A review of the Internet Society study: Promoting Local Content Hosting to Develop the Internet Ecosystem

a report by Michael Kende and Karen Rose

LIRNEasia
Pro-poor. Pro-market.

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Canada

Locally relevant content leads to increased use of the Internet

But, it needs to be accessible quickly and cheaply

In recent times,

- More attention has been given to create locally relevant content
- Less attention on the supporting infrastructure

Content providers lack incentive to host locally

- Cheaper to host overseas (US / EU)
- The Internet makes “virtual” a reality (content does not HAVE to be hosted in close proximity to its users)

However,

- Access becomes costly (E.g. Int’l BW costs passed on to users)
- Latency is higher

impacts

Adoption / use

Similar to the case of Europe pre-liberalisation

- Historically content was hosted in the US
- Before telecom markets were liberalised, hosting services within the EU was expensive
- Traffic was routed via the US

As traffic and locally relevant content increased;

- IXPs emerged (reduced latency & cost), becoming large hubs → content was hosted closer to the hubs

Similar impacts have been observed in Kenya with the introduction of KIXP and access to Google Global Cache

Case Study: Rwanda

- Internet ecosystem within an enabling environment
- Framework of study
  - Legal/Policy: Commercial activities are dependent on the institutional framework in which they operate.
  - Economic/ Business: Prices play a key role in driving economic decisions.
  - Technical/Skills: The technical dimension describes the quality of services in the hosting environment, which may also have an impact on where the content is hosted.
- Method of study: Key stakeholder interviews and questionnaire

Legal/ Policy Dimension

- Vision: Knowledge based economy by 2020
- National ICT Plan (NICI - 2015) was introduced in 2011 and is specifically aimed at increasing access to and uptake of Internet services across the country
- Universal Access Fund (UAF), specifically aimed at facilitating access to telecoms services in rural areas
  - Additional tax on telecoms operators
  - Subsidize Internet services
  - Subsidies of mobile handsets
  - Government separately contributes to a “One Laptop per Child” project.

Economic Dimension

In Rwanda there is a large negative externality associated with overseas hosting of local content

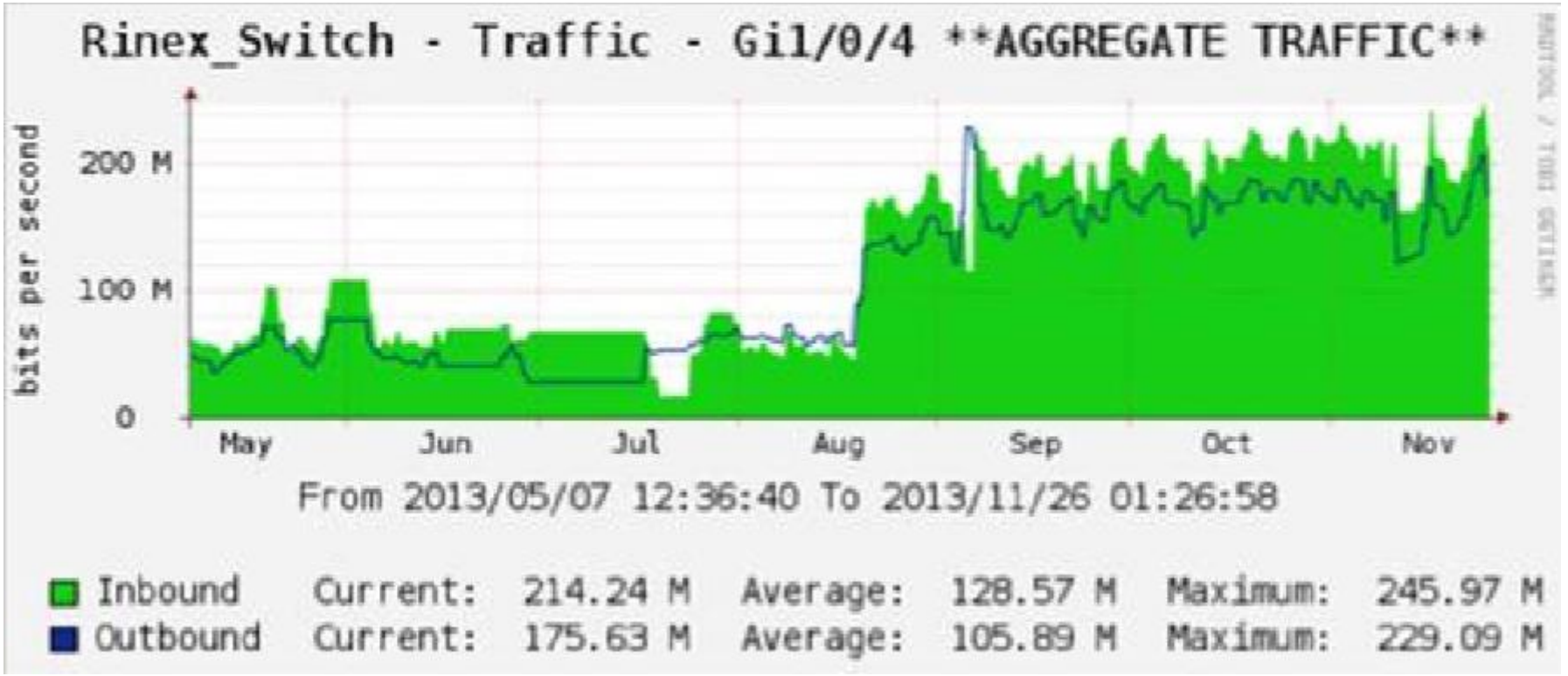
	LOCAL HOSTING	OVERSEAS HOSTING
Hosting Costs (Size of website: 8 GB)	USD 261 (annual)	USD 149.99 (annual)
Cost of importing traffic (9 Mbps)	-	USD 13,500 (annual)
Average Latency	10 ms	350 ms

- Passed on to ISPs and finally to end-users, for an annual saving of USD 111

Technical Dimension

- According to the authors of the study, Rwanda cannot directly benefit from the international submarine cables that landed on the East Coast of Africa
  - Rwandan Internet Exchange Point (RINEX) was established in 2004
    - ISPs in Rwanda
    - Access to Google Global Cache (GGC content), along with all government content.
    - Access to a local instance of an Internet Domain Name System (DNS) root server (i-root-servers.net)
  - Government purchased international bandwidth from telecom operators in neighboring countries

Invention: Google's Global Cache & Akamai's local cache cluster in Rwanda



GGC, containing largely YouTube videos was made available to all ISPs connected to RINEX in July/August 2013

Recommendations by Authors

- General: Conduct multi-stakeholder local content forums to raise awareness
- Economic / Business: Further tailoring and marketing of hosting products and services by local data centers to more closely match the needs of the Rwandan content market
- Technical / Skills: Development of partnerships with government or industry bodies to ensure training for data-centre employees
- Policy / Legal: Continuing to ensure legal and policy clarity