

International Fibre Development

APRICOT
2 March 2010



In terms of fibre development in the recent years,
key words are :

- **“Increased Connectivity”,**
- **“Bigger Capacity”, and**
- **“Improved Diversity”**



“Increased Connectivity”

More Submarine Cables are being constructed,

- Especially across the Indian Ocean, extending India to Middle East/Africa and to Europe – E.g, WACS, IMEWE, TGN-EA and etc
- And the Intra-Asia and Asia-US region – E.g., TGN-IA, AAG, Unity
 - Talk in progress – SJC, APG...
- Better designed cables in terms of cable routing. E.g., avoid natural disaster-prone areas

“Bigger Capacity”

Existing Submarine Cables are also being upgraded,

- Lighting existing dark fibre pairs to enable more capacity
- Experimenting with new 40Gbps technology, and roadmap leading to 100Gbps in the future...

Cheaper capacity in the next few years will benefit customers and end-users

- A positive feedback loop: Cheaper Mbps + broadband applications → more capacity demand → more cables built and upgraded → cheaper Mbps



“Improved Network Diversity”

Mix and match one’s cable systems inventory to create a mesh network;
improve network resiliency and diversity

Carriers are cooperating to strengthen cable restoration plans to improve network resiliency

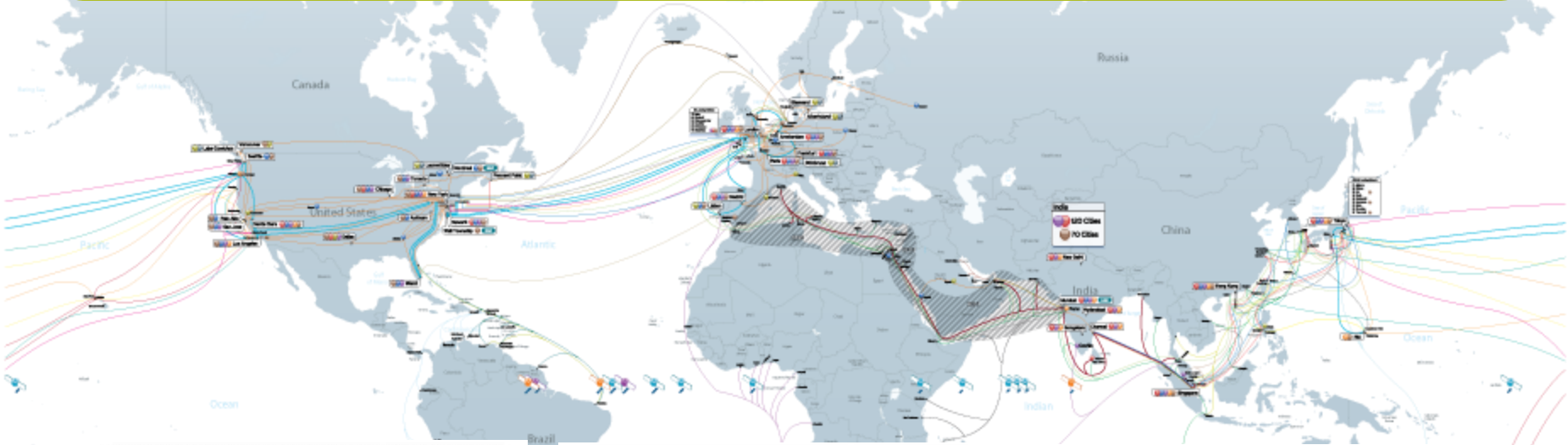
- Aftermath of Taiwan Monsoon and Earthquakes – heightened awareness amongst carriers to review and update existing cable restoration plans and strengthen the communications between carriers



Ownership of one the most advanced, seamless global transmission networks

One of the global leaders in expanding network reach through new subsea cable builds and major investments in high demand systems

Tata invests \$890M from FY2008/09 to FY2011/12 on new cable builds around the globe



- OWN**
- TGN-Atlantic
 - TGN Western Europe
 - TGN Northern Europe
 - TGN-Pacific
 - TGN-TIC
 - **TGN-Intra Asia (RFS'ed Feb 2009)**

TATA COMMUNICATIONS

- CONSORTIUM / Private**
- SMW-3
 - SMW-4
 - SAFE/SAT-3
 - APCN-2
 - **SEACOM (RFS'ed Jul 2009)**

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- NEW PROJECTS**
- **TGN-Eurasia (RFS mid 2010)**
 - **IMEWE (RFS 1Q 2010)**
 - **WACS (RFS 2H 2011)**
 - **TGN-Gulf (RFS 2H 2011)**

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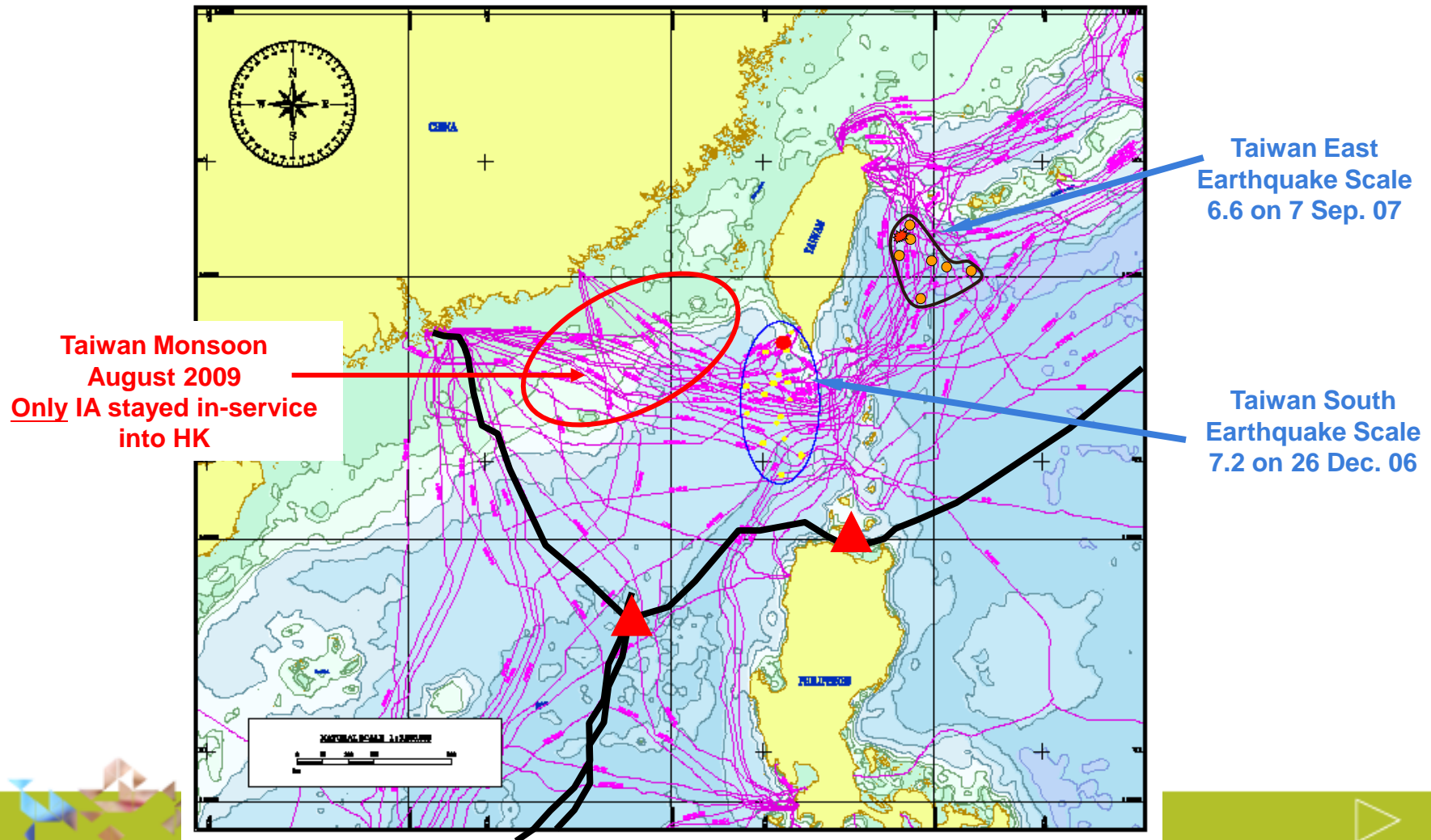
TGN-Intra Asia Cable System – RFS during 2009

- Avoids earthquake zones
- Length 6,700 kms
- Design Capacity : 3.8 Tbps
- Lowest possible latency
Singapore – Japan at 65ms



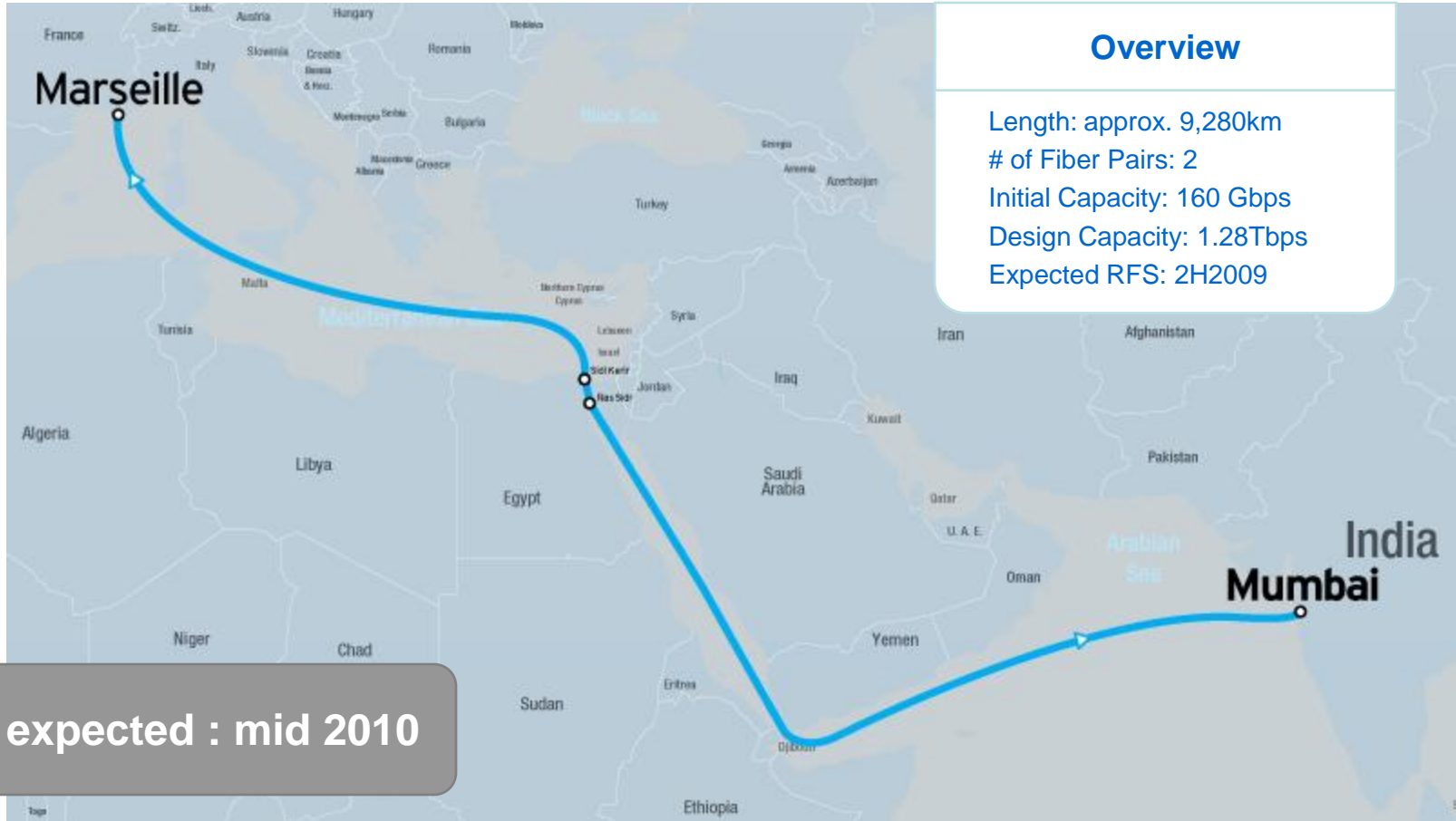
TGN-IA's Resilient Architecture

Design away from Taiwan Earthquake Zone



TGN – Eurasia

Providing direct connectivity from Europe to India



SEACOM

- First Cable system connecting East Africa to India and Europe
- Length ~ 13,000 kms
- Design Capacity: 1,280 Gbps



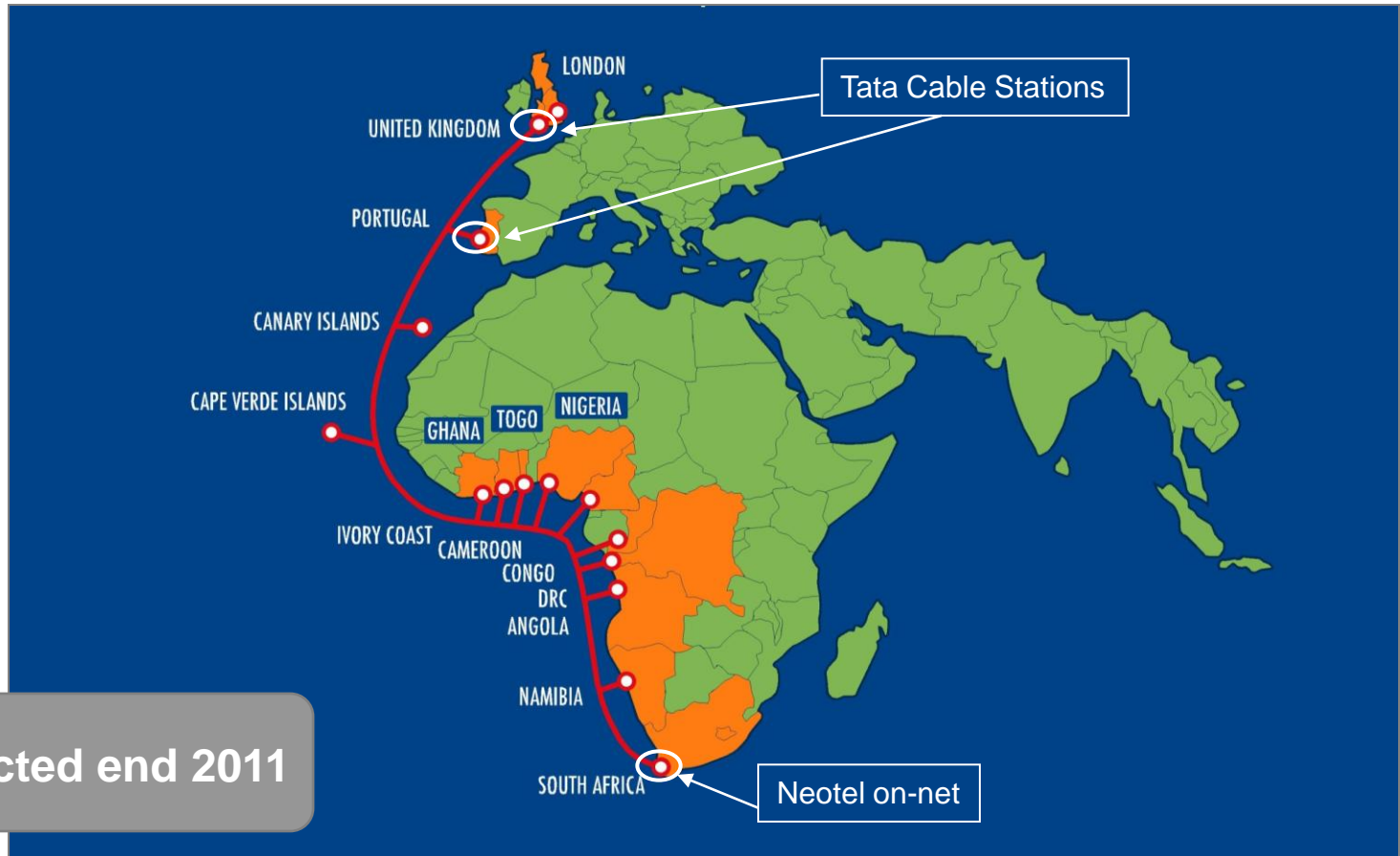
RFS dates
 Africa to India : July 2009
 Africa to Europe : mid 2010

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 SEACOM CABLE SYSTEM MAP**



West Africa Cable System - WACS

Consortium cable providing connectivity from Europe to South Africa and other W. Africa countries



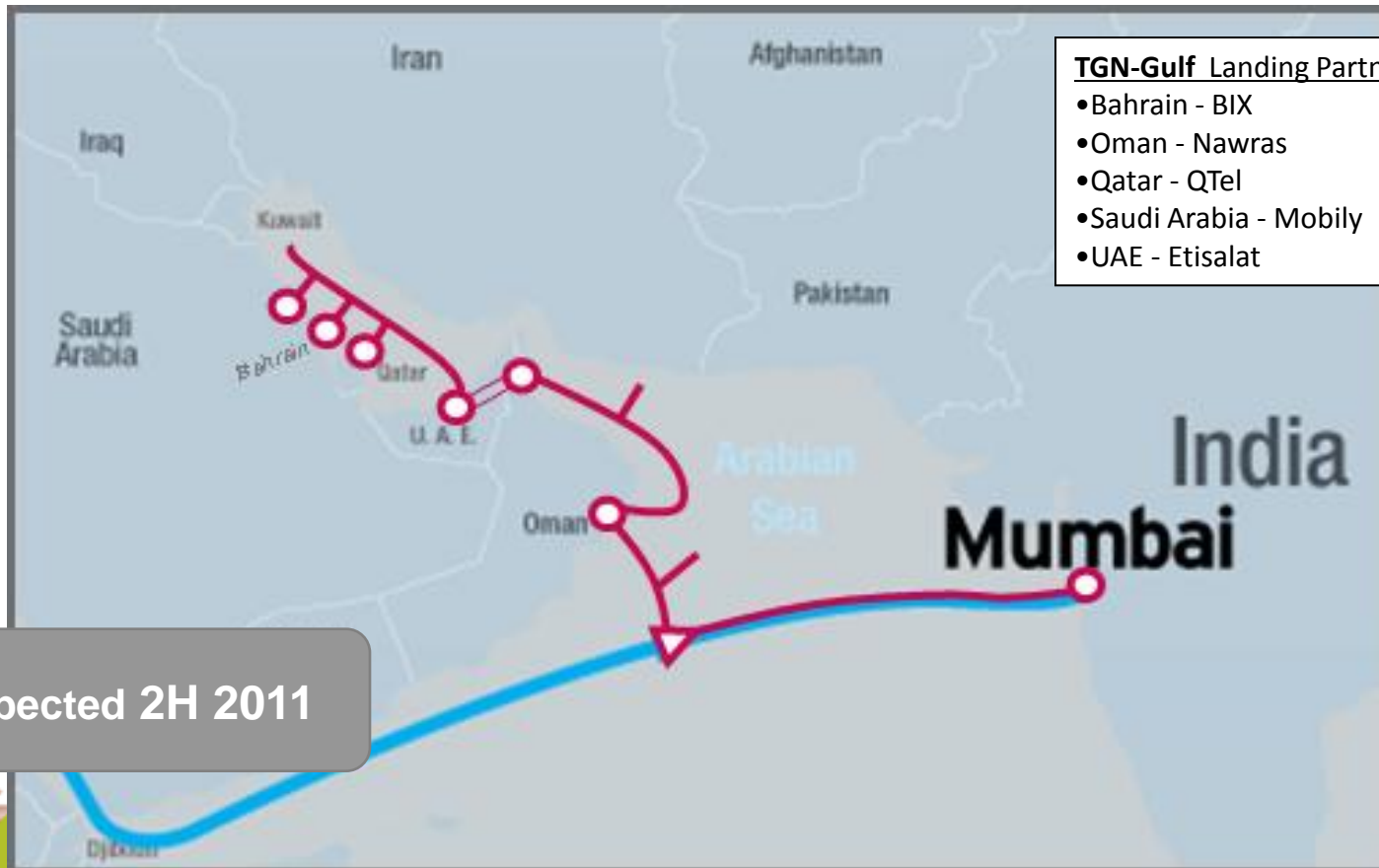
RFS expected end 2011



TGN Gulf

Connecting the Gulf Countries to India and the Rest of the World.

- MoU's signed during summer of 2009
- Agreement signed with Tyco, October 2009
- Complete system RFS planned for 2H 2011
- Discussions ongoing with other potential landing partners



RFS expected 2H 2011

AS6453: Globe spanning dual stack IPv4/IPv6 Tier-1 IP Backbone



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GLOBAL IP FOOTPRINT v4.2

ICONS

- IPV4 POP
- NATIVE IPV6 & IPV4 POP
- EARTH STATION
- DATA CENTER
- NOC NETWORK OPERATIONS CENTER

LINKS

- IP LINK
- PLANNED IP LINK

Explosive growth

- STM64 backbone
- 70% year over year traffic growth

IP Network at a glance

- 1500+ Gbps of Backbone Capacity
- Carries 750+ Petabits globally per month;
- Fully dual stack IPv4 and IPv6

Thank You

