Regional cooperation for expanding connectivity

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IDRC CRDI

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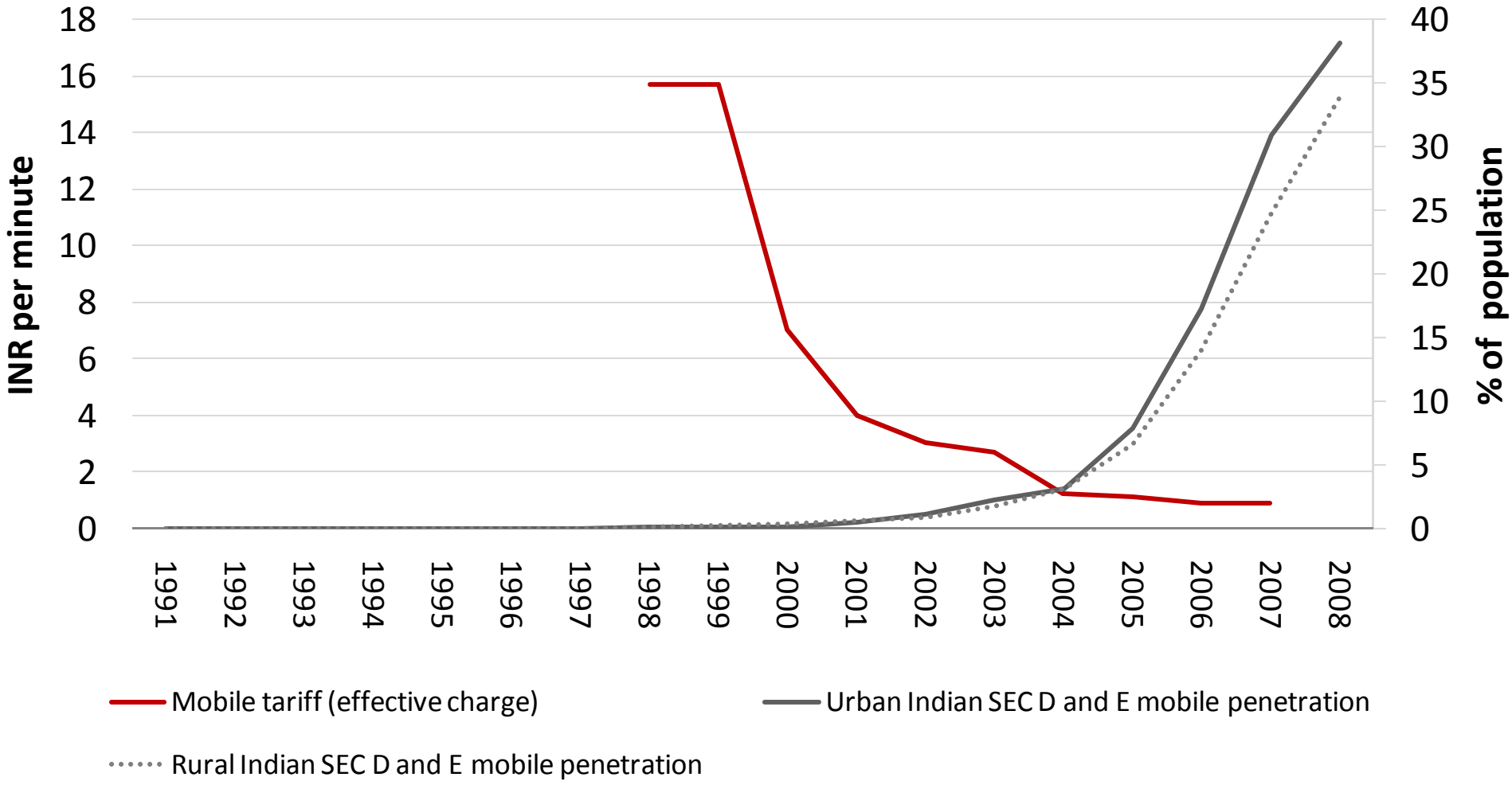
Canada

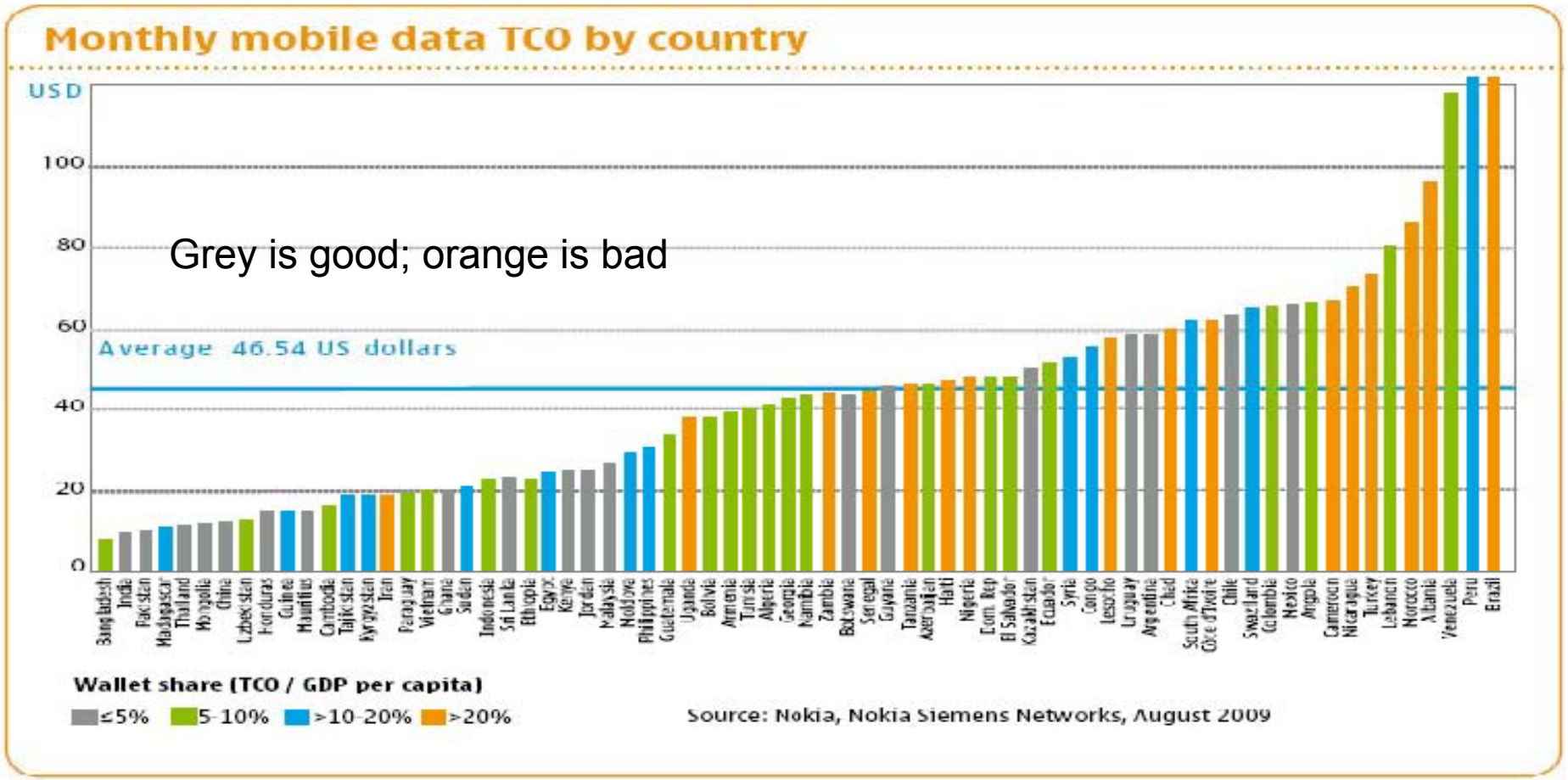
Agenda

- Lessons from voice success
- International backhaul as a key barrier to connectivity
  - Reliability
  - Affordability
- A win-win REGIONAL solution that leverages UNESCAP's unique strengths

Lesson of success in voice: Low prices ➔ greater connectivity (India SEC D&E)

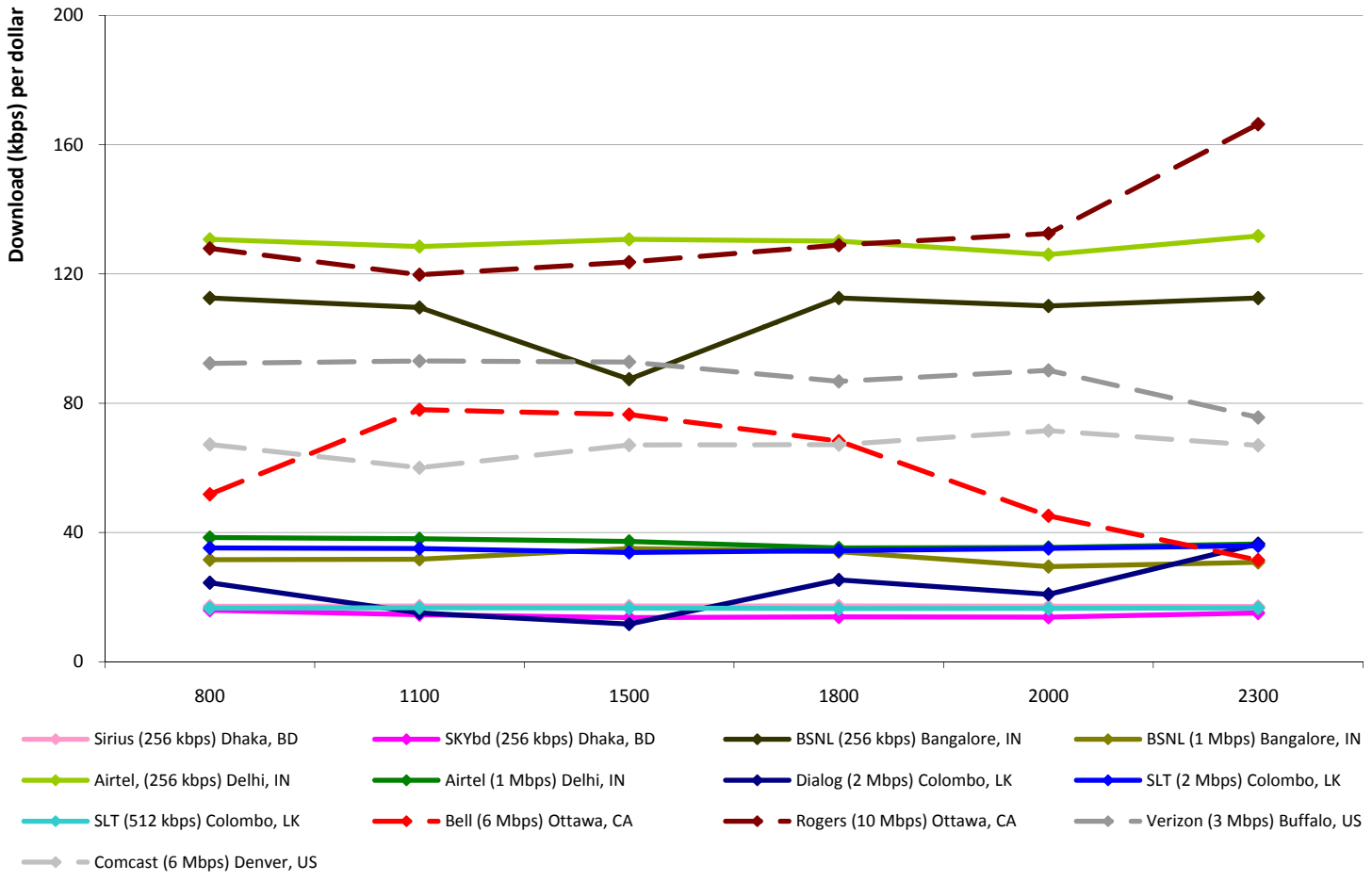


Greater broadband connectivity requires lower prices



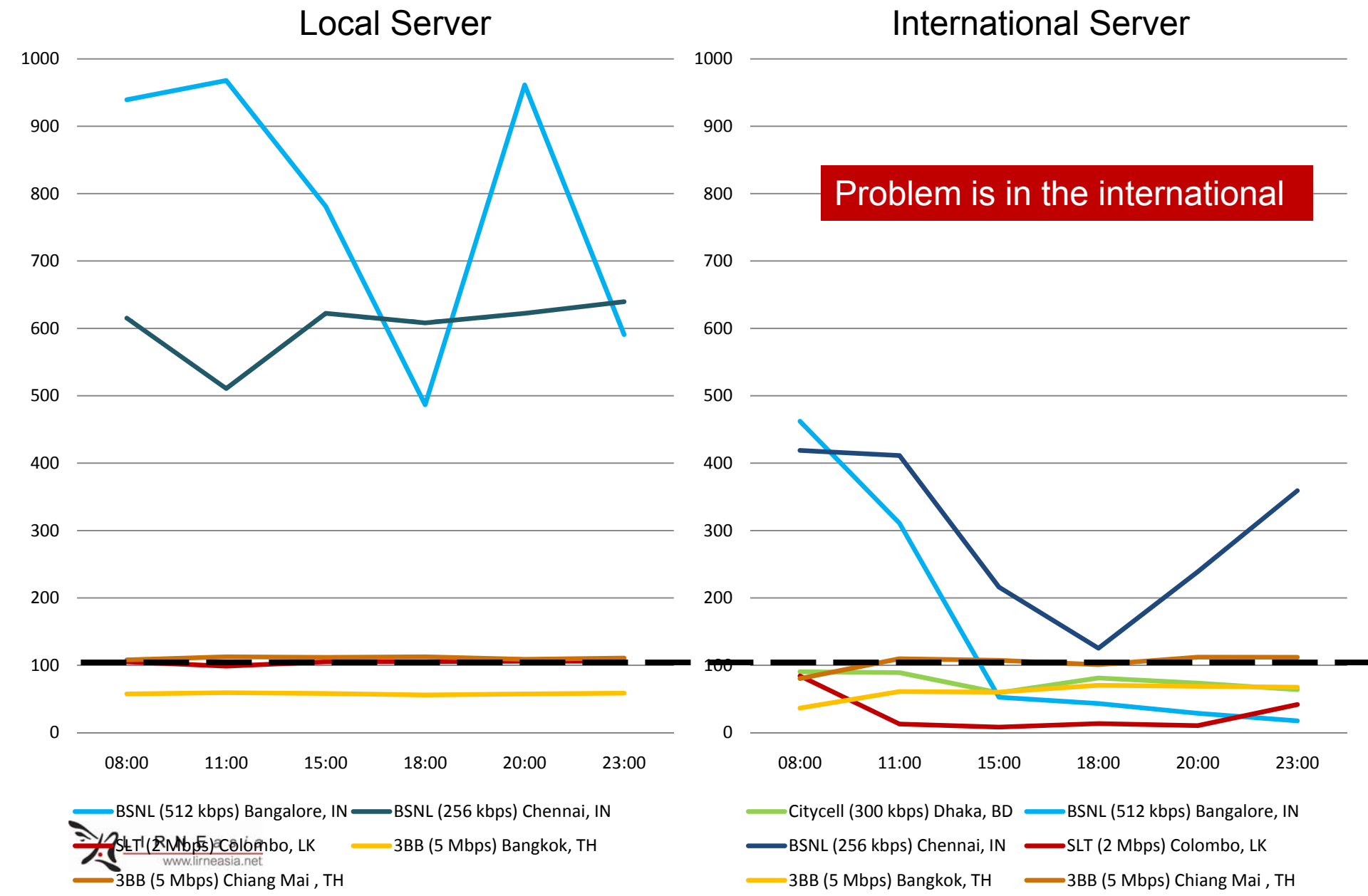
When price alone is considered, Asia looks good: Only Iran is orange; Only a handful are blue; all are well below the average.

Value for money lower in Asia



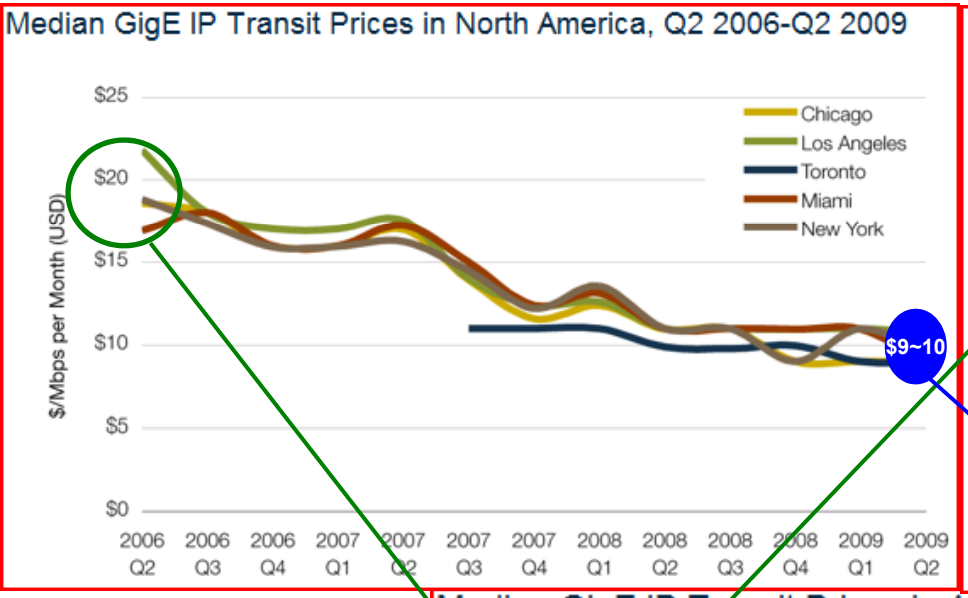
Except for 2 Indian low-speed (256 Kbps) products, all good performers from N American cities

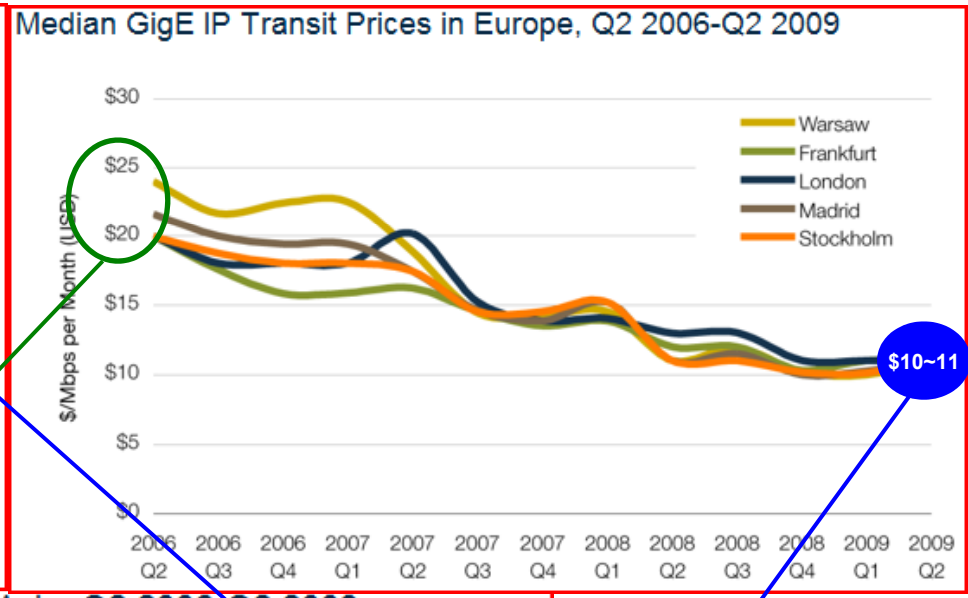
Delivered vs. Advertised Download Speeds

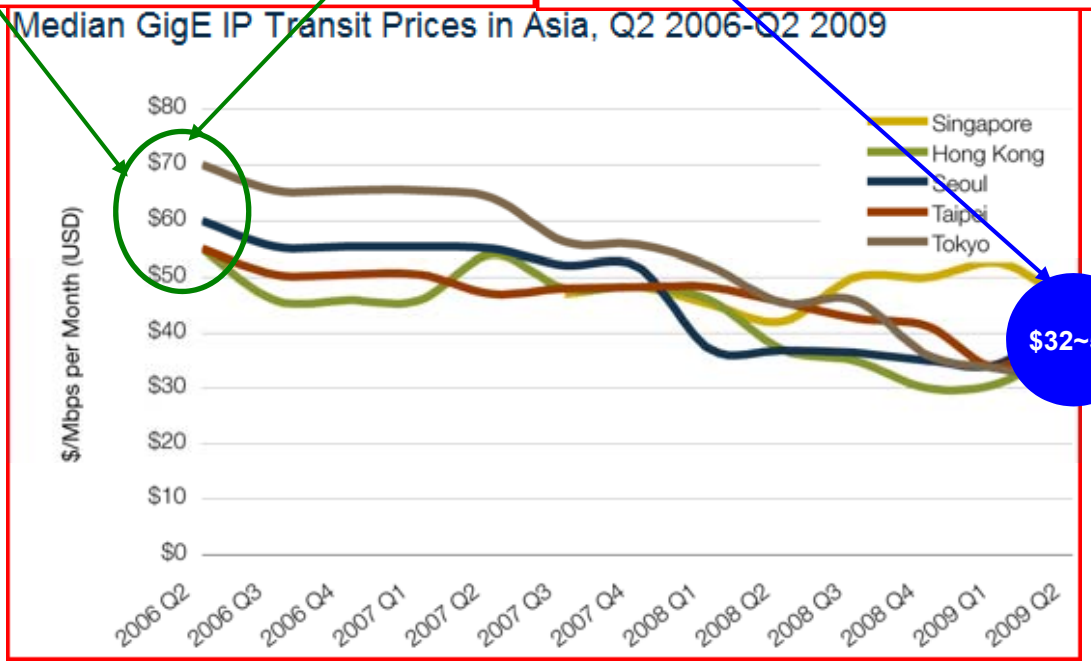


International bottleneck confirmed

Cause: Asian backhaul prices = 3x N. Am. & European prices





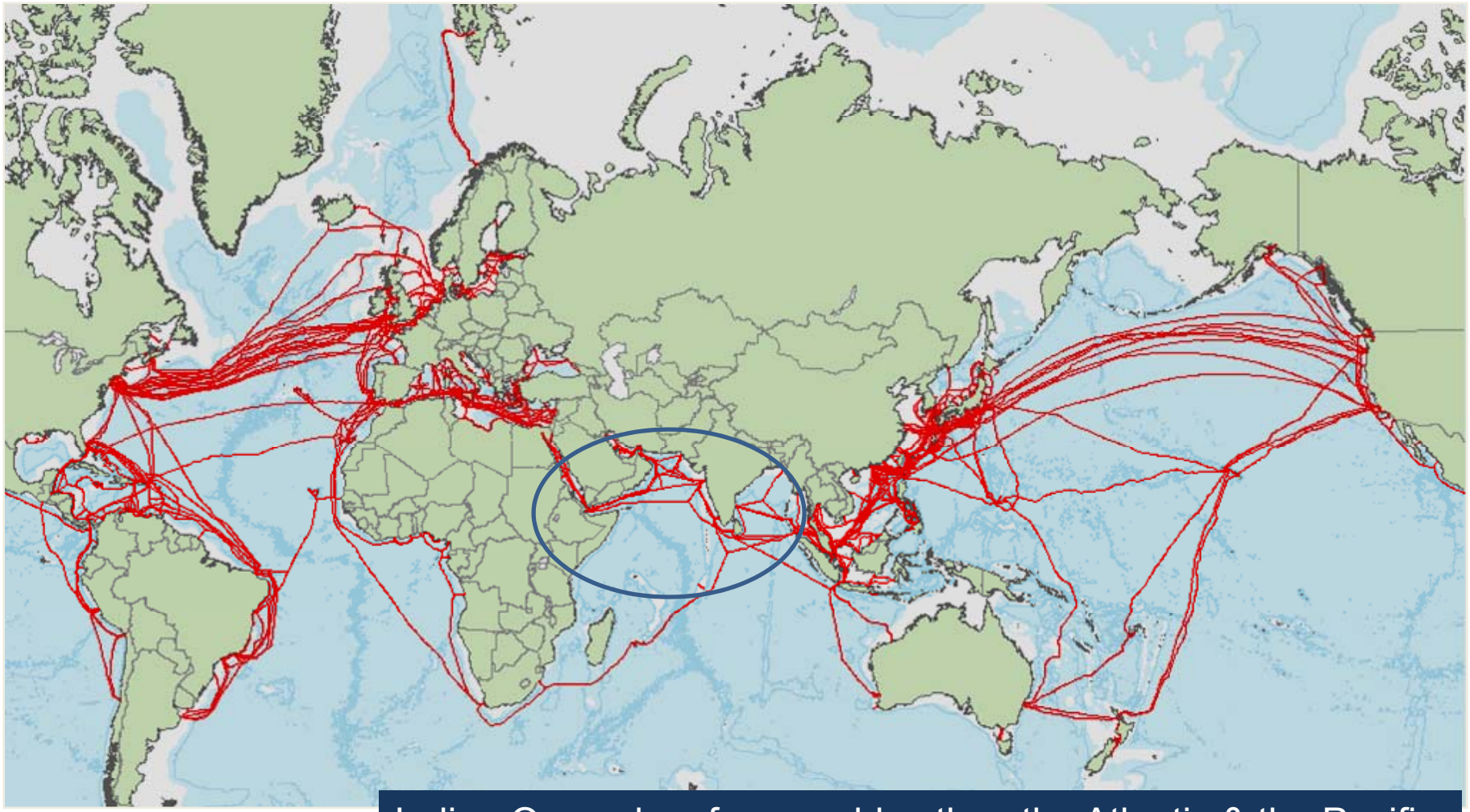


Source: TeleGeography

The challenge: Reduce international backhaul costs for all operators, not just incumbents

- More conduits
  - Undersea and terrestrial fiber cables
- Structural and behavioral regulation to ensure that all operators are offered cost-oriented and non-discriminatory access to backhaul
- Address reliability concerns that have come to the fore since recent cable cuts
  - Redundancy among undersea cables
  - Redundancy through terrestrial and undersea cables

International Submarine Cable Network



Indian Ocean has fewer cables than the Atlantic & the Pacific

Source: Global Marine Systems Ltd

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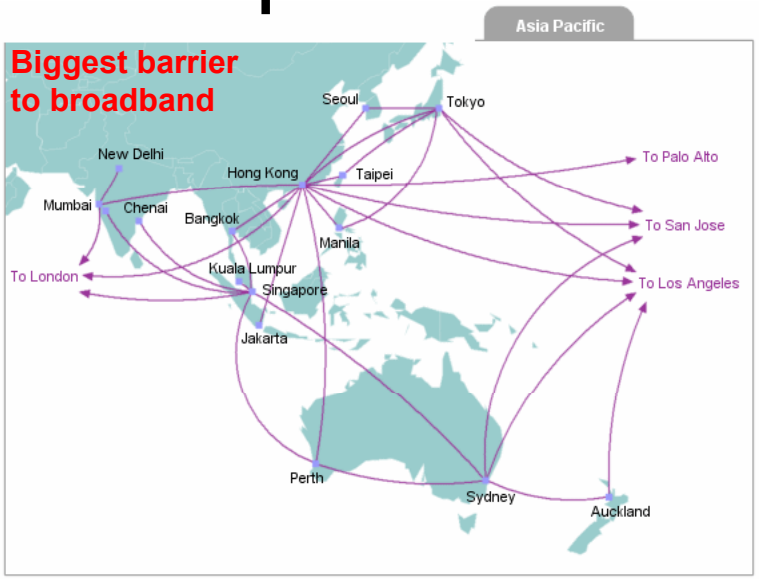
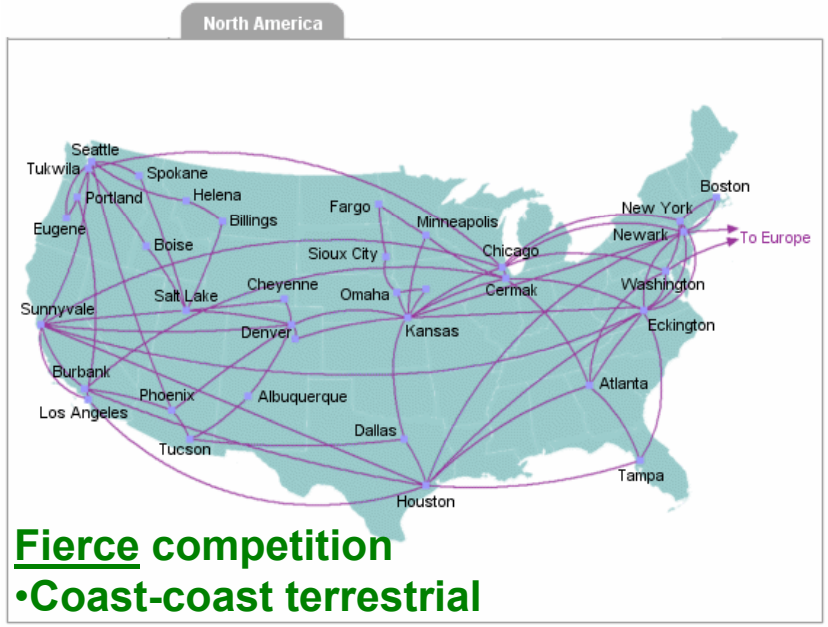
Asia uncabled on land, compared to Europe & N America

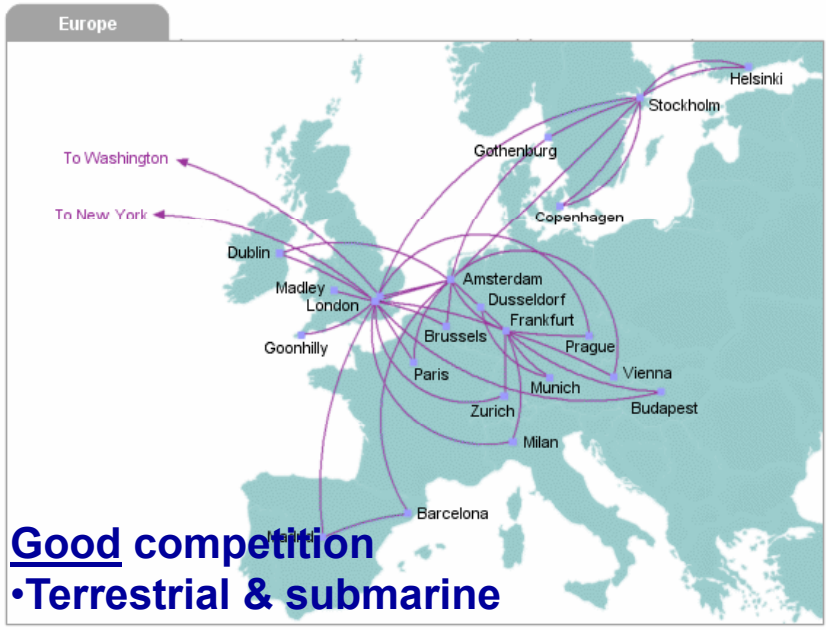
Poor competition



All submarine

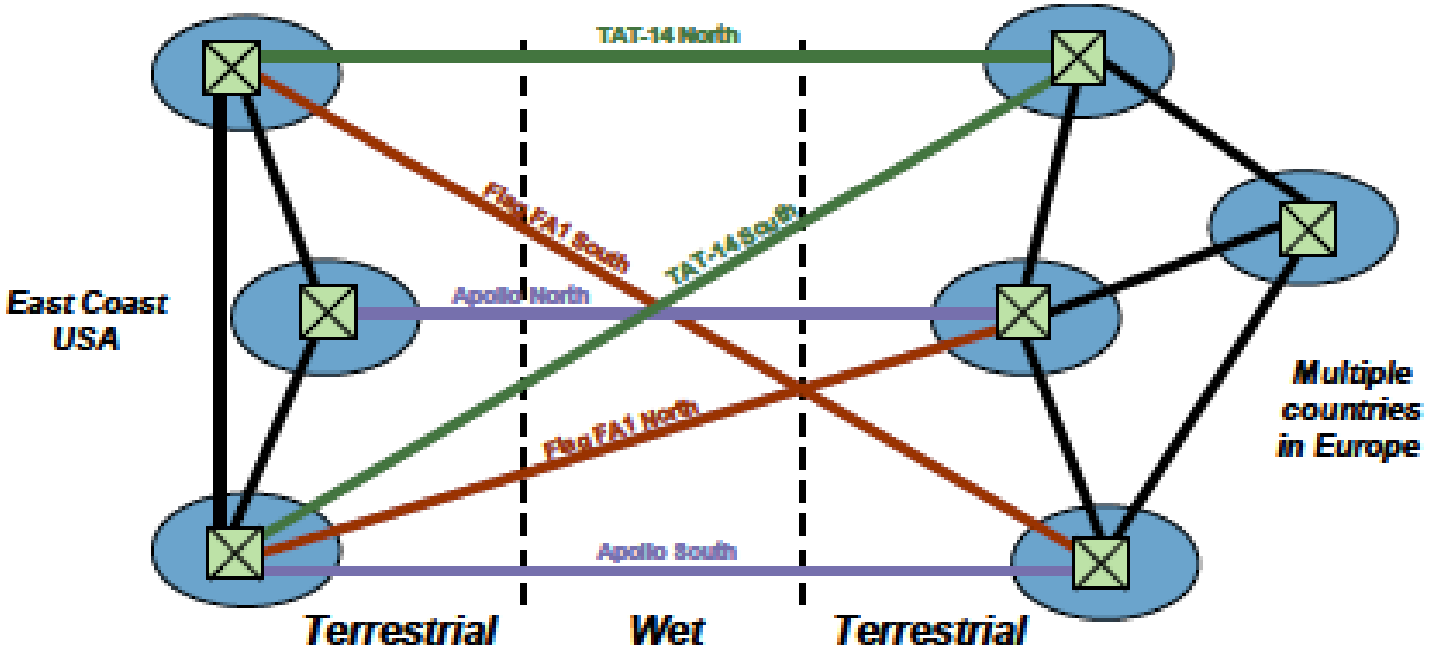


Fierce competition
- Coast-coast terrestrial



Good competition
- Terrestrial & submarine

The solution: Build "open" terrestrial cable system across the continent to supplement submarine systems, preferably in mesh form



Source: Verizon, Inc.

Mesh form now exists only in the Atlantic; Pacific relies on rings, but December 2006 Taiwan quake snapped both sides of some rings.

Natural Candidate: Asian Highway

Offers not only redundancy but also a structural regulatory solution

- The fiber in the interlinked conduits will be controlled by National Road Authorities
  - No interest in ICT value chain ➔ impartial
  - More use is made of the fiber, the more revenues come to the Road Authorities ➔ no reason to exclude any operator

Win-win solution

- Road authorities get funds needed for maintenance
- Telecom operators avoid the large capital costs and uncertainties
  - Can lease capacity for international as well as domestic backhaul
    - Unlike undersea cables, highways go through population centers
  - Can better face the data flood that is on horizon
  - Will also be able to provide 99.999 + reliability for information-reliant industries
- Governments can ensure broadband development
  - With cost-oriented and non-discriminatory access to backhaul, operators can extend Budget Telecom Network Model that worked in voice to data, ensuring inclusive development
  - Lower prices & higher reliability will attract more industry, create jobs

Redundancy imperative

- Dec 26, 2006 earthquake in Luzon Strait south of Taiwan snapped 7 out of 9 trans-Pacific cables, including both sides of some rings
  - 11 ships took 49 days to restore service
- Jan 23 - Feb 4 2008: 6 cables snapped within 12 days across the Mediterranean, Persian Gulf and Andaman sea
  - What caused this series of cable cuts remains unexplained
- Dec 19, 2008: Mediterranean earthquake
  - Total downtime: 17 days
- Aug 7, 2009: Typhoon Morakot and subsequent undersea earthquakes
  - 10 submarine cables damaged in >20 locations

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20 February 2008, 20:44

ITU refuses to rule out submarine cable sabotage

The International Telecommunication Union (ITU) has said that the damage to a num in the Mediterranean and the Persian Gulf three weeks ago could have been an act o of the **Telecommunication Development Sector at the ITU[1]**, Sami Al Basheer Al rule out the possibility of deliberate sabotage before the ongoing investigation has be specialists doubt that anchoring ships could have accidentally severed the cable," sai security conference in Qatar, "the cables are laid at great depths and in areas where permitted."

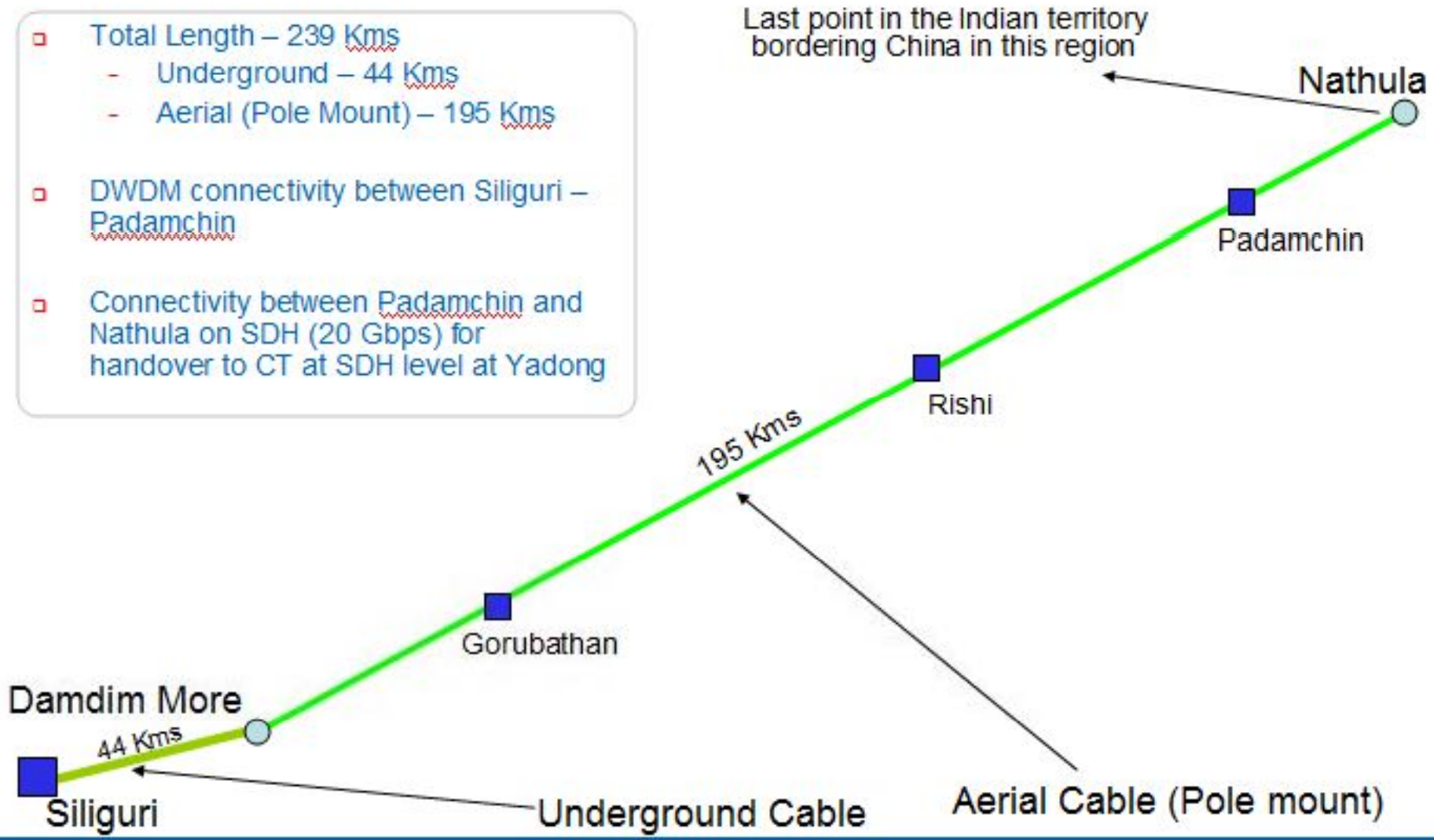
The FEA (FLAG Europe Asia) and SEA-ME-WE 4 cables linking Europe and Asia we Mediterranean in late January. Two days later, the FLAG Telecom Group was forced the FALCON cable which runs around the Arabian peninsula. A further three days lat between Qatar and the United Arab Emirates (UAE) failed. According to reports, the not severed - instead the problem was reported to be with the electricity supply. In vie of incidents in the region, conspiracy theories were quick to spring up. So far, howeve sabotage has been produced.

And the response . . .

- Desperate search for redundancy solutions
  - Some that seem to have surmounted both enormous physical and political barriers

Siliguri – Nathula Connectivity

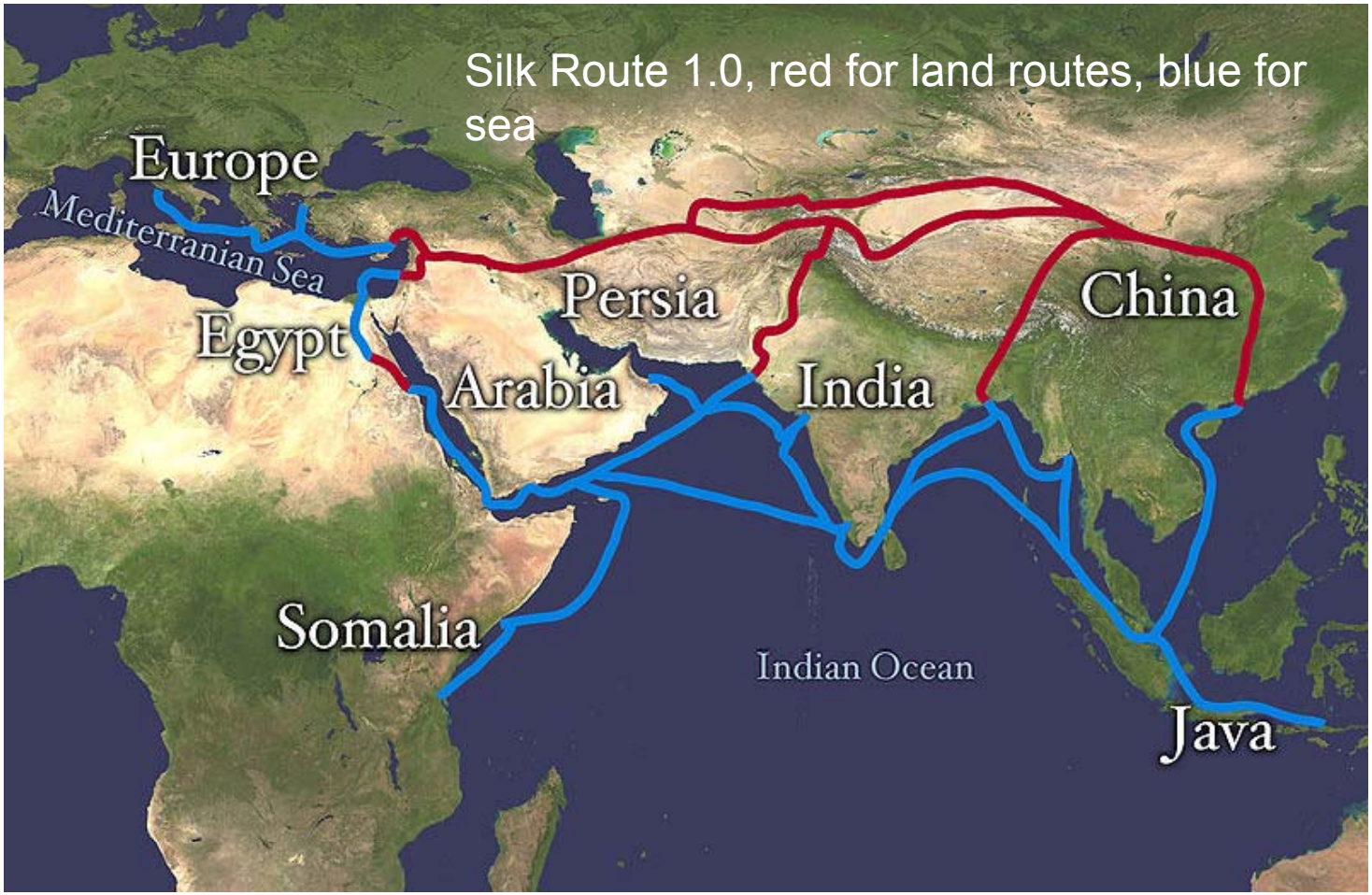
- Total Length – 239 Kms
  - Underground – 44 Kms
  - Aerial (Pole Mount) – 195 Kms
- DWDM connectivity between Siliguri – Padamchin
- Connectivity between Padamchin and Nathula on SDH (20 Gbps) for handover to CT at SDH level at Yadong



Why go for patchwork solutions (even if heroic)?

- Why not go for the real solution, which is a combined submarine and terrestrial solution that will give Asia a mesh solution
  - And will also create incentives to allow all operators to use the capacity for international and domestic backhaul

Inspiration from the past . . .



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