

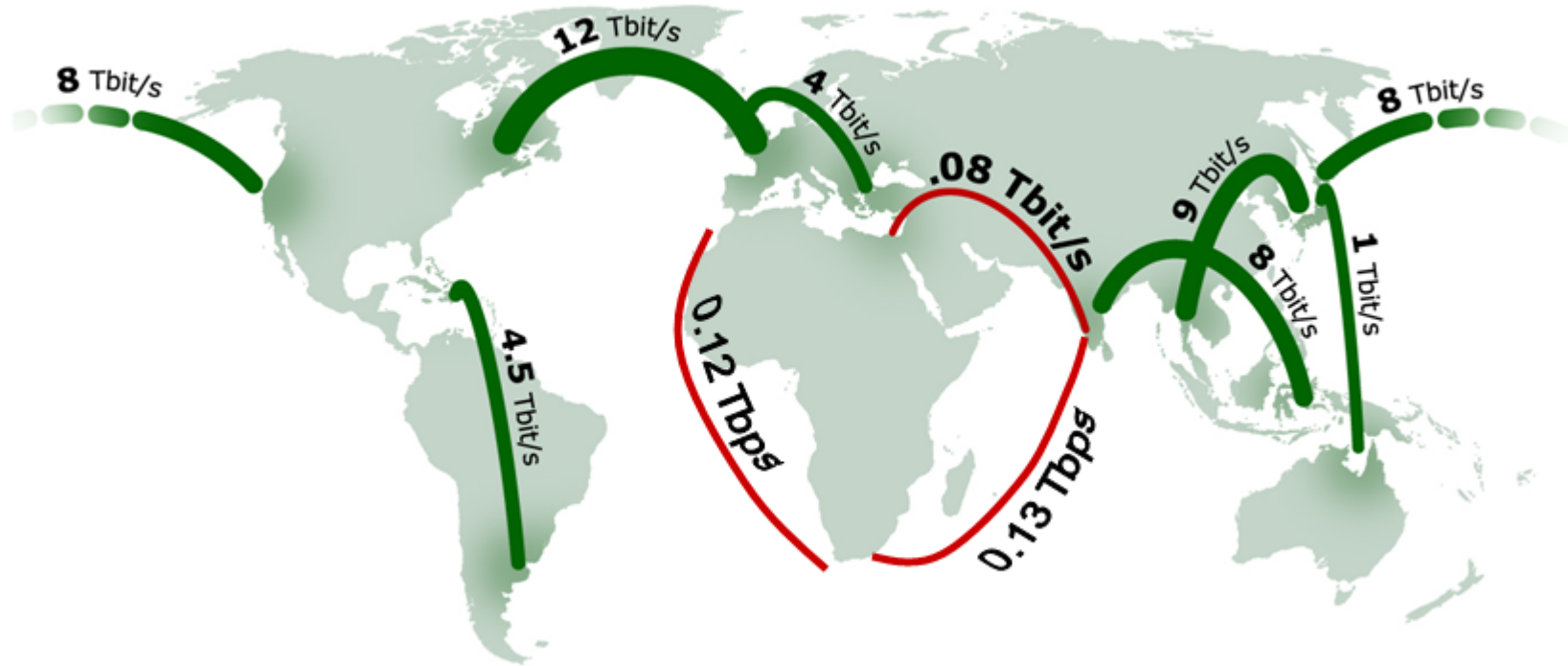
TECHNOLOGY FOR THE OTHER 3-4 BILLION INHABITANTS

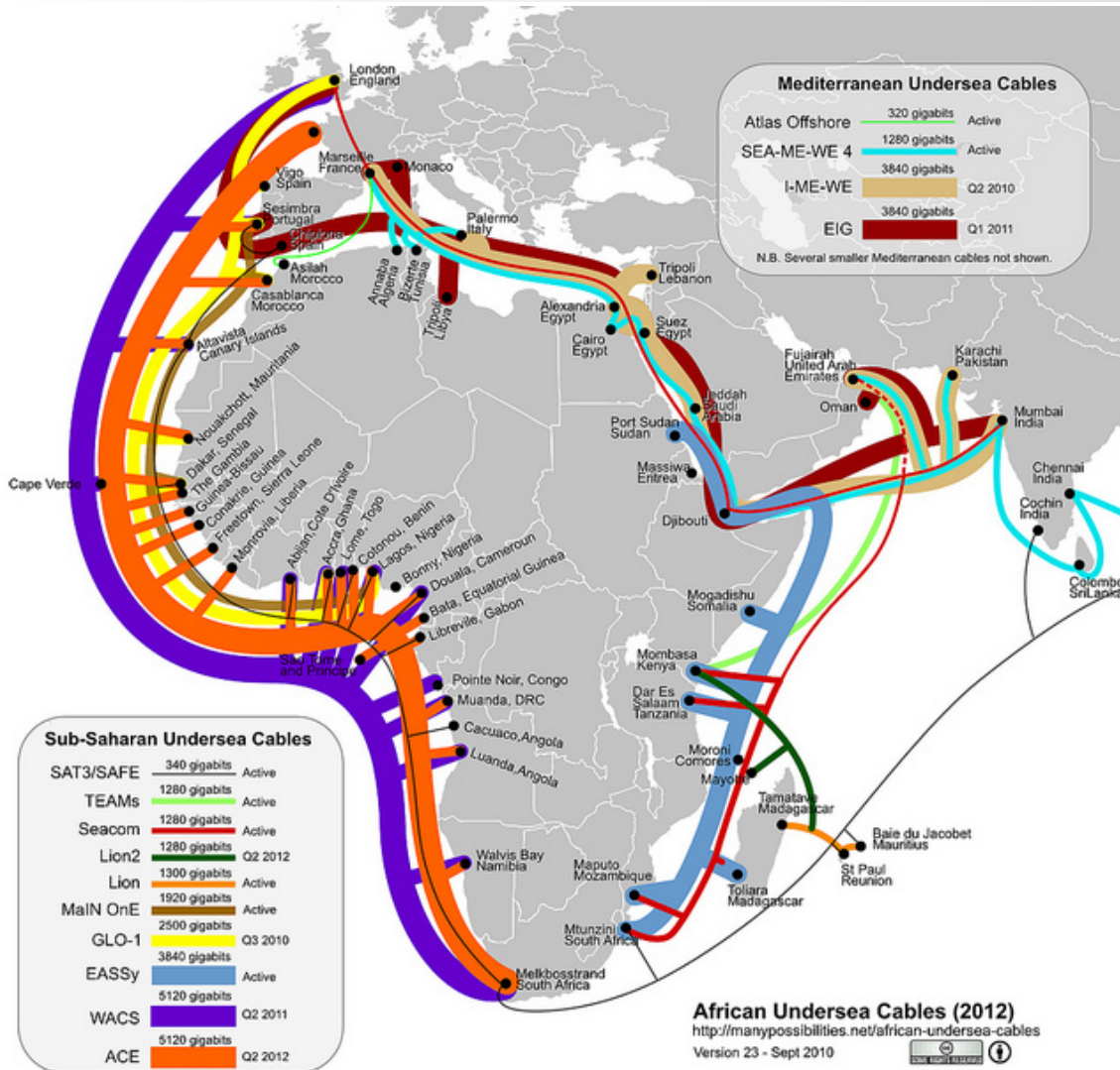
--- CHALLENGES IN SERVING THESE HAVE-NOT' S
---Possibilities of saving lives

Professor Victor Lawrence

18th April, 2013

Global Telecom Infrastructure





- ACE initially comprised twenty four parties:**
- Baharicom Development Co
 - Benin Telecoms
 - Camtel
 - Côte d'Ivoire Telecom
 - Companhia Santomense de Telecomunicacoes
 - Etisalat Nigeria
 - Expresso Telecom Group
 - Gamtel, Getesa
 - Globalink
 - Maroc Telecom
 - Mauritano-Tunisienne des Télécommunications
 - Mauritius Telecom
 - Office Congolais de Poste et Télécommunication
 - Orange Bissau
 - Orange Cameroun
 - Orange Côte d'Ivoire
 - Orange Guinée
 - Orange Mali
 - Orange Niger
 - Orange Spain
 - Sierratel
 - Sonatel

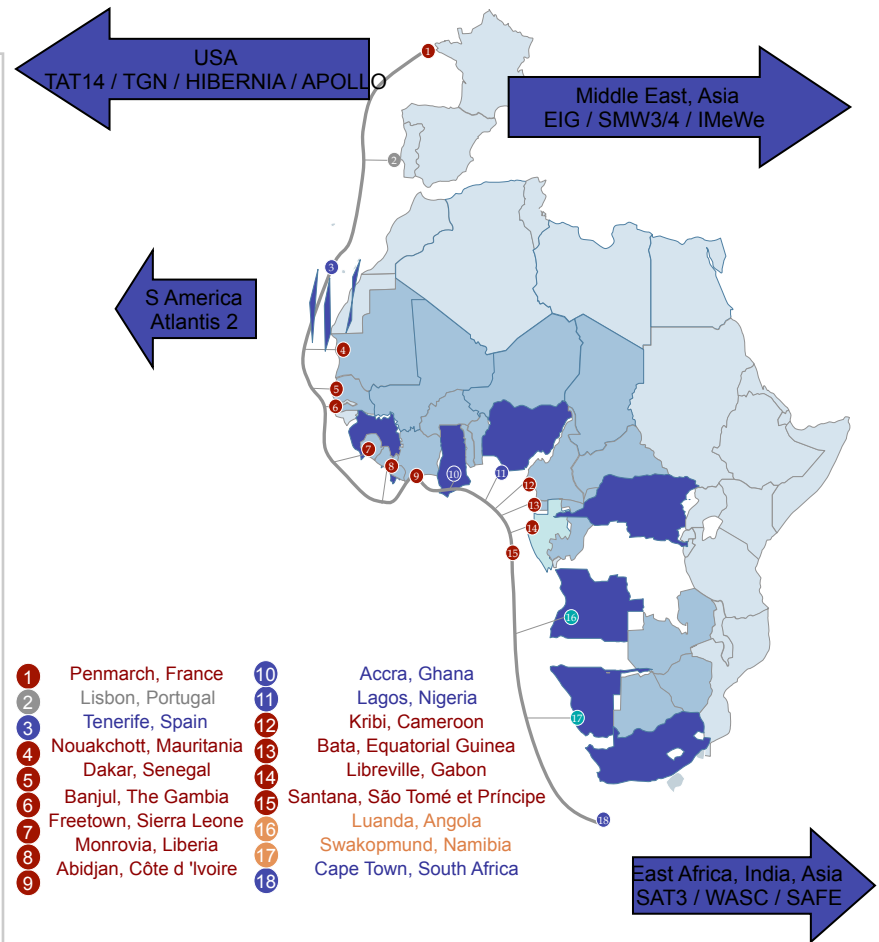
ACE, a high connectivity

- A **17,000 km** long Submarine Cable designed to provide **5.12 Tbps**
- **22 Countries** to be connected, including **9 Countries** not served today by a cable system
- ✓ **The best connectivity ever offered by a submarine cable along the West Coast of Africa**



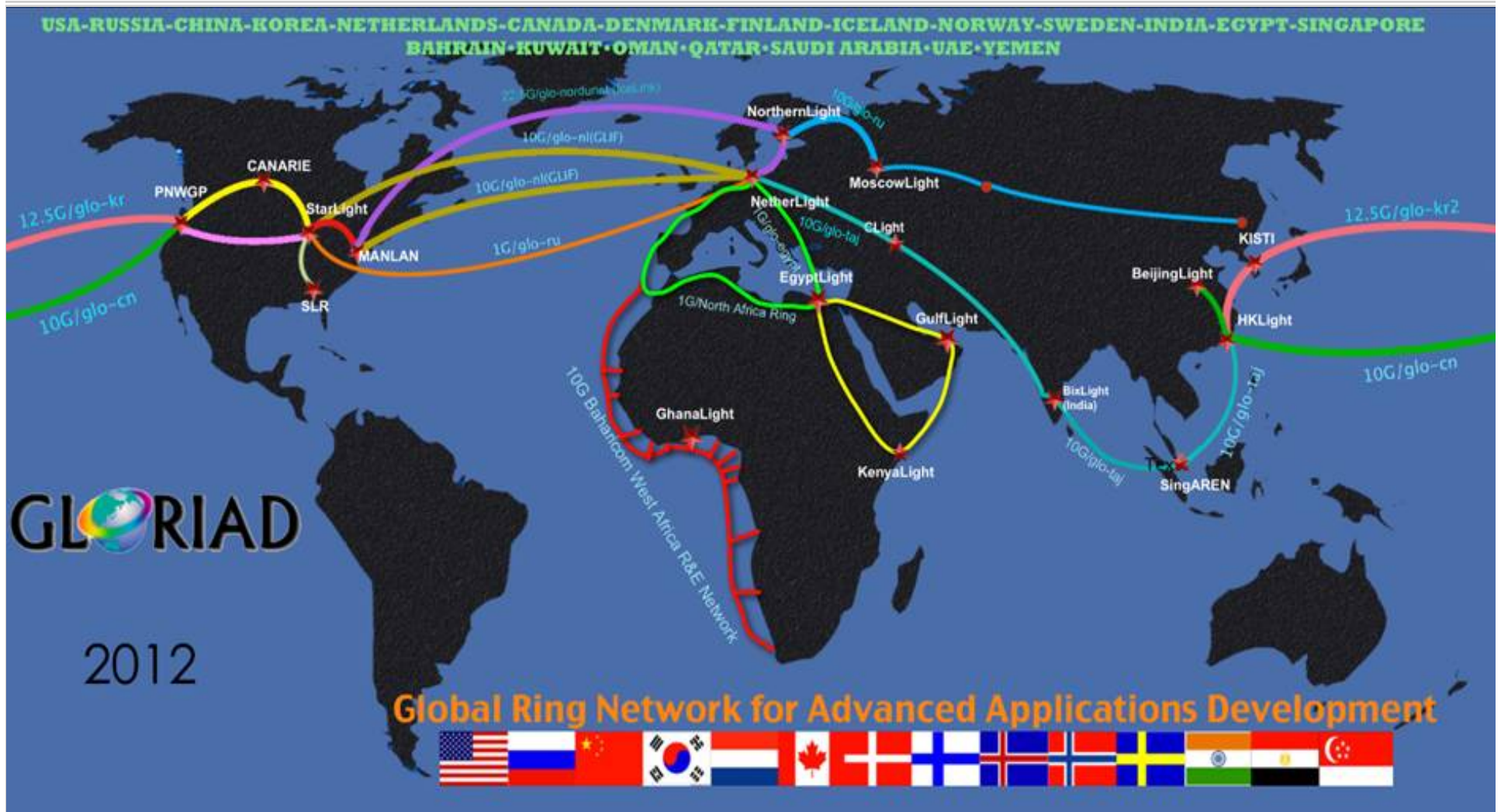
ACE Unique Global Connectivity

- The 17,000 km ACE cable from Cape Town, South Africa to Penmarch, France will connect 18 countries
- The first time a cable will land in Equatorial Guinea, The Gambia, Liberia, Mauritania, São Tomé & Príncipe and Sierra Leone
- Only one other system, WACS, extends the West African coast
 - Mutual restoration creates reliability for both systems
 - Classic mesh network and restorable premium price services
 - WACS customers likely to buy capacity on ACE for redundancy purposes
- Provide crucial route diversity and redundancy for commercial and governmental traffic
- Highest capacity (5.12Tbps) of competing cables
- Tenerife constitutes a potential key strategic advantage in connectivity to the Americas

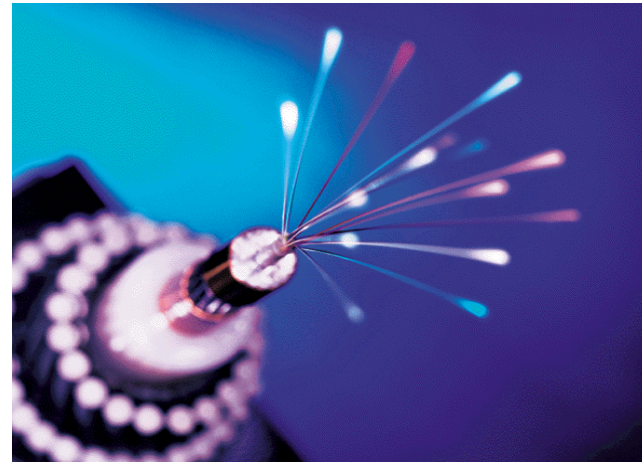


- Baharicom Landings
- ACE Joint Landings
- Other ACE Landing Points

GLORIAD with Baharicom/ACE



2. Brief Overview of Undersea Cables and Fiber-Optic Technologies



Promoting ICT for social and economic development

- **Promoting ICT for social and economic development with emphasis on applications for education, health, business, government and agriculture.**
- **Establish Baharicom Labs to support pilot projects, proof of concept explorations and research on the cost effectiveness, sustainability and reproducibility of these applications**

Education in Sub Saharan Africa

- **Education rate in Sub Saharan Africa are among the lowest in the world.**
- **Primary school completion rates are less than 65%;**
Secondary School enrollment rates are less than 25%;
Ave tertiary education enrollment rates are about 5%.
- **These dismal statistics, combined with a regional shortage of about 4 million teachers, presents the advancement of education as a daunting development challenge.**

Education improvement in Sub Saharan Africa

- **The first priority will be to increase participation rates at all levels of education**
- **ICT has the capacity to increase the productivity of the existing teacher cohort by engaging students directly in computer-based learning. By having groups of students involved with productive ICT tasks teachers can deal with larger numbers of students. Also, computer-based activities can provide opportunities for teacher aides with limited training to participate effectively in the teaching-learning process.**
- **Perhaps the most cost effective use of ICT in the advancement of education in Sub Saharan Africa is in elearning for the preparation of new teachers. ACE can provide access to universities and regional centers, where aspiring students can study for college degrees in teaching. The intrinsic nature of web-based learning allows the possibility of instructors who are located in the country, the region and/or internationally.**

- **Health problems in Sub Saharan Africa are staggering.**
- **region has 25% of the disease burden of the world but only 3% of all health workers; with 12% of the world's population.**
- **Sub Saharan Africa witnesses 75% of the AID's deaths in the world and the number of doctors in the region is less than one doctor for 10,000 people compared with European ratios of one doctor for 350 people.**

Physicians per 100,000 population

- **US 549**
- **Germany 390**
- **Bulgaria 365**
- **France 329**
- **South Africa 69**
- **Namibia 30**
- **Botswana 29**
- **Nigeria 29**
- **India 16**
- **Ghana 9**
- **Zambia 7**
- **Uganda 5**
- **Rwanda 2**
- **Mozambique 2**

Source: www.who.int

Health improvement in Sub Saharan Africa

ICT has the potential of improving health care delivery. Baharicom Labs will explore work to utilize ICT resources for various ehealth applications in accordance with national and regional priorities

-- Computer-based decision support

-- Utilization of diagnostic instrumentation for which the output is remotely evaluated

-- Evaluation of patient information that is evaluated by a remote care-giver

-- Electronic patient management system

- - Electronic medical records system

-- Interactive computer/communications technologies that utilize patient records to provide monitoring as well as ongoing and preventative patient support

-- Delivery of urgently needed information, as well as continuing education for healthcare providers

-- Social networking among medical caregivers in which information is shared and mutual support is provided.

-- Remote facilitation of surgery and other medical procedures.

Government improvement in Sub Saharan Africa

Government information dissemination, provision of services, and interactions that promote good governance can all be provided through the use of ICT.

- on-line availability of forms, applications, and registration materials
- posting of government regulations, proposed laws and public service information
- posting of minutes of government bodies
- ability to interactively pay government fees and taxes and process registration materials.
- solicitation of citizen opinions through on-line polls
- access to information about economic benefits, healthcare resources, job opportunities, and other data of potential value to citizens.
- establishment of unique and reliable identification system for all citizens.

Agriculture improvement in Sub Saharan Africa

Agriculture is the leading source of income for perhaps seventy percent of the population of countries in Africa. ICT can benefit this key economic sector in many ways:

- Current market information to farmers
- Local weather reports
- Information and ability to obtain transportation
- Information and ability to obtain storage facilities
- Timely and specific information on crop and livestock diseases.
- Advice and current information on crop and livestock care.
- Ability to conduct financial transactions for produce and animals.
- Ability to manage supply chain for feed and other time sensitive items.
- Ability to establish traceability and certification of products

*Human Resource Development
in Sub Saharan Africa*

- **Baharicom Labs will promote advanced study and focused training of ICT professionals and staff through on-site instruction as well as degree programs, visits, internships and workshops at international locations.**
- **Support will be provided for doctoral research for promising candidates from Sub Saharan African countries at leading research institutions in North America and Europe. Faculty and research staff from these institutions will be supported in visits to the countries of Sub Saharan Africa. Through such visits, potential candidates for advanced degrees can be identified and understanding of local conditions and issues can be acquired.**

KEY SERVICES

- E-Health
- E-Schools
- E-Commerce

Baharicom Labs with African Universities and African Higher Institutions have the potential of playing a transformative role in the developing world