INTERNET EXCHANGE POINTS:

PANACEA TO INTERNET DEVELOPMENT IN GHANA?
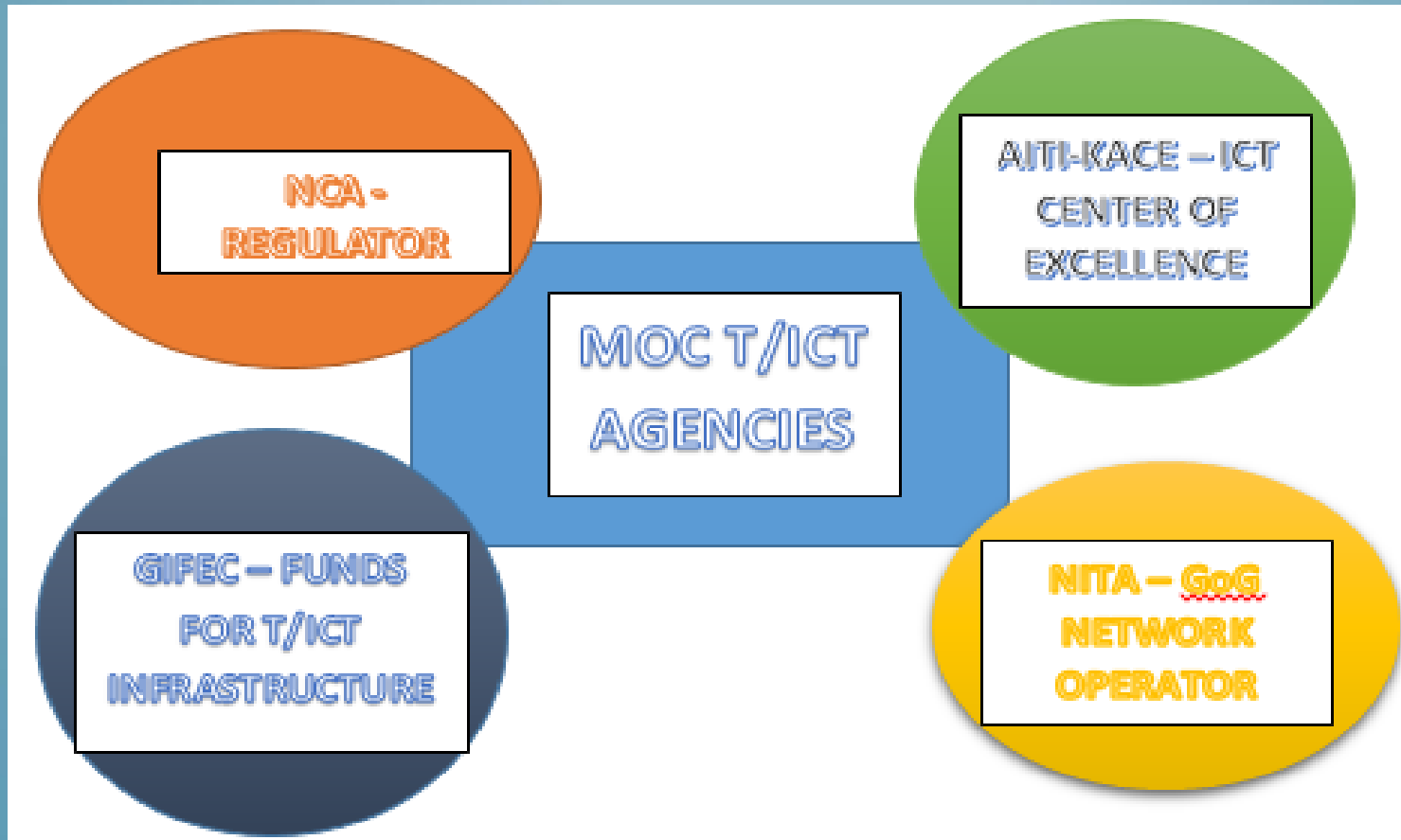
BY

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OUTLINE

❖ Introduction

❖ Ghana T/ICT Sector

❖ Internet Scene and Players in Ghana

❖ GIX and Architecture

❖ Research Objectives

❖ Literature Review

❖ Results and Analysis

❖ Conclusion and Recommendations

THE GHANA T/ICT SECTOR

(MoC): to facilitates the development of communications infrastructure and services.

Agencies that oversee specific activities in communications

GHANA INTERNET PLAYERS

THE GHANA INTERNET EXCHANGE

The Ghana Internet eXchange is a centralized facility where most ISPs, MNOs, undersea cable operators and Network operators in Ghana connect to easily exchange traffic, whilst improving connectivity and services for their customers.

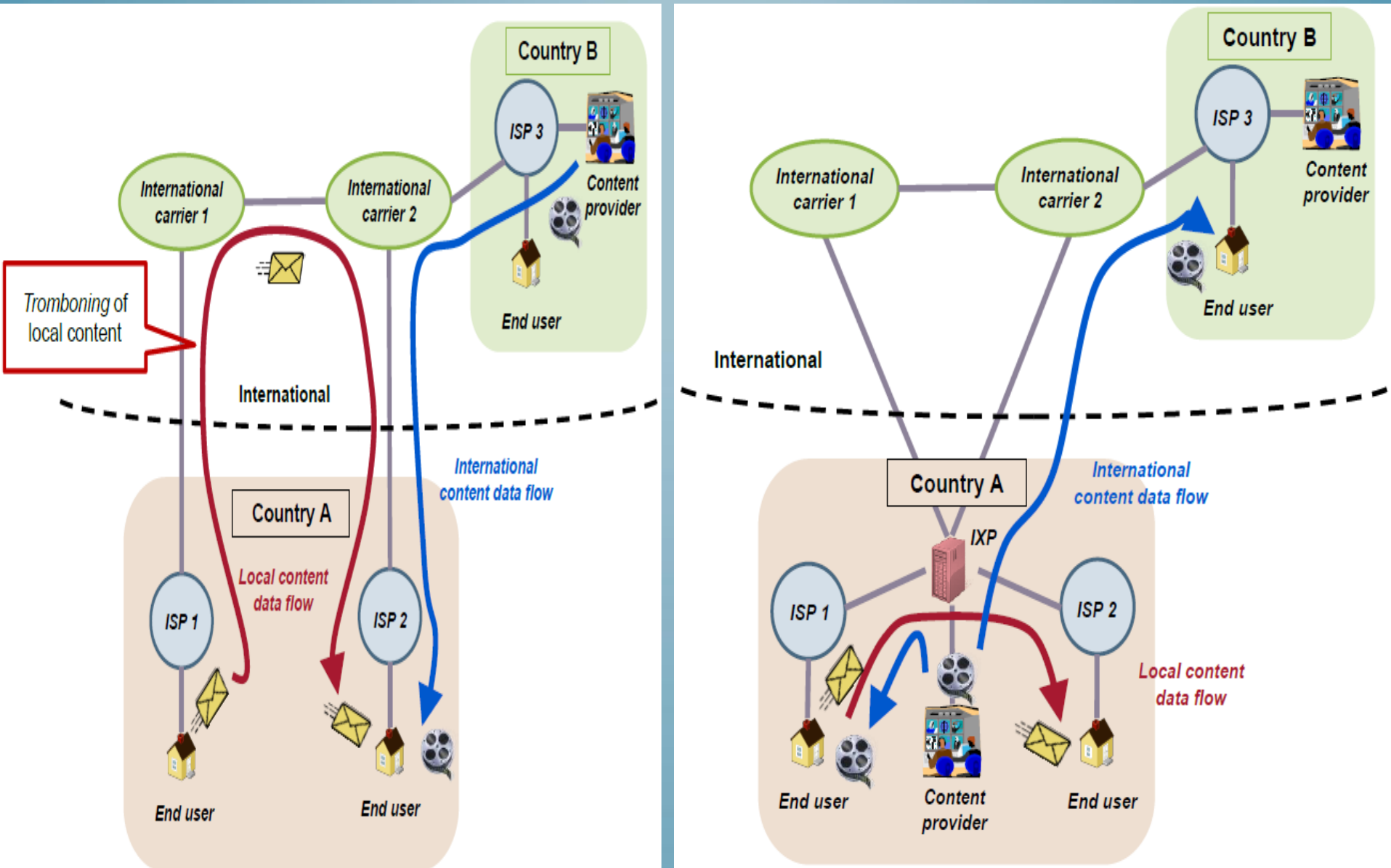Ghana Exchanges: AIX - AfNOG & GIX – GISPA, all non-profit

Assessment of IXPs in Ghana:

A study conducted to reviewed how local IXPs have fully developed and been utilized in some countries and assessed the status of the Ghana IXP, and made some observations about its activities.

GIX ARCHITECTURE
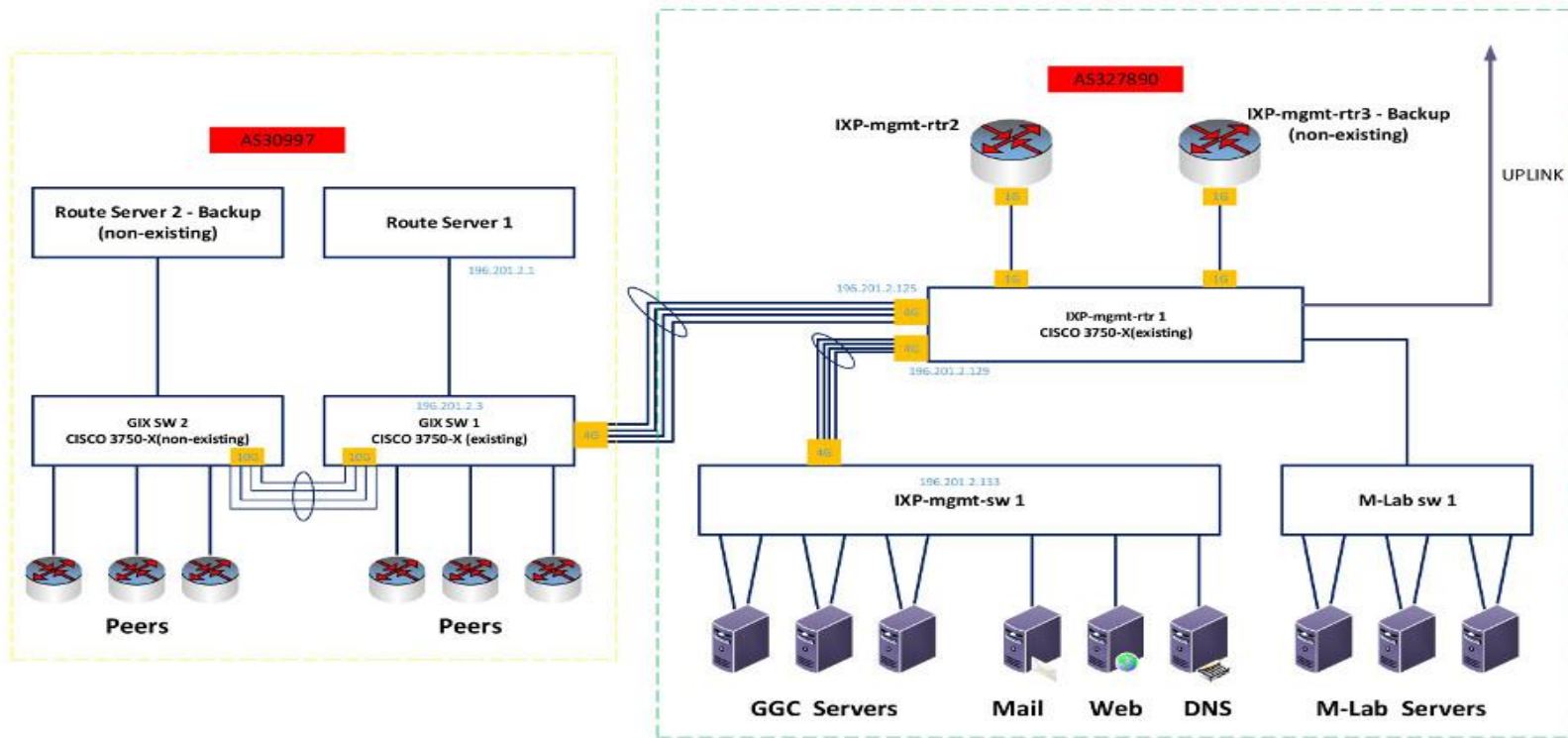
HOW IXPs WORK

OBJECTIVES FOR THE IXPS ASSESSMENT

❖ To investigate whether all the internet players interconnect with the GIX and the extent to which the GIX peers with other IXPs in Africa.

❖ To quantify the local traffic that goes to the GIX and International.

❖ To assess the GIX's management and it's improvement on the quality and cost of Internet access in Ghana.

❖ To evaluate regulations and policies that support IXPs development, usage and creation in Ghana.

GIX INTERCONNECTION AND MEMBERSHIP

Local Internet providers and other African IXPs interconnection with the GIX
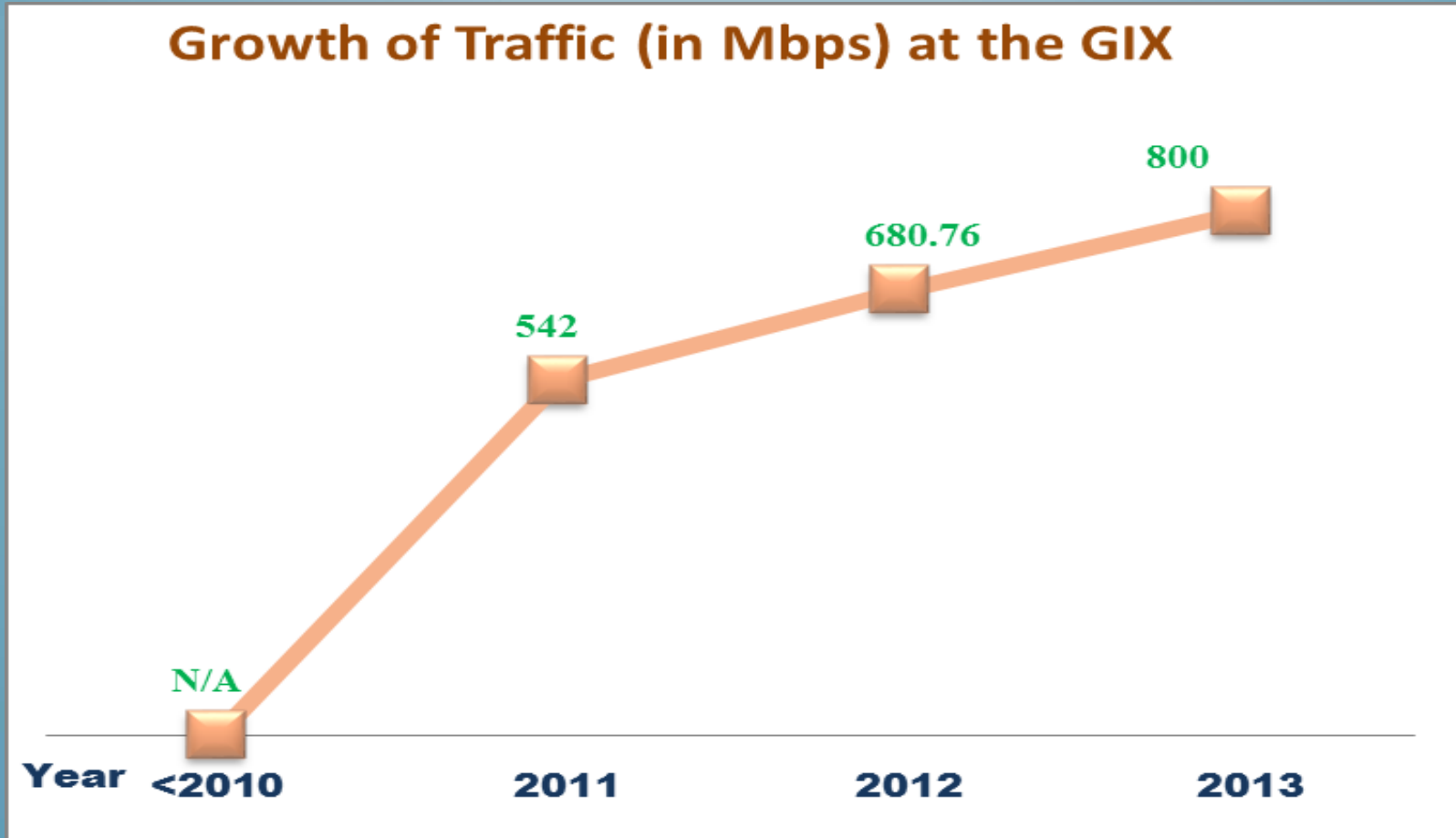

No. of Internet Providers connected to the GIX

- ISPs
- Telco's
- Government Agencies
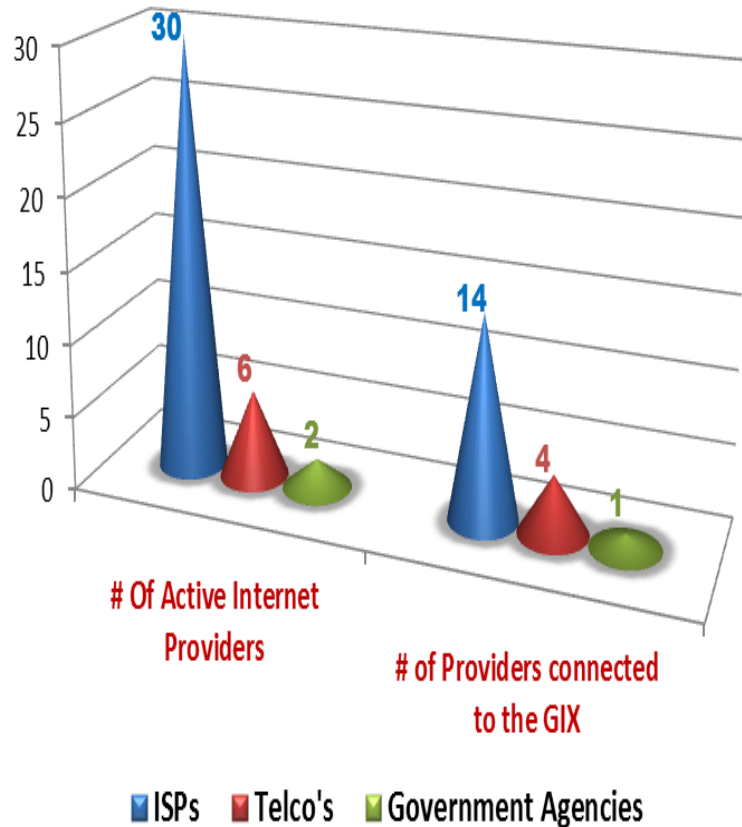
Individual Knowledge & Awareness, and their organiszations interconnection to the GIX

- YES
- NO
- NO IDEA
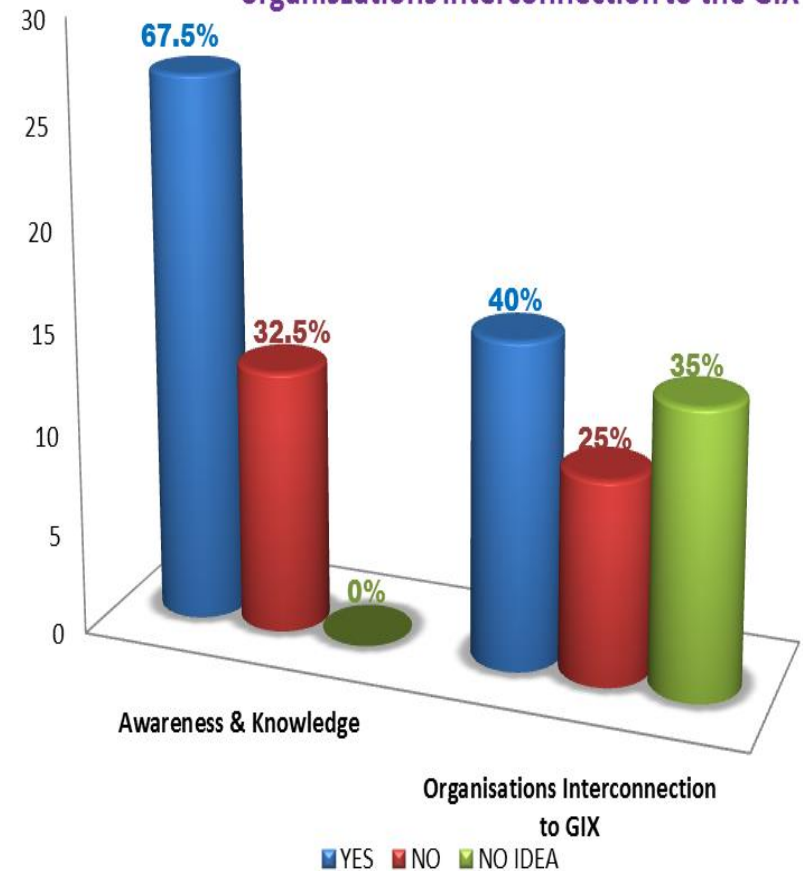
(b). There is a formal peering agreement between the Ghana exchange (GIX) and Nigeria exchange (NIX) through the MainOne infrastructure which will soon be implemented
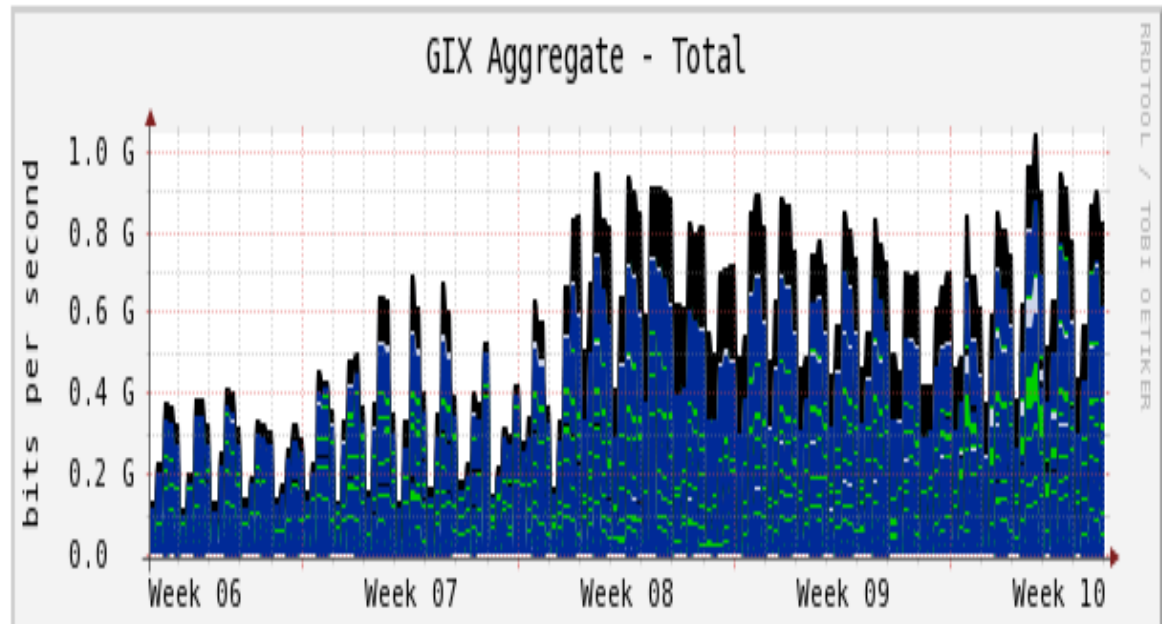
Volume of local Internet traffic that goes to the GIX and Outside Ghana

Growth of Traffic (in Mbps) at the GIX

Year	<2010	2011	2012	2013
Traffic	N/A	542	680.76	800

Cont.' RESULTS AND ANALYSIS

Aggregated traffic from the GIX from January – March 2016

[Source: http://www.gixa.org.gh/technical/statistics/] , 2016

Cont.' RESULTS AND ANALYSIS

ISP A Local and
International
Internet Traffic
(Jan-March, 2016)

From 2016/03/10 00:00:00 To 2016/03/11 00:00:00
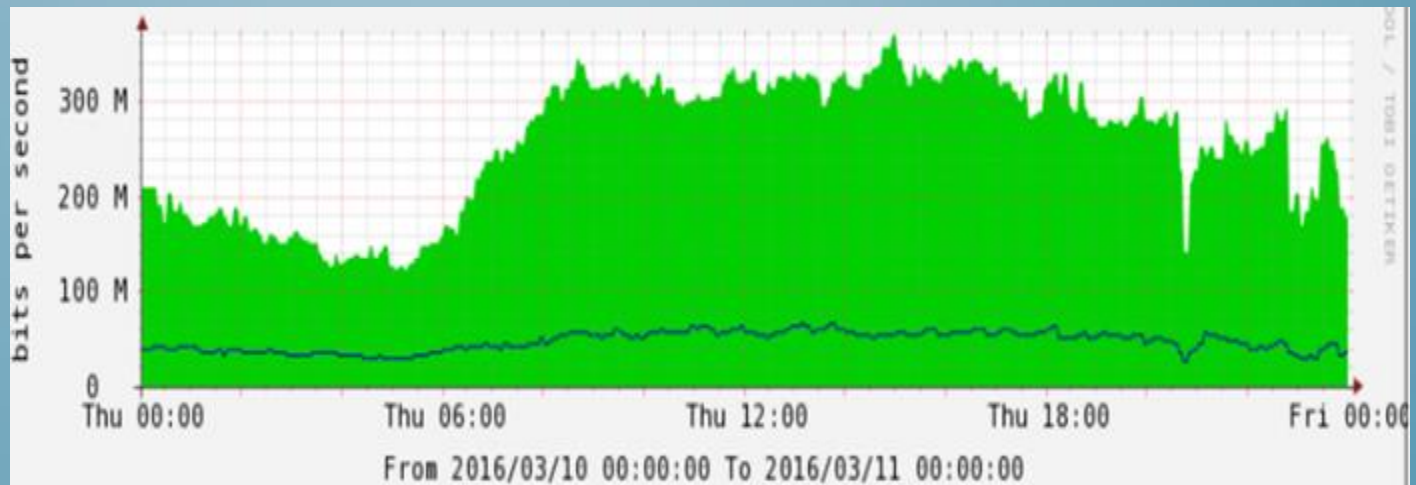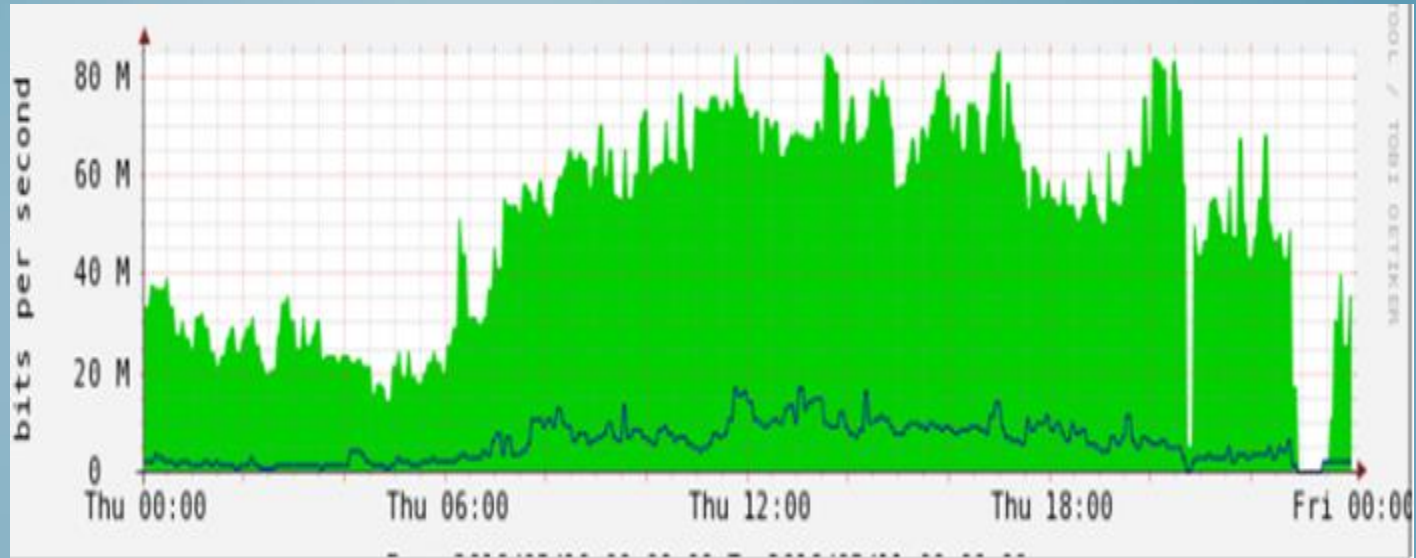
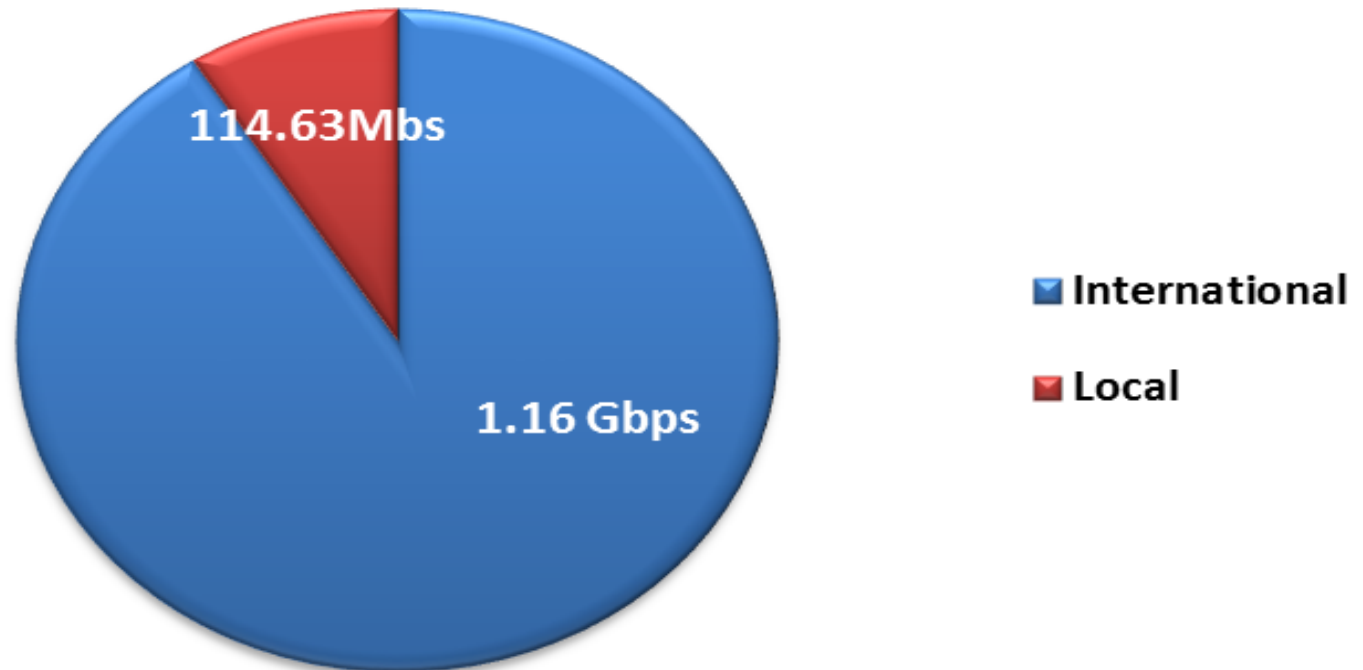|					
■ Inbound	Current: 175.90 M	Average: 254.89 M	Maximum: 366.89 M	Total In: 2.76 TB
■ Outbound	Current: 37.25 M	Average: 48.42 M	Maximum: 66.54 M	Total Out: 525.09 GB

Created using CactiEZ

Cont.' RESULTS AND ANALYSIS

Estimated Average Internet Traffic of Providers as at Q2 2013

114.63Mbs

1.16 Gbps

- International
- Local

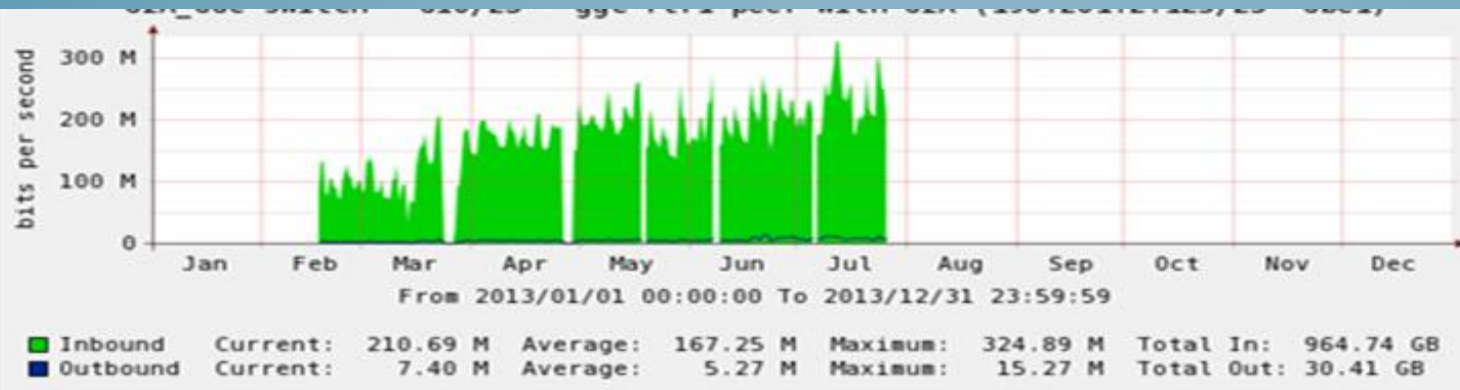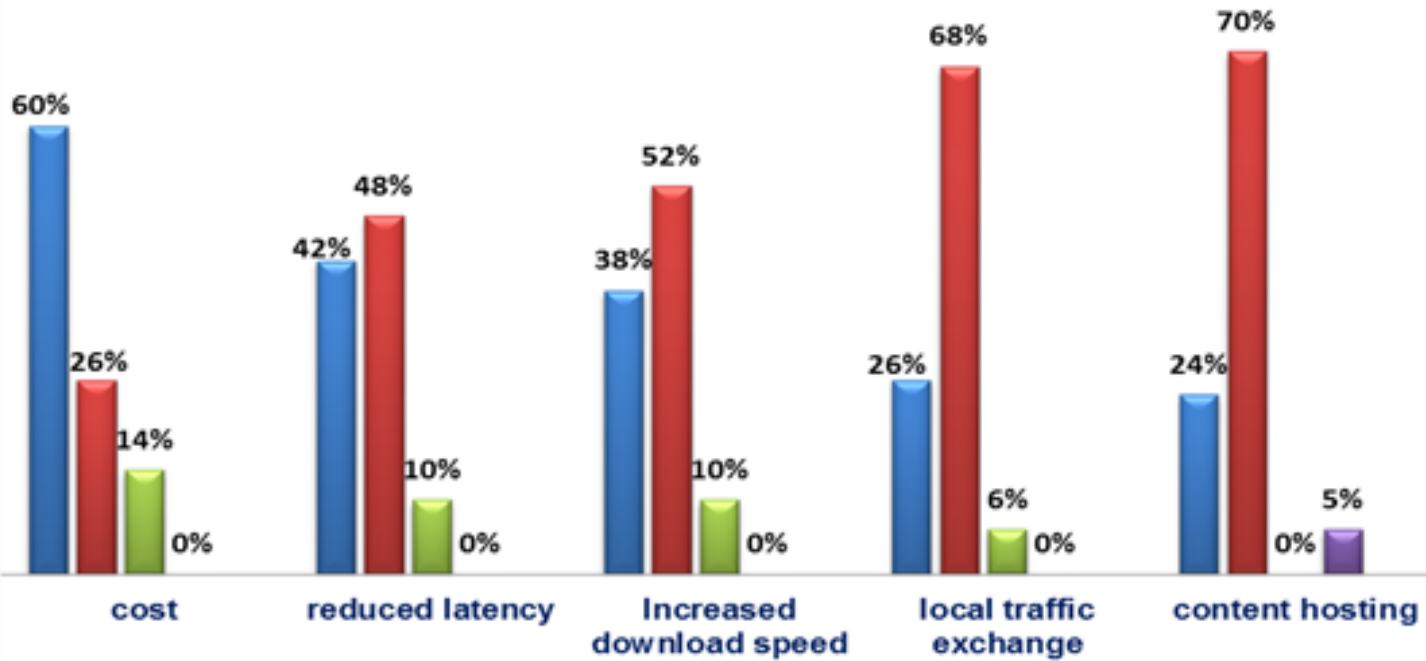2013: Local = 9%,   International = 91%
2016: Local = 18.8%, International = 81%
Summary: Over 10% increment in local traffic

GIX contributions to the quality and cost of Internet access in Ghana

Google Global Cache traffic

Cont.' RESULTS AND ANALYSIS

GIX management and location

❖ Volunteers of highly competent technical experts, trust and unity level of members have improved resulting in membership increment from 4 – 21; and the AIX's creator joining the GIX.

❖ Hosted in a neutral and secure location at the AITI-KACE, central to its members offices, the availability of monitoring tools to graph traffic statistics and for 24/7 monitoring. Currently at the National Data Center.

Polices and Regulations for IXPs creation and Usage

❖ No regulations governing the GIX, to ensure that internet is not restricted.

❖ Government supports IXPs and it is creating exchanges at the regional levels in order to expand the local exchange

CONCLUSIONS

❖ Not all Internet providers connect to the GIX due lack of understanding of its benefits and other reasons yet to be uncovered.

❖ Most of Internet traffic originating from Ghana are exchanged internationally using expensive transit circuits.

❖ The creation of local content and international contents hosted locally should be encouraged (such as google).

❖ Encouraging the creation of a common African IXP just as Euro IX, is the way to go so that Africans can benefit from the full advantages of a local regional IXP.

CONCLUSION CONT'
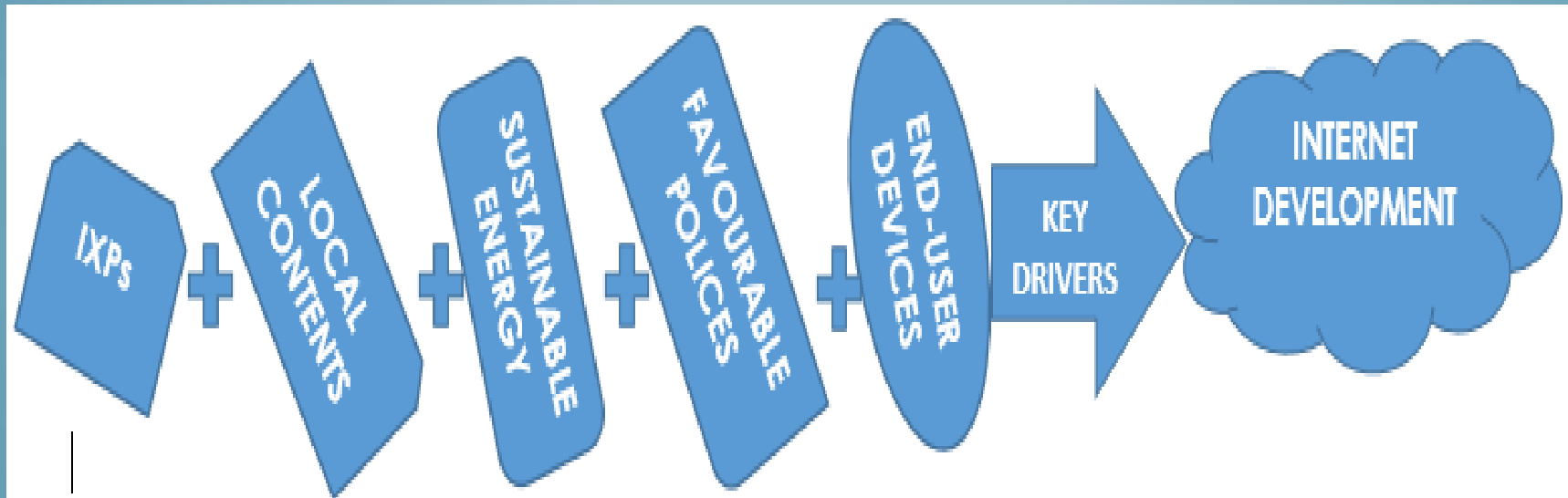
The panacea for developing and ensuring affordability of internet in Ghana is therefore dependent on the combination of these factors but not only an IXP

Grazie

Merci

Thank You

Questions, Suggestions & Contributions