بسم الله الرحمن الرحيم

Ministry of Communication and Information Technology

National Information Center

Afpif

Sudan Exchange Point (SIXP) as Regional IXP (RIXP)

August 2016

Sudan Internet Exchange Point (**SIXP**)

- An Internet exchange point (IX or IXP) is a physical infrastructure through which Sudan Internet Service Providers (ISPs) exchange Internet traffic between their networks (autonomous systems).
- **SIXP** founded in **2011**.
- **Operational Model=**University and government agencies.
- **Non-profit.**

Members of SIXP:

The following are the current members (ISPs) of SIXP:

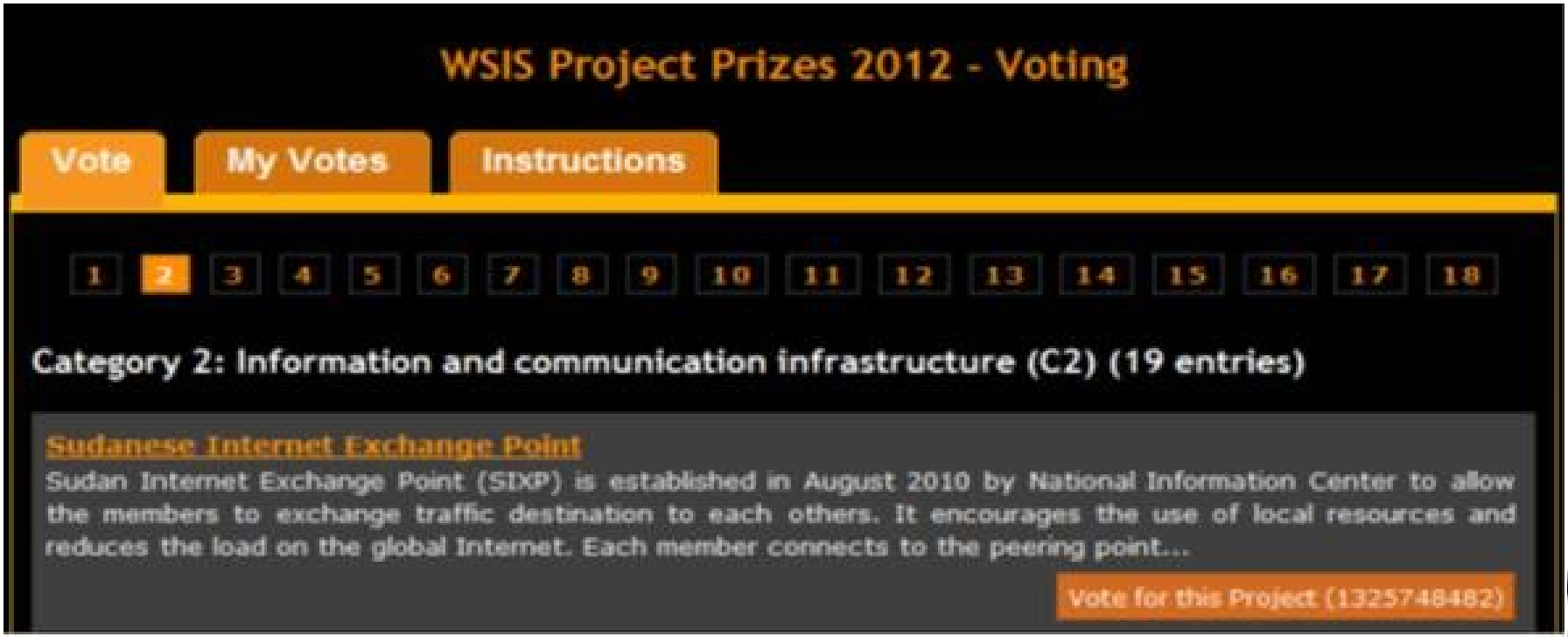
- Sudatel.
- Canar.
- Zain.
- Vision Valley (MAXnet).
- Sudanese Research and Education Network (SudREN).
- MTN.
- PCH (**Packet Clearing House**).

http://www.sixp.sd live traffic

SIXP Prize :

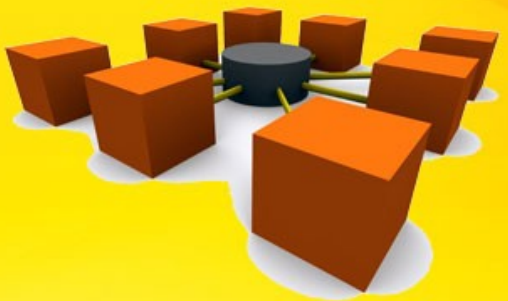
SIXP had participated in the contest of International Telecommunication Union (ITU) and won the prize as the best project for the year 2012.

WSIS Project Prizes 2012 - Voting

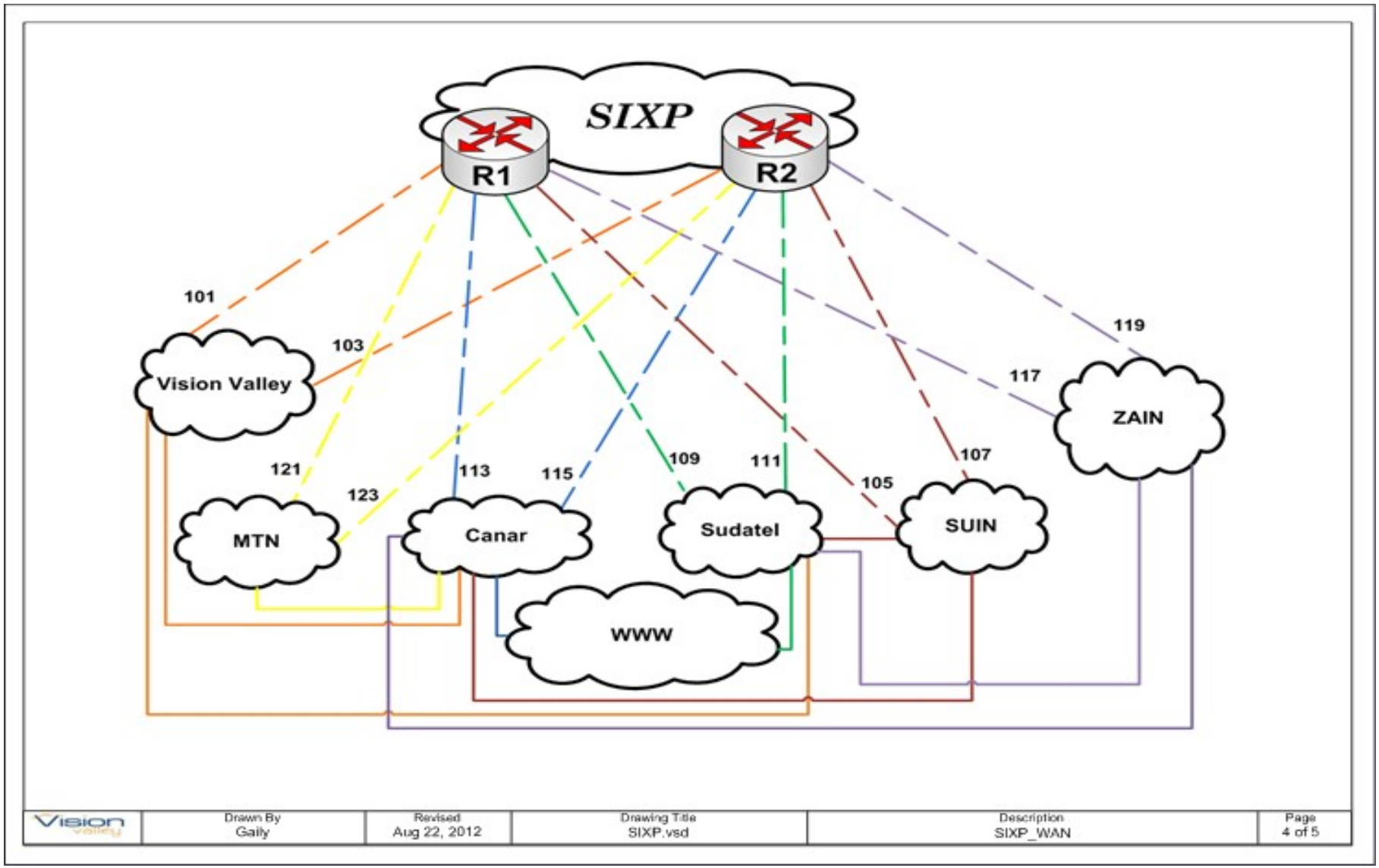


Sudan Internet Exchange Point

Efficient and Reliable
High Speed Internet Connection
Between Internet Services Providers



SIXP network:



Traffic

The Initial bandwidth is 2 Mb for all ISP and its upg

ISP	Bandwidth
Sudatel	20Mbps
Canar	40Mbps
Zain	12Mbps
MTN	8Mbps
SudREN	4Mbps
PCH	2Mbps

SIXP as RIXP

“A regional IXP is an IXP located in a host country, where traffic between at least two other countries is exchanged via public or private peering. ”

RSIXP

Benefits:

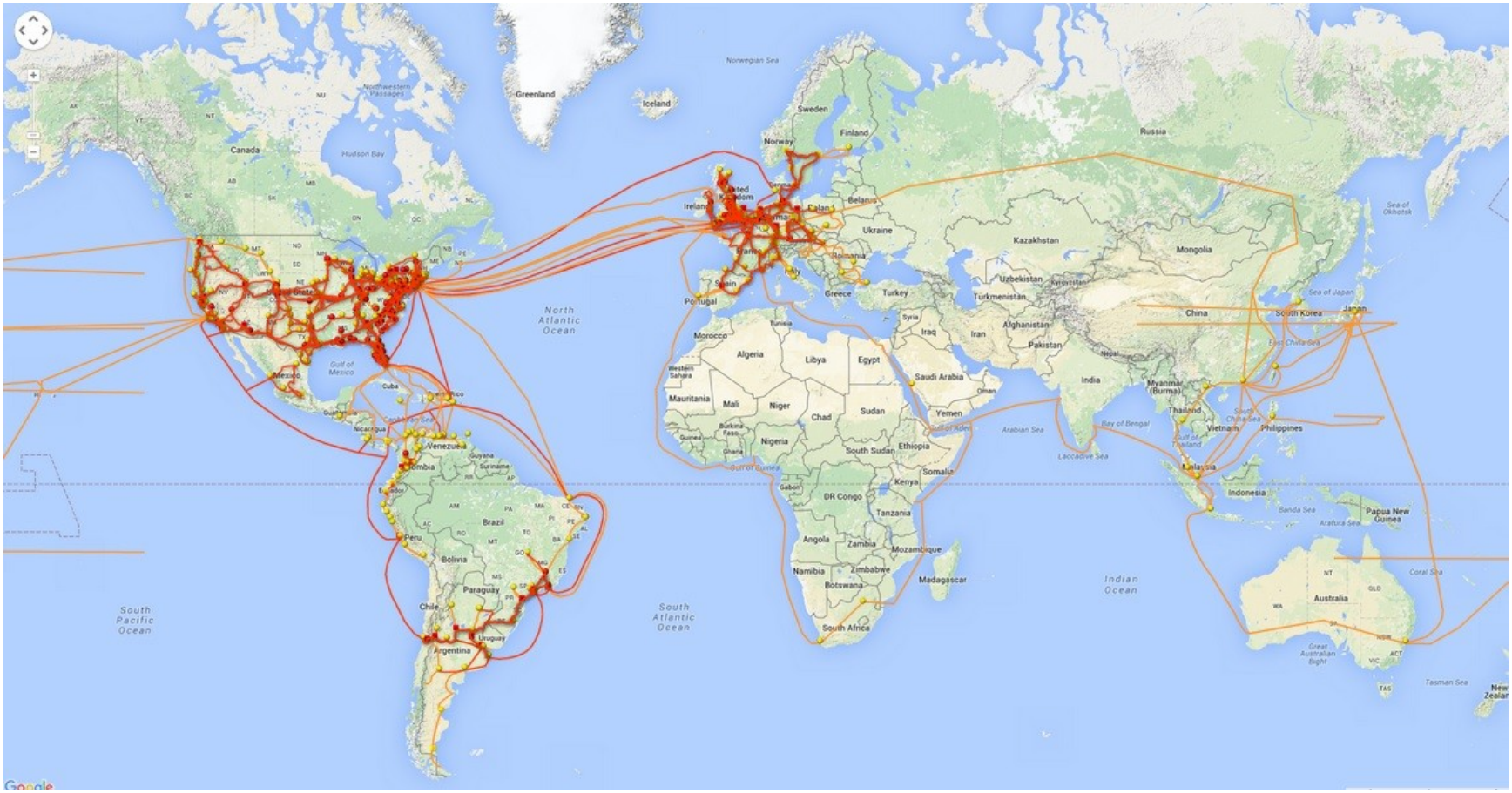
Providing high-speed Internet.

Reliable and flexible to facilitate the exchange of traffic between Internet service both Sudan and foreign entities, allowing them to direct traffic with high efficiency and reliability for more customers access to the Internet and keep traffic moving on local Internet locally in the region.

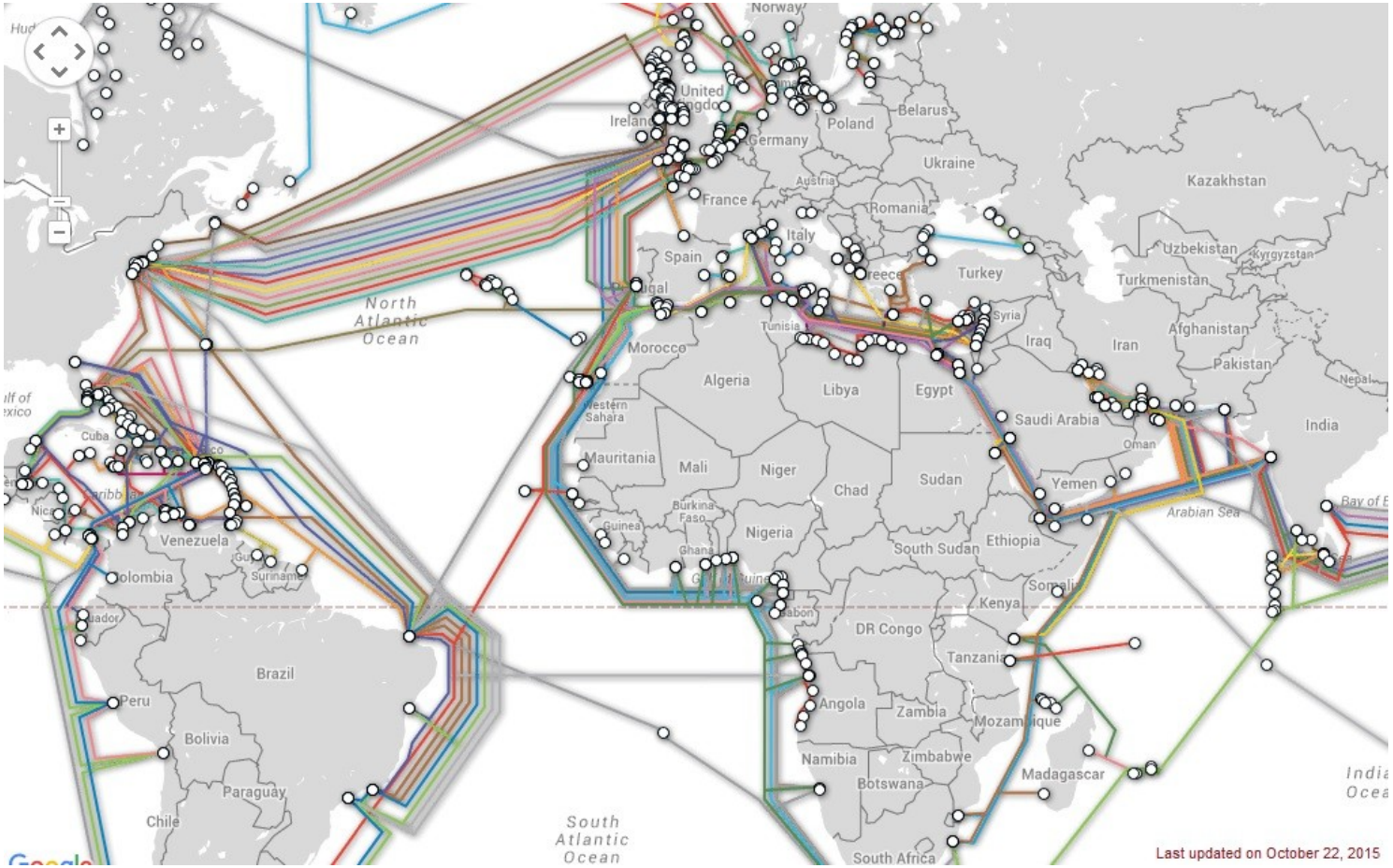
IXPs Map

54 country = 30 IXPs

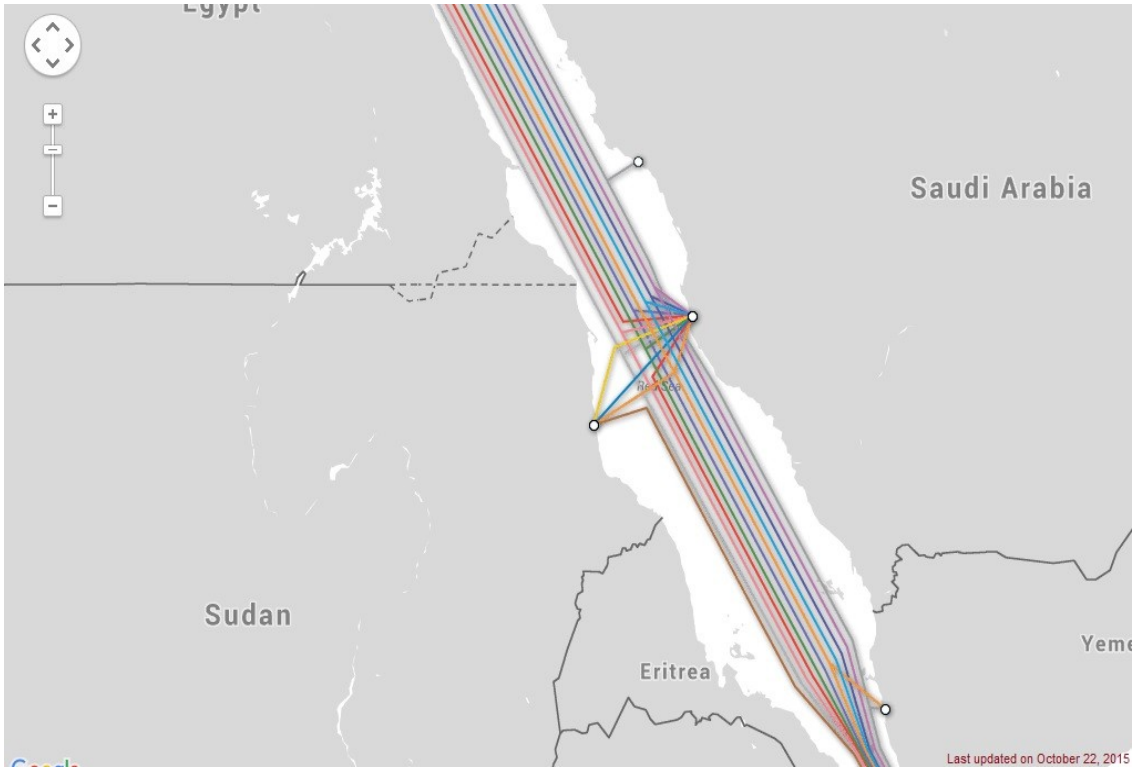
Fiber map


Greenland
Iceland
Norwegian Sea
Sweden
Finland
Norway
Russia
Canada
Hudson Bay
Ireland
Belarus
Ukraine
Kazakhstan
Mongolia
Romania
Uzbekistan
Turkmenistan
Greece
Turkey
Portugal
Spain
Italy
China
South Korea
Japan
Sea of Japan
Sea of Okhotsk
North Atlantic Ocean
Morocco
Algeria
Libya
Egypt
Tunisia
Syria
Iraq
Iran
Afghanistan
Pakistan
India
Nepal
Saudi Arabia
Yemen
Oman
Mauritania
Mali
Niger
Chad
Sudan
Nigeria
Ethiopia
South Sudan
Somalia
Kenya
DR Congo
Tanzania
Angola
Zambia
Mozambique
Namibia
Zimbabwe
Botswana
South Africa
Madagascar
Gulf of Mexico
Mexico
Cuba
Nicaragua
Venezuela
Colombia
Guyana
Suriname
Brazil
Peru
Bolivia
Paraguay
Chile
Argentina
Uruguay
South Pacific Ocean
South Atlantic Ocean
Arabian Sea
Bay of Bengal
Laccadive Sea
Myanmar (Burma)
Thailand
Vietnam
Philippines
Malaysia
Indonesia
Papua New Guinea
Banda Sea
Arafura Sea
Coral Sea
Indian Ocean
Australia
Great Australian Bight
Tasman Sea
New Zealand
Google

Marine Fiber Map



Fiber Portsudan Map



undersea-cable connectivity

SudaTel: (SAS-1 + SAS-2)

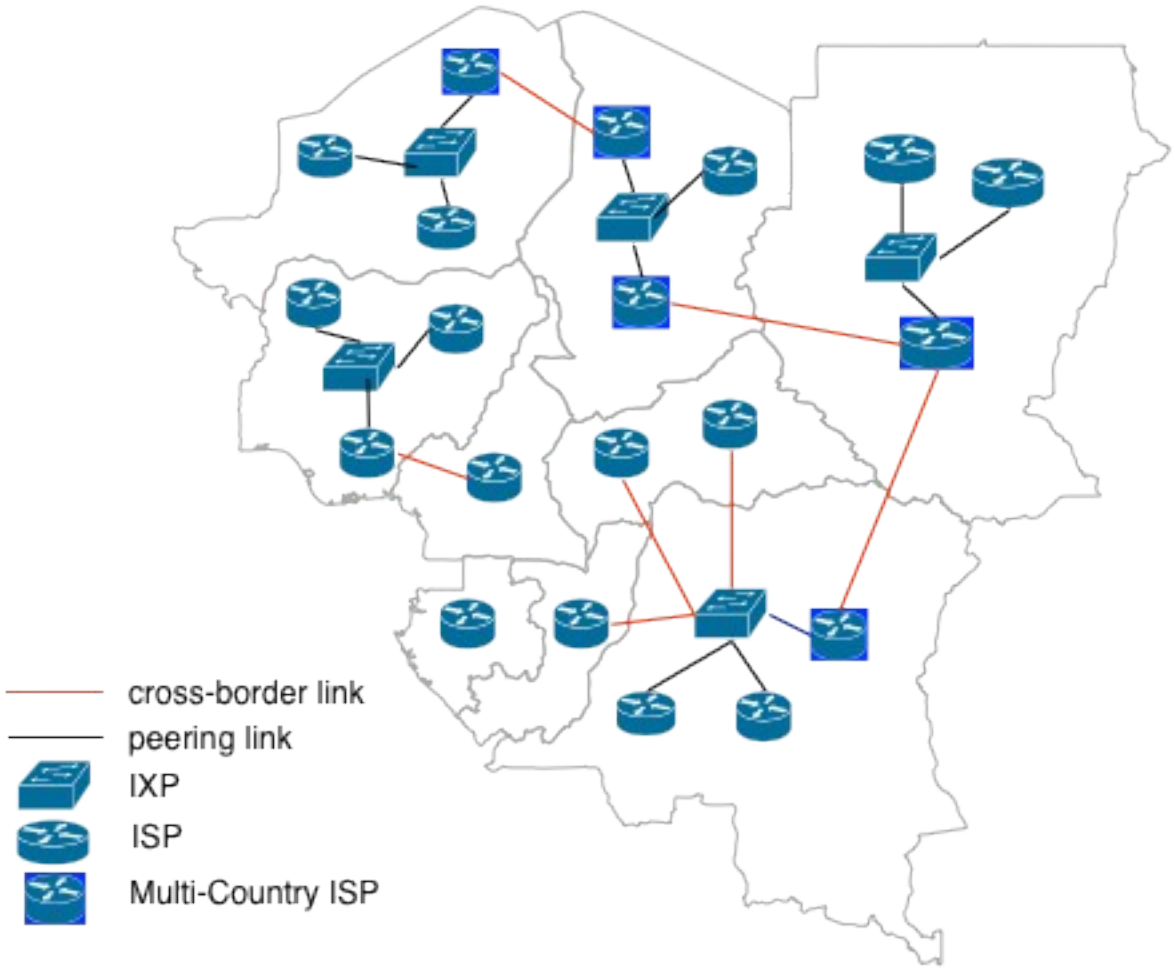
- EASSY (%13)
- (%9)

Sudan Fiber Map

RSIXP


Jordan
Libya
Egypt
Persian Gulf
Riyadh
الرياض
United Arab Emirates
Saudi Arabia
Mecca
مكة
Red Sea
Oman
Sudan
Eritrea
Yemen
Chad
Gulf of Aden
Djibouti
Ethiopia
South Sudan
Central African Republic
Somalia
Uganda
Kenya

SRIXP



More Benefits:

- To keep the e-content and e-services within the region and thus within Africa without having to use an international crossings.
- Allowing high speeds for the exchange of data packets.
- Reduce the cost of using the Internet.
- Improve bandwidth.

Requirements to become a regional IXP

- Staff with practical experience and understanding in the RIXP operations.
- Understanding the business models of large IXP.
- Develop a strategic plan to become a regional IXP.
- Identification of resource requirements to grow and become a regional IXP.
- Develop policy for the implementation of regional IXPs successful.

PHASE II of SIXP (Future plan)

Review the design to include the following:

Connecting with national networks (electricity and oil, health, universities, etc.)

Connecting with National Data Centre, targeting e-services and (.SD, Root Server,) and the level of user applications (e-mail, Timing Server, VoIP services).

Change from local to **regional**, and study the possibility of linking with other IXPs (To be international part of IXPS).

support IPv6.

Launch the SIXP services.

Develop a guide to the requirements of connectivity with the SIXP.

Thanks