Africa Internet Summit, AIS'21

Shaping Africa’s Internet Future

31 May 2021

Israel Bionyi, Communications and Outreach Manager, Africa, Internet Society
(nyoh@isoc.org)
Internet resilience during COVID-19

• Discussions on African Internet resilience

• Only about half of Africa can access the Internet

• Internet economy projected to contribute roughly 180 Million USD to Africa’s GDP by 2025

• ?
We need to make the Internet stronger. The Internet needs our help to maintain its critical properties and be there for everyone.

We need to grow the Internet. Nearly half the world’s population is not connected.

We need to empower people. Attract, engage, and strengthen our community.
Africa Region (Individual members) interests in the 2021 projects

We need to make the Internet stronger. The Internet needs our help to maintain its critical properties and be there for everyone.

We need to grow the Internet. Nearly half the world's population is not connected.

As February 2021, Community Networks (Infra. And Community Development (IXP, NOG, ...)) have the highest interest, followed by Internet Way of Networking, Measuring the Internet, Encryption, Routing Security (MANRS), and Preserving the Open Internet Model.

To express your interest in the Internet Society 2021 projects, follow the instructions at: https://www.internetsociety.org/take-action/2021-projects/
Growing the Internet
Community Networks in Africa

Murambinda Community Network
Zimbabwe

Zenzeleni & Zuri Networks
South Africa

Fantsuam
Nigeria

TunapandaNET
Kenya

BOSCO Uganda
Uganda
Infrastructure and Community Development in Africa

• Develop.

• Build

• Knowledge sharing
Measuring the Internet
About

- pulse.internetsociety.org
- We curate Internet measurement data from trusted sources to help everyone gain deeper, data-driven insight into the Internet.
- Helps to assess whether our efforts to ensure that the Internet remains open, globally connected, secure, and trustworthy are working.

Pulse is available to everyone, everywhere including network operators, researchers, policymakers, journalists, and civil society groups.
Our Work in the Region

• **Tracking Internet shutdowns:**
  • 2021: Congo Brazzaville and Niger (March), Uganda, (January)
  • 2020: Cameroon and Ethiopia (November), Tanzania and Guinea (October), Sudan and Algeria (September)

• **Internet Resilience**
  • Focus on Africa.
  • Measuring Internet Resilience in Africa (MIRA) Project Overview - together with AFRINIC: [pulse.internetsociety.org/blog/5847](pulse.internetsociety.org/blog/5847)
  • Measurement probes (MIRA Pods) already installed in Cameroon, Kenya, Rwanda and Mauritius.
  • Four Chapters also hosting measurement probes: Benin, Ethiopia, Madagascar and Tunisia.
  • Initial data to be published soon.
Strengthening the Internet
Promoting the Internet Way of Networking

200
Train 200 individuals

4
See the IIAT used to assess the impact of new or existing policies in at least 4 policymaking processes

© Internet Society / Nyani Quarmyne / Panos Pictures
Extending Encryption

The Internet is under threat - governments around the world are finding new and unique ways to undermine the use of strong encryption.

10% Increase adoption of e2e encryption by 10% globally

8 Mitigate government attacks on encryption in 8 target countries

© Elliot Adombila, Internet Society Ghana Chapter
Securing Global Routing

Mutually Agreed Norms for Routing Security (MANRS) are vital to our trust of the Internet.

- 10% decrease in routing incidents
- 10% increase in ROA (Route Origin Authorization) by MANRS participants
- 30% improvement in MANRS participants’ conformance
- 5% Implement ROV (Route Origin Validation) by 5% of MANRS participants
**MANRS Actions – Network Operators Programme**

Launched November 2014. Actions 1, 3 and 4 are mandatory. Action 2 is optional.

<table>
<thead>
<tr>
<th>Filtering</th>
<th>Anti-spoofing</th>
<th>Coordination</th>
<th>Global Validation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent propagation of incorrect routing information</td>
<td>Prevent traffic with spoofed source IP addresses</td>
<td>Facilitate global operational communication and coordination between network operators</td>
<td>Facilitate validation of routing information on a global scale</td>
</tr>
</tbody>
</table>

Ensure the correctness of your own announcements and announcements from your customers to adjacent networks with prefix and AS-path granularity.

Enable source address validation for at least single-homed stub customer networks, their own end-users, and infrastructure.

Maintain globally accessible up-to-date contact information in relevant RIR database and/or PeeringDB.

Publish your routing data, so others can validate.

Registering number resources in an IRR and/or creating ROAs for them.

Launched November 2014. Actions 1, 3 and 4 are mandatory. Action 2 is optional.
## MANRS Actions – IXP Programme

Launched April 2018. Actions 1 and 2 are mandatory, plus at least one additional action is required.

<table>
<thead>
<tr>
<th>Action 1</th>
<th>Action 2</th>
<th>Action 3</th>
<th>Action 4</th>
<th>Action 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent propagation of incorrect routing information</td>
<td>Promote MANRS to the IXP membership</td>
<td>Protect the peering platform</td>
<td>Facilitate global operational communication and coordination</td>
<td>Provide monitoring and debugging tools to the members.</td>
</tr>
<tr>
<td>This mandatory action requires IXPs to implement filtering of route announcements at the Route Server based on routing information data (IRR and/or RPKI).</td>
<td>IXPs joining MANRS are expected to provide encouragement or assistance for their members to implement MANRS actions.</td>
<td>This action requires that the IXP has a published policy of traffic not allowed on the peering fabric and performs filtering of such traffic.</td>
<td>The IXP facilitates communication among members by providing necessary mailing lists and member directories.</td>
<td>The IXP provides a looking glass for its members.</td>
</tr>
</tbody>
</table>
MANRS Actions - CDN & Cloud Programme

- Was launched on 1 April 2020 to complement existing Network Operators and IXP programme.
- Principles developed by large industry players including Akamai, Azion, Cloudflare, Comcast, Facebook, Google, Microsoft, Nexica Oracle, Redder, Telefonica, TORIX, Verisign.
- Conformance with Actions 1-5 is mandatory. Action 6 is optional.

**Action 1**
Prevent propagation of incorrect routing information

- Egress filtering
- Ingress filtering – non-transit peers, explicit whitelists

**Action 2**
Prevent traffic with illegitimate source IP addresses

- Anti-spoofing controls to prevent packets with illegitimate source IP address

**Action 3**
Facilitate global operational communication and coordination

- Contact information in relevant RIR database and/or PeeringDB

**Action 4**
Facilitate validation of routing information on a global scale

- Publicly document ASNs and prefixes that are intended to be advertised to external parties

**Action 5**
Encourage MANRS adoption

- Actively encourage MANRS adoption among the peers

**Action 6**
Provide monitoring and debugging tools to peering partners

- Provide monitoring tools to indicate incorrect announcements from peers filtered by CDN & Cloud
Preserving the Open Internet Model

Open standards are as critical now as they were in the early development of the Internet.

We will protect the open standards that underpin the open Internet model by

• Taking a proactive approach to the World Telecommunication Standardization Assembly (WTSA)
• Advocating for greater openness, transparency, and collaboration
• Getting the message out to our community and partners

In the lead-up to or during WTSA, we aim to have 4 governments or governmental agencies express support for our positions.
Empowering People to Take Action
Supporting Community Participation

5,000 Total Individual Members participating in Internet Society activities

500 Equip 500 Chapter members with essential information related to our 2021 projects

5 Establish 5 topics for 2022 as identified through SIG Community Consultations

© Internet Society / Nyani Quarmyne / Panos Pictures
Building Expertise and Capacity

30 Offer 30 e-learning courses
2 Secure 2 partners to help with course accreditation
1 Facilitate 1 collaboration between NDSS research community and open standards community
4 Secure 4 partners to support Fellowships
Securing Resources for Growth and Greater Impact

By cultivating broader financial support for the work of the Internet Society, we can do more, include more people, and ensure our work responds to people’s needs.

• Targeting outreach for new, diversified funding and partnership

Through this outreach, which complements our member contributions, we will secure 10 new funding sources and 50 new partners who actively participate in our work.
We will do more for the Internet.

And we will work with, and alongside our global community, building our reputation as a movement of people who are driven by the shared vision:

**The Internet is for everyone.**
Thank you.