



Role of Internet Exchange Points and Interconnection

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Our Mission

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



Global Presence



NORTH AMERICA

EUROPE

THE MIDDLE EAST

AFRICA

ASIA

SOUTH AMERICA

108

Chapters
Worldwide

70,000

Members and
Supporters

135

Organization
Members

6

Regional
Bureaus

18

Countries with
ISOC Presence

ISOC: IXP & Interconnection Activities

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

- **With partners:**

- ❖ Euro-IX, RIRs (RIPE-NCC, AfriNIC, APNIC, LACNIC), IXPs, Cisco, Comcast, Google, Alcatel, Microsoft, NSRC, PCH, and other global and regional experts

- **Through Grants:**

- ❖ IXP Toolkit Grant from Google
- ❖ Alcatel and Cisco donations & equipment grants
- ❖ Comcast and Microsoft grants for IXP development and training

ISOC: 2014 Highlights

- **ISOC awarded a grant by Google to extend its Internet exchange point (IXP) activities in emerging markets.**
- **Create an IXP Portal:**
 - ❖ Access to information & experts | www.ixptoolkit.org
 - ❖ Released 25 February 2014 | Rebooting 2ndQ2015
 - ❖ IXP Videos
- **Create an IXP Toolkit:**
 - ❖ A study and Methodology to Identify Best Practices | www.internetsociety.org/ixptoolkitguide/
 - ❖ Released 25 February 2014 | Rebooting 2ndQ2015

2014 by Numbers:

- 10 new IXPs with ISOC involvement
- 18 IXPs “leveled up” with ISOC involvement
- 34 IXP workshops organised by ISOC

IXP Work in Europe | 2014 & 2015

2014

- IXP Workshops in Georgia & Montenegro
- Equipment sent to IXP in Armenia
- Support to scale up Romania (RONIX)
- Supported CEE Peering Forum, RIPE SEE & ENOGs



2015

- IXP Workshop in Montenegro (February 23-27) | RIPE-NCC, France-IX, NIX.CZ, INEX, Cisco, ICANN
- Equipment to be sent to Montenegro
- Support of CEE Peering Forum, RIPE SEE & ENOGs
- Study in progress on Internet Infrastructure/IXP potential & access/connectivity overview in Kyrgyzstan (September)

Georgia: IXP Workshop (2014)

- **Workshop partners:** GNCC, RIPE NCC and EUR-IX.
- **Attendees:** Main telecoms operators, ISPs, data center providers, GRENA.
- Summary of **issues raised:**
 - IXP and competition in telecoms market;
 - Private peering vs. public peering;
 - IXP neutrality: who and where;
 - Value add of IXPs;
 - Role of government in IXP development.



The screenshot shows the Internet Society website's 'IXP Workshops' page. The page features the Internet Society logo at the top left and a navigation menu with 'Events' highlighted. The main content area includes a breadcrumb trail 'Home » Events » Workshops » IXP Workshops', the title 'IXP Workshops', and a large graphic with the Internet Society logo and 'IXP Workshop' text. Below this, there is a paragraph explaining the organization's mission to foster robust, efficient, and cost-effective interconnection and traffic exchange environments. Another paragraph mentions their focus on supporting this effort in developing countries in Africa and Latin America. A section titled 'Join us at our next workshop:' lists 'IXP Workshop - Belgrade, Serbia, December 4-5'. At the bottom, there is a link for more details on their work on Internet Exchange Points (IXPs).



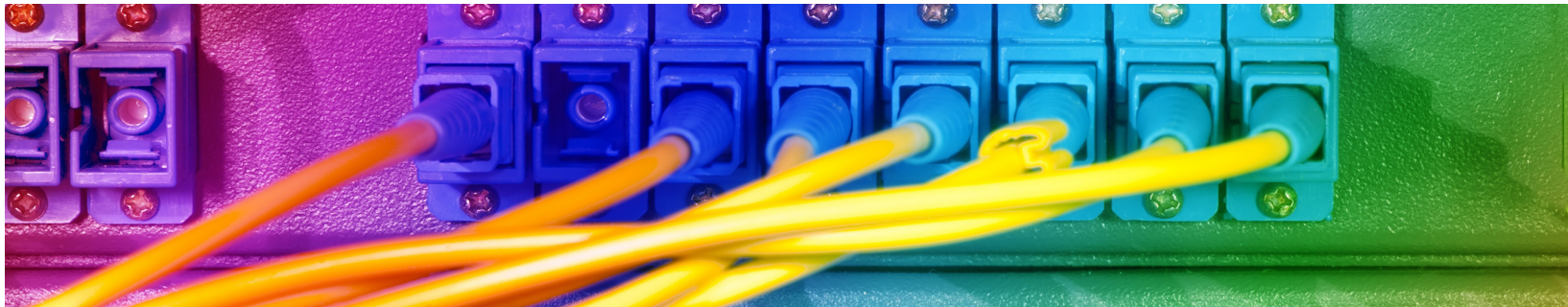
Barriers to Internet Availability and Adoption

Supply-side (availability)

- Why are costs too high?
- Investment roadblocks:
 - ❖ Regulations
 - ❖ Rights-of-way access
 - ❖ Taxation

Demand-side (adoption)

- Why is interest too low?
- Locally relevant content:
 - ❖ Language
 - ❖ Location
 - ❖ Support



Role of Internet Exchange Points (IXPs)

Internet Exchange Points (IXPs) are now well recognised as a **vital part of the Internet ecosystem** and essential for facilitating a robust domestic ICT sector*.

A primary role of an IXP is to:

- Keep local Internet traffic within local infrastructure and to **reduce costs** associated with traffic exchange between networks.
- **Improve the quality of Internet services** and **drive demand** by reducing delay and improving end-user experience.
- Create a favorable environment for **local Internet infrastructure and service development** e.g. local content and shared services.
- Act as a **catalyst** for overall Internet development through knowledge sharing and capacity building.

* See for example, the OECD's recent report on Internet Traffic Exchange:
http://www.oecd-ilibrary.org/science-and-technology/internet-trafficexchange_5k918gpt130q-en

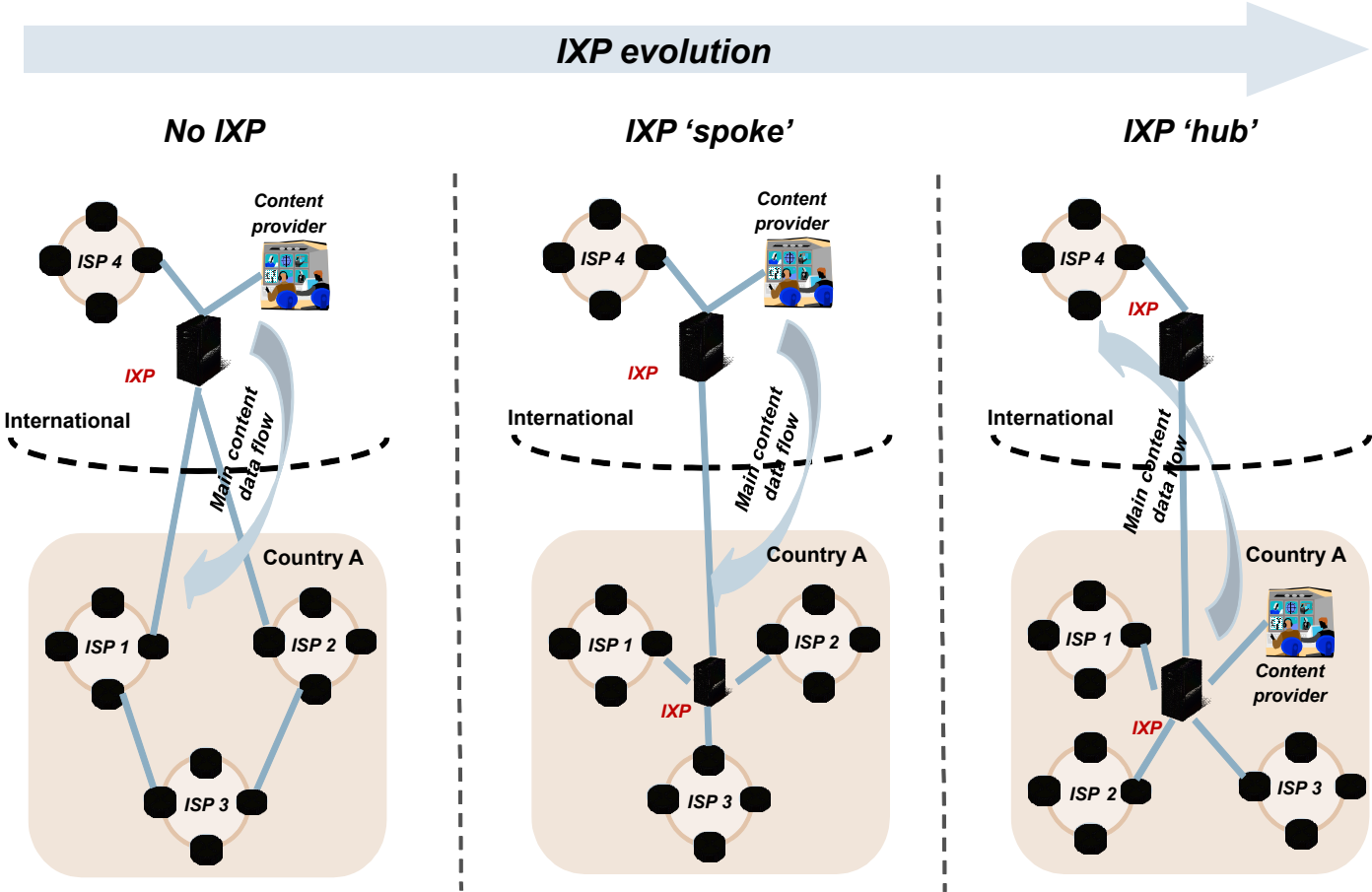
IXPs around the World



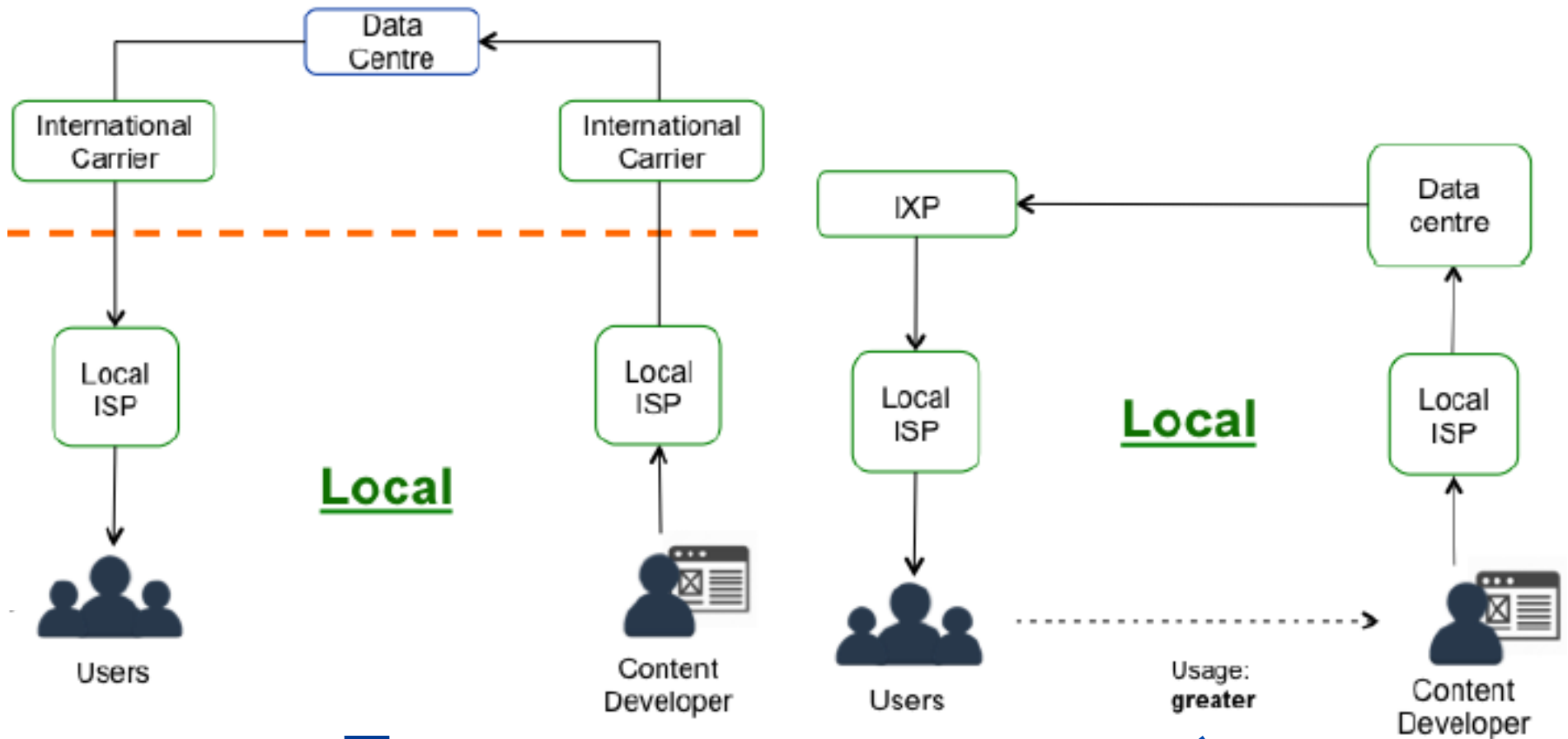
Source: TeleGeography World IX Map, <http://www.internetexchangemap.com/>



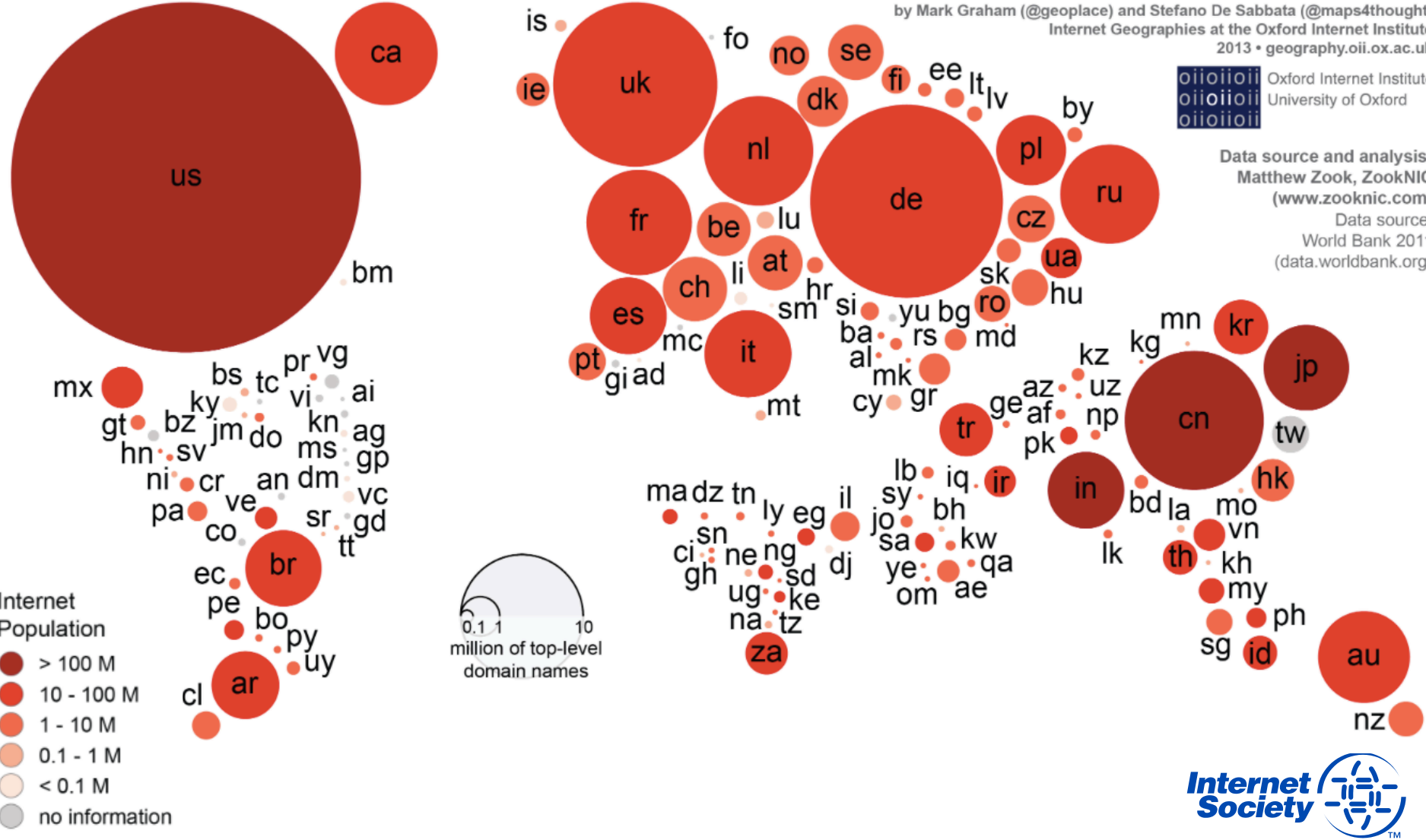
IXP and Local Internet Eco-system



Local Internet Eco-system and IXP



Geography of Top Level Domain Names



Conclusion

- **As mobile networks leap-frog fixed ones in developing countries, availability is outpacing adoption**
- **The cost of service is clearly still an issue**
 - ❖ Roadblocks may hinder private infrastructure investment
 - ❖ Local IXP critical to lower cost of traffic exchange and attract content
- **While the Internet allows for access to global Internet, the availability of locally relevant content is critical**
 - ❖ Content hosted abroad significantly increases costs
 - ❖ Hosting content locally lowers latency and cost

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Get Involved

There are so many ways to support the Internet. Explore how you can make an impact.

- Become a Member
- Join a Chapter
- Attend an Event



**This is your Internet.
Join it!**

www.internetsociety.org

For any questions, please contact me at: palovirta@isoc.org

