



**EUROPEAN COMMISSION**

Information Society Directorate-General

Communication services: Policy and regulatory Framework  
**International Aspects**

Brussels, 26 February 2004

To Administrations of Member States of the Union,  
to ITU-T Sector Members and to non ITU-T experts  
participating in the work of the rapporteur groups on  
international Internet connectivity and traffic flow methodology

**Subject: Third Joint Meeting of rapporteur Groups on international Internet  
connectivity and traffic flow methodology  
(28-30 April 2004, Brussels, Belgium)**

Dear Sir/Madam,

I would like to inform you that a third joint meeting of the two rapporteur groups on international Internet connectivity (IIC) and traffic flow methodology is scheduled to take place in Brussels on 28-30 April 2004 – please note change of dates from 19-21 April.

The meeting is being planned as indicated in the report on the results of the discussion of the progress of the work by the two rapporteur groups during the November 2003 session of Study Group 3.

The meeting will be hosted by the European Commission. Simultaneous interpretation between English, French and Chinese has been requested for the meeting.

The meeting will open at 10:30 hours on the first day. The location of the meeting will be at the European Commission's **Conference Centre Albert Borchette**, Rue Froissart 36, B-1040 Brussels. The location of the meeting room will be posted on screens at the entrance to the Conference Centre. Participants are invited to register at the entrance to the meeting room from 9.00 hrs on 28 April.

Contributions may be downloaded directly from the ITU-T rapporteur group web site at <http://www.itu.int/ITU-T/studygroups/com03/rap-meetings.html>

The agenda for this third joint rapporteurs' group meeting is the following:

1. Presentations by operators on international Internet connectivity market policies and on IIC market developments.
2. Capacity building in developing countries regarding the development and use of the Internet.

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3. The concerns of developing countries regarding the costs of access to international Internet interconnect points.
4. The concerns of many participants, notably from industry, about the proposal by China to focus on traffic flow for international Internet connectivity negotiations between Internet service providers and Internet backbone network access providers.
5. Preparation of a report to Study Group 3 for its June 2004 meeting covering proposals for models on how the commercial and technical agreements related to the implementation of Recommendation D.50 regarding the supply of international Internet connectivity are to be established and managed.

The Terms of Reference for the meeting, as prepared by the IIC rapporteur and other members of the two rapporteur groups, are set out in **Annex 1** hereto. Please note that the Terms of Reference provide a further elaboration of the agenda for the meeting.

The meeting is open to all ITU-T members and to non ITU-T experts as invited by the rapporteurs. Please confirm your participation in the meeting either by fax or email as soon as possible and not later than 25 March 2004 by filling in the registration form in Annex 2.

Participants from some countries may be required to obtain a visa in order to enter and spend time in Belgium. The visa must be obtained from the office (embassy or consulate) representing Belgium in your country.

Yours sincerely,  
Svend Kraemer  
ITU/SG3/IIC Rapporteur

**Annex 1:**

**TERMS OF REFERENCE**

**Subject: Joint Rapporteurs’ group meeting in Brussels on 28-30 April 2004 on international Internet connectivity (IIC) and traffic flow methodology issues.**

1. BACKGROUND ..... 5

2. SUBSTANTIVE AGENDA POINTS FOR THE JOINT RAPPORTEURS’ GROUP MEETING..... 6

2.1. Presentations on international Internet connectivity market policies and on IIC market developments. .... 6

2.2. Capacity building in developing countries regarding the development and use of the Internet..... 7

2.3. The concerns of developing countries regarding the costs of access to international Internet interconnect points. .... 7

2.4. The concerns of many participants regarding the focus on traffic flow..... 7

2.5. Preparation of a report to Study Group 3 for its June 2004 meeting covering proposals for models on how the commercial and technical agreements related to the implementation of Recommendation D.50 regarding the supply of international Internet connectivity are to be established and managed. .... 7

2.6. Proposed timing of the substantive agenda points during the joint rapporteur group meeting on 28-30 April 2004..... 9

ANNEX 1: TERMS OF REFERENCE FOR THE RAPPORTEUR GROUP ON IIC:..... 11

ANNEX 2: TERMS OF REFERENCE FOR THE RAPPORTEUR GROUP ON TRAFFIC FLOW METHODOLOGY: ..... 12

ANNEX 3: DRAFT PROPOSAL REGARDING RECOMMENDATION D.50..... 13



## 1. BACKGROUND

It is recalled that the original terms of reference for the rapporteur group on implementation of Recommendation D.50 on international Internet connection was agreed by Study Group 3 in June 2001 as follows:

Work in this area needs to be done in order to:

- conduct further studies on the technical and economic developments as called for by Recommendation D.50; and
- consider the need to propose the development of general principles that may be relevant to bilateral commercial arrangements.

The basic Terms of Reference for the rapporteur group were defined as set out in Annex 1 to this note.

The outcome of the work by the rapporteur group anticipated by Working Party 1/3 is:

- Interim report to the next Working Party 1/3 meeting addressing information obtained up to date.
- Final report to Working Party 1/3 in June 2002 meeting (subject to finalisation of data collection and relevant study by the Rapporteur's Group).

This Rapporteur's Group will use the email reflector system in order to exchange information and different points of views. Delegates interested in participating to the study should register to the Reflector Group and send their information and views to [tsg3internet@itu.int](mailto:tsg3internet@itu.int).

In addition, a second rapporteur group was established in June 2002 in order to elaborate in more detail and further the work submitted by China on traffic flow methodology issues (D9, D10 and COM 3-16). The terms of reference for this Rapporteur Group were established as follows:

“With point of emphasis being COM 3-16 and its traffic flow methodology, to develop a proposal to modify Recommendation D.50, working with the International Internet Connectivity Rapporteur group and taking their findings into account.”<sup>1</sup>

Members were invited to subscribe to the reflector group [tsg3d50traffic@itu.int](mailto:tsg3d50traffic@itu.int) and to participate in the discussion.

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<sup>1</sup> Quote from the official report of the third meeting of working party 1/3 held in Geneva from 10-14 June 2002 – doc COM 3-R 9-E.

At the meeting of Study Group 3 (Working Party 1/3) in November 2003 it was agreed that, should it be deemed necessary and of benefit by the respective rapporteur groups, a joint meeting of the two rapporteur groups could again be convened in Belgium, in April 2004.

Some delegations were in favour of revising Recommendation D.50 while many others wished to maintain this Recommendation as it stands and Working Party 1/3 was unable to reach a consensus.

However, the working party agreed on the utilization of the proposed changes and guidelines as a basis for further work by the Rapporteur on IIC. Specific questions were raised concerning the need to go into details of the elements listed in the guidelines, qualification of the terms used therein (e.g. 'geographic dispersal'), criteria for value reciprocity, and even the overall target location for the material (either ITU Handbook or appended to the Recommendation).

A presentation was made by the delegate from ETRI-Korea (Dr Choi) on a technology research project now underway by that organisation. The project has begun to develop a technology that enables a way to track and account for some individual data flows within a larger traffic stream by identifying data application type (content type/direction) being carried on IP circuits, including the application specific contexts.

The goal of this presentation was to demonstrate the feasibility and plausibility of capturing and analysing certain types of IP data streams to determine the content being carried. Working Party 1/3 requested the Rapporteur Group on Traffic Flow Methodology to consider how this technology, when finalized, could be used in relation to Recommendation D.50. Participants also asked that any work be shared with the full SG3 membership.

The discussions and review of Internet IP issues was concluded with the Working Parties' endorsement of the consolidated report, and remanding of the work back to the two Rapporteurs.

After consultation amongst interested members of the rapporteur groups it has been concluded that a new meeting should be convened on 19-21 April 2003, in due time before the next meeting of study group 3 takes place on 31 May - 4 June 2004. Substantive agenda points for this meeting are agreed as set out in the following.

## **2. SUBSTANTIVE AGENDA POINTS FOR THE JOINT RAPPORTEURS' GROUP MEETING**

A further elaboration on a possible supplement to Recommendation D.50 on general principles for IIC negotiators would be attempted when discussing the first four agenda points. This elaboration would aim to make the current text of the proposal (annex 3) better understood by all interested parties. This could for example be done via case studies of how international Internet connectivity is established between Internet service providers in some developing countries in different parts of the World and Internet backbone network access providers.

### **2.1. Presentations on international Internet connectivity market policies and on IIC market developments.**

Operators are encouraged to make presentations about their peering and transit policies to the joint rapporteurs' group meeting, as well as on market developments for international Internet connectivity.

These presentations would aim to explain the trends of Internet traffic developments on a global scale to the benefit of all ITU member administrations and Internet service providers.

## **2.2. Capacity building in developing countries regarding the development and use of the Internet.**

Special initiatives to provide affordable bandwidth to LDCs including self-help for smaller networks will be presented and discussed. Representatives from organisations like the Global Internet Policy Initiative and/or Balancing Act-Africa will be invited to present results of their work in promoting the use and development of the Internet in developing countries.

The rapporteur groups will further consider whether there are means, in addition to Recommendation D.50, to encourage minor networks and ISPs to co-operate in strategic alliances, to maximise economic efficiency and commercial strength in the market place shared with powerful competitors.

Such co-operation could include scenarios or models regarding principles on how to establish and manage commercial agreements regarding the supply of international Internet connectivity. Case studies of several countries in different regions (Africa, Latin America and Asia) will be presented.

## **2.3. The concerns of developing countries regarding the costs of access to international Internet interconnect points.**

The joint meeting needs to address the concerns expressed by participants from developing countries in the joint rapporteurs' group meeting report ([D53 Rev.2](#)) that the allocation of the cost for the international circuit needed for accessing the international Internet interconnect point is unreasonable. According to this view, Internet service providers in developing countries pay for the cost of the full circuit fee (or two half circuits) which gives Internet service providers in industrialised developed countries free access ("free ride") to use the networks of developing countries.

## **2.4. The concerns of many participants regarding the focus on traffic flow.**

The joint meeting also needs to address the concerns expressed by many other participants, notably from industry, in the joint rapporteurs' group meeting report ([D53 Rev.2](#)) about the proposal by China to focus on traffic flow for Internet interconnectivity negotiations between Internet service providers and Internet backbone network access providers. These concerns also include the implications of introducing traffic flow measurement technologies for settling Internet traffic such as those incorporated in the ongoing research project undertaken by ETRI as referred to in section 1 above.

## **2.5. Preparation of a report to Study Group 3 for its June 2004 meeting covering proposals for models on how the commercial and technical agreements related to the implementation of Recommendation D.50**

**regarding the supply of international Internet connectivity are to be established and managed.**

Based on an analysis and examination of the different contributions, including from the traffic flow methodology rapporteur group, the meeting will provide technical advice regarding the essential elements to be taken into account for the supply of international Internet connectivity. These may include traffic flow, number of routes, geographical coverage and costs of establishing and maintaining international Internet exchange points.

It will also outline one or more scenarios or models on principles on how to establish and manage commercial agreements regarding the supply of international Internet connectivity. This would aim to help national regulatory authorities or administrations to ensure that their local Internet service providers obtain fair and equitable conditions for their required need to obtain global Internet connectivity.



**2.6. Proposed timing of the substantive agenda points during the joint rapporteur group meeting on 28-30 April 2004.**

**28 April:**

**1. 10.30-12.30: Presentations on international Internet connectivity market policies and on IIC market developments**

- a) international Internet backbone networks: capacities and traffic flow, update of presentation from June 2003 [by *Marilyn Cade*, AT&T and other speakers if possible – to be confirmed]

**14.30-17.00:**

- b) presentation of research on traffic flow methodology by *Dr Juergen Quittek*, Network Laboratories of NEC Europe

- c) comments and discussion of the findings of the presentations

**29 April: Capacity building in developing countries regarding the development and use of the Internet.**

**2. 9.30-12.30:**

Presentations and discussion of the situation in several developing countries regarding international Internet connectivity, including presentations from organisations like the Global Internet Policy Initiative (Jim Dempsey - <http://www.internetpolicy.net>) and/or Balancing Act (Russell Southwood - <http://www.balancingact-africa.com>) – to be confirmed.

**3. 14.30-16.30:**

Presentations and discussion of the situation in several developing countries regarding international Internet connectivity (continued from morning session).

**16.30-17.30:**

Conclusions regarding capacity building in developing countries regarding the development and use of the Internet.

**30 April:**

**4. 9.30-12.30:**

- a) possible conclusions regarding the need to amend Recommendation D.50 with a supplement regarding general principles for IIC negotiators as proposed in annex 3.

- b) the issue of how the current commercial international Internet traffic exchange

arrangements impact the development of Internet use in developing countries – if the current system of interconnection agreements/peering and transit impacts negatively or positively on the digital divide.

c) the issue of access costs for local Internet services providers: regulatory tools to ensure cost effective availability of leased lines to ensure local access. The possible need to apply such tools to the Internet backbone network transit and interconnection providers will also need to be discussed.

5. ***14.30-17:***

Preparation of a report to Study Group 3 for its June 2004 meeting covering proposals for models on how the commercial and technical agreements related to the implementation of Recommendation D.50 regarding the supply of international Internet connectivity are to be established and managed.

## **ANNEX 1: TERMS OF REFERENCE FOR THE RAPPORTEUR GROUP ON IIC:**

The work in this area needs to be done in order to:

- conduct further studies on the technical and economic developments as called for by Recommendation D.50, *noting c)* and
- consider the need to propose the development of general principles that may be relevant to bilateral commercial arrangements.

The Rapporteur's Group on International Internet Connection Aspects (Recommendation D.50) shall:

- Collect and consider studies/information from all available resources on the issue, including other international organizations and industry sources.
- Conduct an inquiry (including input from the TSB) on prevailing commercial arrangements.
- Consider the final report of the Rapporteur Group on Internet formed by Study Group 3 during the last study period.
- Consider cost issues including relevant results of the regional tariff groups whenever available.
- Collect and consider contributions from any member state/sector member.
- Undertake the work in two phases, the first phase for data collection and the second for analysis and preparation of a report with findings and conclusions if necessary.
- Co-ordinate the conduct of an informative presentation on the Internet environment and the current commercial arrangements and studies as available. The timing for this shall be co-ordinated with the Chair of Working Party 1/3.
- Conduct the study and analysis based on the whole of Recommendation D.50.

Subject to the availability of the information above, the targeted outcome is anticipated to Working Party 1/3:

- Interim report to the next Working Party 1/3 meeting addressing information obtained up to date.
- Final report to Working Party 1/3 in June 2002 meeting (subject to finalization of data collection and relevant study by the rapporteur's group.<sup>2</sup>

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<sup>2</sup> Quote from the official report of the meeting of working party 1/3 held in Geneva from 12-14 June 2001 – doc COM 3-R 3-F.

**ANNEX 2: TERMS OF REFERENCE FOR THE RAPPORTEUR GROUP ON TRAFFIC FLOW METHODOLOGY:**

“With point of emphasis being COM 3-16 and its traffic flow methodology, to develop a proposal to modify Recommendation D.50, working with the International Internet Connectivity Rapporteur group and taking their findings into account.”<sup>3</sup>

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<sup>3</sup> Quote from the official report of the third meeting of working party 1/3 held in Geneva from 10-14 June 2002 – doc COM 3-R 9-E.

### **ANNEX 3: DRAFT PROPOSAL REGARDING RECOMMENDATION D.50**

The Joint Rapporteurs' Group favours a market-driven approach to international Internet interconnectivity charging although it also recognises that governments from countries in transition to a market economy may wish to introduce safeguards to ensure that all market players are subject to fair and equal access to international Internet connectivity services. However, the Group recognises that the availability of several international network access options encourages a beneficial outcome for both parties involved in the provision of international Internet connections without the need to invoke ex-ante regulatory intervention by governments or national regulatory authorities. The Group also recognises that commercial negotiations should be conducted bilaterally between Administrations or other parties wishing to connect their networks and may include consideration of issues such as:

- the network connectivity (national, regional or global Internet transit) that a party undertakes to provide to its correspondent party, including
  - number of connections and availability of appropriate interconnect points
  - geographic dispersal of connections
  - dedicated capacity provided for the connections
  - minimum connection speeds measured at peak capacity
  - the ratio of traffic exchanged between the two networks
  - number of routes announced between the parties
  - network resilience and arrangements for default routing
  - arrangements for appropriate filtering and monitoring of route announcements
  - industry best practices for efficient route announcements (e.g. to ensure that routes are not 'double counted' and that they are efficiently aggregated)
  - availability for route exchange and/or default routing
  - other measures agreed by the two parties,
- the standard of service performance that each party will provide to the other, including the availability of contact points between the contracting parties,
- arrangements for connectivity trials prior to full agreement,
- arrangements and terms for termination of the connection.

The Group also notes that Administrations and other parties involved in commercial interconnectivity negotiations are unlikely and should not expect to exchange revenue and cost information as a means of substantiating that their respective network interconnect fees are fair and reasonable. Apart from such information being commercially sensitive, an exchange of such information may be in breach of local and international Trade Practice regulations.

Based on these considerations, and in order for Recommendation D.50 to better reflect the situation for the parties negotiating international Internet interconnectivity, the joint Rapporteurs' Group has discussed the following proposed amendment of Recommendation D.50:

## **DRAFT PROPOSED AMENDMENT TO RECOMMENDATION D.50<sup>4</sup>**

The World Telecommunication Standardisation Assembly,

recognizing

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

noting

- a) the rapid growth of the 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<sup>5</sup> 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.

[that Administrations and other parties involved in the provision of international Internet connections negotiate and agree to bilateral commercial arrangements for interconnectivity between their respective networks. In arriving at these commercial arrangements, the parties may wish to consult the attached supplement containing general principles for international Internet interconnectivity negotiations. These general principles, which are of a voluntary and consultative nature, aim to assist Administrations and other parties in their bilateral commercial negotiations.]

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<sup>4</sup> Greece and the United States of America have expressed reservations and will not apply this Recommendation

<sup>5</sup> In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

## **Supplement to Recommendation D.50:**

### **GENERAL PRINCIPLES FOR INTERNATIONAL INTERNET INTERCONNECTIVITY NEGOTIATIONS**

The following are intended as consultative general principles for those Administrations and other parties who wish to negotiate commercial agreements covering international interconnectivity between their respective Internet networks. These considerations or guidelines apply only to interconnectivity arrangements which follow common engineering and commercial best practices.

#### **1. Value of Connection**

Administrations and other parties may agree to measure the exchange of value between networks with reference to the following factors:

##### **1) Network connectivity and physical presence:**

the extent of the network connectivity (local, national, regional or global Internet connectivity) and degree of reachability to Internet end-users and content sites that a party undertakes to provide to its correspondent party. For example, this may be determined with reference to agreed factors like, but without being limited to these:

- a) number of connections and availability of appropriate interconnect points
- b) geographic dispersal of connections
- c) dedicated capacity provided for the connections
- d) minimum connection speeds measured at peak capacity
- e) number and value of routes announced between the parties
- f) network resilience
- g) arrangements for appropriate filtering and monitoring of route announcements
- h) industry best practices for efficient route announcements
- i) availability for route exchange and/or default routing
- j) other measures agreed by the two parties

##### **2) Level of traffic exchanged:**

- a) the ratio and amount of traffic exchanged between the two networks
- b) the need to ensure, by suitable contractual safeguards, that international traffic flows are not fraudulently manipulated by technical or other means;

##### **3) Service performance:**



the service performance and any compensation for non-performance that a party could provide to the other. For example, this may take account of

- a) Network performance (e.g. non-availability, round trip delay, packet loss)
- b) Availability of contact points between the parties
- c) Trouble Ticket Reporting and escalation process
- d) other considerations agreed to by two parties;

4) Other factors: fees could include other costs that a party incurs to provide a particular service.

## 2. Charging Options

The parties may find the measurement of value exchanged between the connected networks helpful in establishing the method of charging. Examples of charging methods are:

- i. Peering (usually employed where there is reciprocal exchange of equal value)
- ii. Charging for provision of upstream connectivity which may incorporate
  - Different charges for different connectivity options (local, national, regional or global Internet connectivity).
  - A fixed port charge usually expressed in dollars per Mbit/s of link capacity per month
  - A variable charge based on the measurement (in Mbit/s) of actual capacity utilisation (e.g., 95 percentile utilisation) during the month
- iii. Other arrangements as agreed between the two parties

## 3. International link capacity and apportionment of cost

Where one or more international links are required, arrangements for the international link capacities required and the apportionment of cost for the international link recognise that both parties bring value to the connectivity agreement. In this context the apportionment of cost for the international link could be based on, but would not necessarily be limited to, one of the following options:

- a) two parties agreeing to share the cost of the international link cost based on an agreed methodology. The international link capacities required and the apportionment of their cost could be based on the factors described above under heading 1: “Value of Connection”;
- b) one party voluntarily choosing to fund the cost of the international link to connect their network to a particular location in exchange for receiving compensation from customers wishing to access the network at that location; or

- c) one party voluntarily choosing to fund the cost of the international link to connect their network to a particular location in recognition that connecting to that location provides value to its own customers by providing enhanced reachability and connectivity
- d) a party determining that they will choose a different provider for the international link from that which they acquire the connectivity to the Internet in recognition of the other provider's enhanced competitiveness (i.e. in price, quality, service, etc.)
- e) any other mutually agreed arrangement between the correspondent parties.

ANNEX 2

**Joint Rapporteur Group Meeting  
International Internet Connectivity**

**ITU-T**

*(Brussels, 28-30 April 2004)*

**REGISTRATION FORM**

To be returned to S.Kraemer (Fax: +322-2994292) by 25 March 2004  
email: [svend.kraemer@cec.eu.int](mailto:svend.kraemer@cec.eu.int)

Mr.  Mrs.  Miss

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Family Name

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First Name

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Country

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Name of Administration of Member State

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Name of Sector Member / Associate / Other

**Complete address of Administration or Organization:**

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Tel: \_\_\_\_\_

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Fax: \_\_\_\_\_

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E-mail: \_\_\_\_\_

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Date: \_\_\_\_\_

Signature: \_\_\_\_\_