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Accessibility of the ccTLDs Name Servers of West African Countries

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Introduction

- Accessibility of the Web pages relies on the services of the Domain Name System (DNS)
- Dns plays a key role in the control of the Web
  - Example : Turkey has used a false resolution of the DNS queries to block Twitter
  -
- A survey revealed about 80% of servers belonging to 60 country top-level domains (ccTLDs) in Africa, are out of home country i.e. hosted abroad.
- This raises many problems among them the ability of these countries to manage their servers with their own policies.

Introduction

- In this paper we evaluate the quality of the dns service through the access to the top-level domains name servers of West African countries.
- We perform periodically the RTT measurements by sending at every two minutes an icmp echo request toward each server from two monitors, located in West Africa (Burkina) and outside (France).
- We assume that the two monitors of the different locations will give a representative overview of the accessibility of the ccTLDs servers.

Introduction

We found that the access to the services provided by the ccTLDs name servers located in West African Countries is not efficient.

Data collection

- We used the Root Zone Database of the IANA which provides the ccTLDs name servers information, to retrieve the ip addresses of the ccTLDs name servers of 9 countries in West Africa: Benin, Burkina, Cote-d'Ivoire, Ghana, Niger, Nigeria, Sénégal, Mali and Togo.
- We collected the data by active RTT measurement.
- We sent probes from two monitors towards the IP addresses of the name servers.

Data collection

ccTLD - Owner	Nb of servers	Own host
.bj - Benin	5	ns1.intnet.bj nakayo.leland.bj
.bf - Burkina Faso	4	nahouri.onatel.bf
.ci - Côte d'Ivoire	4	ns.nic.ci ns1.nic.ci
.gh - Ghana	5	*
.ml - Mali	4	None
.ng - Nigéria	5	nsa.nic.net.ng
.ne - Niger	4	ns.intnet.ne
.sn - Sénégal	5	ns.ucad.sn ns1.sonatel.sn
.tg - Togo	6	tld.cafe.tg

Accessibility inside West-Africa.

- We study the accessibility of the name servers for two kinds of users : inside and outside West Africa.

- We consider that the state of the Internet connection is relatively the same in West-Africa but some countries may be exceptional.
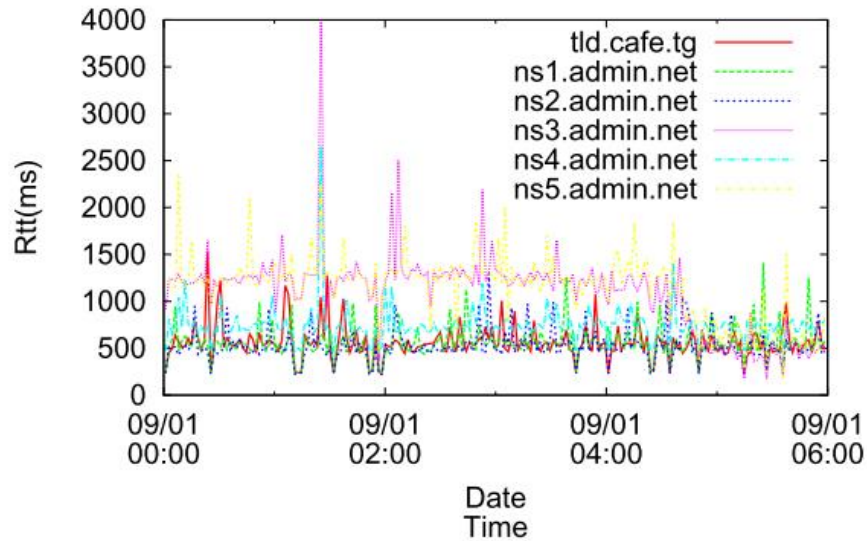
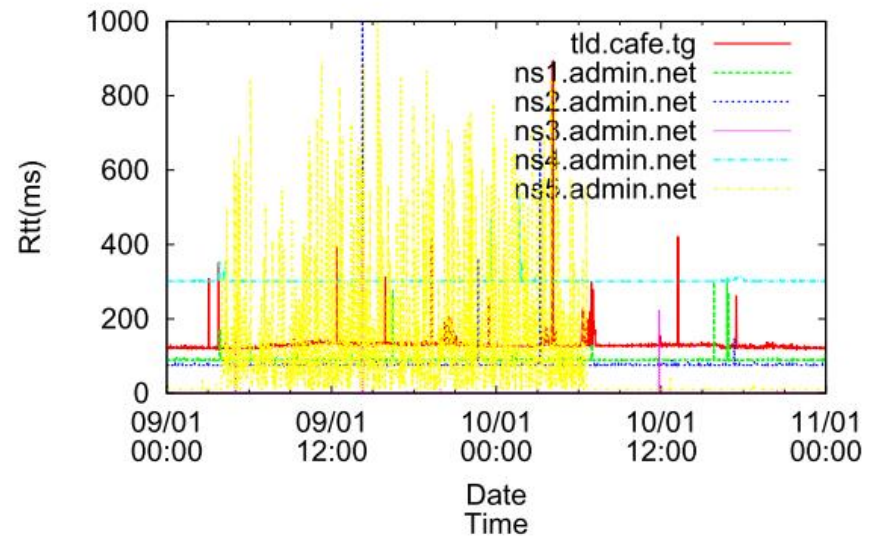# Accessibility inside and outside West-Africa.
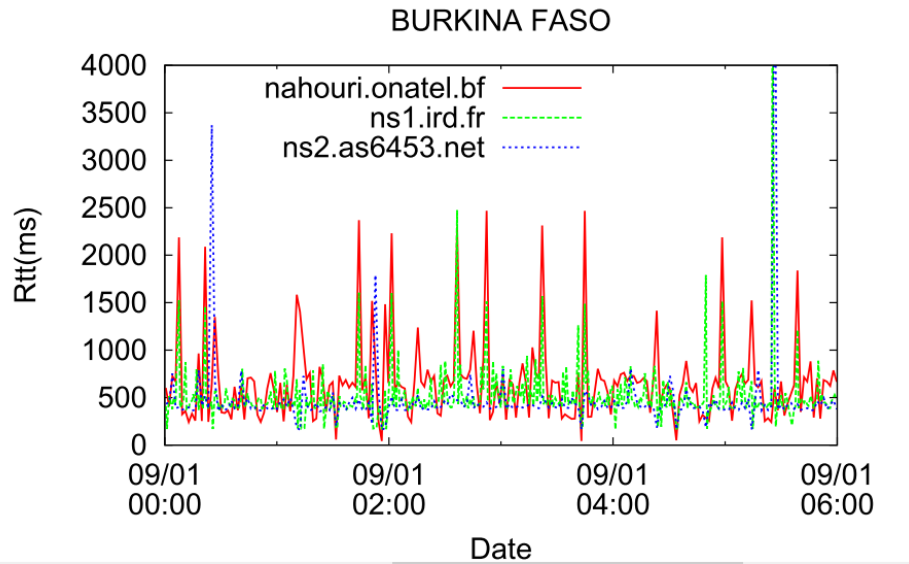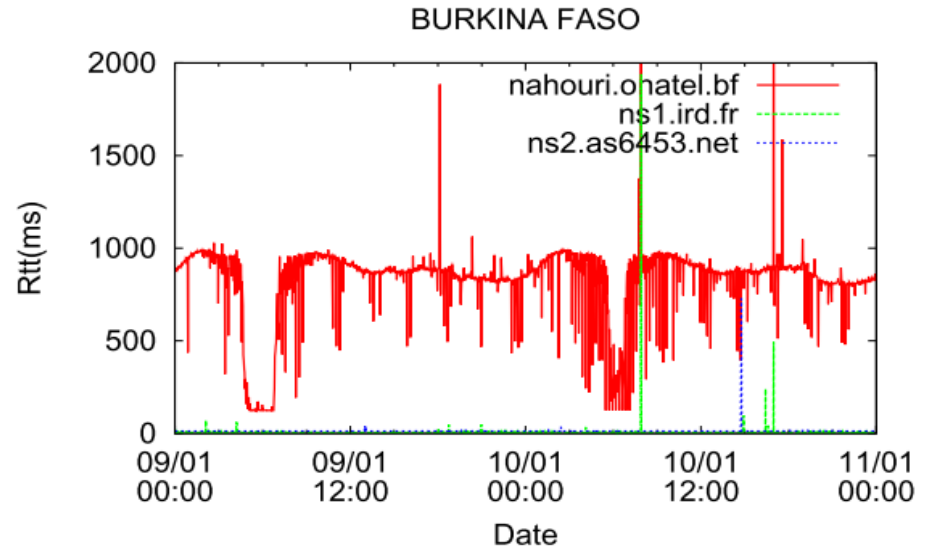
Inside

Outside
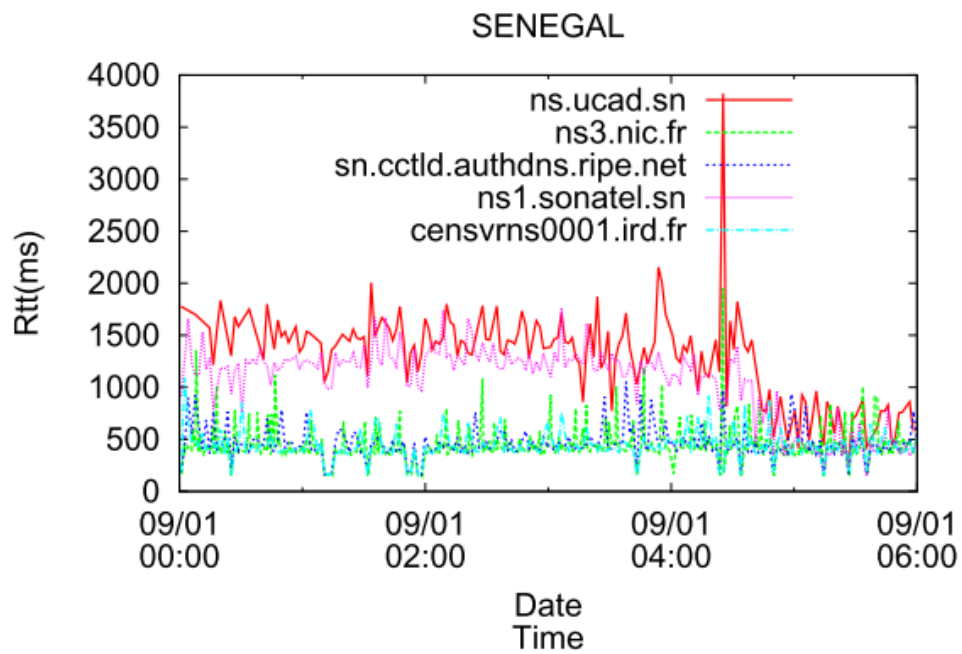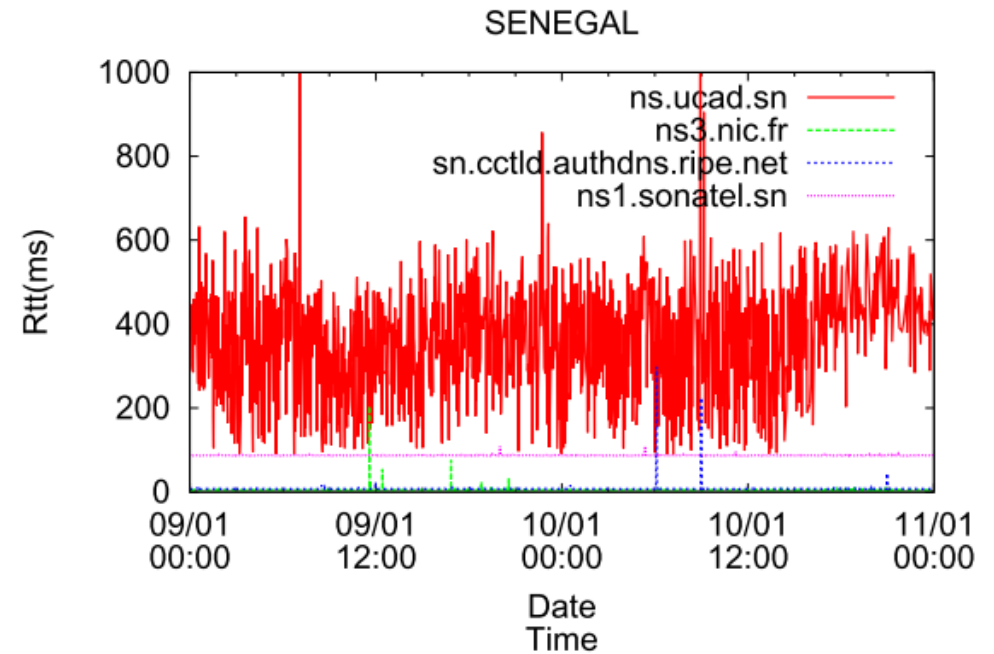
Accessibility inside and outside West-Africa.

Inside

Outside

Accessibility inside and outside West-Africa.
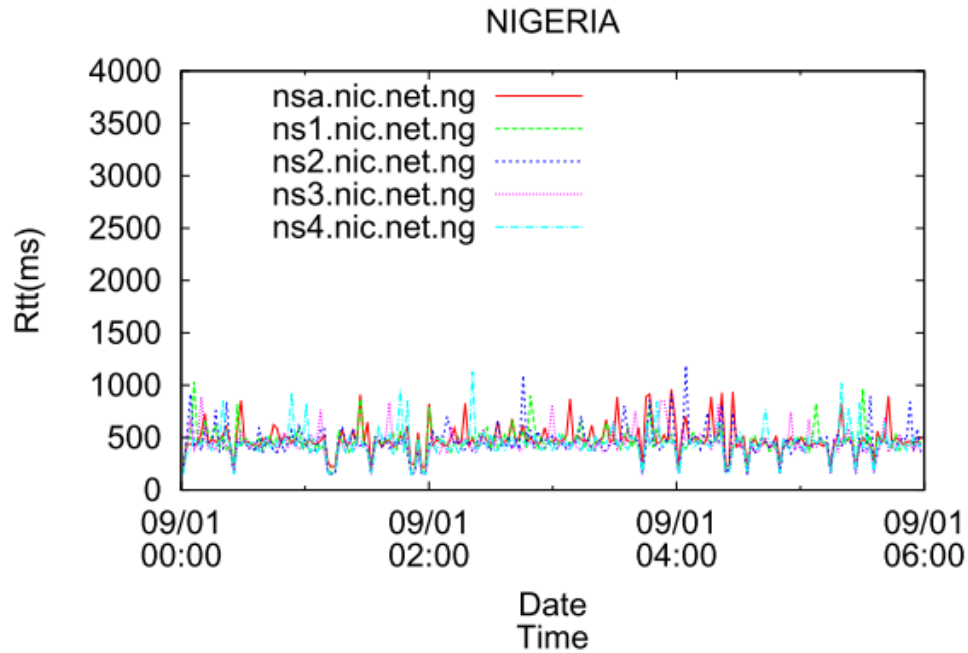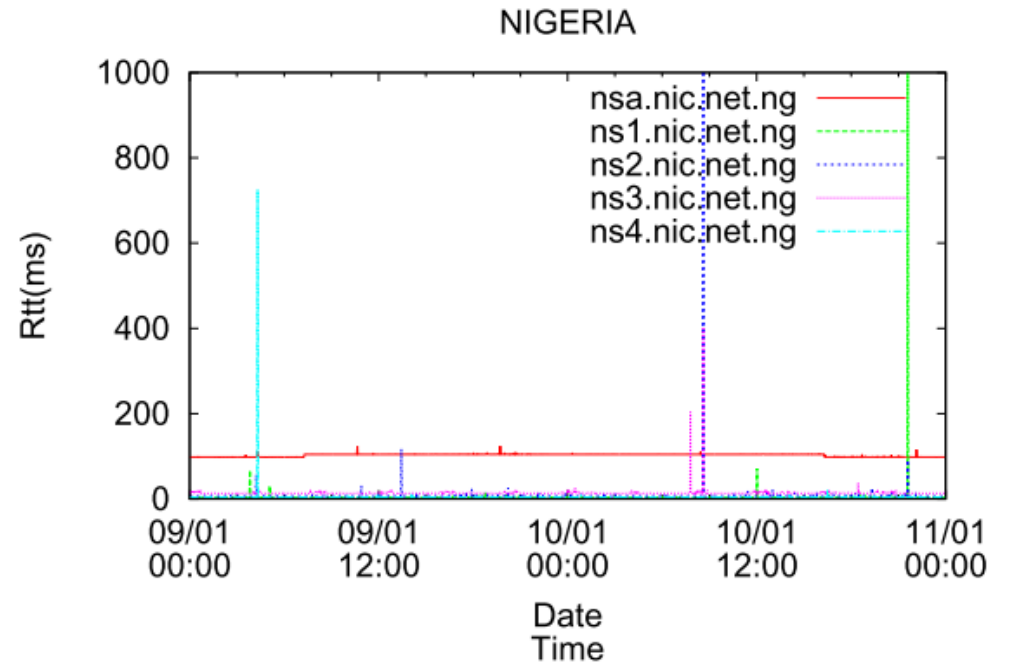

Inside

outside

Accessibility inside and outside West-Africa.

Inside

outside

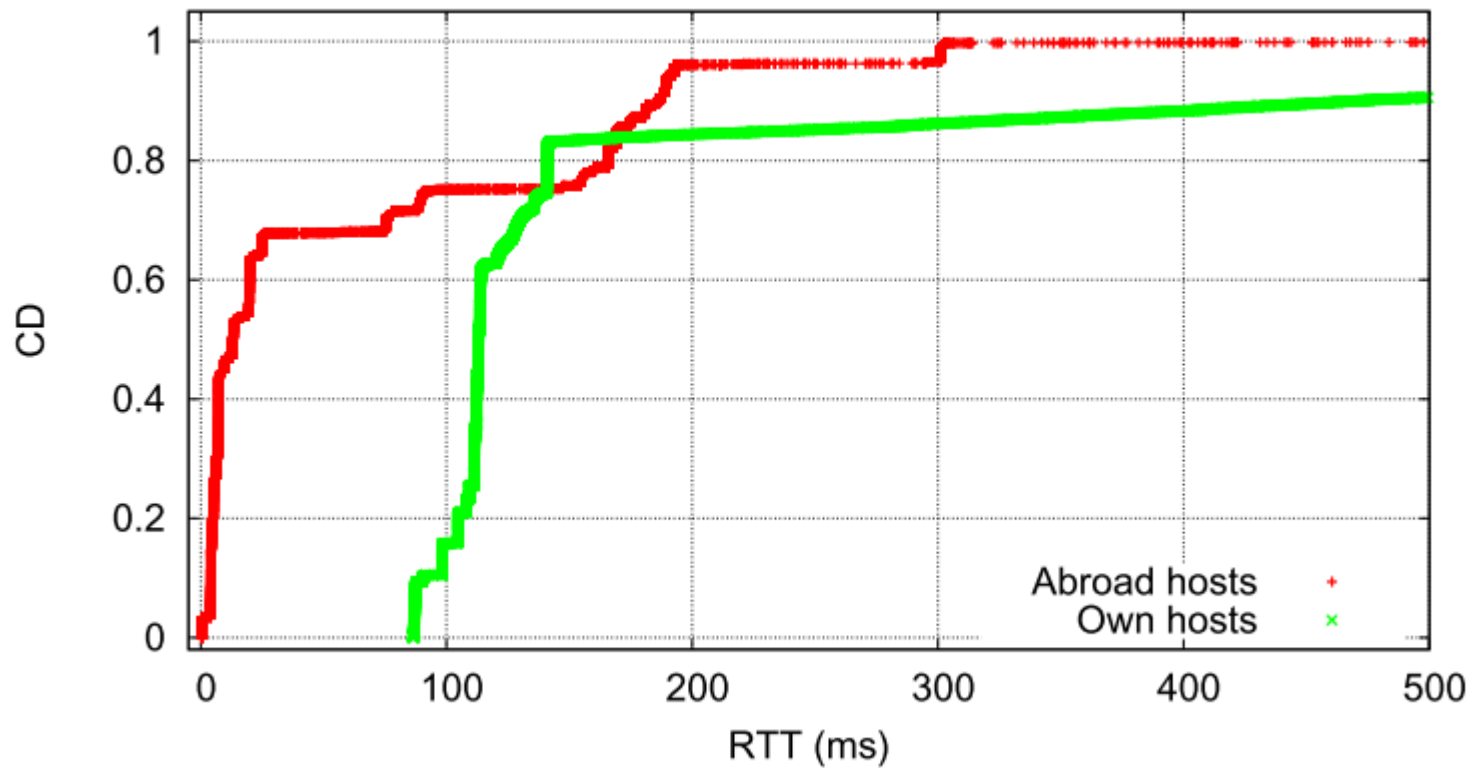# Accessibility inside and outside West-Africa.

Results

Conclusion

Thanks

Question?