

Submarine Networks

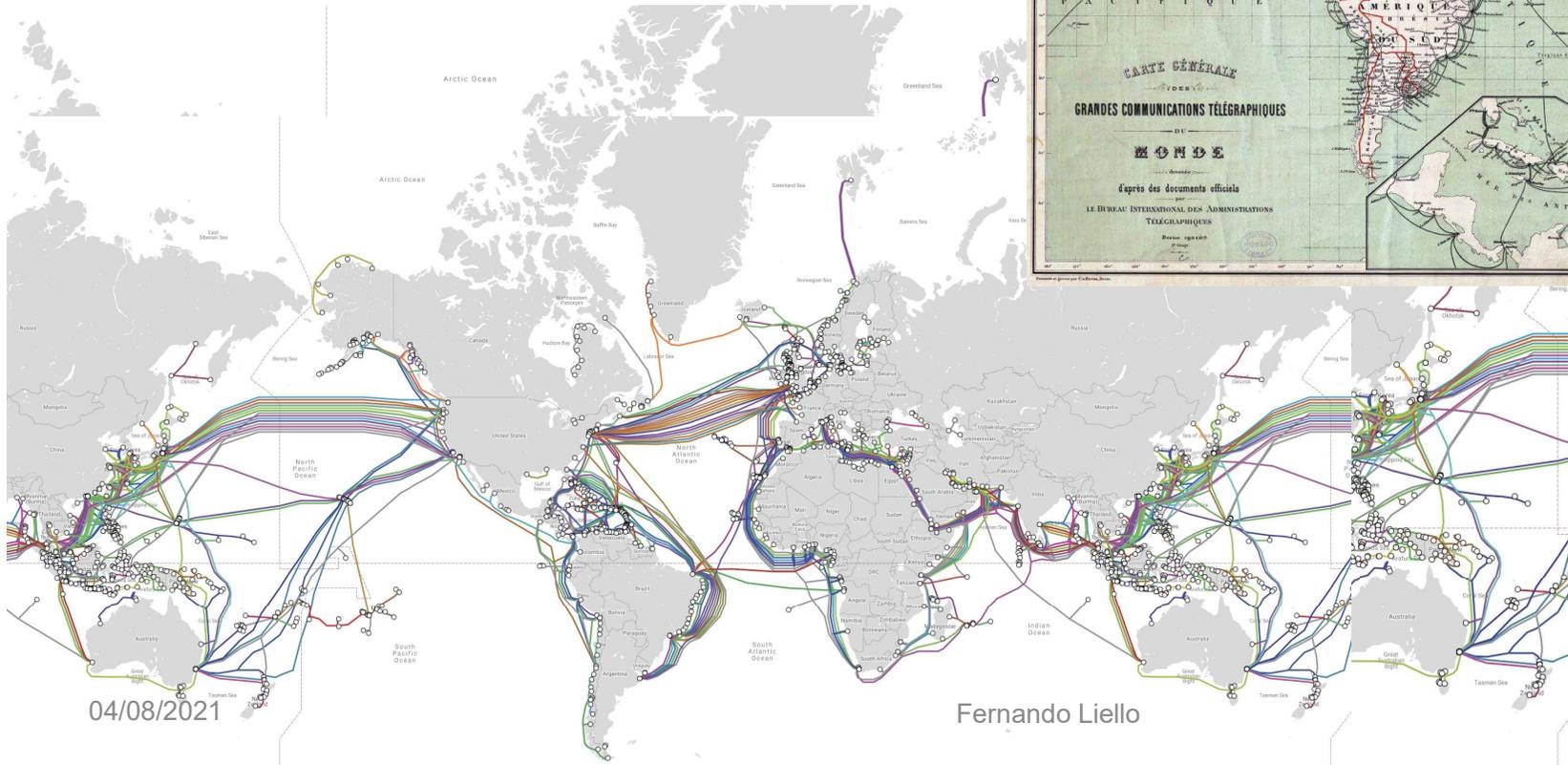
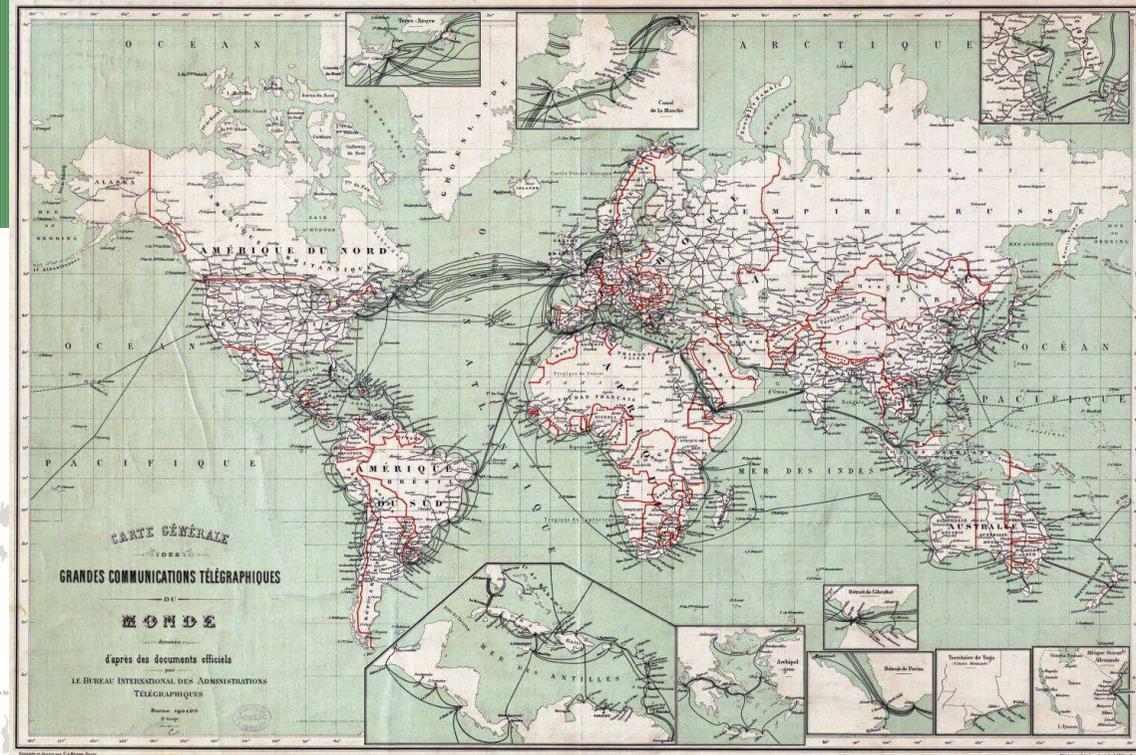
History, trends and economics

G20 Webinar

Trieste, 4/8/2021

1901 - 2021

From telegraph...



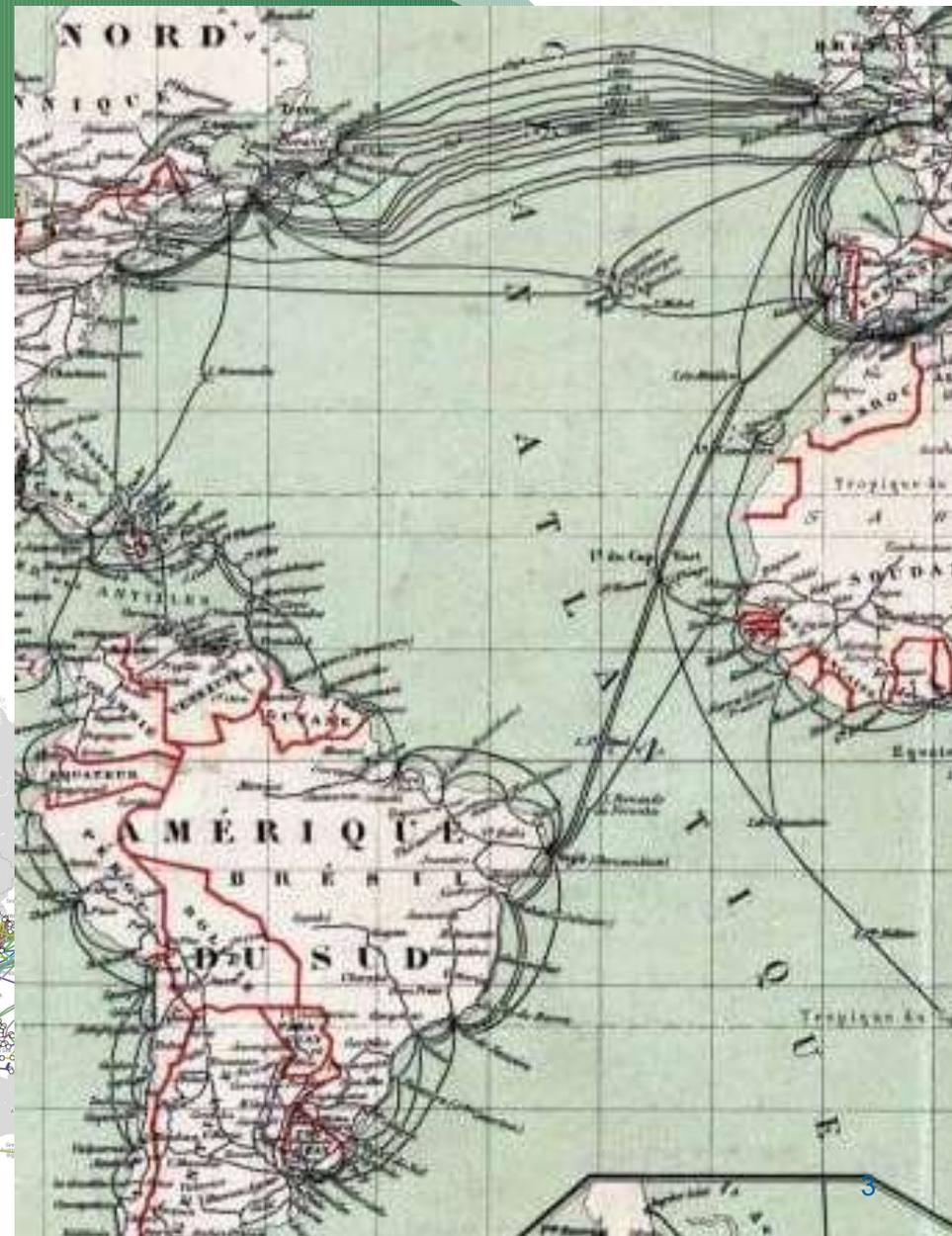
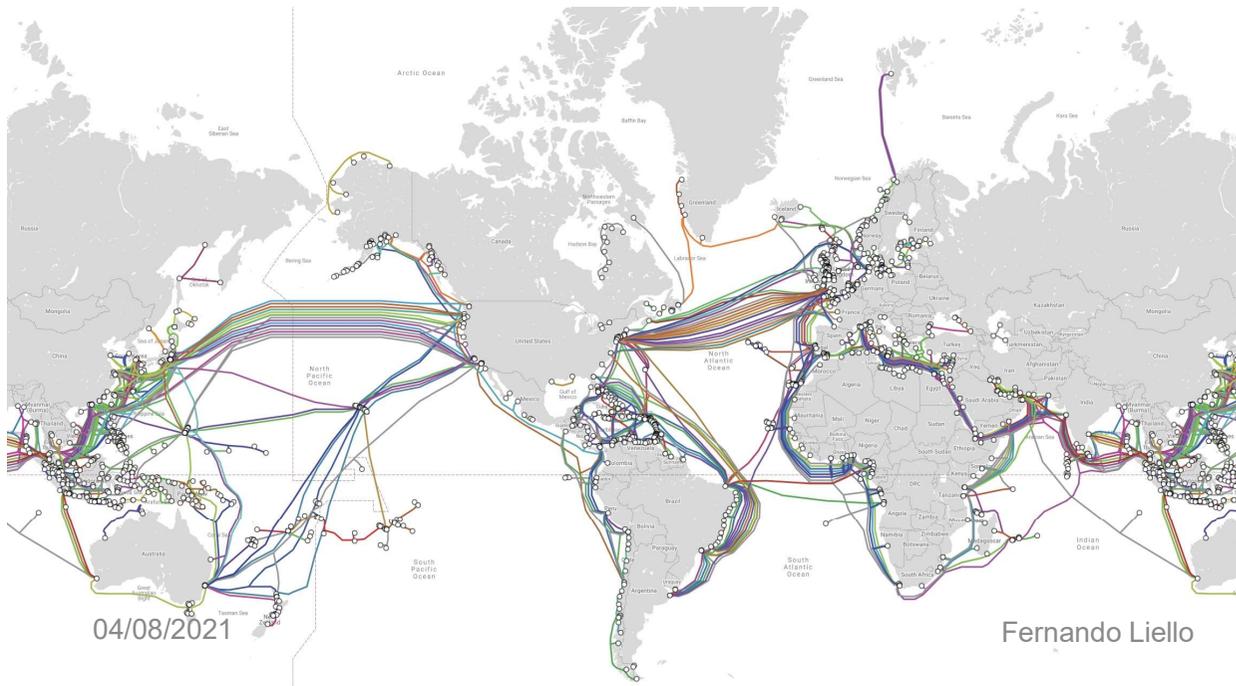
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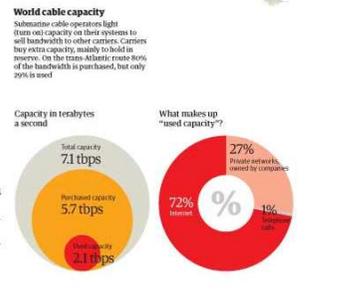
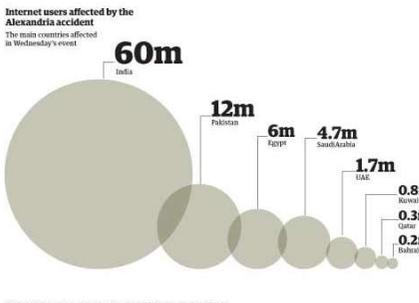
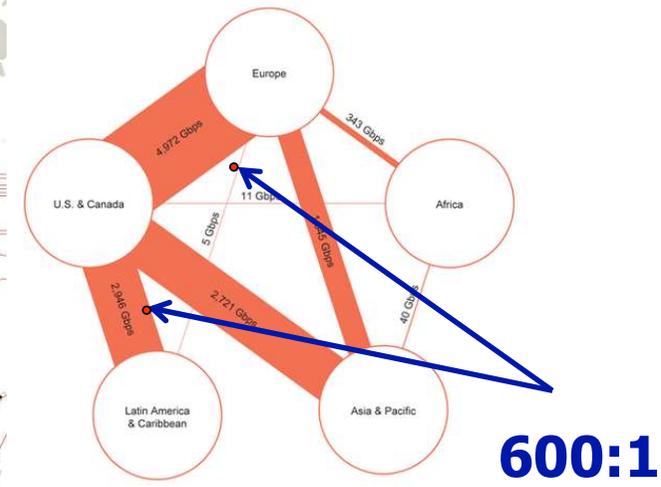
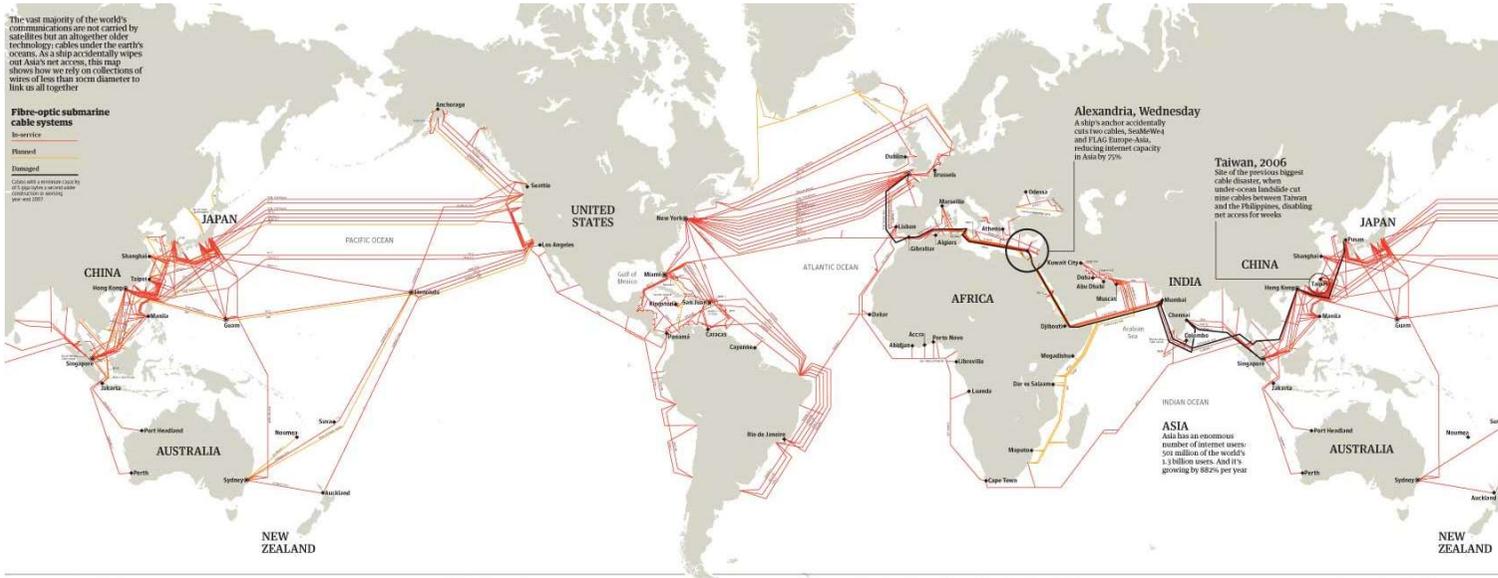
... to digital communication

1901 - 2021

Less routes in the Atlantic



Cable Routes or Data Routes?



The longest submarine cables

SeaMe-WE3	39,000 km
Southern Cross	30,500 km
China-US	30,470 km
FLAG Europe-Asia	28,000 km
South America-1	25,000 km

The world's cables in bandwidth

The first intercontinental telephony submarine cable system, TAT-1, connected North America to Europe in 1958 and had an initial capacity of 64,000 bytes per second. Since then, total trans-Atlantic cable capacity has soared to over 7 trillion bps.



Unbalanced Internet Undersea World

04/08/2021

Fernando Liello

Objective Remarks

- North America is the best connected region
- Europe gives access to 75% of the data
- The cost of bandwidth to access the data is artificial
- Data are among the most valuable assets

Drivers for the XXI Century

- Strong tendency of many countries not to release control on the data
- Data mining will become more and more important
- Time to access (latency) will be an essential factor
- Physical route diversification will become a necessity

The Economic Perspective

- Cable deployment costs are a fraction of satellite costs
- Return-of-Investment time for a cable is between 3 and 5 years
- New cables **on nouvelle routes** can have a relevant effect on the economies of the connected regions

Improving the topology

- There are important barriers to the development of new routes
- Operators have the tendency to exploit “safe” routes
- Feasibility studies tend to be biased
- Unbiased, independent feasibility studies will be the key for strategic planning

The example of ELLA / BELLA

- Feasibility study for a direct cable linking Europe to Latin America has
 - Options
 - Technology
 - Economy impact
 - Development potential
- The results have convinced a commercial provider that the investment was interesting
- A number of National Research Networks have committed to the purchase of a large fraction of the bandwidth offer “at cost”

Not-for-Profit customers as innovation factor

- Are the organizations best suited to carry on unbiased feasibility studies
- Participate in the investment into new cables
- Create synergy with commercial providers to open new routes
 - Have “at cost” access to services
 - Make commercial investment less risky

A Strategy for the Future

- The experience acquired can be applied to other routes to better connect
 - Europe to Africa, Australia
 - Latin America to Australia, Africa
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- Possibility for governments and funding agencies to influence the topology of the data highways
 - Procuring services by research or not-for-profit activities “at cost”
 - Without direct subsidization of commercial activities



Thank You