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Internet Network Issues

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SUMMARY:

The recent Commission Communication on the Organisation and Management of the Internet - COM(2000)202 – includes a brief analysis of Internet infrastructure issues related to structure, content and economic factors. In the meantime these issues received considerable attention in Study Group 3 of the ITU where a draft recommendation was proposed in April of this year, aiming at establishing a system for compensating telecommunications operators, mainly in developing countries, for carrying – as they see it - traffic generated by users in other (mainly industrialised) countries. The ITU proposal was made by a group of Asia-Pacific countries led by Australia (the TAS Group).

This paper aims to further analyse the basis for and possible consequences of this draft recommendation. In this context European Internet service providers (represented in the Euro-ISPA trade association) were invited to comment on the proposal at a meeting held in Brussels on 8 June, and the Commission delegate raised the issue at a CEPT working group meeting for preparation of the ITU World Telecommunication Standards Assembly which took place in Montreal from 27 September to 6 October this year. The draft recommendation was likely to be voted on at this meeting.

The paper concludes that the proposal, if adopted in its original draft form, could result in new regulatory measures for the Internet, similar to the present accounting rate system for voice telephony. If this were to happen, incentives to invest by private industry in the otherwise rapidly developing infrastructure and services markets world-wide could become severely reduced.

It should be noted, however, the Australian Government (ref. 12) strongly disputed this scenario. It maintained that the recommendation would only serve to establish increased transparency regarding the use of and pricing of international leased lines used for accessing the Internet backbone network within the US. This transparency, it argued, is most needed for the purpose of ensuring fair distribution of Internet traffic transmission costs. However, the Australian Government also expressed that application of competition policy and further market openings through the WTO/GATS telecommunications agreement should ultimately lead to lower costs for access to the Internet backbone network both in the US and elsewhere in the world. It could therefore appear that a possible way forward would have been to propose an amendment to the draft recommendation with a reference to the application of competition policy to international Internet traffic exchange agreements, which would only apply to dominant suppliers in the event that they had tried to abuse their dominance and where existing competition law in some countries had proven an inadequate means to remedy the abuse.

However, at a joint CEPT/industry meeting[1] several delegates stressed that since the ITU only deals with international regulatory affairs which does not include international competition policy issues, such an amendment would probably not receive sufficient support in Montreal.

But delegates also suggested that another way forward could be to amend the draft recommendation with further elements in addition to traffic flow. Such additional elements could include number of routes, geographical coverage of the backbone network and cost of international transmission links.

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1 Joint CEPT/ETNO/EICTA/EuroISPA meeting in Copenhagen on 7 September 2000.

On this background it was proposed to aim for a common European position which concluded that the draft recommendation should be amended to include other elements than only traffic flow, such as number of routes, geographical coverage of the backbone network and cost of international transmission links.

In proposing this amendment, supporting European industry and administrations stressed that bilateral commercial agreements should apply to direct international Internet connections and that Governments should not pre-scribe outcomes in commercial agreements which are obtained under fair market conditions. This position should thus not preclude intervention by competition policy authorities in case "bilateral commercial arrangements" among major suppliers of Internet international transmission capacity were to result in unfair restriction of competition. The final result of the negotiations in Montreal was agreement on a Recommendation along these lines.

The discussions on this issue thus found a positive outcome on the last day of the ITU Assembly in Montreal. This seems due both to the joint European effort to act together on a draft compromise text and the willingness showed by the APT countries to reach a compromise during the Assembly. The intervention on one of the last days of the conference by Canada, to make the text basically non-prescriptive to parties to "direct international Internet connections", no doubt contributed significantly to the final result. Nevertheless, the United States along with Greece, decided to make reservations, stating that they would not apply the Recommendation.

1. INTRODUCTION

The continued rapid development of the Internet and associated development of electronic commerce is raising both regulatory and competition policy issues both at national and international levels. The aim of this paper is to structure an exchange of views among interested European industry and public policy makers on some newly emerging issues, in particular:

(1) wholesale pricing of Internet transit traffic carried over the PSTN and IP networks (section 3), and

(2) a recent proposal for an ITU Recommendation (supported in particular by countries in the Asia-Pacific region) to establish a system for cost-sharing of Internet traffic (section 4).[2]

Internet access via the PSTN or leased lines in principle involves two distinct sets of costs: the first is the costs of the telecommunications network that connects the customer to the ISP; and the second is the costs of the ISP for obtaining access to the IP based backbone network.

The issue surrounding the first set of these costs remains important in terms of what access technologies can be offered to consumers and at what price, but this issue is already being addressed in the recent Commission Recommendations on leased line pricing and local loop unbundling and the follow-up proposed Regulation on local loop unbundling of July 2000. It will therefore not be further discussed in the present paper.

At present the second set of costs is the subject of peering or transit arrangements[3] between ISPs and IP backbone providers. IP backbone providers may be differentiated by the reach of their networks. There are regional and national backbones which may number from one to many in any given country. At the top-level or tier 1 level of IP connectivity only a limited number of companies (such as MCI/WorldCom, Sprint, AT&T and GTE) are operating. In this context the situation regarding Internet infrastructure, including structure and capacity, content and economy, is considered important as background for further insight into how Internet wholesale or interconnection arrangements function and develop in the global Internet backbone system of private and public networks, as set out in the following section.

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[2] In this context, the treatment of Internet services under the WTO agreement on basic telecommunications services is also of interest. The European Community and its Member States have taken the position that WTO Members' commitments regarding public packet switched data networks cover access and interconnection with respect to IP networks. They believe that this offers a suitable framework within which access to IP backbone services would be ensured in case these services were supplied by a dominating supplier, (i.e. a "major supplier", using WTO terminology).

[3] ISPs obtain connectivity with one another connectivity through one of two means (a) transit arrangements, which provide access to the global Internet, i.e., includes access to third party networks - and (b) peering arrangements, which provide for the exchange for termination at the customer sites of the other's network, i.e., excludes access to third party networks. Peering relations are typically established between networks of roughly equivalent geographical coverage and exchanging roughly comparable amounts of traffic.

2. INTERNET INFRASTRUCTURE: TOPOGRAPHY AND ROUTING OF INTERNET TRAFFIC

It is a fact that the Internet remains highly US-centric, although recent endeavours to globalise use and extend network capacity in Europe and elsewhere in the world have led to a more balanced situation regarding Internet development, both regarding cost of access and use, at least within the OECD group of countries.[4] Routing of Internet traffic should normally take the fastest and cheapest route, and since network capacity remains a bottleneck in many parts of the world, routing via the United States has been and often remains a typical characteristic of Internet traffic. This past and current asymmetry in Internet traffic between the United States and other regions, arises from the original structure of the Internet, disparities in the source of content and economic factors.

2.1. Structure and capacity

The early development of the Internet in most parts of the world was based on establishing connections between national networks and the Internet in the United States. The practical result was that the installed capacity of the Internet backbone infrastructure between each EU Member State and the United States had several times the bandwidth (capacity) of the connections between the Member States. The situation in other parts of the world was apparently even more unbalanced. However, this situation now seems to be rapidly changing. In fact, in a recent study report by a Telecommunications Working Group set up by APEC - the Asia-Pacific Economic Co-operation organisation, the following position was agreed:

"Traffic flows to and from North America have become more balanced during the period of the study. A trend towards more symmetrical traffic is expected to continue as content-hosting outside the United States increases, and with the growth of more symmetrical services such as business to business transactions, email, and voice over IP (VOIP)."

At the same time, according to a recently published report by TeleGeography, bandwidth capacity in Europe is increasing rapidly with more bandwidth linking European cities to each other than between these cities and the United States. The report quotes total data capacity in mid-1999 in Europe to have been 45,453 megabits per second of which 31,918 Mbps was within Europe, and thus 13,535 Mbps was the external capacity, mainly to the US. In contrast, the US/Canada external capacity figure was 28,131 Mbps, of which 7,841 Mbps is between the US and Canada. Since 1999 more bandwidth has been added in Europe, and movements in the same direction are taking place in Latin America and Asia.

This development is now also seen to be reflected in bandwidth prices which have been dropping steadily on the transatlantic routes and on inter-European city routes[5]. Thus,

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[4] See in particular statistics available from the OECD's OLIS database under reference DSTI/ICCP/TISP(2000)1

[5] According to the telecommunications consulting company Ovum a ready-for-use STM1 circuit (the equivalent of 810 64 Kbps circuits) cost around 10 million USD in 1998, cost half as much in 1999 and will fall below 1 million USD by 2003.

during the past couple of years, traffic flows to and from North America has become more balanced with a trend towards a more symmetric traffic exchange. Transatlantic transit of intra-European Internet traffic is no longer the norm, and the previous reliance on the availability of transatlantic connections for intra-European Internet traffic apparently no longer exists.

By contrast, transpacific competitive routes are only beginning to open, and subsequent price reductions are only beginning to appear. There are, however, published plans for new cables across the Pacific and within Asia which should eventually lead to a comparable drop in prices as has been seen for the transatlantic and intra-European bandwidth prices – see for example: http://www.southerncrosscables.com/.

2.2. Content

The United States has held a leading position in content generation which is explained by the generally more advanced state of US Internet development and the popularity of US media products[6]. Most web pages thus remain hosted in the United States, and an even larger share of secure[7] sites used for electronic commerce payment or customer information transactions is in the US. Thus, at present the greatest proportion of content on the Internet is by US-based, and in practise most electronic commerce transactions are currently also taking place in the US. This situation is well documented in a recent report to the OECD working party on telecommunications and information services policy[8].

Although the US will no doubt remain an overall leader in the provision of content, significant developments in Europe, the Asia-Pacific region and Latin America are taking place. The political attention and investments currently taking place outside the US are likely to help redress the present US domination in the provision of content to a certain extent.

In this context, no comparable statistical indicators for electronic commerce have yet been worked out. But within the coming year the OECD is expected to come forward with the first results of a study on a core set of statistical indicators for electronic commerce covering its 29 member countries. A preliminary study[9] by statistical offices in Denmark and Finland show that more than 90% of businesses in these countries are now actively using the Internet for commercial purposes. If this situation, or at least a trend in this direction, can be confirmed for other European countries and countries elsewhere in the world, then the above scenario of a more balanced global situation with less US pre-eminence regarding content and electronic commerce transactions is likely to develop

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6 Australia also argues (ref. 11) that the current tier 1 ISPs reinforce this by adding costs to the hosting of content outside the US, and subsidising the delivery of US-based content to markets outside the US (a foreign ISP-host pays to deliver to the US market, but a US ISP-host gets free delivery to a foreign market).

7 A secure site provides for encryption of confidential data such as credit card or bank account numbers and is therefore a good indication for the extent to which the site is used for electronic commerce.

8 DSTI/ICCP/TISP(2000)1 cf. footnote 4.

9 The study is referenced DSTI/ICCP/IIS(2000)6 and is available on OECD's OLIS document database.

within a reasonably short period of time. Furthermore, significant investment is taking place in European web-hosting centres by, for example, Colt, Energis, KPNQuest, Cegetel, and Cable and Wireless[10].

2.3. Economic factors

Today, according to a recent analysis by the Commission's Directorate-General for Competition (ref. 4), a handful of (mainly US-owned) Internet backbone suppliers are leading in the provision of the top-level trans-continental Internet backbone networks. There are also regional and national backbone suppliers in Europe that may have or develop market power. In this context some European ISPs are expressing concern that they have to pay unfair charges for their network backbone access.

European ISPs agree that the original meaning of peering is not relevant anymore, (i.e., free exchange of Internet traffic between two or more ISPs who recognised each other as "peers"). Rather, the notion of peering has both a technical and financial meaning. In fact, during the last 6-12 months paid peering[11] had become commonplace. In addition technical peering[12] continues to exist for the provision of access at rates 30-40% below the price for transit.

Note also that top level and national backbone ISPs are to an increasing extent offering Internet access to end users in direct competition with the smaller lower level ISPs.

3. INTERNATIONAL WHOLESALE INTERNET PRICING ARRANGEMENTS

3.1. Background

All major Asian/Pacific operators, including in particular Australia's Telstra, have been voicing concern about the current arrangements for access to Internet infrastructure. As explained above, for truly global Internet access there is a reliance on US IP backbone providers, who have been concluding transit peering arrangements on a financial basis with non-US ISPs. According to discussions in the ITU and APEC, it is claimed by some APEC members (led by Australia) that non-US ISPs, including those from developing countries, are carrying Internet transit traffic that may be originated from US ISPs without being compensated for this by the US ISPs.[13]

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10 Note also footnote 6.

11 Meaning that access to the Internet backbone for transit services may require payment of a capacity based fee and/or a traffic-flow based fee.

12 Meaning that access to the Internet backbone is assured, but without specific service level guarantees.

13 Thus, some have argued (ref.12) that the issue of "transit" is fudged by the tier 1 providers: In international "transit" from say Australia to Europe via the USA, only the US network is paid, while the Australian ISP pays for the links Australia-USA, and the European ISP pays for the links USA-Europe. The US ISP in fact provides only hubbing and use of its own continental backbone, but arguably charges as if (see footnote 2) it is providing the global Internet infrastructure.

In fact, according to the 1999 ITU report on Internet for Development (ref. 13), non-US operators end up paying both for the access circuit and also for the traffic, even though traffic flows in both directions once access in established. This, the ITU believes, makes Internet access and use more expensive for consumers, in particular in developing countries, because the peering arrangements work against their interests.

But European IP backbone providers have a completely different view of how Internet pricing arrangements work. They point out that the provisioning of international transmission capacity is evolving rapidly and contain many different types of arrangements for achieving global connectivity. In fact some non-US ISPs build or lease end-to-end connectivity to the US, and some US ISPs have built their own end-to-end connectivity to Europe and are beginning to offer US connectivity in Europe. In this context some local European ISPs peer with transit providers who do not charge for Internet exchange. They thus access the US backbone for connectivity without paying for it. How these transit providers recover their costs of international transmission is not transparent, but this presumably takes place through the provision of other services.

3.2. ISP interconnection arrangements

In order to fully comprehend the issue discussed amongst the APEC countries, which had led to most different interpretations between the main participants (in particular Australia and the United States), it would seem useful to look more close at what interconnection arrangements between ISPs contain both regarding physical links and the financial arrangements. According to a recent report by Ovum, interconnection arrangements between ISPs are negotiated on a bilateral basis, and they are almost always commercially confidential. Backbone ISPs in particular require others to sign non-disclosure agreements before agreeing to interconnect. Despite this policy of secrecy, the following pattern of interconnection arrangements between ISPs seems to give a reasonably clear picture of the situation:

(1) Each ISP bears its own costs for bringing its own network to an Internet exchange from where traffic is routed via a switch to one of several other ISPs,

(2) ISPs establish transit relations and, in the case of larger ISPs, direct peering relations via bilateral links (rather than routing traffic through a public Internet exchange),

(3) Transit and peering arrangements have their relative advantages and disadvantages. The relative "size" of the two ISPs is only one determinant of which arrangement is ultimately decided upon. Access to third party networks, for example, is an advantage of transit not available under peering,

(4) Transit-customer ISPs normally pay the full costs of the direct link established with transit supplier ISPs,

(5) Cost sharing of bilateral links between the large backbone ISPs is negotiated on a commercial basis without any formal or regulated rules,

(6) There is no discrimination in these practices between US and non-US ISPs, i.e., peer and transit relations themselves are formed without regard to the "nationality" of the interconnecting ISP,

(7) Normally non-US ISPs, as transit-customer ISPs, bear the full cost of links to US based backbone ISPs. However, this is an extension of attributes 1 and 3 and is based on an Internet topography in which the major Internet exchange nodes were established in the US.[14]

Some non-US ISPs now argue that the US backbone ISPs should be required to share the cost of the link with them, because the proportion of traffic on a link where the session is originated in the US has reached a level of 35 to 40% on some routes, according to these non-US ISPs. They further claim that their US counterparts are receiving a "subsidy" from them unless this situation is rectified - (Telstra has estimated that this so-called subsidy was around 5 billion USD in 1999 and that it is growing fast)[15].

US and many European ISPs (for example, the European ISPs at a meeting with the Commission on 8 June) generally argue that this is a temporary problem, because global networks with interconnection points in countries outside the US are becoming operational, thus eliminating the need for non-US ISPs to provide their own link to the backbone in the United States. The cost of the links to these interconnection points outside the US is modest[16], and the Telstra problem therefore will eventually disappear.

Thus, the Ovum report supports the position that the current problem for some APEC countries and other countries outside the US and Europe for obtaining cost-effective access to the global Internet backbone network is best resolved by extending this network to become truly global and accessible by all ISPs be they small or big. Ovum does not recommend that the solution should be the establishment of a new type of settlement system based on the exchange of traffic between ISPs for existing expensive or capacity lacking links to the Internet backbone network system. On the other hand, Ovum expects that certain so-called next generation Internet services will be paid for by traffic-flow based charging arrangements both at the retail and wholesale levels[17].

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[14] This is thus a very different situation from that of the traditional public switched telephone service, where the originator had to pay the agreed per minute bilateral settlement rate to the service provider terminating the call. That situation was characterised by the US and other countries with a positive call origination balance paying huge net settlement balances through a regime of inflated international accounting rates to countries, mainly developing countries, with a negative call origination balance.

[15] However, since these links are apparently most often supplied via leased lines owned by incumbent telephone companies with significant market power (which are often national backbone ISPs providing transit access to top level US tier 1s), it is the price for the access to and use of these leased lines which may be what these non-US ISPs are complaining about. This then seems clearly to be a regulatory problem where the national regulator or competition authority should intervene to demand cost-based pricing for the relevant leased line capacity.

[16] Because transit links are apparently most often supplied via leased lines owned by incumbent telephone companies with significant market power (which are often national backbone suppliers providing transit access to top level US tier 1 providers), it is the price for the access to and use of these leased lines which may be what some of the complaints of non-US ISPs are about. This then seems clearly to be a regulatory problem where the national regulator or competition authority should intervene to demand cost-based pricing for the relevant leased line capacity.

[17] Presentation by Davis Lewin of Ovum at an IP interconnection conference in London on 4 July 2000.

4. DEVELOPMENTS IN THE INTERNATIONAL TELECOMMUNICATIONS UNION AND APEC

The International Telecommunications Union (ITU) has devoted considerable efforts to how information and communications technologies can help developing countries on to the road of industrialisation with the aim of catching up with industrialised countries in terms of wealth creation and social well-being.

A comprehensive study report was released by the ITU in 1999, entitled "Internet for Development". This report explores the impact of Internet development in a number of areas of social and economic concern, such as commerce, health and education. The report also explores the potential impact of the Internet on the public telecommunications operators of developing countries. It concludes in this respect with a toolkit for Internet development which includes both suggestions regarding regulation (content, copyright, privacy and competition policy) and promotion of network developments through increased private sector participation and the creation of competitive markets for both infrastructure and services.

The following quote from a presentation by Yoshio Utsumi, ITU Secretary-General, at the ECOSOC meeting of the United Nations this year, however, illustrates very well the current dispute about how to proceed with the extension of the global Internet backbone network to all ITU member countries.

"At the moment, developing countries wishing to connect to the global Internet backbone must pay for the full costs of the international leased line to the country providing the hub. More than 90 per cent of international IP connectivity passes through North America. Once a leased line is established, traffic passes in both directions, benefiting the customers in the hub country as well as the developing country, though the costs are borne primarily by the latter. These higher costs are passed on to customers [in developing countries]. On the Internet, the net cash flow is from the developing South to the developed North."

While on the one hand the ITU proposes that the private sector should take the lead by investing in more new capacity, and Governments should help by ensuring that infrastructure market are open through competition, a significant group of countries is also demanding a greater degree of transparency in the pricing of international leased lines. In this context these countries also request the sharing of costs by users of the leased lines according to use.

However, such a request hardly seem to warrant a specific new ITU recommendation which could well lead to undesirable effects on market developments for both Internet infrastructure and services. Regulators in developing and industrialised countries may well need to establish an improved co-operative framework on the basis of existing international agreements, like the regulatory principles of the WTO/GATS telecommunications agreement. But it would seem important in this context that a common approach with industry to these issues be obtained, before adopting new regulatory measures under the ITU.

4.1. The Asia-Pacific proposal in the ITU

With a view to addressing the situation as outlined above, the Asia-Pacific Tariff Group[18] presented the following draft Recommendation at the last meeting of ITU-T Study Group 3, held in April 2000 in Geneva:

"It is recommended that administrations[19] involved in the provision of international Internet connection negotiate and agree to bilateral commercial arrangements applying to direct international Internet connections whereby each administration will be compensated for the cost that it incurs in carrying traffic that is generated by the other administration."

We understand that the US Government argues that this Recommendation would only be applicable to traditional telecommunications operators, since they interpret ISPs as being outside the ITU's international telecommunications regulations. Other parties disagree and find that this definition would automatically include any ISP that is allowed by the law of the relevant State to provide facilities for access to the Internet.

In any case, if adopted, the Recommendation could in practice put pressure on *all* organisations, not only traditional voice telecommunications operators, including IP backbone service providers such as AT&T, MCI/WorldCom, Sprint, Cable & Wireless to change their current peering transit arrangements with other ISPs to include also cost sharing arrangements according to the volume of traffic originated.

Concerns about or opposition to the proposed recommendation were expressed at the ITU study group 3 meeting by the United States, Canada, the UK, the Netherlands, and Russia. The US delegation, supported by Canada, considered that it could lead to a new ITU accounting rate regime for the Internet. This they consider clearly undesirable due to the fact that this system has proved itself unworkable in competition based markets, the notorious non-cost based nature of the present accounting rate system remaining an unresolved issue in the ITU. The UK and the Netherlands expressed doubts about the need for such a recommendation which they thought would not be practicable due to the problem of measuring Internet traffic[20]. Doubts about who originates Internet traffic also remain an issue.

The draft recommendation nevertheless received broad support from a clear majority of members of the ITU Study Group 3.

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18 Note that this group has different membership from APEC, as it does not include the North or South Americas, but it includes West and South Asia.

19 Note that "administrations" in this context include "recognised operating agencies".

20 It is argued (ref. 11) that the problem of measuring Internet traffic is greatly exaggerated by those who have a commercial interest in avoiding such measurement: At the retail level, ISPs and even desk-top utilities routinely measure traffic; at the wholesale level, where ISPs exchange bulk traffic, there are products available and techniques that use statistical sampling to establish a valid picture of traffic. However, the fact that measurement of Internet traffic flows as the basis of billing is not used between ISPs is testimony to the fact that traffic metering is costly and/or that traffic flows are susceptible to manipulation. Moreover, even if traffic measurement did not suffer from these problems, it would only be realistic for bilateral traffic flows. How cost-sharing would be implemented in the context of literally thousands of ISPs contributing to the costs of trans-border traffic flows has never been addressed.

4.2. The Results of the APEC Ministerial meeting

The APEC Ministerial meeting held in Cancun, Mexico on 24-26 May 2000, concluded that there may not be only one charging arrangement that can be universally applicable for Internet traffic exchange agreements[21]. The APEC telecommunications working group (formally the ICAIS Taskforce) will, however, continue to discuss the international developments of the Internet. Ministers noted the initial suggestions from the working group:

(1) where measurement tools are available and acceptable, charging arrangements between ISPs should be based on traffic flow patterns for each type of service, taking into account which side has generated the traffic,

(2) in the absence of efficient measurement tools, charging arrangements for international links should be based on the ratio of inbound to outbound traffic flow.

However, it would seem to be difficult if not impossible to reliably quantify the real value of Internet data flows to either party of a peering or transit arrangement on the basis of either the quantity or direction of data packets. In any case there is no agreement about which ISP generates inbound or outbound Internet traffic, so the proposal would appear very difficult to implement from an operational point of view. The EU will clearly have to follow the further discussions in the APEC group which may be expected to continue discussing its points of difference[22].

4.3. Conclusions and results of the ITU World Telecommunication Standardisation Assembly

The ITU proposal could well, if it were to lead to the establishment of a formal settlement system, lead to the stifling of the rapidly evolving Internet services market by reducing the incentive to invest in new bandwidth capacity for access to the US backbone network.

In the first place this is because by making access to the US market cheaper, the recommendation could reinforce the dominant position the US is holding in terms of content provision and global transit services; secondly, it will reduce the incentives for

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21 The APEC ministerial declaration is available on: http://www.apecsec.org.sg/virtualib/minismtg/mtgtel2000.html

22 The APEC study group report includes the following position that "[Some APEC countries] *see it as inequitable that the total cost of data links to North America points of interconnection must be borne by the Asian/Australasian ISPs in addition to port charges for interconnection. They believe that the cost of links to the North American backbone are a significant component of their total operating cost, and that while the unit cost of bandwidth may be declining, the central issue is about how that cost is shared. They see inequity in the lack of recognition for value brought by networks that do not have North American backbone networks but have extensive networks within their own economies. These economies also believe that it is inequitable that their networks are not compensated for the costs they incur in carrying traffic generated by North Americans on their networks. These economies see the situation as reducing incentive for investment in networks and services within the region."*

Governments to focus on the stronger driver in lowering connectivity costs: competition in national markets; and thirdly, it could undermine the existing plans of US backbone providers to supply free or cheap US connectivity as a selling point to their offerings to non-US ISPs. This could be detrimental to the growth of the Internet, mainly in emerging and developing country markets[23].

APEC Ministers agreed that further study of traffic exchange agreements between ISPs on traffic flow patterns, or in the absence of such data, on the ratio of inbound to outbound Internet traffic, should be undertaken. The APEC study group will therefore continue to study the issue and to make further proposals in due time.

In the meantime the proposed ITU recommendation was the only concrete international proposal available for establishing Internet traffic exchange principles. European ISPs were not enthusiastic about focusing only on traffic flow as basis for traffic exchange agreements with Internet backbone access providers. They suggested that other elements, such as number of routes, geographical coverage of the backbone network and cost of international transmission links, should at least be included in addition to traffic flow.

The ITU proposal could therefore be made more palatable at least to European ISPs, if the proposal were broadened to include also these additional elements.

However, if the APEC proposal mainly was about addressing the issue of expensive international leased lines which are required to obtain global Internet connectivity, then either existing national regulations should be used to resolve this issue (as is being done in Europe), or competition law should be applied at the international level to remedy possible abuse of dominant position or collusion among large ISPs on the international routes in question.

It seemed, therefore, that the scope of the proposal could be limited to setting certain principles for commercial Internet traffic exchange agreements, which would only apply to dominant suppliers in the event that they had tried to abuse their dominance and where existing competition law in some countries had proven an inadequate means to remedy the abuse.[24]

In fact, this interpretation was also stressed by the Australian side (ref. 11) saying that the proposal goes no further than recommending a *principle* that should guide commercial arrangements between relevant parties. If this were to be qualified further to apply only in case one of these parties were a major supplier, using the WTO definition of "dominance", then more general support from both industry and sector regulators for the proposal would have been likely. However, several delegates at a joint CEPT/industry meeting[25] stressed that the ITU only deals with international regulatory affairs which does not include international competition policy issues.

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[23] However, it is also argued (ref. 11) that a better sharing of costs would promote investment globally and particularly in developing markets.

[24] This interpretation has not been agreed in the ITU, but it is one of the principles quoted by the APEC Ministers in the Cancun Declaration of May 2000. According to the European Community and its Member States, the regulatory principles of the WTO/GATS telecommunications agreement already apply to such situations. Provided this is supported in the WTO, the issue thus is to engage those countries with no competition law and/or no WTO commitments.

[25] Joint CEPT/ETNO/EICTA/EuroISPA meeting in Copenhagen on 7 September 2000.

On this background it was then agreed to aim for a co-ordinated European position at the ITU World Telecommunication Standardisation Assembly in Montreal (27 September-6 October 2000) which proposed a modification to the proposal along the following lines:

> ***"It is recommended that administrations[26] involved in the provision of international Internet connections negotiate and agree to bilateral commercial arrangements applying to direct international Internet connections. Elements which may be taken into account in deciding the value of compensation involved in such negotiations include traffic flow, number of routes, geographical coverage and cost of international transmission, amongst others".***

In proposing this amendment, supporting European industry and administrations stressed that bilateral commercial agreements should apply to direct international Internet connections and that Governments should not pre-scribe outcomes in commercial agreements which are obtained under fair market conditions. This position should thus not preclude intervention by competition policy authorities in case "bilateral commercial arrangements" among major suppliers of Internet international transmission capacity were to result in unfair restriction of competition.

The subsequent negotiations at the WTSA 2000 resulted in the adoption of the following Recommendation:

"The World Telecommunication Standardisation Assembly (Montreal, 2000),

recognizing

the sovereign right of each State to regulate its telecommunication, as reflected in the Preamble to the Constitution,

noting

a) the rapid growth of Internet and Internet protocol-based international services;

b) that international Internet connections remain subject to commercial agreements between the parties concerned; and

c) that continuing technical and economic developments require ongoing studies in this area,

recommends

that administrations* involved in the provision of international Internet connections negotiate and agree to bilateral commercial arrangements enabling direct international Internet connections that take into account the possible need for compensation between them for the value of elements such as traffic flow, number of routes, geographical coverage and cost of international transmission amongst others.

> **** In this Recommendation, the expression "administration" is used for conciseness to indicate both a telecommunication administration and recognised operating agency."***

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26 Note that "administrations" in this context include "recognised operating agencies".

The discussions on this issue thus found a positive outcome in the end. This seems due both to the joint European effort to act together on a draft compromise text and the willingness showed by the APT countries to reach a compromise during the Assembly. The intervention on one of the last days of the conference by Canada, to make the text basically non-prescriptive to parties to "direct international Internet connections, no doubt contributed significantly to the final result. Nevertheless, the United States along with Greece, decided to make reservations, stating that they would not apply the Recommendation.

At the closure of the Assembly, the ITU issued the following press release:

"The discussions on this very contentious issue found a positive outcome on the last day of the Assembly. The purpose of the recommendation is to set out the principle according to which there should be bilateral agreement when two providers establish a circuit between two countries for the purpose of carrying Internet traffic. The possible need for compensation between the providers has also been recognised. At present, when providers install Internet circuits, they generally have a choice between the "sender-keeps-all" or peering system of bilateral connections when traffic is more or less balanced, or the asymmetrical system whereby the initiating provider pays for the whole connection with the other country (full-circuit cost).

The Recommendation endorsed by the WTSA, which represents a very delicate balance between the various interests, calls for arrangements to be negotiated and agreed upon on a commercial basis when direct Internet links are established internationally. The Recommendation requires only that the two providers involved reach a mutual agreement and does not prescribe any particular formula or system, thus leaving to providers their freedom to determine the forms or methodologies to be used in implementing the principle.

The Recommendation, which is voluntary, suggests that parties involved take into account the possible need for compensation for elements such as traffic flow, number of routes, geographical coverage and the cost of international transmission among others when negotiating such commercial arrangements. In addition, the Assembly agreed that while international Internet connections remain subject to commercial agreements between operating agencies, there is a need for on-going studies in this area. The Chairman recalled that the decision made in Montreal provided a framework for future discussions and was therefore only the beginning of a process where issues would be further analysed. Two countries - the US and Greece - made reservations and stated that they would not apply it in their international charging arrangements."

The forthcoming work on this issue in Study Group 3 of the ITU should clearly require the full attention of the European Community and its Member States.

REFERENCE DOCUMENTS

1) "The organisation and management of the Internet - annex on Internet infrastructure", Communication from the Commission to the Council and the European Parliament, 7 April 2000 - COM(2000)202,

2) "FCC's approach to non-regulation of the Internet", report on a meeting with Jason Oxman and Helen Dominici of the FCC in September 1999,

3) Presentation on Internet network structure by Telefonica of March 2000,

4) MCI WorldCom/Sprint merger procedure statement of objections by DG Competition of 28 June 2000,

5) APEC Telecommunications Working Group - Task Force for the study of International charging arrangements for Internet services (ICAIS) report to the 4th APEC Ministerial meeting on telecommunications and information industry, Cancun, Mexico, 24-26 May 2000,

6) Internal Internet Bandwidth report by TeleGeography quoted from CommunicationsWeek International of 8 May 2000,

7) "Local access pricing and e-commerce", DSTI/ICCP/TISP(2000)1, Report to OECD's telecommunication and information services policy working party meeting on 2-3 May 2000,

8) "ICT usage in enterprises", DSTI/ICCP/IIS(2000)6, Report to OECD's working party on indicators for the information society meeting on 26-28 April 2000,

9) Report on meeting with Euro-ISPA representatives on 8 June 2000,

10) "Interconnect on the Internet", report by David Lewin, Ovum,

11) Comments provided by Richard Thwaites of the National Office for the Information Economy, the Australian Department for Communications, Information Technology and the Arts; see also "Internet interconnection: Factors affecting commercial arrangements between network operators in Australia" by the Australian Competition and Consumer Commission, February 2000, available on http://www.accc.gov.au,

12) ITU report on Internet for Development, Geneva, October 1999.