Submarine Capacity Markets in Africa, the Caribbean, and the Middle East: Understanding the Fundamentals

Presented by:
Michael Ruddy
Director of International Research
Terabit Consulting

The New Dynamics of Deployment in Less-Developed Markets

- The "green-field" opportunities are gone
  - Markets with no fiber connectivity where capacity costs $5k/Mbps/mo. will all be served
- The next challenge = Creating a long-term broadband appetite in those markets that have yet to show one as of 2009
  - Affordable int'l. bandwidth will certainly spur short-term demand
  - However, in the long-term, most LDC markets are plagued by economic and social development issues

Three Keys to Understanding Market Opportunities in Global Capacity Markets

1. Broadband penetration
2. Who are the major players in the telecom services market?
3. What is the government's relationship to the international gateway?

1. Broadband Penetration

1. Will the ICT infrastructure support growth?
   - PC penetration, electricity grids, network infrastructure
2. Can the population afford $20/mo. for broadband service?
   - In many African markets, fewer than 5% have this amount of disposable income
3. What are the social obstacles to Internet penetration?
   - Literacy rates, language issues, cultural concerns

<u>Broadband penetration is the key to sustainable growth of capacity markets</u>

2. Who are the major players?

- Submarine cable feasibility studies done in late-90s identified several hundred capacity customers
- In 2009, constructing a system and waiting for demand to materialize will no longer work
- Now, the challenge is identifying the handful of capacity customers in each market and determining their market power, allegiances, interests, and strategies

<u>The few operators/ISPs who control the traffic will determine the success of submarine projects</u>

3. What is the Government's Relationship to the International Gateway?

- In many developing markets, the PTT's sole remaining source of revenue is the international gateway
- In other markets, "sweetheart" deals have been inked with foreign investors
- Many governments have restricted the development of int'l. infrastructure by mobile operators and ISPs

<u>All submarine projects need open, non-discriminatory access</u>

Sub-Saharan Africa

Challenges of Africa

- Int'l. traffic is controlled by a handful of companies
- Government (incumbent PTT) grip over international gateways is still strong
- Weak fixed-line network infrastructure
- Weak electricity grids
- Low PC penetration
- Most native languages have no web presence
- Lag in human development indicators
  - Poverty, illiteracy, enrollment rates
  - Concentration of wealth (small addressable broadband market)

African Opportunities

- Uptake of mobile services was many times faster than anyone imagined
- WiFi and WiMax deployment is strengthening and could follow in the footsteps of wireless voice networks

Who Controls the Traffic in Sub-Saharan Africa?

= 90% of traffic; PTTs control the rest

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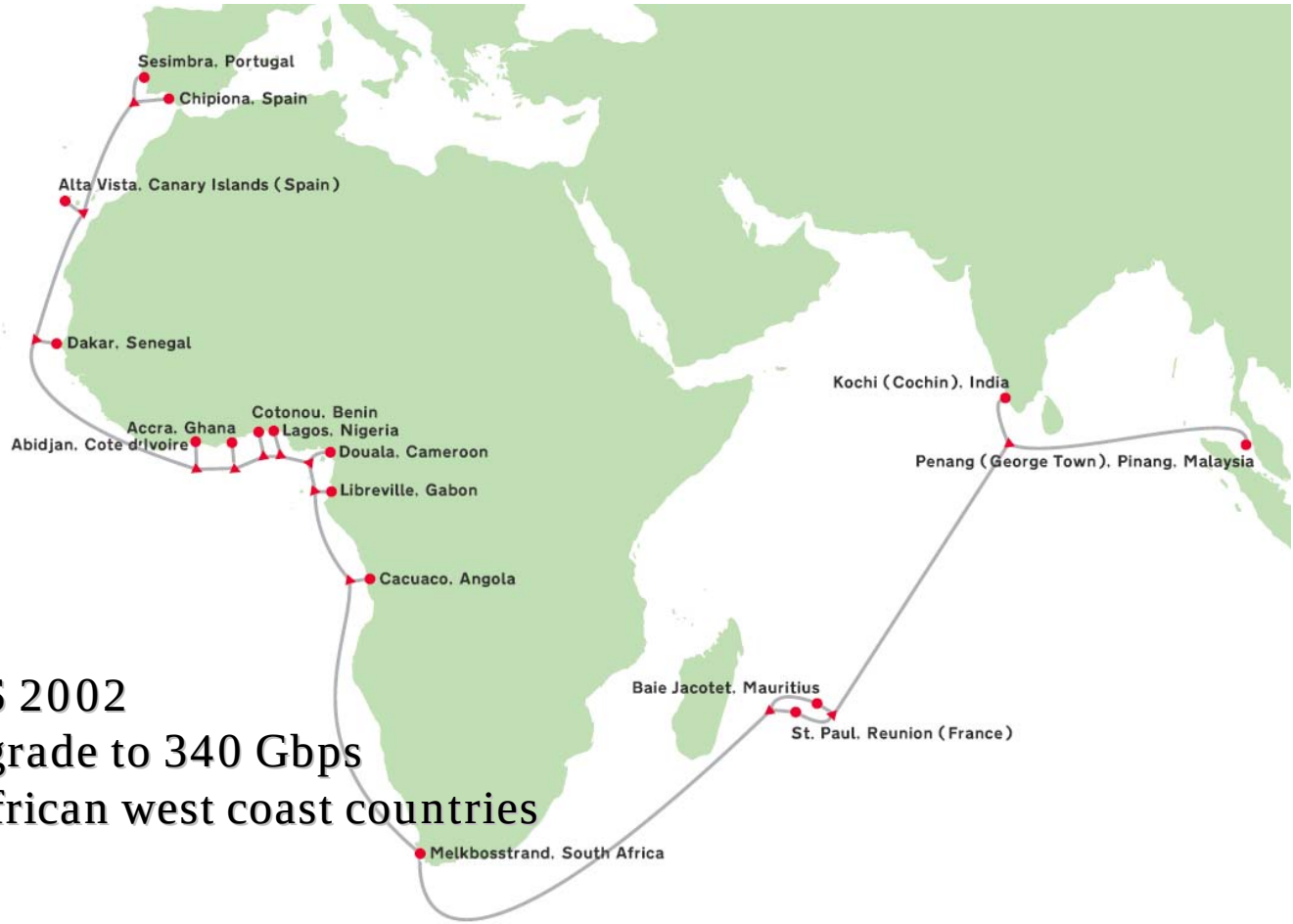
African West Coast Fiber Connectivity: History

- South Africa was the only market with int'l. fiber connectivity until 2001
- 1990s: Proposals for Africa ONE and SAT-3
- In 1995, countries along the west coast sided with one or the other
- Example: Republic of Congo chose Africa ONE
  - Africa ONE failed, then Civil War broke out
- Countries that sided with SAT-3 were connected in 2002; the rest will have to wait until 2011

SAT-3/SAFE: Sub-Saharan Africa's Primary Link, as of mid-2009



SAT-3

- RFS 2002
- Upgrade to 340 Gbps
- 9 African west coast countries

Source: ***The Undersea Cable Report,*** **© 2009 Terabit Consulting**

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West Coast Connectivity

- West African Cable System (WACS)
  - RFS 2011
  - 10 African west coast countries
  - Telkom SA, MTN, Vodacom, Broadband Infraco, Tata, C&W
- Africa Coast to Europe (ACE)
  - RFS 2011
  - 23 African west coast countries
  - France Telecom, Maroc Telecom
  - Can two systems really coexist?

West Coast Connectivity (Cont'd.)

- Glo-1
  - Nigerian SNO; never-ending problems – "wet storage"; latest RFS Nov. 2009
- Main One
  - Surprised critics by securing $66 million loan from African Development Bank
  - Market opportunity vs. WACS or ACE is uncertain

West Coast Connectivity (Cont'd.)

- Uhurunet – vast $2bil plan "merged" with AWCC
- AWCC – Infraco chose WACS
- Maroc Telecom – had planned west coast cable but partnered with France Telecom for ACE instead
- Infinity – signed MOU with VSNL in 2007 then faded
- WAFS
  - First proposed in 2004, the project was cancelled in 2009 following the decision of Gabon and Cameroon to support France Telecom's ACE system
  - Much to the chagrin of Congo and DRC

African East Coast Fiber Connectivity: History

- The east coast flirted with Africa ONE and Project Oxygen
- Financing for EASSy started to firm up in 2004
- Other systems (Seacom, TEAMS) entered the fray

East Coast Connectivity

- Seacom
  - Launched last week
  - Aga Khan, Sithe Global
  - Tata (Neotel, VSNL) is “anchor tenant”
- TEAMS
  - Scheduled to launch this month
  - Safaricom, Telkom Kenya, Etisalat, ISPs
- EASSy
  - RFS 2010
  - Telkom SA, MTN, Neotel; most PTTs on the east coast are also participants
- FLAG NGN (proposed)

South African Traffic is the Key

- To succeed, sub-Saharan fiber systems must capture a share of South African traffic
- South Africa = the continent's telecommunications gold mine
  - $25 billion+ market for telecommunications services
- Others pale in comparison
  - Nigeria = $5 billion
  - Kenya = $2 billion
  - Cote d'Ivoire = $1.5 billion
  - Senegal = $1.5 billion

Caribbean

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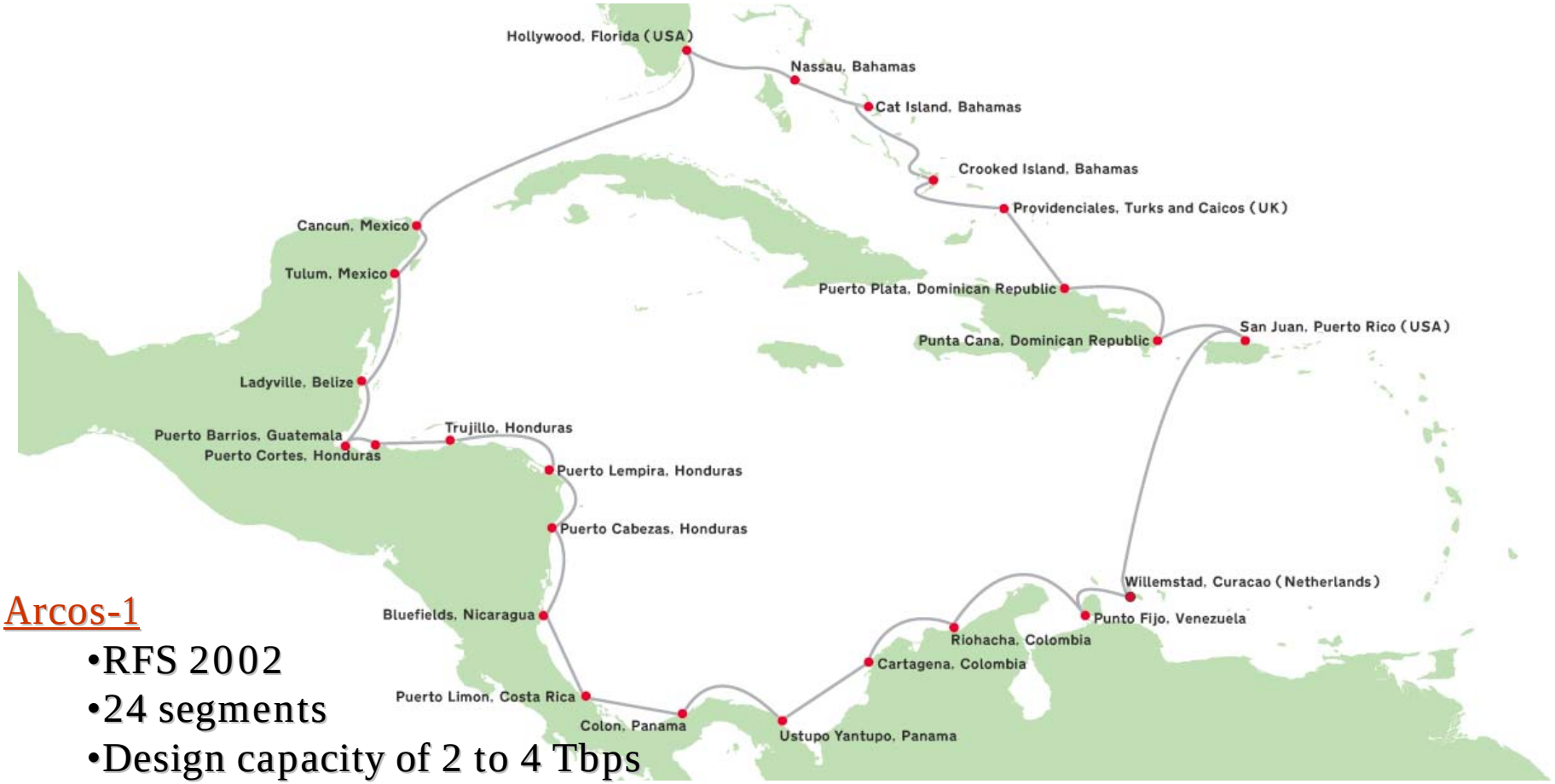
Arcos-1



Arcos-1

- RFS 2002
- 24 segments
- Design capacity of 2 to 4 Tbps
- Columbus Communications (Flow)

Source: *The Undersea Cable Report*, © 2009 Terabit Consulting

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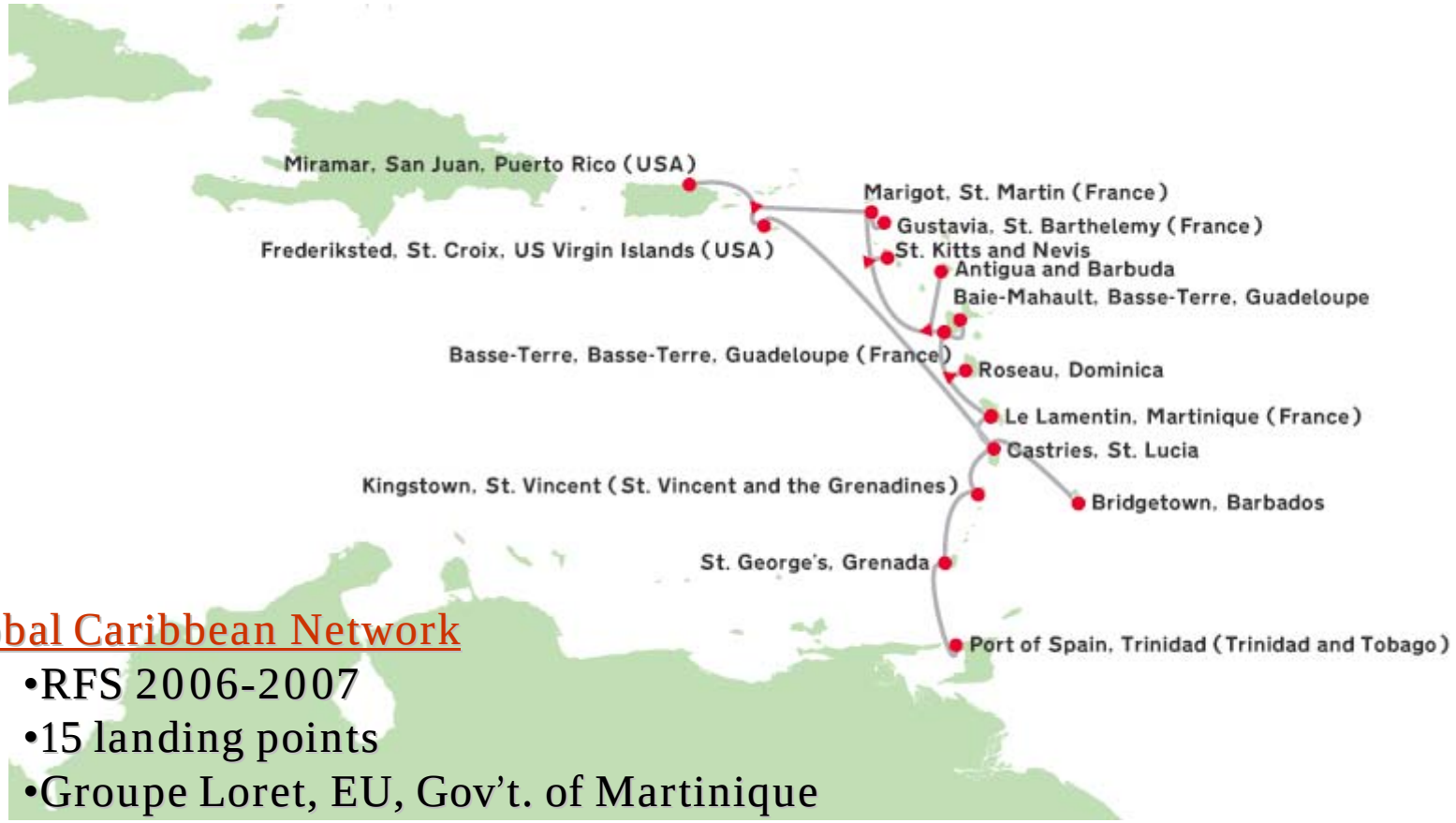
Global Caribbean Network



Global Caribbean Network

- RFS 2006-2007
- 15 landing points
- Groupe Loret, EU, Gov't. of Martinique

Source: *The Undersea Cable Report*, © 2009 Terabit Consulting

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Caribbean Capacity Markets

- Arcos-1 and GCN = two largest footprints
- Important planned projects:
  - Antilles Crossing expansion
  - Calypso
  - Cuba-Venezuela
  - Seahorse-1
- C&W, Digicel, France Telecom, America Movil, US operators = largest capacity customers

Middle East

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Middle East Capacity Markets

- Historically the domain of Sea-Me-We and FLAG (Reliance) cables
- A new generation of systems has emerged
  - TGN Eurasia (Tata/VSNL)
  - Hawk (Reliance)
  - I-Me-We (Consortium)
  - Europe-India Gateway (Consortium)
  - Gulf Bridge International
  - MENA (Orascom)
  - MEF (Arab Submarine Cable Company)
- Regionally, the most important capacity customers are Etisalat, STC, Zain, and Qtel
- Most systems are banking on a share of Indian demand

Conclusions

- Sub-Saharan Africa, the Caribbean, and the Middle East have been the target of dozens of new investors
- Significant risk of overbuild
- Broadband is the key
  - In markets with expensive int'l. capacity and little local content, new cables will stimulate a burst of short-term demand
  - Long-term, many markets have only limited potential without major socio-economic progress
- Most successful projects = partnership with operators who control the traffic

Conclusions (Cont'd.)

- Regardless of the internal challenges it faces, the subsea industry's investment in less-developed markets over the last five years = a very significant step toward global ICT equality

Thank You!

Michael Ruddy
Terabit Consulting, Inc.
First Street Center
245 First Street, 18th Floor
Cambridge, Massachusetts 02142 USA
Tel.: +1 (617) 444-8605
Fax: +1 (617) 444-8405
Email: mruddy@terabitconsulting.com
http://www.terabitconsulting.com