

Strategic Analysis of the International Cable Systems in the GCC Region



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Objective of the Analysis

- Sufficient, reliable, and affordable international capacity is a key to achieving enhancing competitiveness
- Therefore, the overall goal of the analysis is to:
 - review and analyze the current situation of the International Cables Systems in the GCC region and each country's competitive position

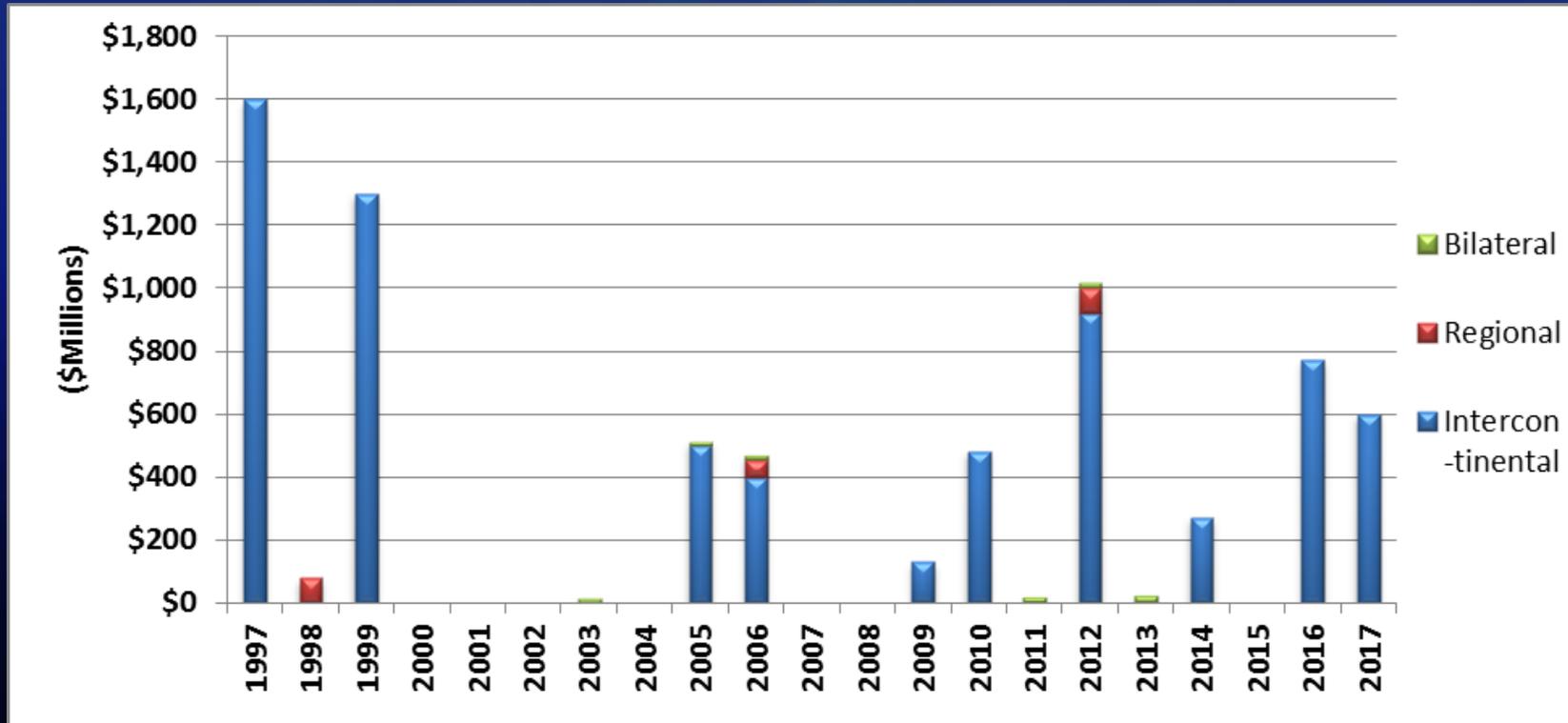


Overview of the Analysis

1. Analysis of the Current Situation: Bandwidth Markets and International Cable Infrastructure in the GCC Region
2. Analysis of the Desired Situation: Benchmarking of Bandwidth and Cable Markets, Stakeholder Analysis, and Technological Considerations
3. Gap Analysis
4. Recommendations and Scenarios for the Successful Development of a Regional Connectivity Hub
 - Appendix: International Submarine Cable Infrastructure Serving the GCC Region

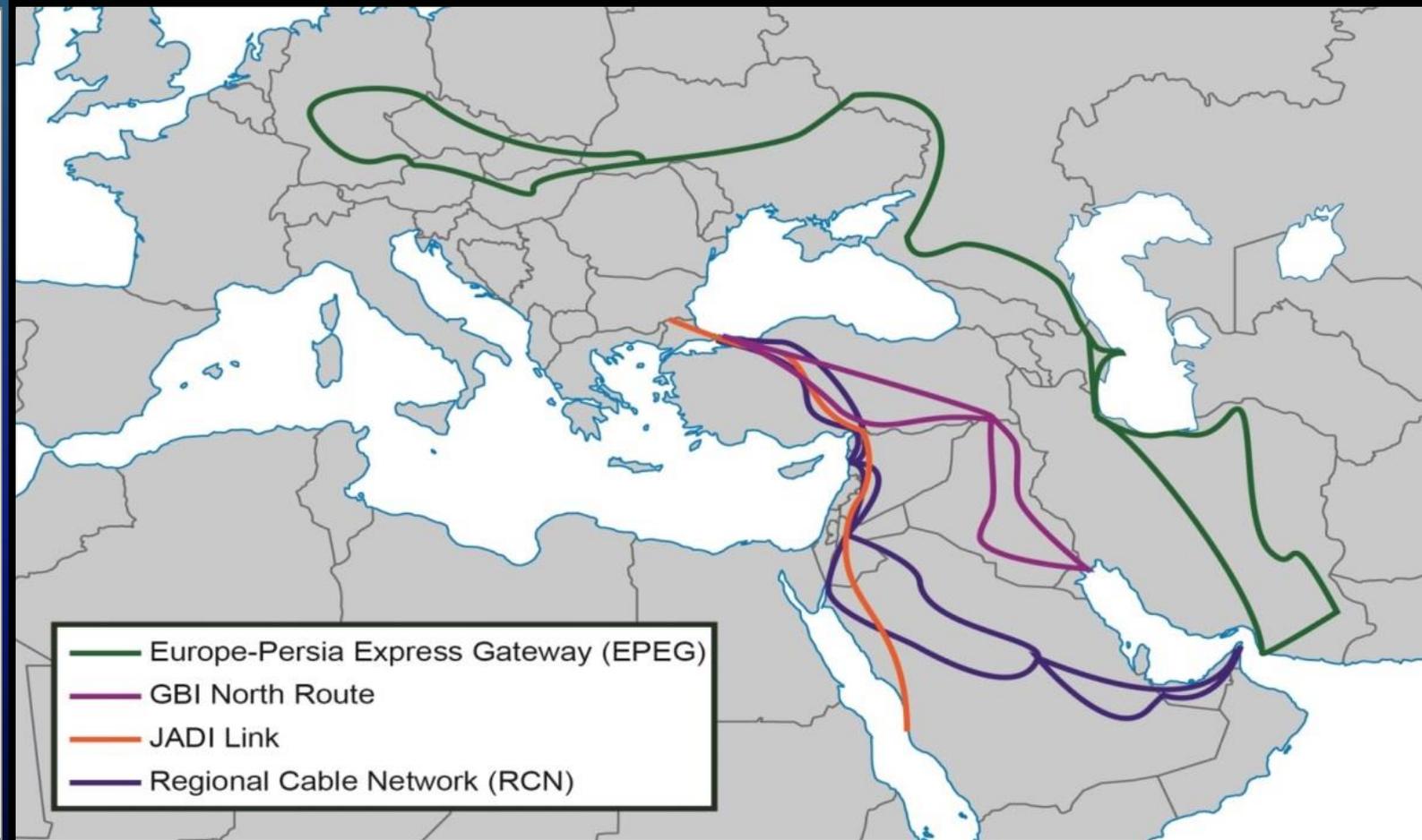
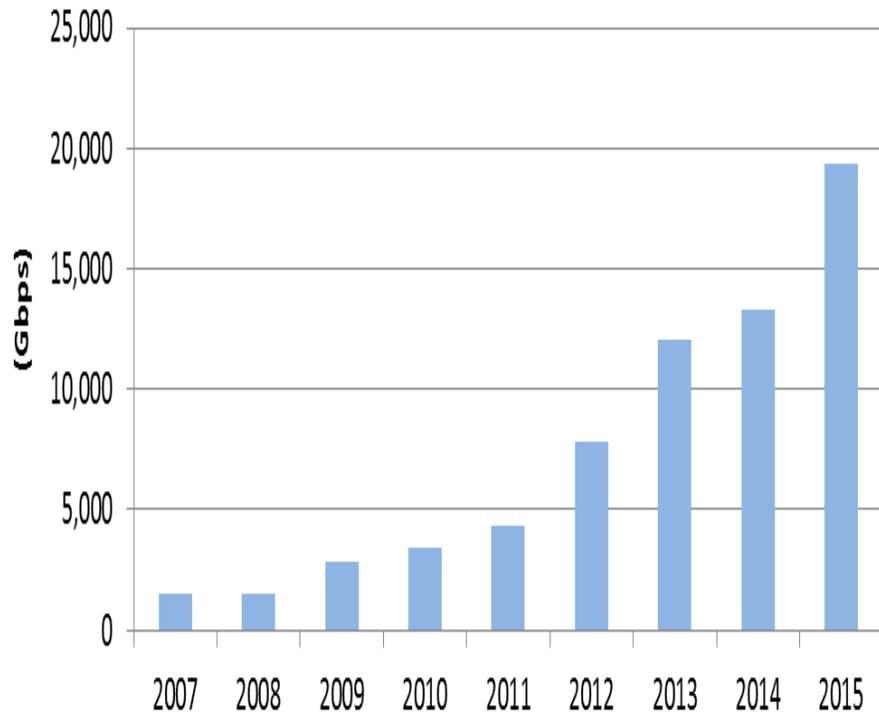
Investment in International Fiber Optic Cables in the GCC Region Has Been Strong

- GCC region served by 22 submarine fiber optic cables
- \$7.3 billion worth of total investment
- Terrestrial fiber optic cables across all borders of all GCC countries



The GCC Region Is Strategically Positioned at the Crossroads of Europe-Asia Bandwidth Routes

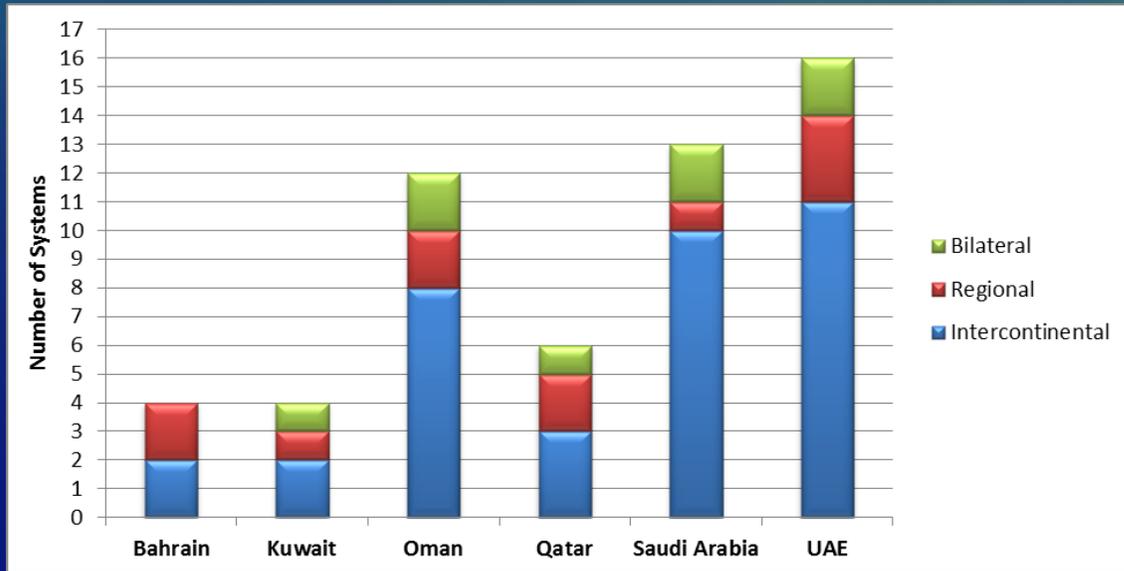
Activated Europe-Middle East-South Asia-East Asia Intercontinental Submarine Cable Capacity, 2007-2015



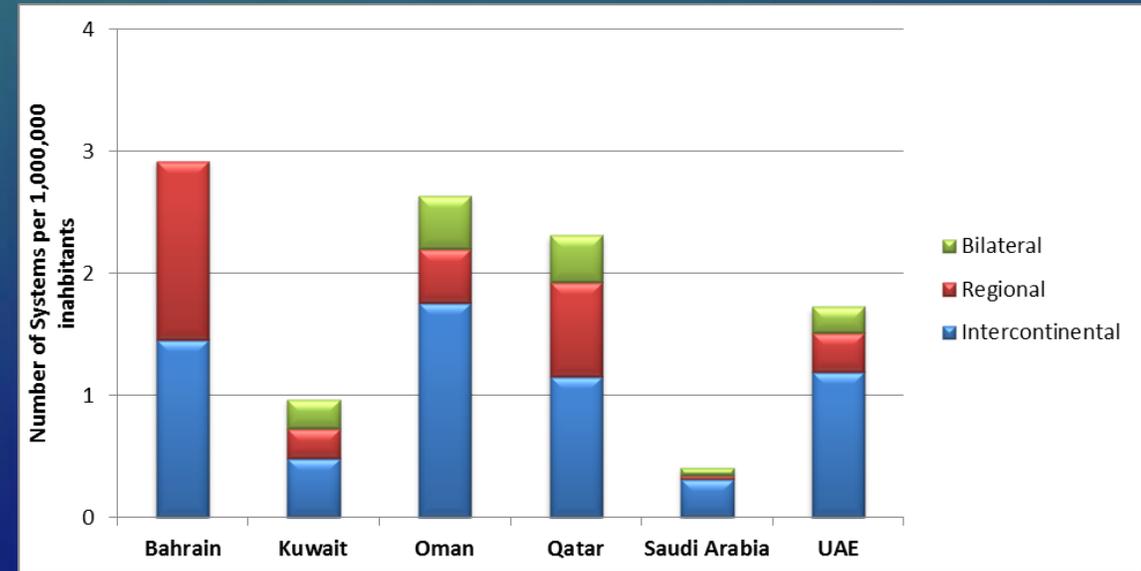
- The Europe-to-Asia bandwidth market grew to almost 20 Tbps as of year-end 2015 and Terabit forecasts its continued long-term growth at greater than 40 percent annually.
- In addition to submarine networks, there has been increased investment in intercontinental terrestrial networks.

Benchmarking of Gulf Region Markets

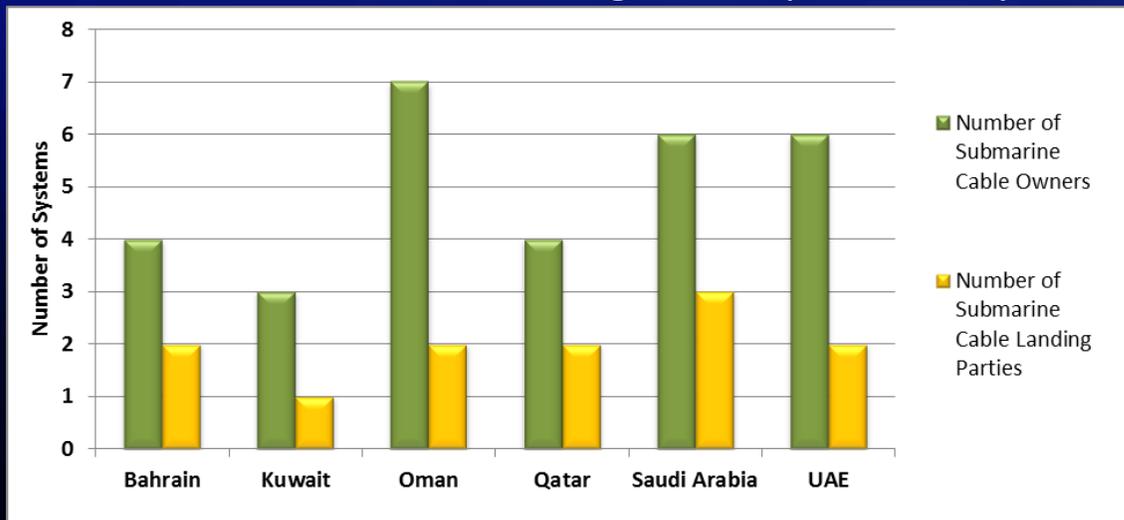
International Submarine Cables per GCC Country



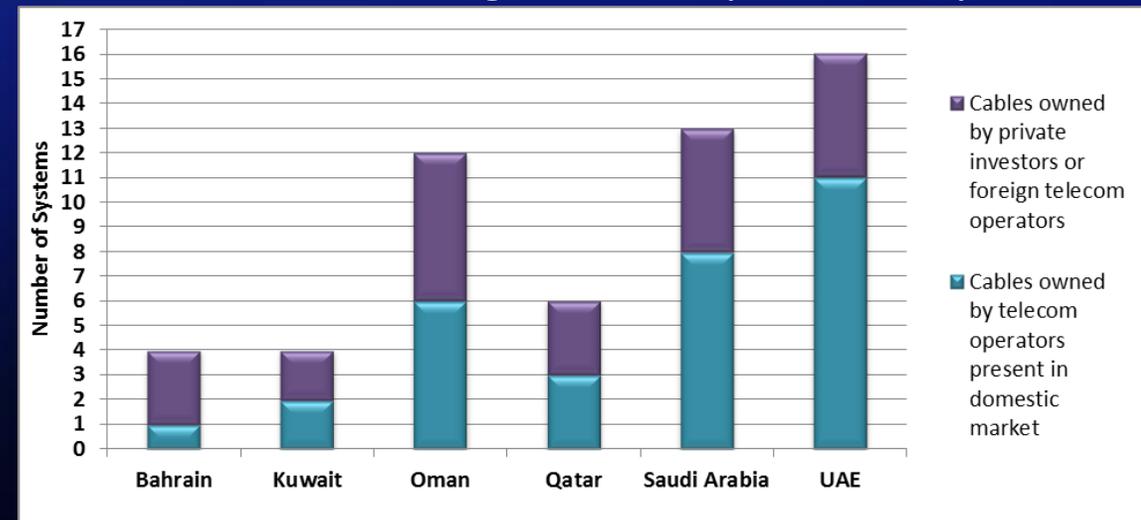
International Subm. Cables per 1,000,000 Inhabitants



Cable Owners and Landing Parties per Country

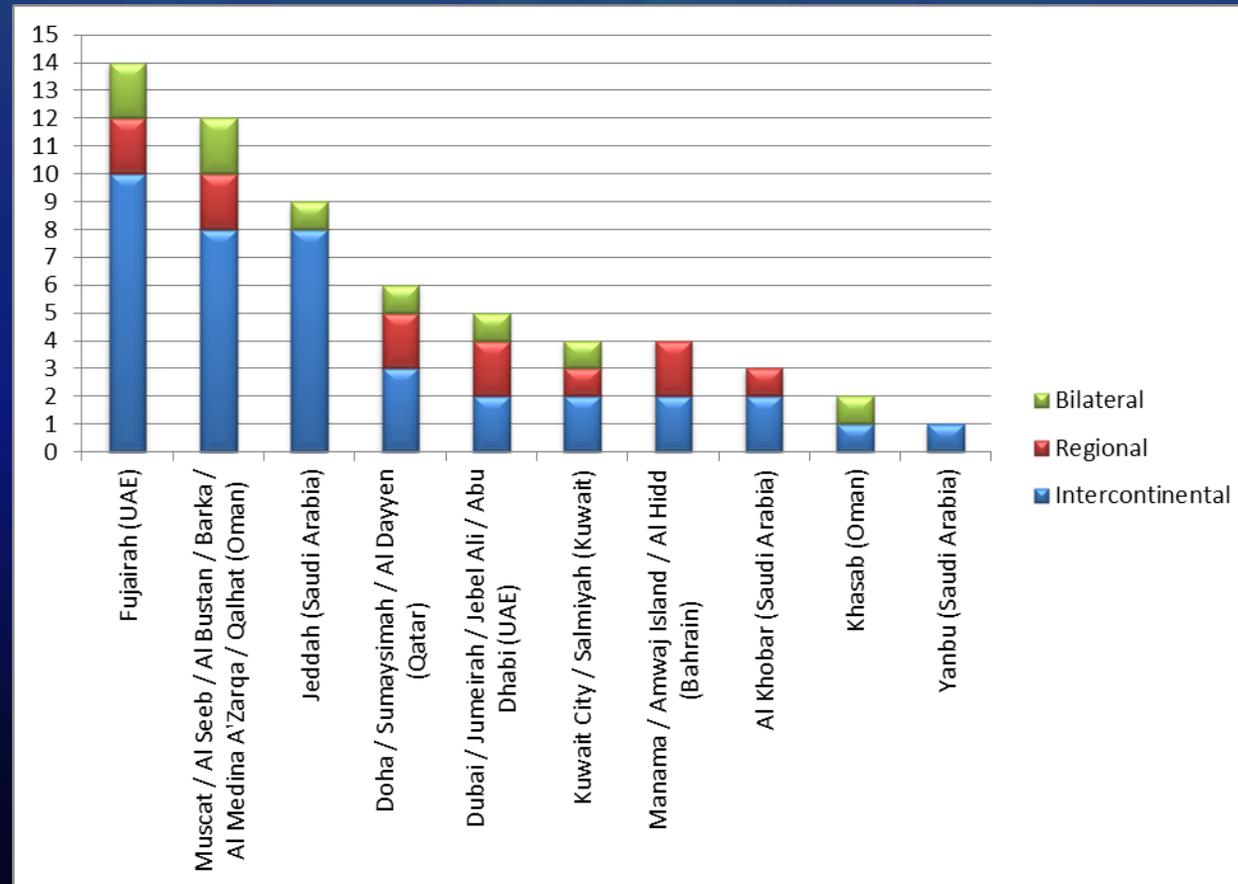


Domestic and Foreign Ownership of Cable Systems



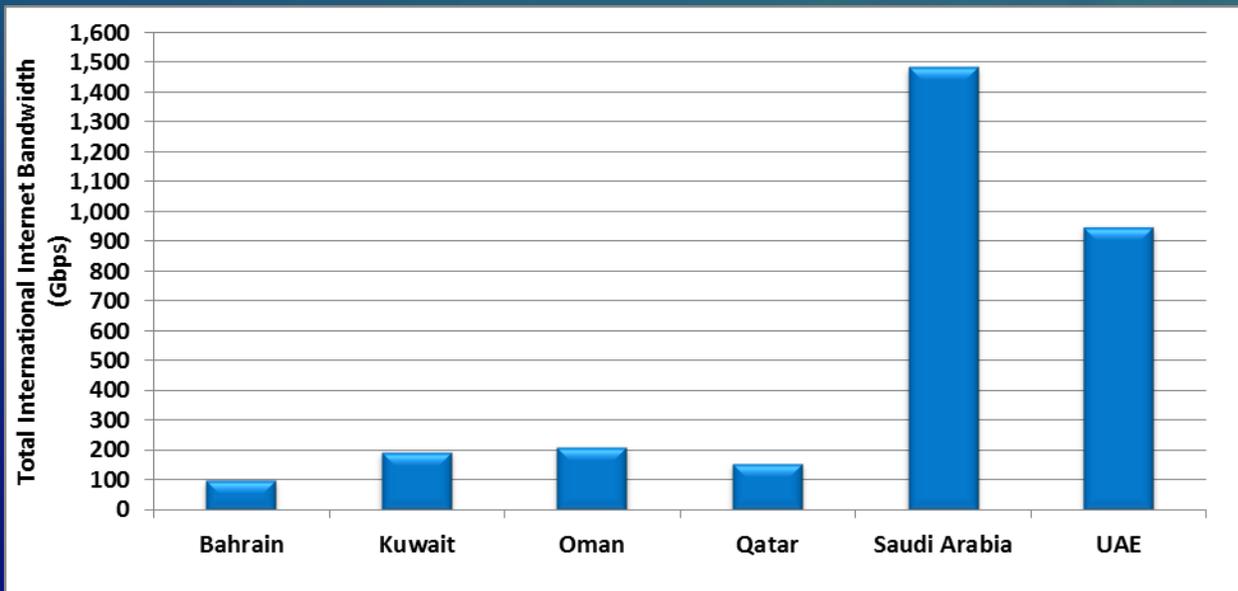
Gulf Region “Submarine Cable Hubs”

International Submarine Cables per GCC Submarine Cable Landing Zone

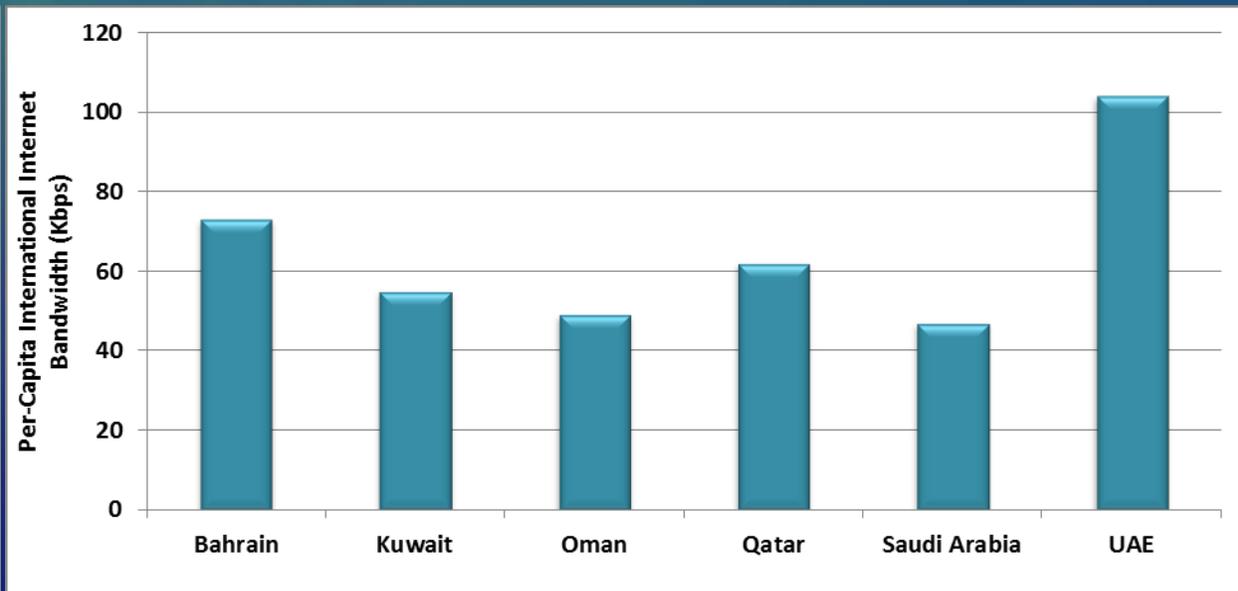


Gulf Region Bandwidth Volume and Pricing

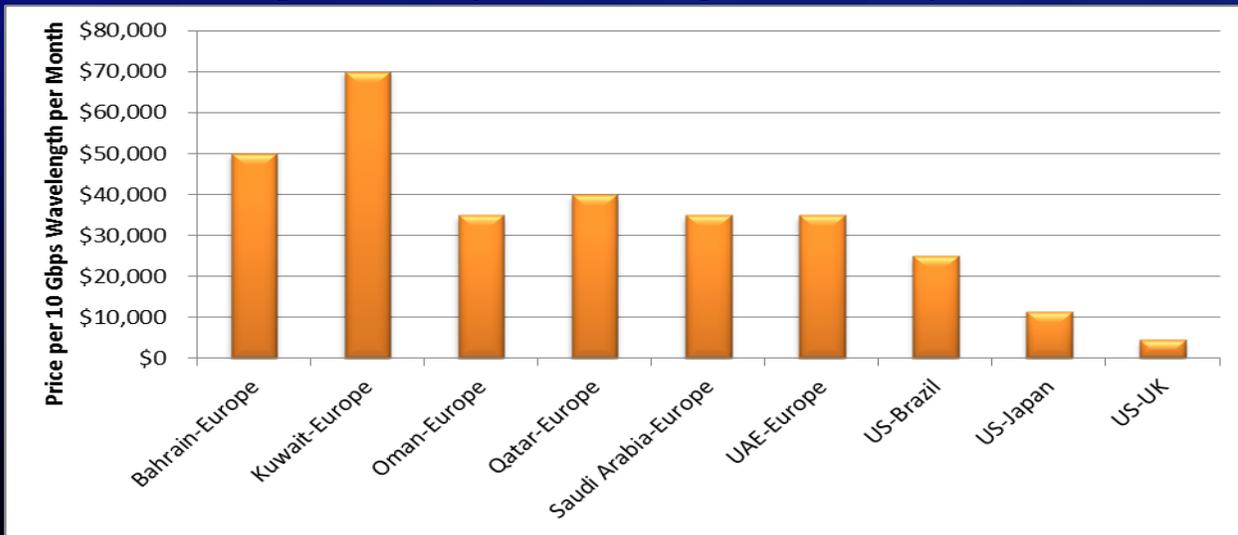
International Internet Bandwidth (Total)



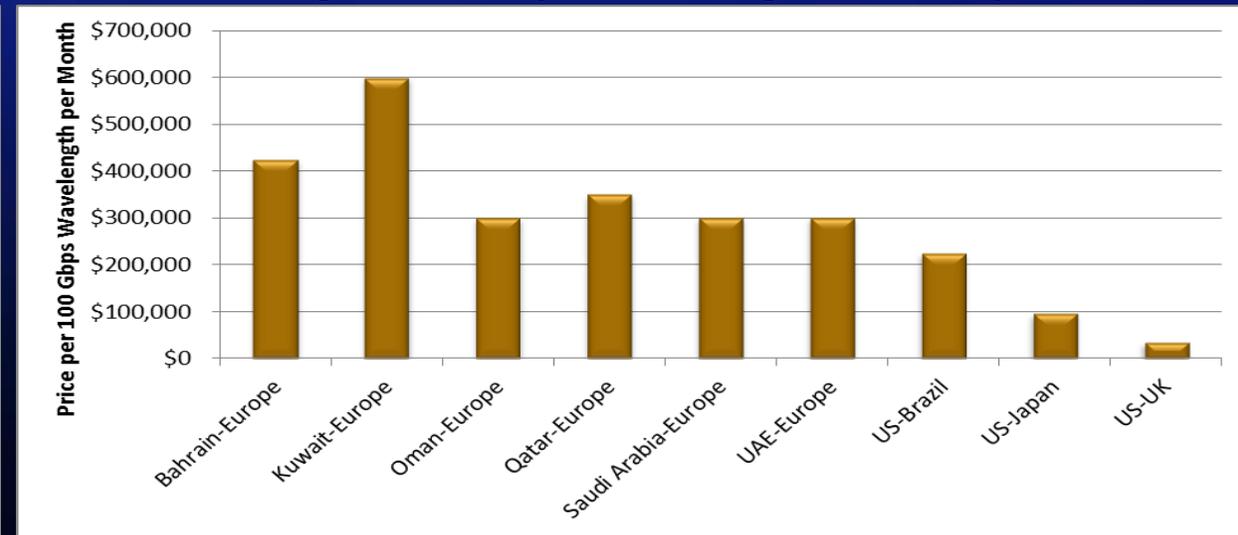
International Internet Bandwidth per Capita



Pricing of 10 Gbps Wavelength (Monthly Lease)



Pricing of 100 Gbps Wavelength (Monthly Lease)



Intervention Greatly Improves Countries' Competitiveness in the Int'l. Connectivity Space

- Intervention is required in order to ensure that citizens are able to benefit from cost-effective, reliable, technologically-advanced international wholesale capacity offered by a healthy choice of service providers.
- Intervention is required in order to promote and facilitate the development of a regional connectivity hub for international and intercontinental bandwidth.

Case Study #1:

Singapore's Promotion of Int'l. Cable Infrastructure

- ✓ Determine desired policy and/or regulatory outcomes.
- ✓ Establish Singtel's **Reference Interconnection Offer (RIO)**.
- ✓ Allow and encourage the development of **new submarine cable landing stations**.
- ✓ Mandate **colocation and cross-connection** services at Singtel's submarine cable landing stations.
- ✓ Allow and encourage operators to provide **competitive backhaul capacity** between submarine cable landing stations and POPs, as well as **competitive transit capacity between submarine cable landing stations**, *irrespective of whether the backhaul or transit operator owns capacity in the applicable submarine cable system.*
- ✓ Establish a **one-stop shop** to facilitate submarine cable landings by coordinating between government agencies and guiding licensees on steps and processes.



Case Study #2: Omantel Wholesale Strategy



- ✓ Build submarine cables and allow **easy submarine or terrestrial cable connectivity**
- ✓ Develop an **open telecommunications hub** for GCC and beyond
- ✓ Connect to **Europe and Asia**
- ✓ Bring **content** to the region
- ✓ Provide a **tier 3+ datacenter** (open datacenter with no access fee)
- ✓ Be **neutral and non-monopolistic** (allowing competitors to access the network)
- ✓ Drive **transit and interconnection prices down**
- ✓ Add **network diversity** to prevent catastrophic incidents
- ✓ Ensure **bandwidth availability**

Case Study #3: Oman TRA Options for the Development of Carrier-Neutral Facilities



- ✓ **Market-led, “laissez-faire” approach.** A non-interventionist approach would allow the marketplace to implement its own solution through private planning and investment. However, the Omani TRA concluded that the marketplace would not allow for the creation of an independent IXP in Oman in the near-future.
- ✓ **Multi-stakeholder ownership.** In this option, the facility would be jointly owned and operated by the parties participating in it. This approach would decrease the amount of investment capital necessary from any single party, and it would increase the probability that the facility would respond to the needs of the participating stakeholders. Yet this scenario was considered to be unlikely in the somewhat concentrated Omani marketplace, given the requirement that competing parties act in a collaborative and mutually-beneficial manner.
- ✓ **Stakeholder selection of an independent provider.** This approach also envisions a collaborative effort by existing stakeholders, who would select a third party to develop the facility on their behalf, within either a for-profit or non-profit operating framework. As in the case of multi-stakeholder ownership, this scenario was deemed to be unlikely due to the requirement that stakeholders act in a collaborative manner that may not be entirely in their best interests. Additionally, the selection of an independent party that met all stakeholders’ requirements for neutrality would be challenging.
- ✓ **Outsourcing model.** The outsourcing option could be coupled with different ownership models, including the aforementioned multi-stakeholder model and the below-mentioned government-ownership model, and would comprise the selection of an established facility operator with a proven track record of success. The Omani TRA postulated that in the case of the Omani IXP, an international provider such as Dubai-based UAE-IX would be a leading candidate. Such an option would ensure the expert operation of the facility. However, a major drawback of this model was its inability to ensure that knowledge capital would be permanently transferred into the Sultanate.
- ✓ **Government ownership and operation.** This model comprises public-sector development and operation of the facility, either initially or on a permanent basis. The government model is the most efficient means of ensuring that policy and regulatory goals are fully met. A lack of governmental operational experience would likely require that this model be paired with the above-mentioned outsourcing model in order to ensure efficient operation. The disadvantages of this model include the possibility of a disconnect between the facility’s operational strategy and the actual requirements of the private sector, less incentive for innovation, and incompatibility with international investors’ sector governance expectations.

Case Study #4:

UAE Free Zones and UAE-IX Transit Zone



UAE Free Zone Advantages:

- Allowance for 100 percent foreign ownership
- 100 percent capital repatriation
- Zero income tax
- Zero corporate tax
- Zero import or export tax
- Low operations costs
- State-of-the-art IT infrastructure and facilities, including tier-3 data centers
- Fast-track business setup, licensing, and immigration and visa support
- Dedicated e-business online support system
- Stable regulatory environment

UAE-IX Transit Zone Advantages:

- The ability of customers to **land their own international capacity into the Transit Zone**, via one of the local operators but with **100 percent ownership of telecommunications equipment within the zone**.
- The ability of customers to **“do their interconnection and peering business within the Transit Zone to non-UAE based entities, without the need for a UAE Telecom License.”**
- The **exemption of content passing through and hosted within the zone** from being subject to any filtering requirements.



Key Takeaways of the Analysis

- A country's current international bandwidth connectivity may meet its own near-term requirements, but it **will not necessarily allow that country to compete with peers on a long-term basis as a connectivity hub.**
- Increased competitiveness can only be achieved through **participation in additional cable systems.**
- Intervention is required to assure that countries **do not miss any upcoming opportunities to improve connectivity** (e.g. Europe-to-Asia submarine cable projects)

Key Takeaways (Cont'd.)

- A number of measures need to be taken to promote international connectivity
 1. Ensuring that the **private sector pursues opportunities**, and evaluating **public sector participation** in cases where it does not
 2. Evaluation of the **functional separation of the incumbent operator** to eliminate unfair competitive advantages
 3. **Stronger reporting requirements** for international connectivity elements, and consideration of increased **price regulation**
 4. Improved **cable access to CBDs** and/or **domestic backhaul**
 5. **Streamlined licensing** and the consideration of an advantageous **FBO license**
 6. Stimulation of investment in **data center infrastructure and cloud computing**
 7. Improved **regional cooperation** on telecom issues, especially the improvement of **regional fiber infrastructure**

At your service



**Intelligence, Analysis, and Forecasting
for the International Telecommunications
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