

International Bandwidth

AGENDA

Definition

Implementation

Usage of international bandwidth

International Bandwidth

□ Definition

We mean by International Bandwidth the maximum quantity of data transmission (Rate) from a country to the rest of the world.

It's the addition of the capacity of all international data lines from a country toward others.

International Bandwidth

□ Definition

It is measured either in megabits per second (mbps) or in gigabits per second (gbps).

In case of asymmetrical lines, only the ascending part is taken into account in the bandwidth.

International Bandwidth

□ Definition

The international bandwidth is the equivalent to international lines in the case of a public switch telephone network (PSTN).

The international bandwidth is mainly used to convey Internet traffic.

International Bandwidth

□ Definition

Nevertheless it is more and more used to convey VoIP traffic.

It may be estimated that more than a third of international traffic is conveyed by VoIP.

International Bandwidth

□ Implementation

The international bandwidth can be deployed either by satellite or by submarine cable or land optical fiber.

It works only if connected to the network of an International Backbone Provider (IBP) .

International Bandwidth

□ Delivery line of Internet access

The delivery line of Internet access is mainly composed of four players.

User

Internet Service Provider (ISP)

Internet Access Provider (IAP)

International Backbone Provider (IBP)

International Bandwidth

□ Delivery line of Internet access.

User

It is connected to the network via a service provider.

ISP

It provides Internet services to the end users via leased lines or owned lines.

International Bandwidth

□ Delivery line of Internet access

IAP

It owns a national telecommunication infrastructure and an Internet access node.

IBP

It owns an International Internet infrastructure via a satellite or optical fiber.

International Bandwidth

□ Interconnection

Access Providers need to have interconnection agreements either at the national or international level to have access to the worldwide network.

There are two types of agreement: Peering and Transit.

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□ Interconnection : Peering

Peering agreements are traffic exchanges between two equivalent networks (in terms of traffic volume exchanged) without a monetary compensation.

Peering is like « Sender keep all » or « Bill and keep ».

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□ Interconnection : Peering

There is neither a transit nor a quality service (SLA-like) obligation in Peering.

Peering is necessary for IAPs of a country to avoid consuming international bandwidth in case of communication between subscribers of a national network.

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□ Interconnection : Transit

Transit allows the IAP to convey its customers' traffic towards the rest of the world using the services of an international bandwidth provider.

There are monetary exchanges and SLA-like contracts in Transit.

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□ Interconnection : Transit

Transit is invoiced based on the maximum possible volume the line can convey (peak volume).

Around ten IBP own 90% of this Transit market.

Downsides of this market are that it is a monopoly, less transparent and the source of high internet connection costs in sub-Saharan Africa.

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□ Interconnection : Tarif

It is not easy to obtain the cost of the international bandwidth with a provider.

Practices called «confidential» are used in this international bandwidth transit market.

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□ Interconnection : Tarif

Indeed, the pricing does not show details of the services provided.

In the case of a submarine cable, the pricing must show cost of services as follows:

Crossing fee (cable passing on the ground).

Usage of submarine cable.

Transit.

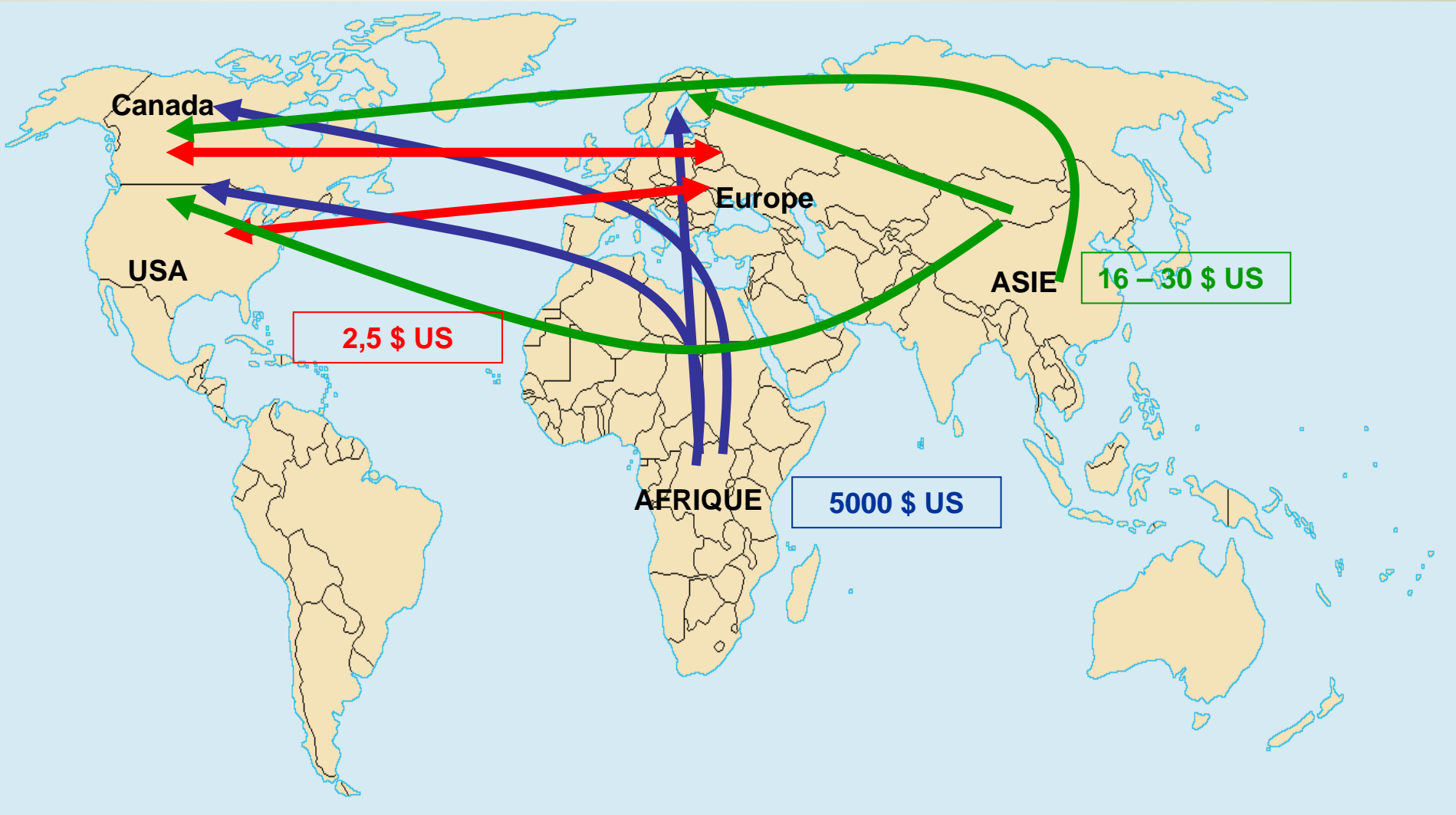
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□ Interconnection : Tarif

There is a great gap between the connection charges Africa-Europe and Europe-USA.

The low demand of the international bandwidth in Africa cannot by itself explain this high gap in prices which may reach a relation of a thousand to one.

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International Bandwidth

❑ Interconnection : Tarif

The chart below shows the international Internet bandwidth in USD per month by SAT submarine cable and by the satellite in 2006.

	Angola	Cameroun	Ghana	Senegal
Access cost to SAT3 for 2 Mgbps	14 440	4 400	4 010 8 000	6 000
Access cost to satellite for 2 Mgbps	24 000	7 400	11 000	NC

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❑ Interconnection : Tarif

Specialists estimate that SAT3 cost is around USD 300 per month to which one must add the land crossing fee and the Transit.



International Bandwidth

□ Regulatory aspects

Is international bandwidth an essential resource in providing Internet access in Africa?

New services provided (IPTV, VoD) require high international bandwidth.

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□ Regulatory aspects

Using satellites will lead to high costs and will pose obstacles for new service providers to join.

In the same way, the latter cannot afford to finance the building of submarine cables, the cost of which are extremely high for a company.

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Regulatory aspects

Should regulating entities regulate access to the international bandwidth?

Analysts think this should be the case for universal Internet access in sub-Saharan Africa.

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□ Regulatory aspects

They argue that incumbent operators are the major owners of the landing points of submarine cables and thus have a monopoly and are able to charge exorbitant prices .



International Bandwidth

□ Some possible solutions

One of the solutions to diminish the quantity of international bandwidth is an Internet exchange point.

These Internet exchange points can take place at a national level amongst all the ISPs in a country.

International Bandwidth

□ Some possible solutions

National Internet exchange points will be able to add up their traffic at a regional level and negotiate Peering agreements with ISPs at an international level.

The introduction of more competitors in the Internet access delivery line will allow a decrease of the international bandwidth costs through high demand.

International Bandwidth

□ Conclusion : Coming solutions

Important projects have been launched in Africa and will help introduce competition in the access to the submarine cable.

These are the WACS project in West Africa, which starts from South Africa to join London via the Gulf of Guinea.

Bande passante internationale

West African Cable System 08 April 2009



Bande passante internationale

□ Conclusion : des solutions en vue

In east Africa, we have EASSY and SEACOM submarine cable project.



International Bandwidth

Conclusion : Coming solutions



International Bandwidth

□ Conclusion : Coming solutions



Bande passante internationale

□ Conclusion : des solutions en vue

The Europe India Gateway (EIG) can be another submarine cable solution for African countries.



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□ Conclusion : Coming solutions

Le câble Europe India Gateway (EIG)



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Thank you for your attention

