INTERNATIONAL INTERNET CONNECTIVITY (IIC)

AGENDA

I – Objectives of the presentation

II – Understanding IIC

III – Study Group 3 (SG3) work

IV – IIC issues for broadband in Africa

I – Objectives of the presentation

The presentation has two aims:

Give members of SG3RG-AFR a better understanding of IIC and of the economic issues underlying Internet development in the African countries.

Inform and raise awareness among the members of SG3RG-AFR of SG3's work on the subject, so that they may participate in the work and communicate information on IIC.

II – Understanding IIC

International Internet connection is the whole set of means used by a country to connect to the global Internet backbone.

These means may be a satellite, or a fibre optic cable (submarine or land).

To connect to the backbone, national access providers use the services of international operators having a point of presence (POP).

II – Understanding IIC

These operators sign interconnection agreements, which can be peering or transit agreements.

Peering agreements are signed by two operators, in general of similar size, which mutually exchange Internet traffic in more or less equal proportions.

Peering agreements involve no payment. Traffic is freely exchanged. Peering may be compared with sender keeps all (SKA) in telephony.

II – Understanding IIC

Transit agreements are signed between a national operator, in general smaller in size, and a transit operator, for the purpose of routing the national operator's Internet traffic to other Internet networks.

Transit agreements involve payment on the part of the requesting national operator. In general, in the case of transit, construction of the interconnection network is borne by the requesting operator.

II – Understanding IIC

The rules governing Internet interconnection are different from those for switched telephony.

While this difference in rules can be justified by the different type of operation, inequalities remain and they need to be corrected.

II – Understanding IIC

It is true that it will be difficult to apply some of the rules for telephony to Internet operations.

For instance, in the case of telephony, the calling party initiates a connection and the call duration serves as a basis for charging the calling party and for exchanging accounts between operators.

II – Understanding IIC

With Internet, the requesting party generally submits a request comprising a few octets. In return, they receive a flood of information that can represent thousands of octets.

Empirical studies show that the ratio between the outgoing request and the incoming information is of the order of 1:4

II – Understanding IIC

If the rules for telephony are applied, sites with large databases will invariably be penalized.

They will always be in deficit in exchanges of accounts, since these sites invariably send the largest volume of octets in the data exchanges.

This situation would be along the lines in telephony of receiving party pay (RPP), used at the beginning of mobile telephony.

II – Understanding IIC

This situation will certainly impede development of the Internet, which is based on the availability of information for the most part free of charge.

Nevertheless, inequalities exist and compensation mechansims need to be found for interconnecting networks which have to establish all the infrastructure and pay transit charges.

II – Understanding IIC

Indeed, when an operator interconnects and pays transit costs, other operators are necessarily using its network.

How to devise this compensation mechanism – this is the crux of the IIC issue under discussion in Study Group 3 of the Telecommunication Standardization Sector (ITU-T).

III – SG3 work

The issue of IIC was placed on SG3's agenda for the study period 1997-2000.

Discussions throughout the study period proved lengthy and arduous. Recommendation D.50 was ultimately adopted at the World Telecommunication Standardization Assembly in Montreal in 2000.

III – SG3 work

It recommends that mechanisms be found for sharing costs in the framework of IIC.

During the 2001-2004 study period, China had proposed that the cost-sharing mechanism kick in as from a traffic imbalance of the order of 1:5.

III – SG3 work

The problem then faced was how to measure Internet traffic flows. A working party on measuring traffic flows was established.

The working party has not yet been able to produce satisfactory results for measuring traffic exchange in the framework of IIC.

III – SG3 work

Discussions continued on the issue during the study period 2005-2008, without any notable progress.

Despite contributions from SG3RG-AFR, Cuba and particularly China, a compensation mechanism could not be identified.

III – SG3 work

During the current study period (2009-2012), China has proposed a Recommendation D.51 in contribution C12, with a method for calculating flows of exchanged traffic.

This contribution was supported by SG3RG-AFR and Brazil. We thus need to find competent engineers within SG3RG-AFR to measure traffic and share their experience with a view to implementing Recommendation D.50.

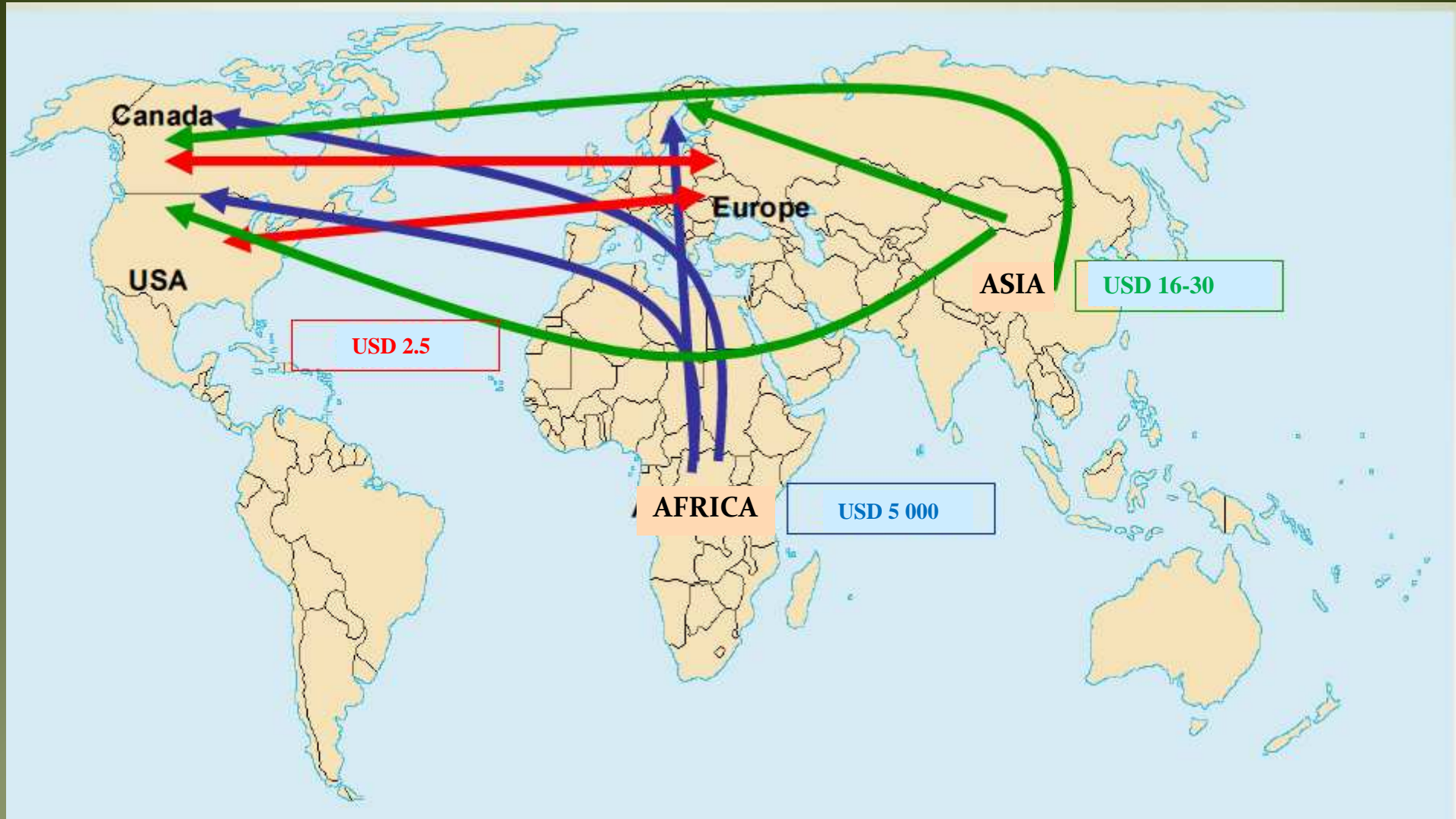## IV – IIC issues for broadband in Africa

Development of broadband in Africa depends on the ability of operators in Africa to control interconnection costs.

To our knowledge there are virtually no peering agreements between operators in our region and international providers.

Transit costs are high in our subregion in comparison with other regions of the world.
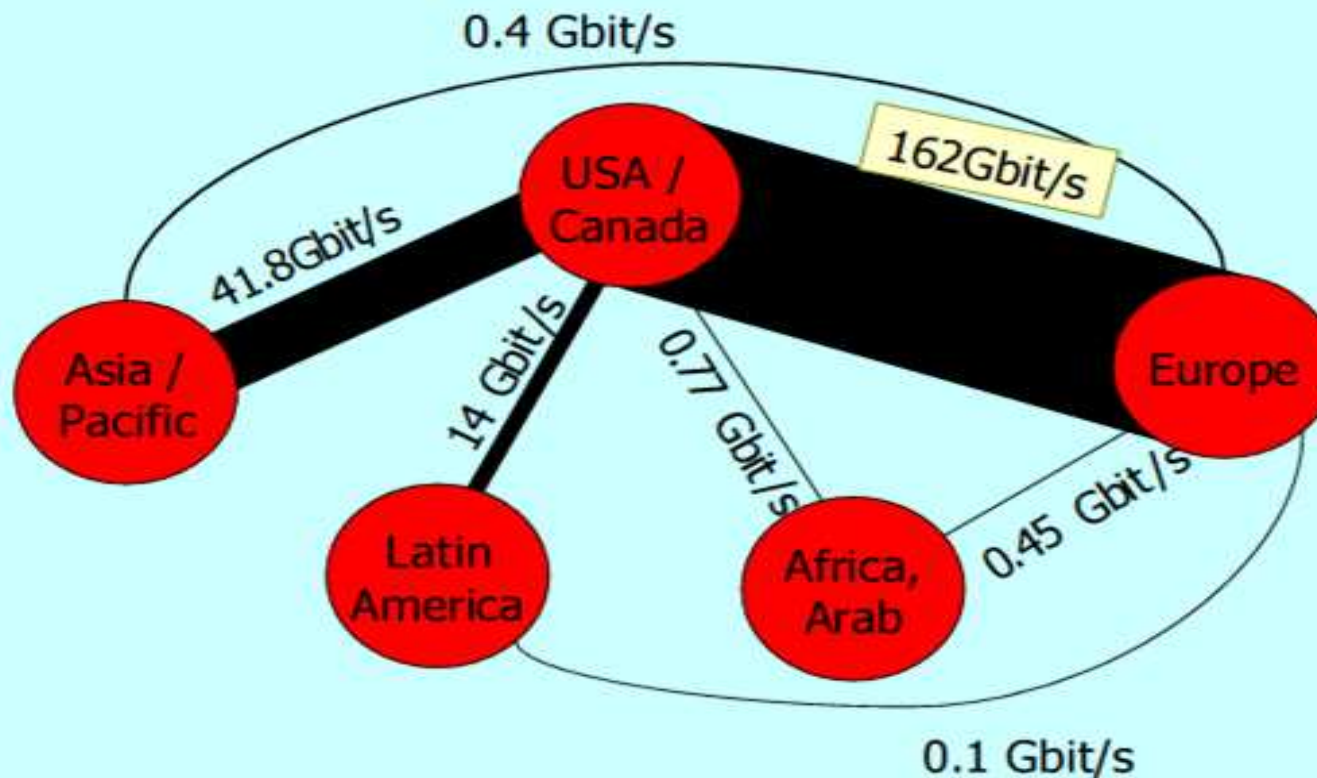
IV – IIC issues for broadband in Africa

In addition, in Africa international Internet connection demand is insignifcant.

It represents barely 1% of international Internet connectivity. The low level of demand exacerbates the dependence of the region's operators on international providers.

Inter-regional Internet connectivity

0.4 Gbit/s

USA / Canada

162Gbit/s

41.8Gbit/s

Asia / Pacific

14 Gbit/s

0.77 Gbit/s

Europe

Latin America

Africa, Arab

0.45 Gbit/s

0.1 Gbit/s

Note: Gbit/s = Gigabits (1'000 Mb) per second.
Source: ITU adapted from TeleGeography.

IV –IIC issues for broadband in Africa

Solutions can be implemented to economize international bandwidth.

Promote country domain names.

Establish national, subregional and regional exchange points.

Foster the development of local content.

THANK YOU FOR YOUR ATTENTION