THE INTERNET IS FOR EVERYONE

Join us to keep the Internet open, thriving, and benefitting people around the globe.
Our Mission

To promote the open development, evolution, and use of the Internet for the benefit of all people throughout the world.

The Internet Society is for everyone who cares about the Internet
Global Presence.

As of August 3, 2015

- 110 Chapters Worldwide
- 70k+ Members and Supporters
- 145 Organisational Members
- 5 Regional Bureaus
- 20+ Countries where ISOC Staff Reside
Europe 31 Chapters | 13,500 members

Armenia
Belgium
Belgium Wallonia
Bulgaria
Estonia
Finland
France
Georgia

Germany
Hungary
Israel
Italy
Malta
Luxembourg
Montenegro
Netherlands

Norway
Poland
Portugal
Romania
Russia
Serbia Belgrade
Slovenia

Spain Aragon
Spain Catalonia
Spain
Spain Galicia
Sweden
Switzerland
UK England

As of Dec. 2014
Internet Society – Interconnection & Internet exchange points (IXPs)
Infrastructure & Capacity Development
Advancing deployment of core Internet infrastructure

- Promotion of IXP’s in emerging markets:
  - Better quality of service
  - Diminish latency
  - Lower costs
- Best Practices & Technical Assistance Training | Layers
- Provision of Equipment to IXPs through grants
- Follow-on work with IXPs
ISOC: Global IXP & Interconnection/Peering Activities

- ISOC works with partners throughout the world to build IXPs, human capacity, and bottom-up governance of IXPs

- How do we do this:
  - With partners: Euro-IX, Regional IX Associations, RIRs (RIPE-NCC, AfriNIC, APNIC, LACNIC), IXPs, Cisco, Comcast, Google, Alcatel, Microsoft, NSRC, PCH, and other global and regional experts
  - With Grants
    - African Union Grant (AXIS I & II)
    - IXP Toolkit Grant from Google
    - Alcatel and Cisco donations & equipment grants
    - Comcast grant for IXP development and training in Bolivia & Paraguay
Tipping Point | IXP Toolkit Project, AXIS, Grants

- ISOC awarded a grant by Google to extend its Internet exchange point (IXP) activities in emerging markets.
    - Released 25 February 2014 | Rebooting 4th Q2015
  - Create an IXP “Portal”: Access 2 information & experts | [www.ixptoolkit.org](http://www.ixptoolkit.org)
    - Released 25 February 2014 | Rebooting 4th Q2015
    - IXP Videos & Case Studies
  - Partner to Conduct Training and Hold Workshops | Building Capacity
    - Montenegro w/ITU & Partners (Feb 25-27) & Measurement studies in LAC and Africa
IXPs need not be expensive to be effective.

LINX, now one of the largest IXPs in the world, started with 5 members and a donated switch.
IXP Development: Internet Society Expertise

- IXP Toolkit: Online IXP toolkit, training, and equipment

- Over 80 workshops last year in Asia Pacific, E. Europe, Latin America, and Africa

- Sustainable Infrastructure Development and Capacity Development
  - Work with local communities to develop IXPs
    - Local Champion | Start-up Analogy
    - Neutral Management & Neutral Location
  - Work with local partners
  - Build local technical capacity (e.g., network operators, universities)
IXPs in Context

- Part of an Ecosystem | Not a solution on their own
- Help Build Regional Synergies
- Build local and regional Internet technical capacity (human and networked)
  - BGP
  - IPv6
  - Time-servers and other value-added services
  - Lead to data centre development
  - Attract and develop local content and international content networks
  - High-tech solutions | Energy efficiency
  - University Projects
Public/Private Collaboration Mechanisms

- Identify Countries/Communities Interested
- Work with a local champion(s)
- Outline Project & Identify Resources and Plan
  - Work with local communities to develop Project
    - Start-up, Scale, Sustain
    - Neutral Management & Neutral Location
  - Equipment and Training | Work with regional & global experts
    - APNIC, NOGs, ISOC – AIS/INETs, Local Chapters, IXPs
  - Build local technical capacity (e.g., network operators, universities)
  - Follow-on work
IXP Work in Asia Case-Study | Thailand

2013

• Dr. Kanchana “Internet Hall of Fame” Induction & IXP Idea
• Discussions with Networking Experts & Existing IXPs

2014

• Start-up Discussion | Equipment Procurement Discussions
• Training, Equipment Installation, Cabling, Re-vise Plan
• IXP Launch | More training | Sustained Community Discussions
IXP Work in Asia & Central Asia | 2013-2014 & 2015

2008-Current: NOGs, INETs, Training, W4C – Check our APAC Team Newsletter

2014

• Workshop in Papua New Guinea (w/PNG Regulator & NSRC)

• Equipment to support new IXP in Thailand

2015

• IXP Launch in Bangkok! New IXP – BKNIX (ISO cert data-centre)

• Discussions with Papua New Guinea, The Philippines, Pakistan.

• Vanuatu – APNIC Coordination – Generators (NSRC, ISOC, others)
IXP Work in Europe & CIS | 2014 & 2015

2014

• IXP Workshops in Georgia & Montenegro
• Equipment sent to IXP in Armenia
• Supported RIPE SEE & CEE Peering Forum
• Central Asian Internet Symposium December 2014

2015

• IXP Workshop in Montenegro (February 23-27) | ITU, RIPE-NCC, France-IX, NIX.CZ, INEX, Cisco, ICANN
  • Equipment to be sent to Montenegro – Q4 2015
• Support of CEE Peering Forum & RIPE SEE
• Study with Partners in Kyrgyzstan re Infrastructure Development | Q4 2015
Need for Standing Collaboration Mechanisms

- Partnerships broaden expertise – short-circuit barriers
  - Amplify lessons-learned

- Document Progress

- Scale | Small Projects – Great Impact
  - Local Context Critical – Each country is different
  - Ecosystem – like network itself – layers of implementation | Build

- Existing Best Practices Efforts | ITU, IGF, Euro-IX, ISOC | Augment

- Review Projects | Improve
Role of Governments & Removing Barriers

**Government**

- Critical Work on Network Development & Affordability
- Local Content Development
- Local/National Government Networks Peering at IXP | Universal Service Fund Support to IXPs
- Task-Force or High-level Team | Establish Framework & High-level objectives

**Removing Barriers**

- Liberalize regulatory regimes | Reduce Bureaucracy & Costs of Rights of Way
- Submarine cable backhaul & Cross-border connectivity
- Infrastructure Sharing | Joint infrastructure Projects
- Taxes & Customs Duties
- Policies that do not distort markets
- Publish Data
Resources

• ISOC APAC Newsletter | http://ow.ly/RFdQe

• ASEAN Study | “Unleashing the Potential of the Internet for Asean Economies”

• LAC IXP Study | “Connectivity In Latin America and the Caribbean: The Role of Internet
  Exchange Points  http://ow.ly/Jiw8s

• Bolivia IXP Study | “Do Internet Exchange Points Really Matter? Evidence from Bolivia”
  http://ow.ly/Jiw5X

• IXP Toolkit | http://www.internetsociety.org/ixptoolkitguide

• Africa IXP Study | “Assessment of the Impact of Internet Exchange Points (IXPs) – Empirical
  Study of Kenya and Nigeria  http://www.internetsociety.org/ixpimpact

• Lifting Barriers to Internet Development in Africa | Suggestions for Improving Connectivity
  http://ow.ly/Jiwhx

• Rwanda Content Study | “Promoting Local Content Hosting to Develop the Internet
  Ecosystem”  http://ow.ly/JiwAE

• Global Internet Report 2015 | http://www.internetsociety.org/globalinternetreport/
Thank you for your attention

Questions!

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2 September 2015
UN ESCAP
Working Group on the Asia-Pacific Information Superhighway
Incheon, Korea | Song Do Convensia
Examples of ISOC IXP & Capacity Building Efforts in Other Regions

- Latin America & the Caribbean
- Middle East
- Africa

See Following Slides!
IXP Work in Latin America & The Caribbean | 2013-2014

• 12 IXP Workshops | Best Practices, Technical Assistance, Community Building in LAC

• 6 IXPs Launched | Argentina (2), Bolivia, Costa Rica, Honduras, Mexico.

• 6 IXPs “Leveled-up” via equipment donations in LAC | Argentina, Ecuador, El Salvador, Grenada & Panama.

• 11+ Case Studies | Contracted Regional Experts in LAC to Develop Case-studies in South America and the Caribbean

• Fellowships for training events & IXP equipment donations

• LAC IXP Study (Nov 2013): Argentina, Brazil, Colombia & Ecuador

• Bolivia IXP Measurement Study started (2014) & Expanding Activities to Paraguay and Central America (Raspberry Pi deployment)
IXP Work in Latin America & The Caribbean | 2015

- Additional workshops planned with LACNIC, PCH and local partners
- Equipment sent to Paraguay & Mexico (Cisco donation)
- Funding received from Comcast for additional work in Paraguay & Bolivia
  - Team will continue baseline measurement studies in Bolivia & Paraguay and likely 3 additional countries in LAC
  - Data here on data collection efforts to date in Bolivia: [http://cnet.fi.uba.ar/PIT/](http://cnet.fi.uba.ar/PIT/)
  - Data here on LACNIC/LACNOG/ISOC: [http://ite.lacnog.org/](http://ite.lacnog.org/)
- 11+ Case Studies | Contracted Regional Experts in LAC to Develop Case-studies in South America and the Caribbean | April/May 2015 on rebooted IXP Toolkit site & Case-studies
- LAC IXP Study (Nov 2013): Argentina, Brazil, Colombia, & Ecuador:
- Caribbean study (April 2015): 11 Caribbean Countries | IXP analyses included
- Caribbean Peering Forum | May 2015 (Barbados)
- LACNOG - LAC Peering Forum | October 2015 (Bogota, Colombia)
2014

• Equipment provided to TUNIXP (July 2014)
• ME IXP Workshop in Tunisia (Nov. 2014)
• Support to MENOG
• Arab IGF

2015

• Support to MEDNSF (Mar. 2015)
• Support to MENOG (Mar. – Apr. 2015)
• Support to BIX & PIX (PIX Launching today – Palestine)
• New Bureau Director to be hired for ME - 2015
IXP Work in Africa | 2013-2014 & 2015

2013-2014

• 60 Workshops | Best Practices & Technical Assistance workshops (African Union AXIS Project)

• Equipment sent to DRC-Kinshasa, Egypt, Ghana, Malawi, Tunisia

2015

• Leveling-up assistance to five (5) IXPs | Equipment & Training

• Networking workshops for Mozambique, Nigeria & Zambia

• African Peering & Interconnection Forum | 25-27 August 2015 (Maputo, Mozambique)

• Support to NOGs

• Measurement study being planned working with Spanish university & coders from Benin | Encourage data to be published on IX web-sites