

Global Network
Developments:
A Regulatory Challenge

by Keith Bernard

Do not quote without the permission of the author.
©1993 Columbia Institute for Tele-Information

Columbia Institute for Tele-Information
Graduate School of Business
Columbia University
809 Uris Hall
New York, NY 10027
(212)854-4222

Keith E. Bernard
October 27, 1993

GLOBAL NETWORK DEVELOPMENTS: A REGULATORY CHALLENGE

INTRODUCTION

The economic forces of supply and demand are generating changes in the market and potential network arrangements for international telecommunications. The supply of telecommunication services available have changed dramatically due to numerous aspects of liberalizing policies agreed among regulators, particularly the provision of international value added networks (IVANs) and more recently the permission to provide basic services via various forms of international resale. Also, many liberalization opportunities have opened the provision of traditional services by permitting entry of non-traditional "carrier" operations. The demand for "global" telecommunications is a reflection of the increasingly multi-national nature of business operations (it is estimated that there are 2,500 multi-national corporations) and the derived demand for intra-company, seamless, telecommunications services to support these operations.

In response, the world's major carriers are reshaping business strategies to enter new markets and to go after some portion of this "high end" multi-national business market which is valued at \$10 billion worldwide. Importantly, no single carrier has sufficient financial resources, the necessary global presence or the range of capabilities, to individually take advantage of the numerous opportunities to serve - in the traditional sense of telecommunications provision - this "global" demand.

Accordingly, virtually every major carrier is attempting to expand or extend its network into a global operation through the establishment of new "carriers" in liberalized markets and/or through strategic alliances and affiliations.

There is a need, however, for the implementation of regulatory and trade policies to facilitate the development of global networks.

Regulatory considerations include licensing criteria for entry (either via facilities ownership or resale) and international settlements policy. A major hindrance to the development of global networks is a high, possibly excessive, level of concern for settlement imbalances. While cost-based settlement rates will promote economic efficiency (with a provision for "global" universal service to be discussed later), global networks themselves complicate the interpretation of settlement imbalances and call into question simplistic conclusions.

Trade considerations revolve around the manner of use and definition of reciprocity as an entry criterion - and whether a

bilateral or multilateral approach should be utilized. Even then exactly what constitutes "reciprocity" is an open question and a factor which prevents governments with liberalizing inclinations from proceeding.

Lastly, although much of the regulatory and trade policy intended to support global market trends have been determined, there remains a need for governments to fully articulate these policies in order to clarify the ground rules for service providers.

ALLIANCES

AT&T, through its recently announced World Partners Program, is fostering service and marketing arrangements with a number of PTTs (some monopoly operators) and is developing exclusive services which it hopes will provide an advantage in the provision of global products. AT&T also owns 20% of UNITEL, the second Canadian carrier; participates with numerous PTTs for network restoration with its Pacific Partners; has ownership interests in the PTTs in Venezuela and Ukraine; and has an extensive global IVAN network, operating in the U.S., Canada, the U.K., Japan and Hong Kong as well as numerous other countries.

MCI has recently accepted BT as a 20% equity investor and will jointly manage Syncordia with BT. Also, MCI is the largest shareholder in Infonet, an enhanced service provider, in which it shares revenue and profit with eleven PTTs. Further, it has formed an exclusive joint marketing agreement with Stentor of Canada, in which the two will provide seamless international service between these countries using an identical intelligent network platform. MCI also has set up long distance and international operations in both New Zealand and Australia.

Sprint operates data networks in 36 countries, 22 via wholly-owned subsidiaries. Additionally, Sprint has an agreement with Unisource (an alliance among Swiss PTT and PTT Netherlands, which are de facto monopolies and Telia, the dominant carrier in Sweden) to connect to its international data network. Sprint also owns the U.S. end of PTAT (with Cable & Wireless as the U.K. owner) and the two companies have formed a marketing alliance for global products. Further, Sprint has just acquired 25% of CallNet, the largest resale carrier in Canada.

Cable & Wireless is, in the words of James Ross, Chief Executive Officer, the world's "oldest alliance" operating in approximately 50 countries and partnering with such diverse carriers as: Bell Canada, BellSouth, U.S. West, Pacific Telesis and even AT&T. Most recently Cable & Wireless has taken advantage of liberalization opportunities in Sweden and Australia.

The Addendum to this paper provides an illustration of the scope of this Alliance/Partnership trend.

NEW "CARRIERS"

Beyond standard alliances and affiliations, of special interest is the development of the so-called "light"¹ and more recently - what might be termed - "ultra-light" carrier network arrangements. Light carriers establish a presence in a foreign country utilizing some form of resale - the most common forms being: a) resale of a private line connected into the PSTN at one end only, equivalent to an international FX (e.g., IDB WorldCom, MFS and Sprint in the U.K.); or b) international simple resale (ISR) which involves full interconnection on both ends. Both of these arrangements are used to provide basic telecommunication services. Light carriers do require facilities in the country of operation - normally a switch - although they do not own transmission capacity along the lines of the traditional half-circuit model.

The newest network arrangements, "ultra-light" carriers, are also beginning to surface. Facilitated by "call back" operations or through the use of international 800 numbers, carriers are able to originate calls, i.e., provide service, in foreign countries without establishing any traditional network presence at all, often without the need for regulatory authorization or with complete disregard for local licensing requirements.

Neither Regulatory nor Trade policy has adequately addressed these new network configurations. Regulation has not consistently kept pace with this globalization of the market. To date the types of network arrangements described are licensed - if at all - in a fairly spotty and often inconsistent manner across a handful of countries. Alliance agreements, per se, seem to be generally outside regulatory review unless a specific policy (e.g., Section 310 radio license issues in the U.S.) or antitrust considerations are involved. The U.S. only permits ISR with Canada while the U.K., Canada, Sweden and Australia have mutually agreed to permit ISR among those respective countries. Most countries permitting ISR also permit the one end (FX) type of resale, although the U.S. has imposed an "equivalency" requirement for such services, and to date, none have been officially authorized. Policy concerning any necessary refile authority is, at best, unclear.

These network developments require stated policy determinations by regulators in order to support growing choice for users of international telecommunications services. Regulators need to expand flexibility into policymaking that facilitates, rather than hinders, the convergence of markets which is occurring because of new network arrangements.

The particular challenge is twofold: first, that regulators continue to focus on eliminating restrictive policies which may currently be hampering the development of these services and second, perhaps even more importantly, regulators need to take a proactive stance to establish proper policies which will accommodate new services rather than wait until new service arrangements are developed in contradiction to existing, outmoded policies. The significance of such a proactive stance is that the

¹Greg Staples, Telegraphy 1992, International Institute of Communications.

lack of a comprehensive regulatory structure creates uncertainty and risk to the carriers and in doing so, actually hinders the development of products, which may be technically possible and desired by the user community.

The principal policy issues which are involved are: the regulation of accounting rates as it affects the expansion of carrier networks through new approaches to providing multinational services and the appropriate method of licensing of foreign carriers to facilitate multinational service development. These issues are relevant to the provision of both traditional and new "global" telecommunications services.

Two principles should guide policy makers in such a review. First, a distinction must be made between industry-wide issues (such as the FCC International Settlements Policy, ISP) and operator-specific issues, particularly in setting rules for foreign firms. There must be a clear identification of trade versus regulatory matters.

The challenge to regulators is to support service development demanded by multinational users while simultaneously preventing anti-competitive behavior in the provision of end-to-end services.

Concerning industry-wide issues, international resale of leased circuits as well as multiple carriers on both parts of a route necessitate a re-examination of the ISP. Such competition eliminates the possibility of whipsawing and thus the need for an ISP. Further, resale will permit carriers to operate on both ends of a circuit and drive settlement rates towards domestic termination costs. Both of these factors eliminate the need for regulatory intervention, and in fact intervention such as an ISP can hinder market developments by either regulating intrafirm transfer prices or imposing prices and rate structures on competitive interfirm negotiations.

Trade policy, similarly, has yet to come to terms with what entry criteria, if any, are legitimately required for Alliances and "new carriers". The glaring lack of success of the GATT to deal with basic services indicates that effort should be placed on bilateral arrangements that could both: serve as an example to third countries and also release market forces that could achieve -in and of themselves - various policy objectives. The principal requirement is a definition of reciprocity that does not require "mirror image" terms but rather a reasonable model which relies on non-discrimination and "roughly equivalent" market opportunities.

I. Global Networks and Traditional Services

Traditional services, e.g., International Message Telephone Service (IMTS) are being affected by new network arrangements which are adding to the convenience available to most telecomms users. These network changes often involve the refiling of traffic through hubbing arrangements by major carriers, and will be enhanced by the availability of international simple resale among a number of major English-speaking countries.

Current voice refile practices involve the passing of traffic from an originating country through a carrier's home country (via a standard "Home Direct" service) to a third country destination. In the last two years this type of refile has been initiated, for travel-based services, by AT&T, MCI and Sprint in the United States, CTI and Uniglobe Telecom, Inc., in Canada, and a number of major foreign carriers. AT&T, through its World Connect service, refiles traffic among a closed set of countries which have agreed to accept refile traffic (and therefore U.S. settlement payments rather than those from the actual country of origination), while other carriers have introduced refile without the concurrence of many of the destination countries.

Such refile enhances user convenience as a travel card can, from a foreign country, access more than merely the home market of the consumer and reach other countries - in AT&T's case over 60; while in MCI's case over 160.

The regulatory dimension of some refile, however, may be inconsistent with CCITT Recommendations which prohibit "unauthorized transit"². Additionally, refile is expanding beyond travel-based services as carriers are now marketing their cards to residents of foreign countries (e.g., in the U.K. and Hong Kong) for the provision of all international calls.

As noted earlier, another new network arrangement is international simple resale (ISR). ISR involves the use of an international private line, interconnected to the public network on both ends, to provide traditional switched services. ISR has existed between the U.S. and Canada for some time and has recently been formally authorized by the Federal Communications Commission in October of 1992. The previous month the U.K. Department of Trade and Industry approved ISR connections between the U.K., Canada, Australia and Sweden. It is possible that the U.S. will be added to this list.

With the possible exception of the United States, only the Canadian regulator prohibits refile (of Canadian-originated traffic) over an ISR link. This is significant for two reasons. First, ISR should expand the use of the card services described above (especially with associated refile) as it dramatically improves the economics of the service.

As an example, a U.S. carrier providing originating service (travel or fixed) in the U.K. via an 800 service must pay to a U.K. carrier the inbound settlement payment (currently approximately 27 cents per minute). With ISR, that same U.S. carrier merely pays a half-circuit lease charge to the U.K. carrier, can connect to its own half-circuit in the U.S., and terminates the call to its ultimate destination.

²International Telecommunications Regulations, Final Acts of WATTC-88, Appendix 1.

Second, and particularly from a trade policy perspective, ISR permits entry into a foreign country (i.e., establishment of a light carrier) which allows dial-up and dedicated access to customers in that country, similar to that available from traditional carriers, in addition to card-based entry. ISR, then, permits a carrier to "work to itself" in a foreign destination, bypassing standard correspondent arrangements and the associated settlement rates.

While ISR operators fall into the "light" carrier classification, the "ultra-light" carriers described earlier are also likely to play an increasingly important role in international markets.

In such arrangements a customer in a foreign country actually receives a U.S. dial tone and then, utilizing either a dedicated port or an identification code, can terminate a call in the hub country or, in many instances, refile through the hub to another country.

In this instance, no point-of-presence is actually required in the foreign country as the international PSTN is utilized to originate the call. A recent study by TelChoice estimates that "call back" traffic will grow from 17 million minutes in 1992 to 372 million minutes by 1996³.

II. Global Networks and Global Services

As just indicated, global services can now be technically offered via ISR and are in the process of development. The network arrangement may be termed "quasi-whole circuit ownership" and can be described as a connection between a "light" and "heavy" carrier of the same operator; the light carrier mode being utilized in a foreign country and the heavy carrier mode utilizing traditional facilities ownership in the home market. Hybrid arrangements could be set up so that carriers utilize the optimal network configuration permissible across a range of regulatory regimes and economic circumstances to provide global services.

The ability - to "work to itself" - allows the development of global (or multinational) products by a single carrier. Such products will make "one stop shopping" a reality rather than merely a marketing slogan.

Many "Alliance" products such as international Virtual Private Networks are approximations of a carrier "working to itself" but in the context of traditional correspondent arrangements. Numerous regulatory and trade issues are circumvented by Alliances at present.

REGULATORY CONSIDERATIONS

Drawing upon FCC regulatory models, most global operators are affiliated with a "dominant" enterprise. None of the operators noted fits the textbook example of "perfect competition" and, in one manner or another, all are affiliated with some source of market power either in their domestic operations or through an arrangement with foreign operators.

³The TelChoice Report on International Callback Service.

With this recognition it is possible for a policymaker to determine whether any operator has the ability to cause market distortions and, if so, what are the necessary protections.

The principal regulatory issues often heard in this regard can be sorted into three categories:

- whipsawing (manipulation of accounting rules on return traffic);
- cross-subsidization (utilizing supra-normal profit from a monopoly to lower prices in a competitive market);
- discriminatory access to bottleneck facilities (pricing or quality differences to favor an affiliate).

U.S. regulators have developed structural and accounting separation rules that meet the joint objectives of permitting service development while simultaneously preventing anti-competitive behavior. Even Judge Greene has recently permitted regional Bell operating companies to acquire foreign telcos, relying on these separation principles.

Beginning in 1985, the FCC chose to regulate foreign-controlled carriers differently than other U.S. carriers by applying "dominant" status to their U.S. operations. Dominance entailed more stringent tariffing requirements and almost continual Section 214 authorization requirements for the provision of international service. Although "International Carrier Policies" was nominally an effort to reflect the discrimination opportunities flowing from affiliation with a foreign monopoly provider, the regulatory scheme was overbroad in its application. This need for change was recognized and acted upon by the FCC in 1992, when it revamped the rules. Significantly, and appropriately, dominant status has been retargeted to all U.S. carriers - regardless of national parentage - which enjoy a control relationship with a foreign service monopoly. The Commission described its rationale in the order:

By redirecting regulation to those instances where a relationship between a U.S. international carrier and a foreign carrier may present some substantial risk of anti-competitive conduct, we promote competition in the U.S. international service market by reducing the costs of entry and operation, while continuing to protect unaffiliated U.S. carriers from discrimination by foreign carriers.

This policy, although in effect since November of 1992, has not yet been implemented by the FCC in modifying the regulatory status of a number of foreign carriers. This lack of implementation - and thus the continuation of "dominant" status - is in counterpoint to the U.K. Department of Trade and Industry (DTI) policy for similar concerns. In recent draft ISR licenses, DTI established a procedure of, what might be called, reserve powers, so that should there be evidence of anti-competitive behavior, the DTI has the power to enforce tariffing and information disclosure requirements on those routes where anti-competitive behavior has been identified. Clearly, from a carrier prospective, the DTI policy is preferable as no regulatory lag in implementation can affect business operations, yet the public interest is safeguarded through the ability to implement such reserve power.

III. Implications for Accounting Rate Structures

The combination of the factors discussed above have severe ramifications for existing settlement structures. In September 1992, the CCITT adopted Recommendation D.140, which supports movement toward cost-based accounting rates. The existence of refile, especially in conjunction with bypass of accounting rates which are permitted on ISR routes, will drive rates towards cost (or at least toward tariffs for domestic termination) at a faster rate than the CCITT or pressure from national regulators is likely to achieve. Accordingly, a question exists as to the validity and necessity of maintaining policies which presently regulate accounting rate payments and traffic return policies on ISR routes. Policies of parallel accounting and proportionate return are unnecessary on "competitive" routes and their existence may actually damage market development by precluding free commercial negotiation between carriers.

As an alternative - or possibly a transition to - such deregulation, the OECD Secretariat has developed a proposal which unbundles settlement payments into half circuit charges (which can differ among countries, due to facilities, loading, etc.), and a non-discriminatory domestic termination charge, which would not vary with the country of origination. There would seem to be great merit, from an economic perspective, in such a proposal as it accommodates, rather than impedes, market developments. As refile of IMTS traffic is increasingly utilized by carriers - particularly the hybrids - settlement payments will be arbitrated to the lowest level available among ISR countries. In such a circumstance, parallel accounting and proportionate return become meaningless measurements.

The OECD model would eliminate the need for "heavy" carriers to establish ISR affiliates to engage in global routing arrangements merely to reduce settlement payments.

IV. Accounting Rates and Settlement Imbalances

The FCC has for some time now expressed concern for the growing imbalance of payments flowing from the international settlements process. The circumstance has been created by two principal factors. First, accounting rates have been generally recognized as set above costs, and second, a substantially larger number of U.S. outbound, relative to inbound, calls are typically made. Most intercontinental accounting rates are not cost-based, notwithstanding their ostensible purpose to reimburse carriers' cost (including both the international haul as well as the domestic origination/termination). Only within Europe and the Mediterranean Basin, under the aegis of the CCITT's TEUREM have systematic multi-lateral cost studies been used to determine accounting rate levels. Significantly, the traditional convention of a 50/50 division of accounting rates is almost unknown in intra-European IMTS. Outside of specific regional relationships, pragmatism and negotiating leverage, rather than cost concepts, have determined accounting rates.

The U.S. Government and U.S. carriers have begun to make significant progress toward accounting rate reductions⁴. There is also an increased awareness globally of the economic costs of accounting rates that are inefficiently high and create a floor for collection rates. The problem is not exclusive to the U.S.. For example, the U.K. suffers a trade imbalance of the sort confronting the U.S..

There are, however, additional factors involved. Along with the level of accounting rates, settlement imbalances reflect calling patterns. The generally lower collection rates available in the U.S. and some other developed countries due to pro-competitive policies are partially responsible for this. Nevertheless, there is a variety of other factors which must also be considered, including exchange rates, income differentials, cultural differences in the use of the telephone, tourism levels, and demographics and shifts in those demographics (e.g., emigration to a developed country with calls placed back to the home country). Exchange rates are important not only because variations in the rates will vary the collection charge differentials, but also because the international business community may actually vary the "origination" of calls in response to fluctuations. Any periodic weakness in, for example, the U.S. dollar against other currencies increases the collection differential, and in turn may prompt the sophisticated business user to "use" the cheaper country to generate the majority of its international traffic.

Reflecting an awareness of Global Networks, recent NTIA Note of Inquiry specifically sought information on the growth and impact of non-traditional IMTS ("ultra-light") service arrangements have upon the U.S. net settlements deficit. These services, most especially "country direct" and "country beyond" services, are playing an increasingly important role in determining the balance of telecommunications services payments between countries.

IV-A. Home Direct Services

Home direct services (such as AT&T's USA Direct), normally utilized to support travel cards, involve allowing a U.S. customer in a foreign country to call an international 800 number (or its equivalent) to access a U.S. carrier. Such calls have traditionally been provided via live operator, although increasingly an automated response is being utilized. Home (or country) direct service was introduced by AT&T in the mid-1980's as a convenient way for its customers to place calls to the U.S. via a U.S. based operator. The benefits to the customers include the use of English language operators who have local knowledge, billing in U.S. dollars on return home, and the ability to avoid high hotel surcharges while abroad. For AT&T, the strategic benefits include control of fraudulent usage and branding of the service as an

⁴K. Stanley, "A Review of IMTS Accounting Rates from 1985 to 1991", Industry Analysis Division, Common Carrier Bureau, FCC.

"AT&T" product. There are also significant and immediate financial benefits to AT&T.

As the popularity of the service has spread, MCI and Sprint also introduced similar services. Non-U.S. carriers have also introduced their versions of home direct. Teleglobe Canada, AOTC and Hong Kong Telecom have actively developed similar services. What initially started as a service for American tourists has now become a significant staple among international telecommunications services. This dramatic growth in acceptance and popularity no doubt reflects the heavy promotional efforts of U.S. carriers in their advertising as well as the convenience to the customer in home direct services described earlier.

Home direct services involve an outpayment to the country in which the call originated in much the same manner as a U.S. - originated call is settled. Accordingly, a home direct call and a U.S. originated IDD call are equivalent in terms of settlement balances. There is, however, an obvious distinction in that none of the concerns traditionally expressed by the FCC about the settlements imbalance are involved with a home direct call. Convenience, encouraged by substantial marketing, seems to be a major factor for home direct services. Price differentials often are secondary considerations as home direct rates can be more expensive than IDD rates.⁵ Moreover, to the extent home direct services exacerbate the imbalance which the FCC has worked to diminish, these services do so at the sheer election of U.S. carriers.

A review of only the settlement payments involved in the provision of home direct services would reveal a considerable contribution to the trade imbalance. However, if the revenue to U.S. carriers from home direct calls - in contrast to merely the "settlement" cost of these calls - were reviewed, home direct actually reduces balance of payments considerations. This is due to the fact that the carrier obviously receives more for the call (including the surcharge) than the outpayment, or it (and other international carriers) would not engage in provision of the service.⁶

⁵In fact, in the first month of operation of a U.S. carrier's home beyond service in the U.K., approximately one-half of the total traffic originating in the U.K. was terminated within the U.K. rather than third countries. Thus, for every call made, two accounting rate outpayments were made (adding to the U.S. traffic imbalance) but yielding the U.S. carrier a profit margin of nearly \$2.00 per minute. The unfortunate customer paid ten to twenty times the normal domestic rate.

⁶If the same call originated as a foreign IDD call to the U.S., the U.S. carriers would receive only the settlement payment. Similarly, with a home direct call the foreign carrier collects merely the settlement payment rather than its full collection rate.

An appropriate examination and analysis of the U.S. settlement imbalance must take account of the increasing importance of home direct services. There has been a dramatic upward trend in the percentage of the U.S. settlement imbalance which is attributable to home direct services. In Appendix B, data is presented regarding traffic to and from a large number of C&W foreign operations which provide home direct services with U.S. carriers. The data show remarkable increases in the importance of home direct services, specifically AT&T's USA Direct service.⁷ For example, minutes paid for USA Direct services from the Caribbean region accounted for 6.9% of the U.S. net outpayment in 1989, but by 1992, grew to 19.8% of the outpayment. In the specific instance of the Cayman Islands, 87.1% of the U.S. outpayment in 1992 was due to USA Direct minutes. For Hong Kong, the 1989 home direct as a percentage of total imbalance was 5.42%, by 1990 it grew to 18.09% and by 1991, 21.63%. If the settlement imbalance is harmful to the national interest, then one must wonder why U.S. carriers continually encourage the development and indeed the expansion of such services.

IV-B. Home Beyond Services

Within the last eighteen months, an expanded variant of home direct has been developed by U.S. carriers. This type of service is often termed "home beyond". It builds upon home direct, i.e., a foreign originated call carried back to the chosen U.S. carrier in the U.S., but then adds the ability to hub through the U.S. (refile) for terminating the call into a third country.

For travel services, refile permits a carrier's travel card to access more than merely the home market of the customer. AT&T's refile service - World Connect - permits access to over 70 countries; MCI's comparable service - World Reach - gives access to over 160, that is, the vast majority of countries excluding only those which have actually protested the service. Sprint's "Sprint Express" can similarly be accessed through any country accepting its home direct service and is also terminated globally.

These services have implications for the U.S. settlement imbalance beyond the instance of travel. Carriers are now marketing their cards to residents of foreign countries for the provision of all international calls. For example, MCI is now marketing its service and related cards to nationals in the U.K. and in Hong Kong.

⁷Also, due to the relatively large volume of U.S. tourism and business travelers, as well as marketing by U.S. carriers and their continual expansion of the number of countries from which they provide home direct services, U.S. carriers' home direct services very likely count for a greater percentage of customer traffic than those home direct services offered by foreign service providers.

Home beyond services generate two settlement outpayments for a call that would not normally be routed at all through the U.S.. Clearly, however, as these services are being voluntarily introduced by the U.S. carriers, there is a profit attached to such services. There is another important aspect, again solely from a balance of payments perspective, of these services. As they were introduced by the U.S. carriers, they have clearly established a precedent for foreign traffic to be refiled into the U.S.. In fact, a number of carriers which have agreed to participate in World Connect have begun offering such refile of hubbing services themselves. This is creating a completely unquantifiable balance of payments effect revolving around a combination of refile and, largely, travel services. It is unlikely that even AT&T can predict the overall balance of payments effect of this service which it created.

Such refile services are a market response to a demand from increasingly mobile populations, often involving the "export" of U.S. services. The U.S. government should not therefore tolerate efforts to portray these services as contributing to a "problem" with respect to the U.S. balance of payments.

V. The Special Case of Developing Countries

While there is clear consensus that accounting and settlement rates between and among the developed countries of the world should be "cost-oriented" in order to reduce settlement imbalances and promote economic efficiency, there also appears to be an equally recognized proposition that settlement rates between developed countries and developing countries may need to depart from this criterion. The essence of this proposition rests in the recognition of the network externalities of promoting universal service, i.e., expansion into poor, rural and other high costs areas generate economic benefits for the totality of telecommunications users⁸.

There is a substantial history of this type of support in most developed countries, including the U.S., between local and long distance (including international) rates that traces back quite a few years and continues into the present. In the U.S., one of the FCC's principal stated goals has been the promotion and preservation of universal service, i.e., ensuring the availability of affordable local telephone service to all U.S. households. Beyond the purely social aspect of universal service, the externality for subscribers who would not otherwise be on the network is also part of the rationale for universal service. If the price of basic telephone service is too high, subscribers may cancel service, thereby diminishing the value of telephone service for all network users. Consequently, over the years, mechanisms have been implemented to minimize the price of local service. One

⁸Kahn and Shew, "Current Issues in Telecommunications Regulation: Pricing", 4 Yale J. Reg. 190 (1987)

mechanism which has existed for literally decades to support universal service is the funding provided to rural telephone companies through the Rural Electric Administration. The New Deal agency continues today to provide low cost loans to rural telephone companies.

Some years ago, to promote economic efficiency, the FCC adopted a Subscriber Line Charge (SLC), a flat, monthly charge to be assessed to end users to recover non-traffic sensitive plant costs. To minimize rate shock, the SLC for residential and single line business users was phased in over a period of years at below cost levels. Keeping in mind its universal service goals, the FCC implemented two programs to help mitigate the effects of the SLC's introduction. To assist low income households, the FCC developed Lifeline Assistance which effectively waives the SLC.

Additionally, the FCC set up the Universal Service Fund (USF) to protect the needs of subscribers in rural or high cost areas in maintaining local exchange rate levels. Both programs are funded by the IXCs that utilize the access services of the local telephone companies. The current value of the Lifeline fund is \$700 million and for the USF is \$3 billion. These amounts are generated from interstate traffic. USTA has estimated that three to four times this amount is generated from intrastate traffic.

Plainly, extensive care has been taken to implement cost-oriented rules in the U.S. with specific funding mechanisms to account for the externalities of universal service.

On the international front, this same rationale - the externality associated with global universal service - has been recognized in the recent CCITT Recommendation D.140 as well as in the Maitland Report of 1984. These documents, among others, recognize that universal service generates a network externality (whether on a national or international basis) for all telecommunications users, and, therefore, funding to facilitate network expansion is warranted from a purely economic standpoint. It should be noted that during the time period for which universal service has been a focal point in the U.S., the telephone penetration rate has been dramatically higher than that which currently exists in many developing countries.

The policy of investment in the telecommunications infrastructure which has driven domestic policy in many developed countries is also often pursued throughout the developing world. This investment is made in national and international transmission and switching facilities and extending line plant to increase the number of customers on the network.

The Maitland Report specifically recognizes this point: A more comprehensive world system will mean an increase in international traffic from which all operators will benefit as expanded infrastructure and telecommunications networks facilitate improved ability of callers in developed countries to access additional locations - an "externality" generated by "universal telephone service".

The telecommunications network is understood to be critical infrastructure supporting the economic foundation of any country. Diversity of high quality, ubiquitous national and international facilities is now considered a crucial limiting factor to economic development.

Beyond the benefits to users of global universal service, there are benefits to industry in developed countries from the investment necessary for such infrastructure development. Settlement payments provide a significant source of hard currency for many developing countries. As these countries utilize the currency to expand their infrastructure, there is a requirement for equipment, so that these hard currency earnings flow back to industry in the countries which are the source of the hard currency payments. As the Maitland Report observed: Developing countries do not have indigenous telecommunications manufacturing industries. They have to buy their exchanges, transmission equipment and other technical plant abroad and pay in hard currency. According to World Bank figures, in many countries 60% or more of the cost of a major telecommunications project has to be met in hard currency (p. 19). Additionally, the expansion of the infrastructure provides the basis for related industrial growth which ultimately raises income levels and leads to additional outbound calls, many of which are likely to terminate in developed countries.

Accordingly, accounting settlement revenue has been a major source of funds for continued efforts to achieve "universal telephone service" in developing countries and generate benefits which flow back to users and industry in the developed world. Policy actions to achieve "cost-oriented" accounting rates should, therefore, be concentrated on countries comprising the developed world with a recognition of special issues involved with developing countries.

TRADE POLICY

Trade principles fall into one of two categories. Regulators can either focus upon market access (reciprocity) considerations which concentrate on bilateral negotiations among like-minded countries or upon the GATT multilateral concept of most favored nation (MFN) treatment which applies to all signatories. While it can be argued that the U.S. marketplace is at present more comprehensively open than any other, it cannot be ignored that countries such as the U.K., Canada, New Zealand, Australia, Sweden and the Netherlands are rapidly moving to liberalize their environments and in a number of instances, such as the policy objectives contained in the U.K.

White Paper⁹, may actually exceed the current openness in the U.S. marketplace. It would be unfortunate if the U.S. narrowly constrained its policy to deal with the "Lowest common denominator", i.e., policies in recalcitrant countries, and, in doing so, forestalled the development of global services.

The apparent failure of the Uruguay Round of the GATT suggests that a proposal by Treasury Secretary, then Senator, Bentsen raised the concept of "GATT-plus" which would extend MFN only to countries with comparable market entry policies.

A similar approach would be the mutual development of policies among like-minded liberalizing countries, either on a direct bilateral basis, or possibly utilizing the guiding principles of the "special arrangements" provision which are operative under Article 9 of the ITU WATT-C regulations.

Once a supportive trade policy has developed, the regulatory framework merely needs to target the possible market distortions which can flow from domestic or foreign monopoly power.

There is, however, an issue which will confront trade policy - the manipulation of policy for the protection of vested interests. The highly competitive marketplace for global services, along with high profit margins on standard international service, creates a substantial incentive on the part of existing operators to prevent competition from new entrants. Accordingly regulators - in the light of the nature of the global operators reviewed earlier - should be somewhat skeptical of arguments for protection that have the effect of freezing the status quo. George Schultz, former Secretary of State, identifies the concept of "procedural protectionism" as a practice to be avoided by trade and regulatory agencies.¹⁰

Where trade policies are considered relevant, federal policy action might efficiently be determined on a bilateral basis, that is, by reference to the trade position of the home country of the foreign-owned U.S. carrier. Such an approach is consistent with the thinking of senior officials in the Clinton Administration. As stated by the current Chair of the Council of Economic Advisors, "despite its many pitfalls...selective reciprocity is the most sensible starting point for sectoral trade negotiations".

⁹Competition and Choice: Telecommunications Policy for the 1990's, HMSO, London, 5 March 1991.

¹⁰George P. Schultz, Turmoil and Triumph, (MacMillian, 1993), p. 195.

However, in such an approach, regulators need to be wary of protectionist, self-serving contentions. Arguments to preclude or limit entry, based on the absence of "mirror" reciprocity between the U.S. and the home country of the applicant (i.e., identical regulatory regimes), should be rejected summarily as cynical and disingenuous. A standard of "rough equivalence" or "selective reciprocity" is at most all that is needed, and certainly all that is appropriate in the legally and technically complex environment of telecommunications. Rather than a line-by-line policy comparison, this standard would be based on actual market performance rather than hypothetical "considerations". Rough equivalence of markets should be based upon effective - if not necessarily optimal - entry and could be identified by two very measurable characteristics: national treatment of U.S. carriers and existing competitors already in place.

Should selective reciprocity be utilized by the FCC, the regulatory environment in the United Kingdom provides a perfect example of rough equivalence. The opportunity for entry into the U.K. for U.S. operators is, on balance, at least as good as those available to U.K. operators in the U.S.. Without providing an exhaustive list of all relevant characteristics of the U.K. regulatory environment, even a cursory review reveals the openness of the U.K. market.

One could argue that no country has deregulated its telecommunications equipment and services markets at the pace of the United Kingdom. In August 1990, NTIA recognized this fact in its "competitiveness report" and described the U.K. as "one of the most open and liberalized telecommunications markets in the world". In the last few months, a study by the Office of Technology Assessment reaffirms this conclusion, stating that "the U.K. has the most broadly liberalized telecommunications market in the world".

A brief overview of the U.K. telecommunications environment easily supports these conclusions. It should be noted that in every circumstance, telecommunications policy is made without regard to the ultimate national parentage of the service provider.

- No counterpart to Section 310(b) of the Communications Act of 1934 exists in the United Kingdom.
- U.S. operators have been licensed to provide cellular, paging and PCS services, and additional applications are pending.
- U.S. cable television and RBOC interests, which dominate the U.K. cable television industry, are also permitted to offer local exchange services.

- Additional domestic facilities based competition to Mercury and BT are feasible due to the licensing of Ionica, WorldCom, National Network, Energis, Millicom, U.S. Sprint and Telstra. As is known, the terms and conditions for access to customers remains an open question which needs to be resolved on an equitable basis for competitors.
- Internationally, the U.K. permits the provision of switched services over international private lines on a resale basis - both inbound and outbound to the U.K. - so long as one end of the connection is provided on a dedicated basis.
- International simple resale exists on significant routes (although not on the U.S. route): Canada, Australia, and Sweden.
- Lastly, in 1992, DTI announced that both British Aerospace and PanAmSat would be given authorization to provide separate satellite services with full interconnection to the public switched network.

VI. Conclusion

The accelerating market and network developments of recent years require a change in the modus operandi of regulators from the traditional reactive approach on solely national matters to a proactive attitude involving international decision making.

Especially in the developed world, such a regulatory model can generate substantial benefits to users of both traditional and global telecommunications services.

The principal hindrance to such an approach is the protectionism generated by vested interests. Regulators in the major economies should, however, focus on ways to promote network and service development by means of liberalizing agreements among like-minded governments.

The U.S. and U.K. provide ideal examples of the way that existing policies can be implemented, and new policies proactively developed, to fully support the development of global networks. The totality of these policies address:

- accounting rate considerations among developed countries,
- licensing for ISR,
- other resale methods of operation and facilities ownership,
- interconnection policy,

- regulatory status of foreign carriers,
- restrictions on use of technology by foreign carriers,
- market entry criteria for foreign carriers.

Regulators need to change the mindset utilized in quasi-trade negotiations. There is a need to substitute the current "horse trading" approach - which normally brings about agreement only on the least common denominator of liberalization - to a proactive, bilateral model based upon the most liberal regulation between countries.

In practice, such an approach would yield the following:

On ISR, the use of the U.K. approach to "equivalence", i.e., national treatment, would become the benchmark without any notion of line-by-line type of market comparison between countries. The opening of ISR meets liberalized regulation objectives by providing both a vehicle for entry into a foreign market as well as a factor which drives down accounting rates, using a market mechanism rather than the current governmental/industry negotiation approach which maintains the power for such negotiation in the hands of the dominant operators. The use of ISR to influence accounting rates can also be enhanced by the permission of unrestricted refile among developed countries, those most able to move rapidly to economically efficient conditions for the provision of international service.

U.S. style interconnection policy, i.e., tariffed offerings should be adopted so that liberalized services can be as widely distributed as possible. A fixed schedule for equal access should be crafted but with recognition that current 3-digit "easy access" is substantially better than Feature Group A or B.

As to "dominance" regulation, the U.K. reserve power model is clearly a more liberal approach than U.S. safeguards due to the absence of inherent lag and the lack of ability for opponents to utilize regulatory procedures to prevent the development of competition.

Section 310 in the U.S. would be waived for U.K. firms reflecting the lack of such discrimination by British regulators in the awarding of radio licenses.

Lastly, for international facilities-based entry, the U.S. has approved some participation by foreign firms (although inconsistencies exist in application of this policy). DTI, has, to date, deferred action on licensing of an international operator beyond the current duopoly. A bilateral way forward should be possible, even recognizing the more expansive nature of U.K. PTO licenses versus the FCC's 214 process.

Taken together, such a proactive bilateral approach could generate the benefits to users (a term often not incorporated in trade negotiations) and demonstrate the value of such liberalization to users worldwide which would bring about subsequent political pressure and foster the development of global networks.

ADDENDUM

SAMPLE OF FOREIGN AFFILIATIONS BY CARRIER¹

Ameritech (US)

- partner in New Zealand Telecom
- partner in Polska Telephonica (Polish PTT)

AT&T (US)

Existing or planned service affiliations:

- AT&T wholly owns AT&T ISTEEL Ltd. (UK, information services) and ISTEEL Group Limited (UK, software)
- AT&T owns 80% of AT&T Jens Corp., a joint venture with 22 major Japanese corporations which provides value added network services.
- AT&T owns 19.5% of UTEL, a Ukrainian joint venture company with PTT Telecom and the Ukrainian State Committee of Communications, which provides services and products to Ukraine
- partner in Hutchinson AT&T Network Services Ltd. (Hong Kong)
- owns 20% of Unitel Communications Inc. (Canada)
- AT&T Easylink Services Ltd. (Australia)
- Goldnet (Israel)
- Atesia S.p.A (Italy)
- Jamaica Digiport International Ltd. (Jamaica)
- Telmos (Russian Federation, pending)
- World Partners - KDD, Singapore Telecom, Telstra, Unitel, others planned by end of year
- owns 5% of VenWorld Telecom, CA, a Venezuelan joint venture company with GTE Corp and 3 Venezuelan corps. which owns 40% of the Venezuelan PTT, "CANTV"
- Pacific Partners - alliance with International Telecommunications Administration (ITA, Taiwan), Korea Telecom, Philippine Long Distance Telephone Co., Telecom New Zealand International, and Telekom Malaysia to provide leased line backup service to member countries

Existing/planned manufacturer affiliations:

- AT&T International, Inc. is principal shareholder in AT&T Network Systems International B.V., a joint venture with STET (20%, Italy, government-owned) and Telefonica (6%, Spain, national telephone company) which has established businesses and joint ventures in the Netherlands, Belgium, the PRC, the Czech Republic, France, Germany, Ireland, Italy, Poland, the Russian Federation and Kazakhstan, among others.
- AT&T owns 20% of Italtel (Italy, STET subsidiary which manufactures and sells equipment). AT&T and Italtel have agreement to co-develop and -market equipment in Europe and the U.S.
- AT&T owns 60% of AT&T Taiwan Telecommunications Co., Ltd., a joint venture with the Taiwanese government and others in Taiwan which manufactures switching and

¹NOTE: This list is only a sampling and is not intended to be all inclusive.

- transmission equipment
- AT&T owns semiconductor assembly and test facilities and telephone manufacturing facilities in Singapore and Thailand. AT&T also owns a cellular telephone manufacturing plant in Indonesia.
- AT&T owns four manufacturing companies in Mexico
- AT&T owns 80% of AT&T Software Japan, Ltd., a joint venture with Industrial Bank of Japan and Software Research Associates
- AT&T owns 44% of a joint venture with the Goldstar group of Korea which manufactures and markets switching products
- AT&T holds ordinary shares of Riunite SpA, which holds a controlling interest in Olivetti of Italy
- AT&T owns a manufacturing company in Spain and through joint ventures operates manufacturing facilities in Denmark, Ireland, Korea, China, Taiwan and Thailand
- March 93 - announced broad strategic alliance with Chinese government for joint R&D and manufacturing for export to Asian market

Bell Atlantic (US)

- agreement with Stentor to license its Advanced Intelligent Network software and do joint marketing
- joint software development venture with STET
- equity partner in New Zealand Telecom Corporation (share majority stake with Ameritech)

Bell Canada Enterprises

- formed agreement with Infonet in December 1992 to form new company, Worldlinx Telecommunications, which will perform systems integration necessary to link local users to Infonet's global network
- owns 20% of Mercury Communications Ltd (UK), the rest of which is owned by Cable & Wireless (UK)

BellSouth (US)

- partner in cellular ventures in Argentina, Chile, Denmark, France, Germany, Mexico, New Zealand, Uruguay, and Venezuela
- 24.5% owner of Optus (Australia)

BT/Syncordia (UK)

- owner of Syncordia, BT Tymnet, 20% owner of MCI, 75.1% owner of joint venture "Newco" (with MCI)
- said to be interested in minority stake in the Italian state holding company for telecoms, STET; AT&T and France Telecom also named as possible purchasers

Cable & Wireless (UK)

- operates in 50 countries
- 80% owner of Mercury Communications (Bell Canada owns 20%)
- majority owner of Hong Kong Telecom
- 100% owner of C&W North America, Inc., which holds 100% of C&W Communications Inc. (U.S. operating subsidiary)

- owns 17.17% of IDC (Japan)
- owns 24.5% of Optus (Australia)
- owns 40% of Tele2 (Sweden)
- partial or total owner of several carriers in the Philippines, Macau and Pacific and Caribbean nations

DBP Telekom (Germany)

- 33% of Eunetcom with France Telecom and Swiss PTT
- 18% owner of Infonet

France Telecom

- 33% owner of Eunetcom with DBP Telekom and Swiss PTT
- 16% owner of Infonet
- partner in Financial Network Association (FNA)
- part owner of Telmex and Telecom Argentina
- has 39% shareholding in top European software house Sema
- has stakes in Info AG, the German service provider, and Olinet (51% since 1991), the Italian subsidiary of Infonet
- Transpac (data communications subsidiary) has set up operations in Italy, Sweden and the United Kingdom; last year increased its stake in German VANs provider Info AG, a DBP Telekom competitor
- launched Eucom with DBP Telekom in October 1991 to provide value-added network services in Western Europe

GTE (US)

- partner with AT&T in CANTV (Venezuelan PTT)
- partner in Codetel (Dominican Republic PTT)
- partner in British Columbia Telephone Company

KDD (Japan)

- 5% owner of Infonet
- partner in FNA
- equity partner in WorldPartners with AT&T and Singapore Telecom, expect 2-3 additional partners and 20 associate members by end of this year
- currently putting together a VPN service through bilateral agreements with other countries
- has joint ventures with Telehouse in London and New York to provide and manage computing and communications facilities in a secure environment

MCI Communications Corporation (US)

- accepted BT as a 20% equity investor; 24.9% owner of "newco" joint venture with BT
- owns 25% (controlling) share in Infonet Services Corp, purchased in 1990; established agreement in 1992 with Infonet to market Infonet's EDNS and EDMS service offerings to MCI's US corporate customer base as part of its Global Communications Service (GCS)
- agreement with Stentor (Canada) to license its Intelligent Network software and co-market integrated intelligent network services between the U.S. and Canada; this agreement to be used as model for similar agreements MCI will pursue worldwide

NYNEX (US)

- lead investor in "FLAG" European fiber optic cable project
- one of the largest cable TV companies in the UK (with 19 100% owned franchises, also offering telephone services)
- 50% partner (with Gibraltar government) in Gibraltar-Nynex Communications (Gibraltar PTT)
- 20% partner with STET in STET-Hellas cellular provider in Greece
- partner in Telecom Asia Corp. (joint venture to upgrade Thailand network)
- involved in joint venture to expand network in Indonesia

Pacific Telesis (US)

- 51% equity partner in NordicTel Holdings (Sweden); other partners include Vodafone Group plc (UK) and three Swedish companies
- 26% equity partner in Mannesmann Mobilfunk (Germany)
- 20% equity partner in Dansk Mobiltelefon AS
- 23% equity partner in Telecel Comunicaciones SA (Portugal)

PTT Telecom Netherlands

- equal (33%) owner of Unisource [with PTT Telecom Netherlands and Televerket (Sweden)], which has agreement to resell services over Sprint's international data network
- 5% owner of Infonet

Singapore Telecom

- 5% owner of Infonet
- partner in FNA
- equity partner (25%) in World Partners with AT&T and KDD, associate members include Telstra, and Unitel; expect to add 2-3 additional equity and 20 additional associate partners by end of this year

Southwestern Bell (US)

- 10% equity partner in Telmex (with Mexican government and France Telecom)
- involved in cable TV ventures in the UK and Israel

Swiss PTT

- equal one-third owner of Unisource [with PTT Telecom Netherlands and Telia (former Televerket, Sweden)]; Unisource has agreement to use Sprint's international data network
- equal one-third owner of Eunetcom with France Telecom and DBP Telekom
- 5% owner of Infonet

Telefonica de Espana S.A. (Spain)

- 79% owner of Telefonica Larga Distancia de Puerto Rico, Inc. (TLD) through its Netherlands-based holding subsidiary, Telefonica International Holding, B.V. (TI Holding); the Puerto Rico Telephone Authority (PRTA) owns 19% and employees own 2%

Telia (Sweden, formerly "Televerket")

- equal one-third owner of Unisource with PTT Telecom Netherlands and Swiss PTT; Unisource has agreement to use Sprint's international data network
- 5% owner of Infonet

Telstra (formerly "OTC-Australia")

- founding member of PACT (Pacific Area Co-Operative Telecommunications)
- member of FNA with 11 other carriers
- Global Networking Project with 5 other carriers
- associate member in World Partners with AT&T, KDD, and Singapore Telecom, among others

US Sprint

- operates in 36 countries; has wholly-owned subsidiaries 22 countries
- plans to build a national telecoms network in the UK in collaboration with British Waterways
- has applied for license to offer international telecoms services in the UK in competition with BT and Mercury Communications
- has agreement with Unisource (Swiss PTT, Telia, and PTT Telecom Netherlands) to interconnect to its international data network
- leading formation of the Global Virtual Private Network consortium
- member of the Hermes/HIT Rail project to build a high-speed trans-European network based on the telecoms networks of 11 European railway operators
- recently announced joint venture with Alcatel (France)
- owned by United Telecom

US West

- partner in TeleWest joint cable TV venture in UK with Tele-Communications Inc., operating 16 franchises (also offering local telephone service)
- TeleWest Europe Group owns cable TV systems in Hungary, Sweden and Norway
- partnered with C&W for UK PCN venture
- partner in WESTEL Radiotelefon, a joint venture with the Hungarian Telecommunications Company, to operate the first cellular system in Central Europe
- partner with Bell Atlantic and the Czech and Slovak PTTs in Eurotel, to operate cellular and public switched packet data networks in the Czech Republic and Slovakia
- partnership in Russia to build and operate a new digital cellular system
- partnered with DDI and Nissan to provide digital cellular service in Japan
- partnered with the Russian Ministry of Telecommunications to operate three new international gateway telephone switching systems in Russia
- partnered with Lithuania Telecom to operate an international gateway switch in Lithuania

INTERNATIONAL ALLIANCES, PARTNERSHIPS AND JOINT VENTURES²

Eunetcom BV

- established in March 1992 by DBP Telekom and France Telekom; Swiss PTT now also an equal one-third partner
- expected to be operational by end of 1993
- Eunetcom BV (holding company) to be in Amsterdam; Eunetcom SA (operating company) to be located in Paris; Eunetcom Betreib GmbH (technical support center) to be located in Frankfurt
- plans to offer virtual private networks for voice and data, incorporating value added features
- initially will concentrate on European market; high speed backbone built in Europe with nodes in key cities
- will outsource parts of its network, in some cases to Infonet Services Corp.
- targeting only a handful of mega-customers
- seeking a U.S. and/or Japanese partner; has made proposals to 2 U.S. operators (said to be MCI and AT&T)

Financial Network Association (FNA)

- consortium comprising Telstra, Belgacom (Belgium), DBP Telekom, France Telecom, Hong Kong Telecom, Italcable (Italy), KDD, MCI, Mercury Communications, Singapore Telecom, Stentor, and Telefonica
- formed to provide "uniform, common and consistent services" in each of the world's top financial centers, marketed under the name Teleconnect
- currently constructing backbone network; service to begin in 3rd quarter 1993
- lead operator for each contract will be the affiliate member of the country in which the client company is headquartered, and will be responsible for liaising with the other FNA members to put together the service required by the customer

Global European Network (GEN)

- just announced that Telecom Portugal and Belgacom will become members of alliance among BT, DBP Telekom, France Telecom, STET, Telefonica; remains open to other European carriers
- joint services wholesale company; services sold to member carriers
- since opening in March 1993, network connecting 5 founding members has gone all-digital
- enables each member-carrier to manage its own virtual European network

Global Networking Project

- agreement between AT&T, BT, France Telecom, DBP Telekom, KDD and Telstra
- new network will be created using some of each carriers' existing undersea fibre optic capacity
- intended to provide companies and other international carriers transport capability among

²NOTE: This list is only a sampling and is not intended to be all-inclusive.

- international carriers for switched and private circuits by managing the use of two megabits circuits carried on fiber optic cables
- by end of decade, GNP expected to form platform for new high capacity data services such as digital TV or HDTV
- shared fiber optic capacity and the transmission switches located in the US, UK, France, Germany, Japan, and Australia will be co-ordinated by a network management team
- service expected to be available by end of 1993
- project may be expanded to include other carriers

Global Virtual Private Network (GVPN) partnership

- Sprint, Unitel, PTT Telecom Netherlands, IDC (Japan), Telstra, Teleglobe (Canada), Hong Kong Telecom, Mercury Communications, and Telia

Infonet Services Corporation

- established in 1988
- headquartered in El Segundo, California
- joint ownership by: MCI, Belgacom, France Telecom, DBP Telekom, KDD, PTT Telecom Netherlands, Singapore Telecom, Telia, Swiss PTT, Telefonica, Telstra
- Infonet has begun forming partnerships for domestic service in such countries as Germany and Canada; these types of partnerships expected to multiply as 47-nation network is expanded
- provides network access from 137 countries
- currently used by: 17% of the Business Week Global 1000, 18% of the Forbes 500, and 24% of the Fortune 500
- formed new company, Worldlinx, in December 1992 with Bell Canada, to handle systems integration necessary to link local users to Infonet's global network
- also has strategic relationships with Anderson Consulting, Digital Equipment, and Siemens Communications Systems.
- target market is world's largest companies

Infonet Services Deutschland

- joint venture between Infonet (20%) and DBP Telekom (80%) to market and sell Infonet's global communications services to the German market

Infonet and MCI

- formed alliance to market Infonet's Enterprise-Defined Network Services (EDNS) voice and data services as part of its Global Communications Services (GCS) in the U.S.

Worldlinx Telecommunications

- joint venture between Infonet and Bell Canada established in December 1992 to provide systems integration services for Infonet's global network customers

Managed European Transport Network

- more than 25 European carriers (not sold directly to users)

"Newco"

- alliance between BT and MCI, established May 1993
- BT will own 75.1% of "Newco", MCI will have 24.9%
- BT will purchase 20% of MCI for \$4.3 billion; MCI will purchase BT North America for \$120 million
- global services will be offered including virtual private networks, frame relay service, private lines, outsourcing, international calling cards, multimedia network services, and eventually, public telephony
- target customers will include individuals with calling cards and multinationals
- eventually MCI will become BT's preferred carrier for public telephone traffic across the Atlantic, in addition to private network services
- venture is expected to include transfer of MCI's 29.5% stake in New Zealand carrier Clear Communications Ltd. and sale of its stake in Infonet Services Corp.
- BT-MCI already begun talks with NTT (Japan) as a possible Asian partner

Pacific Partners

- alliance among AT&T, International Telecommunications Administration (Taiwan), Korea Telecom, Philippine Long Distance Telephone Co., Telecom New Zealand International, and Telekom Malaysia
- will provide leased line backup service to member countries

Temanet A/S

- Telecom Denmark and Maersk Data
- offering private line services

Unisource N.V.

- headquartered in Netherlands
- PTT Netherlands, Telia, Swiss PTT, contractual relationship with Sprint for SprintNet resale
- virtual network services, private lines, packet switched services: messaging services, calling card services; outsourcing in development

WorldPartners

- World Partners is a joint services wholesale company owned by AT&T, Singapore Telecom, and KDD; associate members include Telstra and Unitel
- expect 2 to 3 additional equity partners and 20 associate members
- will provide virtual private networks, frame relay service, private lines, outsourcing; market "WorldSource" services

APPENDIX B

SETTLEMENT IMBALANCE TRENDS WITH USA

PERCENTAGE OF MINUTES ATTRIBUTABLE TO HOME DIRECT SERVICES

	1989 IMBAL %AGE	1990 IMBAL %AGE	1991 IMBAL %AGE	1992 IMBAL %AGE
ANGUILLA	0.0%	1.7%	21.5%	22.7%
ANTIGUA	6.6%	8.3%	34.1%	26.9%
BARBADOS	1.1%	1.2%	1.7%	1.5%
BERMUDA	15.7%	17.3%	12.5%	11.0%
CAYMAN	144.1%	128.2%	106.0%	87.1%
DOMINICA	4.3%	3.1%	2.5%	5.4%
GRENADA	5.7%	5.2%	6.3%	8.7%
HONG KONG	5.42%	18.09%	21.63%	N/A
JAMAICA	N/A	N/A	27.1%	23.6%
MONTSERRAT	0.0%	3.5%	8.9%	9.7%
ST KITTS	1.8%	1.5%	2.0%	2.3%
ST LUCIA	3.7%	4.0%	4.2%	3.8%
ST VINCENT	0.0%	0.0%	0.0%	0.0%
TRINIDAD	0.9%	0.8%	0.9%	0.9%
TURKS	10.2%	27.6%	36.2%	32.8%
TORTOLA (BVI)	83.0%	61.9%	85.8%	67.1%
BAHRAIN	--	96.0%	91.0%	93.0%
YEMEN	--	N/A	0.52%	0.65%