing and switching capacity probably precludes consideration of such a massive new undertaking. Both companies, of course, might consider participation in any joint venture along the lines of COMSAT. Basically though the only likely independent entrant in this class is AT&T whose expertise in communications systems management and sophisticated technology is well known. It has ample resources available to finance such a project, and as a large potential user,

sufficient motivation. Furthermore, traditionally the company has shown strong interest in new communications techniques, and prior to the establishment of COMSAT was the prime contender in the international sector. Even though AT&T has indicated that it does not now consider satellites economical for domestic services, it would clearly reconsider in the event that satellite operations by others become successful.

ABC has already requested authorization from the FCC to operate a dedicated broadcast system. The president of CBS very recently advocated a joint network dedicated system. As broadcast distribution presently offers the greatest cost-savings through satellite services, all three networks might be viewed as potential independent entrants, but their participation in a dedicated satellite joint venture seems even more likely.

General Electric has proposed a satellite system to provide high speed record and video interconnection services. There presently exists a large potential domestic demand for a high speed record service, principally in business, that existing terrestrial carriers cannot satisfy without a major investment in new communications facilities or modification of existing facilities. GE's longstanding position as a leading innovator, and its ample resources, make it a definite

potential entrant. Yet in its filing, GE refrained from requesting operating rights for reasons which are not clear. It is possible that GE was reluctant to enter a high risk industry in which their rate of return might be limited by regulation.

Conditions of Entry

In principle, a policy of competitive entry provided it results in a number of entrants appears the most effective in promoting innovation, low rates, and learning in the use of domestic satellites. However, one entity, AT&T, so dominates the domestic communications industry that without appropriate guidelines "competitive entry" might well mean the entry of only AT&T.

The gross assets of AT&T and the associated operating companies of the Bell System are worth about $43 billion, making it the largest corporation in the world; by comparison, the largest potential other entrant (the parent companies of three TV broadcast networks) have combined assets of only $3.6 billion. Furthermore, AT&T provides through its terrestrial long-lines network over 90% of all long-distance communication services (public and private); through the local operating companies, it also controls over 95% of the local distribution facilities, the use of which are essential to many long-distance services. Finally, this position of AT&T is largely the result of a longstanding public policy

at both the state and national level that the public message telephone service represents a "natural monopoly" subject to public regulation rather than private competition. Given this monopoly control of the public message exchange service, AT&T's ability to control the private line service as well is virtually assured.

Unrestricted entry by AT&T into satellite operations could discourage entry of other firms and thus reduce the possibility of either effective competition or independent communications operations. Most satellite systems will have to use AT&T terrestrial facilities to reach the ultimate users. Therefore, if AT&T also offers satellite services, other satellite entities would face the very real possibility that Bell might reduce its rates on specialized service offerings to a point that competitors could not afford to match, through cross-subsidization from the public message exchange service.

To ensure that AT&T -- or for that matter any other entity -- does not enjoy an unfair advantage as a result of prior policies or entrenched position several alternative conditions on entry might be imposed.

Bar AT&T from Entry: AT&T would not be permitted to own or operate domestic satellite systems, on the grounds its entry would automatically discourage other potentially innovative entrants and thereby further extend their monopoly control of both public and private

communication systems. AT&T would, however, be authorized to lease satellite transmission services from other entrants; and those entrants providing for-hire services in competition with AT&T (but not dedicated user systems) would be required to lease to AT&T.

A major drawback in excluding AT&T is that the Bell System would not be likely to patronize satellite systems extensively. Thus it might be cheaper for AT&T to lease some trunk capacity through a satellite but since such leased lines would not go into the rate base, terrestrial lines would be unduly favored.

Limit AT&T's satellite to serving only the switched public message network: AT&T would be permitted to establish and operate a satellite system dedicated to the switched public message network including associated services such as data phone. No private line, video or data transmission, not sent through the switched public telephone network could be sent through Bell's satellite. However, Bell would be permitted to lease capacity from other satellite entities for its other offerings.

This would clearly prevent Bell from using its public message telephone to subsidize its other services using satellite. It would permit AT&T to participate in satellite operations and thus give them motivation to innovate.

The primary drawback to this alternative is that it would restrict a technically advanced company from exploring many potential uses with its own satellites and it would reduce the incentive to innovate in areas outside of public message telephone transmission.

Some of the Committee believed that this restriction on AT&T might lead to the greatest number of entrants and would in the long run most promote competition. Even under this restriction, the Committee believed that AT&T might still apply for authorization to operate a satellite, although this would clearly reduce the profits to Bell from satellite operations.

Require AT&T to Establish Separate Domestic Satellite Operations: AT&T would be permitted to own and operate a domestic satellite system, but must keep the operations separate from its terrestrial network. This separation could be accomplished by establishing a separate satellite affiliate, charged with competitive procurement practices, and whose operations were not included in the rate-base regulation of the terrestrial system. Or it could be accomplished by careful segregation of costs and separate accounting.

Nevertheless the problem of terrestrial cross subsidization will remain. Without a major restructuring of the industry, the only way cross-subsidization can be minimized is by depending on the diligency of the FCC in regulating AT&T.

Some of the Committee believe that a separate affiliate by having publicly identified rates would aid regulators in preventing cross-subsidization. Other members believed that the FCC can be equally effective in policing AT&T through separate bookkeeping. All members of the Committee recognize that neither solution is a panacea nor could completely prevent cross-subsidization.

Therefore, we concluded that Bell should not be authorized to establish a domestic satellite system without conditions. Some committee members believe that permitting AT&T to enter with a subsidiary would be the best alternative; others, as was mentioned above, believe that any Bell satellite should be restricted to the switched message telephone service.

Conditions of Entry for the Networks

Another problem involves the potential entry of one or more of the major networks which would lead to vertical integration.

The principal reason for limiting vertical integration is that it may involve foreclosure of independent entities not enjoying the same advantages. Since both television networking and satellite communications are businesses involving high costs to enter (quite apart from any regulatory barriers), major network control of satellites might lead to the exclusion of additional commercial networks, or competing sources of information and entertainment (including educational television networks and CATV networks.)

On the other hand, excluding networks would exclude one of a few possible entrants. Moreover, broadcasting unlike common carrier communications, is not a "cost-plus" proposition, and hence broadcasters may have the maximum incentive to encourage innovation with resulting cost reduction.

Given these circumstances, the networks should be permitted entry either individually or in a joint venture consistent with antitrust considerations. Any foreclosure problem that arose out of a joint venture should be dealt with by requiring that access be granted to all in the trade - including other networks, broadcast stations, CATV systems, etc., - on equal and non-discriminatory terms. If capacity of the systems were inadequate to accommodate a new entrant, the joint venture would have the choice of launching an additional satellite or restricting their own use.

This requirement would not necessarily make the joint venture into a common carrier. Such a requirement was imposed in an antitrust action on the Associated Press.

Conditions of Entry for COMSAT

If COMSAT established a domestic satellite operation, it will compete with AT&T for some long haul traffic. Established antitrust principles prohibit a firm from owning stock in a competitor. With

the entry of COMSAT in the domestic field AT&T would own stock of a major competitor. Therefore it would be desirable if AT&T were to divest itself of its equity in COMSAT. This requirem ent could and should be imposed before AT&T was allowed to operate satellites and this divestiture would be desirable, if possible, even if only COMSAT enters the domestic satellite field.

The Problem of Few Entrants

It appears that entry requires a capital expenditure of at least $30 million for small specialized systems and much more for any large scale operation. Such a figure would necessarily limit the number of individual potential entrants. It seems likely, however, that if competitive entry were permitted, there would be at least two potential entrants for large scale systems: these would include some broadcaster joint venture and a common carrier system owned by either AT&T, COMSAT, or both. While the market would appear to exist now for two systems, it is unclear whether it will support three or more.

We would stress, however, that entry confined to one or two entities as a result of marketplace forces would be quite different in effect from the same result achieved by regulatory action. Such a marketplace result would suggest that those with capital, resources,

and experience see relatively modest opportunities in satellite communications for domestic purposes at this time; but the door would remain open to them (assuming available spectrum space) if and when market conditions or technology justified it. Thus, such a competitive entry policy - even combined with very limited actual entry - would continue to act as a spur to innovation of low-cost technology. Limited entry achieved by regulation would, on the other hand, probably tend to inhibit technical innovation by those not having some financial stake in the system chosen and reduce the need for innovation by those operating the system. While there might be an opportunity for later entry (especially if the original program were regarded as some sort of pilot project), the non-included interests might well conclude that they would not have a substantially better chance the next time around; and this would in turn lead them to devote their capital and technical resources to other areas of innovation and growth.

Assuming that only one or two applicants came forward under a competitive entry policy, the economic results would depend to a considerable extent on who those entrants were. If the only entrants were television networks, this would probably be sufficient to produce distribution cost lower than now provided by the terrestrial network.

On the other hand, it would probably do little to develop new uses of satellites.

If the only entry were by AT&T, satellite development might have a relatively modest impact on long-haul communications and on rates (except possibly for television distribution rates). AT&T would have the least incentive to push the satellite technology far and fast or to encourage new satellite uses, given its very large and continuing investment in terrestrial radio, cable, and switching facilities.

A serious problem might arise if the only entrant were to be a specialized carrier such as a network joint venture. In this case some services that might be offered profitably by a common carrier satellite system might be neglected because the networks preferred not to be common carriers or because they were uninterested in handling non-television communications.

There are several solutions to this problem. First, the networks could be required to offer such services. This has two drawbacks. It substitutes an FCC estimate of what is a profitable service for that of the private company that must pay the cost. Moreover it might even discourage the entry of such a joint effort.

A second solution would be to pay the specialized carrier to offer additional services. This has the disadvantage of initiating a subsidy program that may be difficult to abandon later.

A third alternative is to encourage an additional entrant to become a common carrier by guaranteeing the entrant for a fixed period substantial Government business. The additional entrant would be given the Government business on condition that it became a common carrier. With sufficient Government business to cover its cost but not enough to make large profits, the additional entrant would be strongly motivated to seek out profitable services. This alternative has the advantage of promoting more competition and, in addition, providing the Government with satellite services.

IV. Policy on Operation of System

Regulation of Satellites

Some minimum amount of regulation is required by law; other regulation is permissible and may be desirable. Initial specification of regulatory actions required by statute does not settle the question of how much and what kind of regulation is desirable, only what is necessary without statutory change. Examination of the Communications Act of 1934 and the Communication Satellite Act of 1962 indicates four basic requirements:

(1) an FCC license for use of the spectrum would be required for the space segment, for any earth station, and for any interconnecting radio facilities.

(2) if land lines are used to connect earth terminals with common carrier facilities or connect other points by common carrier facilities, the common carriers would require a certificate of public convenience and necessity from the FCC.

(3) if the satellite system were to provide common carrier services, the FCC would need to insure that rates are just, reasonable, and avoid undue discrimination among users. While the FCC must concern itself with rates of the common carriers, the statutes do not require a particular means of regulation.

(4) if the Communication Satellite Act were deemed to apply and the system procided common carrier services, the FCC would also be required to insure effective competition in procurement, equitable and non-discriminatory access, and technical compatibility and interconnection of the system. There is, however, a question concerning the applicability of these provisions to the domestic system.

Given these requirements, what should public policy be on ownership, rates, spectrum use and access for each of the major alternative systems under consideration?

Ownership: By definition, ownership of satellites would be determined by the satellite operators under competitive entry. Alternatively, under the chosen instrument approach the ownership question would be of major importance. This report does not attempt to identify whether the chosen instrument should be a combination of users, a combination of terrestrial common carriers, or a single entity. If a decision were made to select a chosen instrument for the operation of a domestic satellite system, a careful study should be made on the ownership of the system.

Rates: In a competitive entry approach, there does not appear to be a strong theoretical case for either maximum or minimum rate regulation since the market would over the longer run force an efficient provision

of service. There are, however, two practical problems. First, the FCC is required to provide some oversight over the tariffs of all common carrier services. This responsibility, however, could be met without utilizing rate of return regulation. For example, regulatory intervention might be limited to insuring separation of costs and revenues for the initial operating period and non-discriminatory pricing. In particular, no matter how low the rates, they should be considered reasonable. Maximum rates are set by terrestrial competition. Second, permitting rate competition by a satellite entity could cause problems for terrestrial common carriers which normally practice average pricing in the terrestrial network. Equity and efficiency therefore require that terrestrial common carriers be permitted to compete with common carrier satellite systems on an equal footing (non-predatory pricing and true marginal costs for the specific service).

In the chosen instrument approach, more comprehensive rate regulation would be required, though it would not necessarily need to follow the same form as terrestrial common carrier regulation so long as tariffs bear some reasonable relationship to costs and provided comparable alternative terrestrial services were available. Maximum rate regulation would appear to be in order, and possibly minimum as well depending on the stance taken with respect to competitive pricing in terrestrial common carrier systems.

Spectrum use: From the previous discussion, it is clear that FCC will be required to issue a license for use of the spectrum. The Technical Committee has indicated that several domestic satellites can be accommodated. Since a number of systems are technically possible within the ground rules, the license for spectrum use appears relatively straightforward except for the problem of interference with terrestrial microwave systems. In this problem area, there are some technical uncertainties which may make guarantees of non-interference difficult A means of handling this problem is discussed in the next section.

Access and interconnection: Except for a private system dedicated to a single user, a general rule would require non-discriminatory access or use of the satellite system by the class of users for which the system was designed. With respect to multi-purpose or common carrier type systems, it is assumed that the Authorized User ruling would not apply to the domestic system.

In the competitive entry concept, few rules beyond these two basic ones appear justified. Users would essentially have satisfactory options in that they could either obtain services if available or undertake individually or collectively to provide services through their own systems whether such services were otherwise available or not.

In the chosen instrument concept, the rules concerning access become more complicated as governmental intervention substitutes for the marketplace.

While the basic rules of access to encourage economical uses may not be radically different, the government may need to become much more involved in evaluating the technical design of the system to insure that the technical characteristics of the system do not defeat the objective of open access and exploitation of new or different technology.

The subject of interconnection is a highly complex problem full of convictions of ancient and often unexamined variety. Much time was devoted to this subject by the Rostow task force. For the sake of brevity here, only a basic guiding principle is asserted. In neither of the concepts under consideration should common carriers be permitted to deny interconnection on a non-discriminatory basis nor to require unnecessarily expensive buffer systems.

Moreover, it is essential that local communications utilities be required to provide private line and common carrier interconnection (if desired) with earth stations. Such interconnection must of course be provided at reasonable and non-discriminatory rates. Absent this requirement AT&T could strangle any satellite company.

Earth station ownership

It is necessary to coordinate the design and operation of space and earth stations employed in a specific system, but users might participate in ownership of earth terminals. Under competitive entry, ownership of

earth stations could be left up to the satellite operators without any obvious difficulty, but under the chosen instrument option, provision for user ownership or partial ownership of ground facilities should be required. No strong reasons exist for specification of ownership for receive-only terminals or for small mobile two-way germinals.

Trial Period

If the competitive entry option is chosen and provided spectrum and orbital space is available, applications should be automatically approved (subject to the conditions spelled out in this report) for a given period. We believe that a fair trial of the competitive entry option would require a minimum of three years and perhaps longer. At the end of the trial entry period, the policy of approving all applicants should be reviewed. Perhaps it will be found to be successful and continued as is or it might be modified slightly. Perhaps no more applications in the 4-6 GH_z bands would be accepted but new systems might be proposed to operate with higher frequencies. Perhaps competition may not have developed as desired and new policies might be instituted to encourage more entry. Or perhaps, it might be apparent that consolidation of existing entities should be encouraged.

In any case, assurances should be given that those who invest in satellites during the trial period will be allowed to try and recoup

their investment over a reasonable period after the end of the trial and that any consolidation of entities that might occur at that time would be required to pay a fair price for their remaining investment.

Orbital Space

The technical committee has found that only five satellites could be located in the orbital arc to provide simultaneous coverage of Alaska, Hawaii and the 48 contiguous states. For those entities which plan communications services only with the 48 contiguous states, other orbital locations are preferable.

Under the competitive entry option, we would expect the FCC to announce that they were accepting applications for satellite systems for some period e. g. three months. At the end of that time the FCC would attempt to work out with the applicants an equitable allocation of orbital locations so that no one carrier preempts all desirable locations or so that a carrier proposing to service only the 48 contiguous states was allocated a position that would cover Alaska and Hawaii -- unless such an allocation would not foreclose others and there was good reason for doing so.

Moreover, during the first application period, it would seem undesirable to allocate more than 25% of the desirable orbital space that is available to the U. S. to any one carrier. However, if a company showed a compelling reason for additional space and the extra space

would not limit the entry of other firms, the FCC might authorize the addition. The reason for the orbital space limitation is to prevent any one carrier from dominating the system initially.

V. Effects of Alternatives on the Terrestrial Common Carriers

Most economic discussion of a domestic satellite system tends to focus on setting a "break-even point" -- the distance above which satellite service would supposedly be cheaper than equivalent terrestrial links. The rule of thumb has been that long distances favor the use of satellites, short distance cable and microwave relay. However, the break-even point is also a function of the total traffic load and the number of routes served.

Generally, the space segment cost of a satellite system is independent of whether total traffic is used to connect two points along a high traffic-density route or many points with relatively lower traffic-density. For instance, a 2000-circuit satellite can equally well provide 2,000 circuits between 2 points or 200 circuits over each of ten different routes representing all possible interconnections among five points. In the latter system, with many low-traffic-density stations, the break-even distance can be lower than is the case for the high density point-to-point systems, although there is a point beyond which a further increase in the number of terminals because of this high cost reverses the diminishing-costs curve. The important concept, though, appears to be that the special advantage of a satellite system lies typically in providing many routes between many points through a single space relay.

Cream Skimming

Satellite operations are bound to compete with terrestrial common carriers. If domestic satellites are to be successful, they will have to divert business from the terrestrial system. This diversion is likely to lead to charges of cream skimming.

The FCC is required by law to insure that "necessary" public services are maintained. It is possible that satellites will divert profitable services to satellites leaving some remaining services offered by terrestrial common carriers uneconomic. These might be uneconomic because they were being cross subsidized by the diverted services or because there were economies in offering the services jointly.

If there were economies in offering services jointly, it is likely that such economies would remain when satellites are substituted for microwave relays or coaxial cable. In that case the satellite operators would probably offer the joint services.

However, it is possible that a satellite operator might only offer some services, neglecting others either because the others would be unprofitable or because the domestic satellite firm wishes to avoid becoming a common carrier. In other words, the gain from offering some services would be less than the cost to the satellite operator (where the cost might be becoming a common carrier).

It should be recognized that many charges of cream skimming are unsubstantiated in fact. All services may be profitable but the new entrant is planning to complete for the most profitable. It is, of course, often difficult in this area to separate fact from fiction.

If, in fact, a "necessary" public service is uneconomic, there are several alternative policies that might be followed. First, the new entrant could be required to offer the "necessary" public service. It should be recognized that this means that rate payers of other services would be taxed to pay for the subsidized services. Strong economic arguments can be made against this practice both on the grounds of economic efficiency and on grounds of economic equity. Moreover, this requirement might actually discourage the entry of the proposed satellite operator.

An alternative method of handling this problem would be to provide a public subsidy either to the satellite operator or to the terrestrial carrier to continue the service. This has the obvious drawback of creating a new subsidy program that may be difficult to remove when it is no longer needed. Depending on how it is administered, the subsidy program may reduce the incentive of the subsidized firm to reduce costs Moreover it substitutes the "wisdom" of the Government for the "wisdom" of the marketplace.

A third policy alternative would be to permit the workings of the market. If the terrestrial carrier gives up the service and it is really necessary to some of the public, it is quite possible that some other entity will offer a service which while not identical may satisfy the public need. Whether this option is either politically or legally possible, this committee cannot say. It does involve some risk that a "necessary" service may disappear at least for awhile.

Finally, it is at least arguable that because satellite costs are substantially independent of terrestrial distances, the likelihood of serving small users will increase. It is quite possible that the eventual decision on entry may involve an implicit choice between an existing terrestrial service and one or more new services by satellites.

Regulation and Rates

Satellites to compete will have to offer lower costs or better services. Where lower rates are offered, terrestrial common carriers will either have to meet the lower prices or give up the service.

The competitive entry approach only makes sense if satellite operators are free to compete on the basis of price. Satellite operators will clearly be unwilling to set rates below their marginal cost. Such a practice would guarantee them a loss without any prospect of eliminating terrestrial competition.

Conversely, the hands of terrestrial common carriers should not be tied.

They should not be required to stand by and watch their service offerings competed away without responding. However, terrestrial carriers, especially AT&T, are in a position to reduce their rates on specialized services almost to nothing without seriously affecting their financial position. Thus the terrestrial carriers should be permitted, under competitive entry, to reduce their rates but not below the marginal cost of the service.

If some services were diverted from terrestrial carriers to satellites, it is possible that a part of the terrestrial facilities might become economically obsolete. Permitting such facilities to be depreciated over a short period of time might be used to justify higher rates on remaining terrestrial services. This raises both questions of economic efficiency and of equity. For economic efficiency rates should be related to the costs of that service and not inflated by unrelated factors. Consequently, if there is no joint cost problem, efficiency considerations would imply no change in charges for other services.

On the grounds of equity the problem is more difficult. Presumably had the terrestrial carriers been able to correctly forecast the satellite competition, they would have attempted to depreciate their terrestrial investment over a shorter period or perhaps not make the investment. In a non-regulated market, the failure to properly forecast the future is borne by stockholders. In a regulated market, however, carriers

may not be permitted to use short depreciation periods or to earn rates high enough to compensate for such risks. Thus whether the burden should fall on the stockholders or whether the Government should compensate the company is a difficult problem. It seems elementary, however, that justice is not served by requiring users of other services to accept the burden of past management or regulatory errors.

A more difficult situation arises in the joint cost situation. If facilities are commonly used for two or more services and some of them diverted to satellites, it is possible that cost of providing the remaining services will rise. Efficiency considerations imply that rates should also rise. Clearly, rate payers of this service will suffer especially if they do not or cannot benefit from the lower cost satellite services. Alternatively if regulation effectively prohibits the satellite operators from diverting some services, the users of those services will not gain the benefits they would have otherwise. Consequently, there is no simple solution to the equity problem - one or the other user group will be adversely affected.

Interference and Compensation

Interference with, and from, existing terrestrial microwave installations represents a significant potential problem ares for any prospective domestic satellite operator. In addition, future satellite systems might cause interference with and between other satellite systems. Existing licensees will expect protection from harmful interference and will look to the FCC for assurance of that protection.

From a technical point of view, the problem of interference can be handled in one of several ways. Newcomers can be required to accommodate to the existing system; proposed facilities can be relocated or modified to eliminate the problem. Alternatively, existing facilities could be moved. One, or both of the parties involved might shift operating frequencies or reduce output power, or affect some other change in system operations. A change is not always technically feasible and in any case usually works to the economic disadvantage of one, or both, of the parties involved. Another means of handling the interference problem is for one, or both, of the parties to operate with inferior, lower-grade signal channels, since operating on a totally interference-free basis does not represent the most efficient use of the radio spectrum.

Because there is a cost associated with avoiding, or eliminating, harmful interference, the question of financial compensation to the disadvantaged party arises. No single guideline or overriding precedent exists for determining when compensation is warranted or how much compensation is called for, although there is little doubt that in terrestrial telecommunications the burden of compensation normally falls to the newcomer. When, because of a change in operations,

an interference problem arises between two established carriers, resolution is usually affected through negotiation. If this procedure fails, recource is available through an appeal either to the FCC or, in some instances, to a consortium of interested parties.

Minimum government involvement in these matters is possible simply by adopting existing terrestrial procedures and treating the satellite system operator in the manner of a new microwave competitor. By so doing, any interference-compensation conflict becomes a matter for two-party resolution between existing terrestrial carrier and proposed satellite carrier. Such a policy would be consistent with establishing the position of satellite systems as competitors on an equal, non-favored basis with terrestrial systems. No new problems arise as a result of this policy, but likewise several old problems (e.g. compensation guidelines) are left unsolved.

We would recommend the adoption of the existing terrestrial procedures that the burden of adjustment lies with the new equity and that the parties involved settle the problem through negotiations. However, if negotiations fail and the satellite company believes it has made an offer that would fully compensate the existing system appeal to the FCC or to the Courts should be provided for, by statute if necessary.