

A brief update on our Internet Measurements in Africa...

Gareth Tyson



Premise behind our work

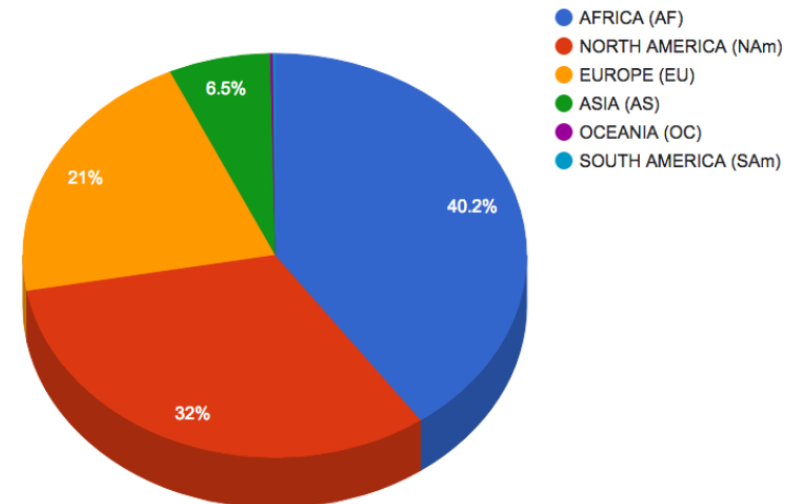
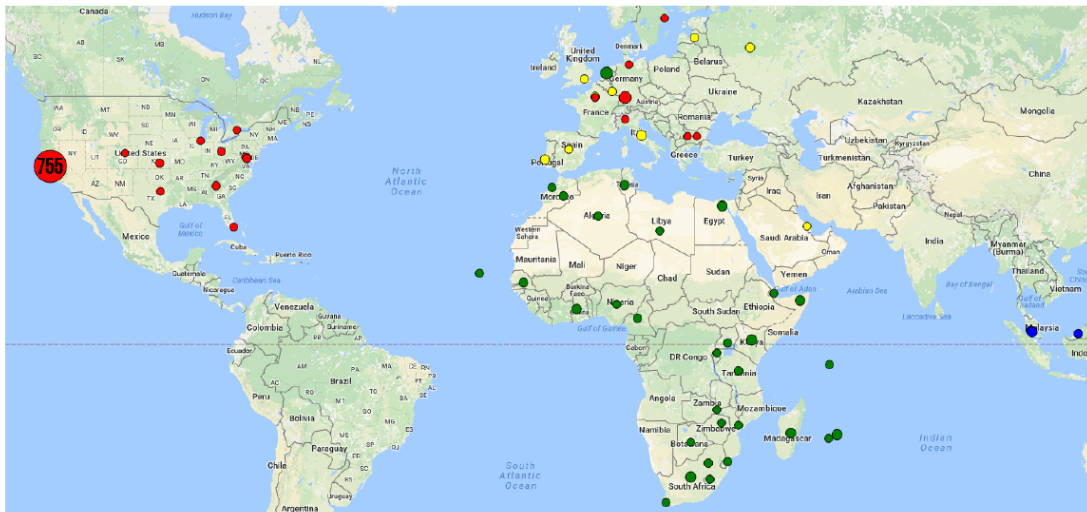
- The Internet in Africa is evolving fast!
- Makes understanding the status quo difficult
- Makes decision making difficult
 - Formulating regulation
 - Shaping standards
 - Optimising deployment of new technologies
- We've been trying to build an integrated measurement platform in Africa (AIMO)

Not trivial I'm afraid...

So, let's talk about what we've been doing

Understanding content delivery in Africa...

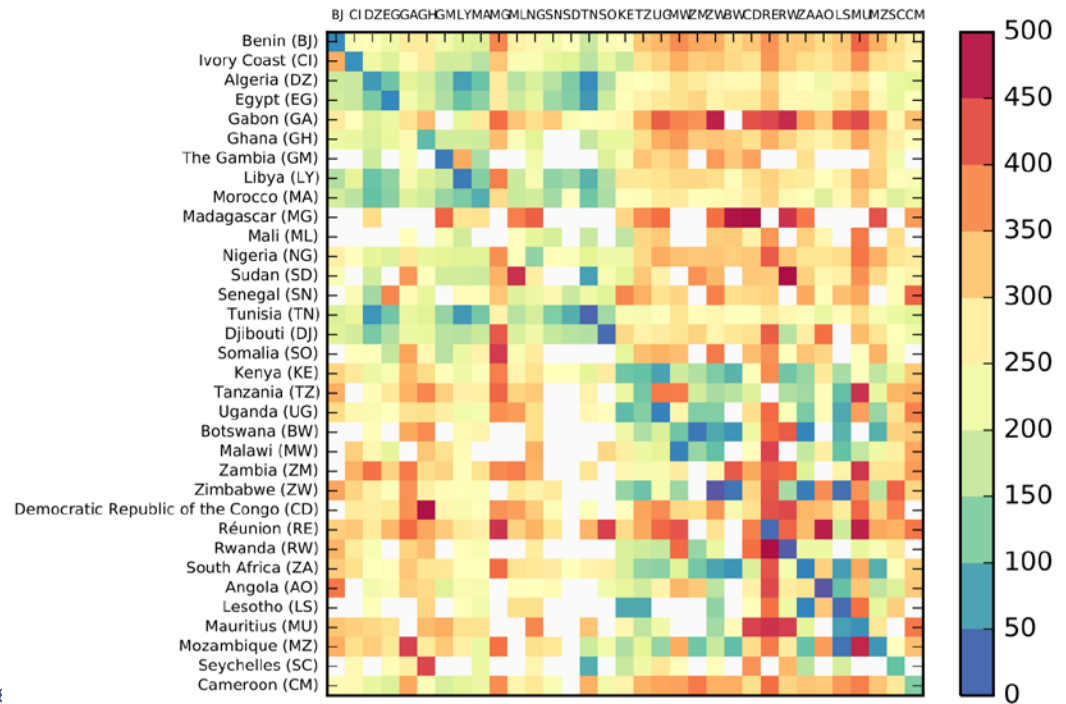
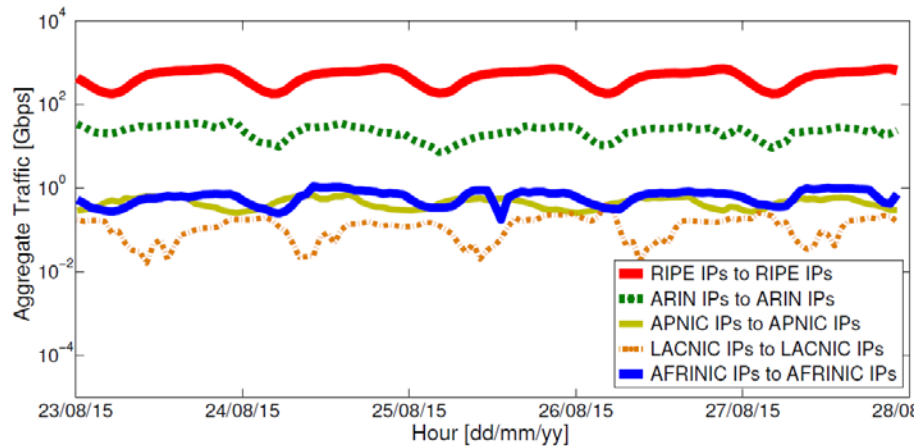
- What CDNs operate in Africa?
- What are their bottlenecks?



Roderick Fanou, Gareth Tyson, Pierre Francois and Arjuna Sathiaselalan. Pushing the Frontier: Exploring the African Web Ecosystem. In 25th World Wide Web Conference (WWW), Montreal, Canada (2016).

Understanding network delay in Africa...

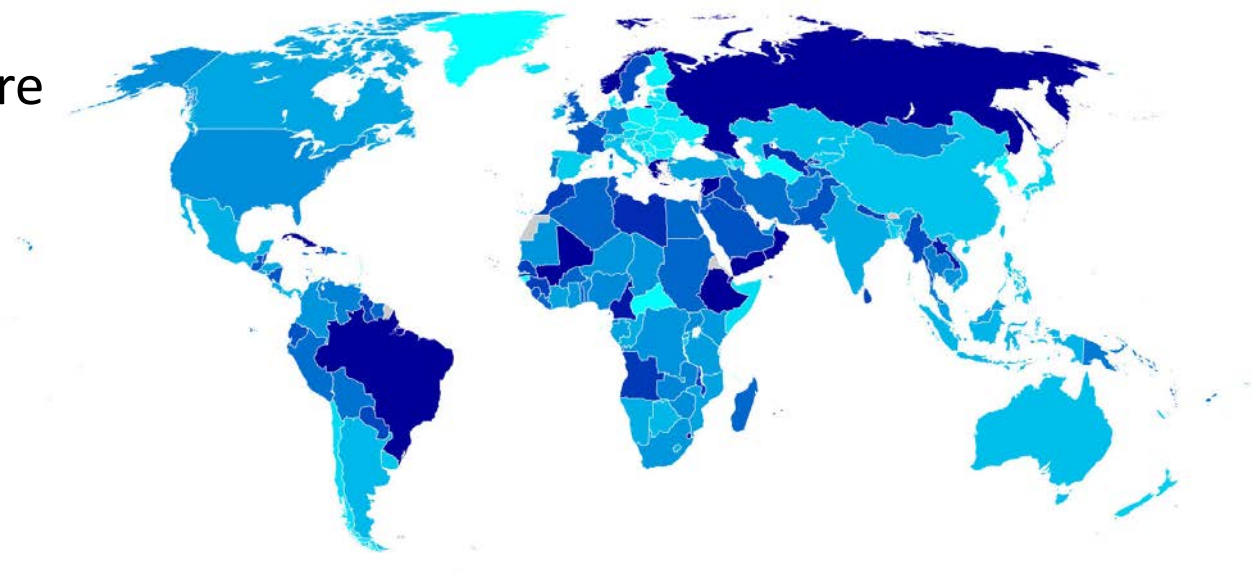
- What is the intra-African connectivity like?
- What “communities” of well-meshed countries exist?



Agustin Formoso, Josiah Chavula, Amreesh Phokeer, Arjuna Sathiaselalan, Nick Feamster and Gareth Tyson. An insight into Africa' Country Level Latency. In preparation for INFOCOM'18

Understanding **net operations** in Africa...

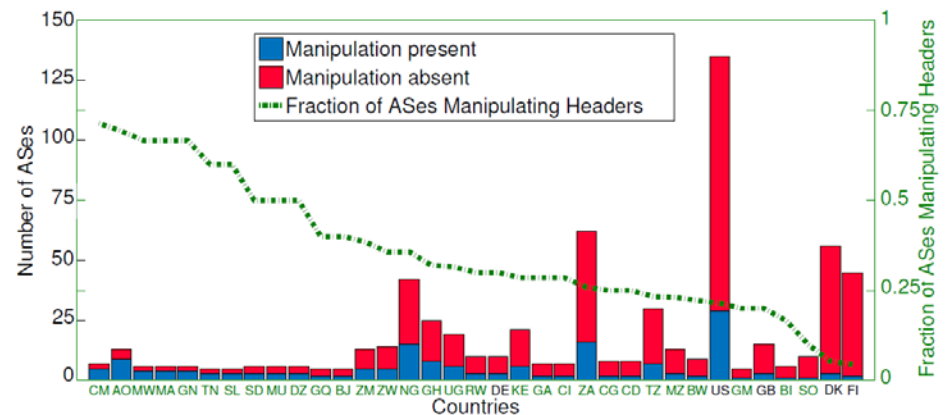
- How do operators react to these bottlenecks
- Do operators deploy more caches in Africa?

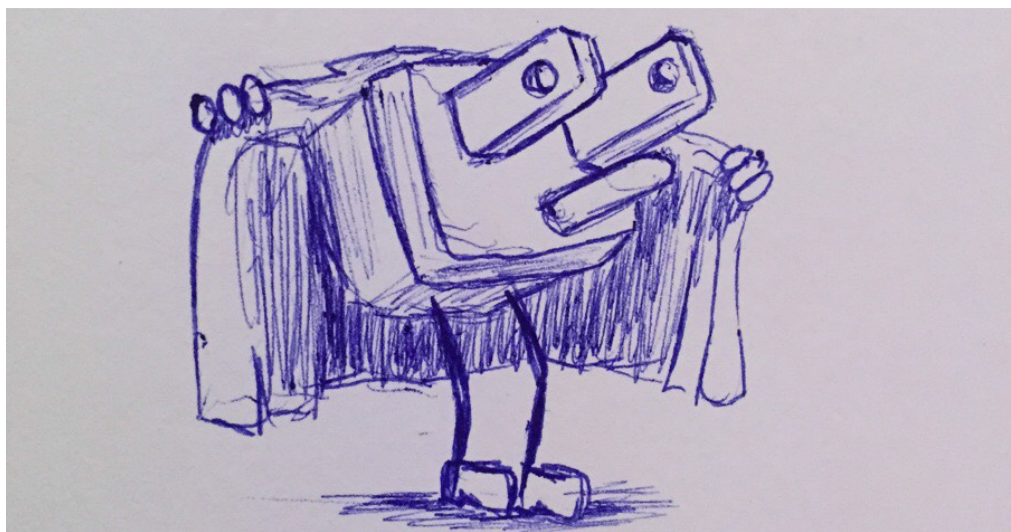


Gareth Tyson, Shan Huang, Felix Cuadrado, Ignacio Castro, Claudiu Perta, Arjuna Sathiaselalan and Steve Uhlig. Exploring HTTP Header Manipulation in the Wild. In 26th World Wide Web Conference (WWW), Perth, Australia (2017).

A few final thoughts

- We did a lot of hacking to get these things to work
 - We need **measurement infrastructure** in Africa
 - We need data from Africa
- We need **methodologies** that work in Africa
- Data analysis is only one piece of the puzzle
 - We need **recommendations**
- This should be a community effort



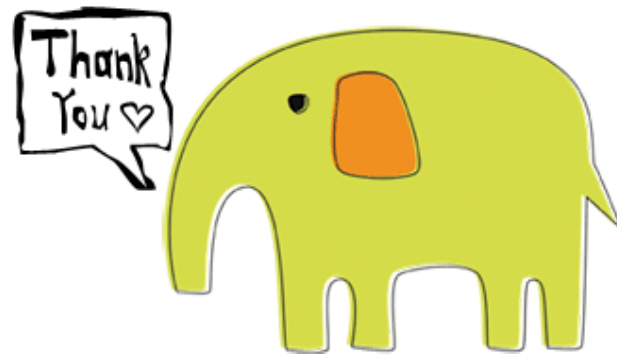


International Workshop on Internet Measurements Research in Africa



- End-to-end Internet performance metrics
- Internet topology characteristics, including peering and routing
- Application-level performance, including DNS, Web, CDNs, Cloud Computing
- Physical layer performance measurements, including for TVWS, WiFi, and 3G/4G
- Detection of middleboxes, censorship, and content filtering
- Data analytics for network monitoring, traffic analysis and network
- Network topology and performance visualization
- Internet access, use, and Quality of Experience (QoE)

<http://africommconference.org/2017/show/IMRA>



Any Questions?