Innovative approaches to funding NREN connectivity: The Case of SomaliREN

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Outline

- The Context
- The Challenges
- The Opportunity
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- Rethinking Services
- The Case of EduSpots

The Context

- **Higher Education and Research Regulatory Environment**
  - Ministry of Education, Culture and Higher Education coordinates the regulation-focused activities for the higher education and research
  - A growing awareness of the limited research capabilities at the Somali higher education institutions
  - Recently formed the Federal higher education commission with the mandate to regulate the higher education institutions and address the challenges of a mushrooming unregulated education sector
  - Association of Somali Universities formed in 2015 with currently 40 member universities.
  - The Academy of Art and Science restored two decades after the civil war
- SomaliREN previously had to fill the gap of many of the required associations and bodies of the higher education ecosystem and focused on strengthening the community network before even having a physical communications network.
- Since the roll-out of the connectivity infrastructure in June 2018, 35 campuses of 9 member institutions have been connected. International connectivity aggregates at 300Mbps and is sourced from the UA (thanks to AfricaConnect2 project and the World Bank contribution).

50%

Subsidized connectivity cost per Mbps. Now the universities are paying 50% of the current market price per Mbps

80%

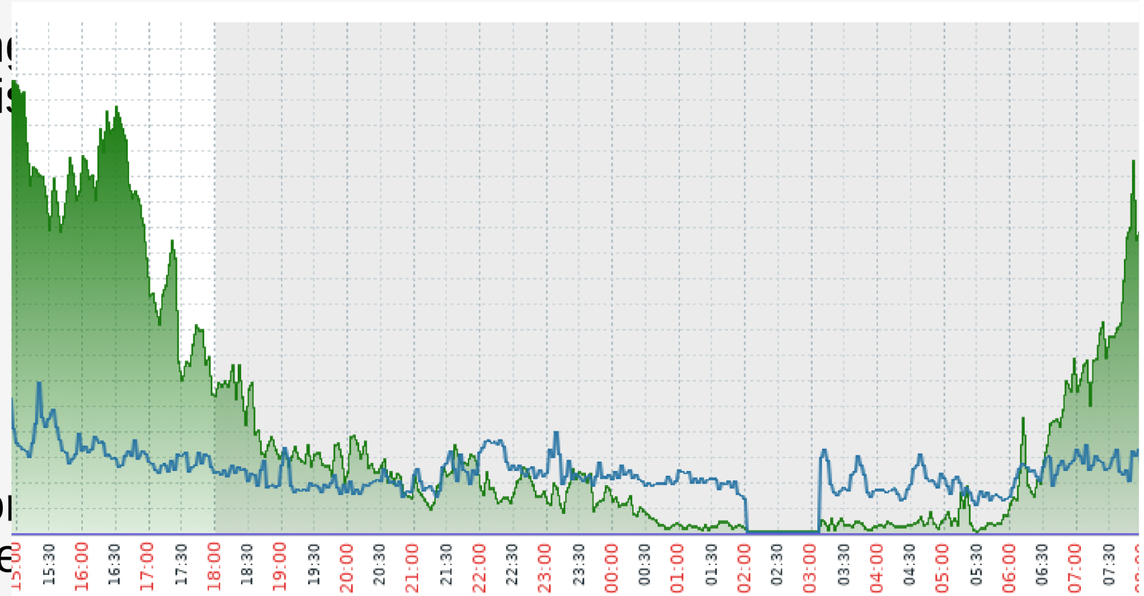
Bandwith consumption growth by the member universities.

The Challenges

- Cost of connectivity
- Purchasing power of the member institutions
- Aggressive and cut-throat competition in the telecom industry
- Institutional priorities and leadership commitment to prioritize ICT infrastructure
- NREN Competitive edge has been dull for quite some time
- Some of the smaller institutions do not pay for bandwidth (i.e. gets free CSR bandwidth allowance from the big players) and they are still members of the NREN

The Opportunity

- Bandwidth utilization drops to almost zero in the evening till morning. Thinking innovatively of how to best use this idle bandwidth is the key to sustainable connectivity funding.
- Technical and operational feasibility as well as the organizational capability to build, operate and maintain the solutions
- The NREN infrastructure creates opportunities for internship opportunities
- Community-based funding model for the connectivity for value-added services (students and faculty to contribute nominal amounts)



		last	min	avg	max
e to UA): Bits received	[avg]	87.66 Mbps	280 bps	37.88 Mbps	91.52 Mbps
e to UA): Bits sent	[avg]	21.04 Mbps	176 bps	13.79 Mbps	32.87 Mbps
e to UA): Outbound packets with errors	[avg]	0	0	0	0
e to UA): Inbound packets with errors	[avg]	0	0	0	0
e to UA): Outbound packets discarded	[avg]	0	0	0	0
e to UA): Inbound packets discarded	[avg]	0	0	0	0

Common approaches to funding connectivity now

- How is connectivity funded now:
  - Government sponsorship
  - Donor sponsorship
  - Bandwidth subscription charges by member institutions
- How do you ask a member that currently gets connectivity without having to contribute to the NREN bandwidth subscription pool?

The Solution

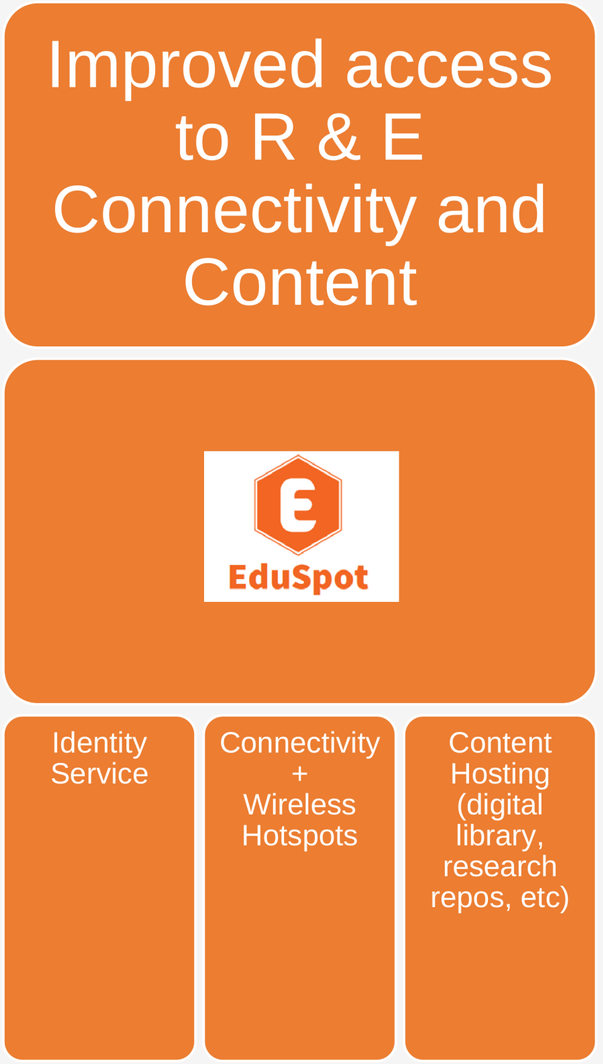
- Helping the universities come up with ways to fund connectivity for their respective institutions.
- We have explored:
  - Securing donor sponsorship for the specific member institutions to cover their connectivity charges
  - Engaging in advocacy activities to promote ICT infrastructure, connectivity and services investment by the member universities
- Focusing on value-added services that address specific end-user community needs

Rethinking Services

- A Myriad of services already implemented by the NRENs.
- Considering the R & E community as the customers, iteratively think of what the NREN can do for them.
- A two-tier view of NREN services
  - Higher level services: are composite, innovative services introduced as strategic initiatives addressing community challenges. These services are composed of ‘low-level’, technology-focused services packaged in such a way that it can be ‘marketed’ as a unique service offering. E.g. EduSpots, REConnect, etc.
  - Low-level services: are the technology-focused NREN services that address specific needs of the community. E.g. video-conferencing, web hosting, Identity provider services and identity federation, etc.

Innovative connectivity funding approaches: the Case of EduSpots

- Utilizing the idle capacity available and SomaliREN's existing infrastructure, we aim to build a community network of educational hotspots scattered across the country. This network will create a number of opportunities for the community (individuals and institutions):
  - Extend access to educational and research resources beyond the campus.
  - Create internship opportunities for hands-on skills development on Internet and network technology for the fresh graduates of our member institution's IT and engineering programs.
  - Contribute to the overall sustainability giving the member institutions the opportunity to finance their connectivity needs by charging nominal semester-based service subscription.
- EduSpot is what SomaliREN considers a tier-2 service (High level service) comprised of existing and available services and technologies:
  - Identity service: managed by the respective member institution who will be responsible for registering their students and promoting the service
  - Connectivity infrastructure and wireless hotspots: deployed at the university campuses (for use during the day time with access limited to local content) and in the densely student populated areas from 6:00PM to 5:00AM
  - Content including digital libraries, mirror sites to online courses (MIT OCW, etc.) and other local content. This will be the key differentiator for which we will have to continually innovate.



EduSpots: The Funding Models

- **Approach to community-based subscription model:**
  - Based on the number of users (students and faculty). This gives the institutions the opportunity to scale with the growth of the end-user base.
  - It is value for the money as the students will be getting more than they get from connecting using 4G mobile data
  - Example Scenario:
    - Jamhuriya University of Science and Technology (JUST) – student population roughly 3000
    - Monthly subscription dues 3000 x $2 = $6000
    - Based on current SomaliREN tariffs this will get the university around 70Mbps – triple the current bandwidth consumption of the institution
- **Benefits of this approach to funding connectivity:**
  - More bandwidth consumption lower cost of connectivity for the institution
  - SomaliREN aggregate capacity will grow exponentially
  - Additional funding source for the already allocated budget for connectivity

In Conclusion

- NRENs need to adopt business practices for non-commercial purposes
- NRENs are because of the members. Continuously innovating to meet the needs and address the challenges of the members is a must if NRENs need to survive the cut-throat competition.
- In most cases, the packaging the technology and services we already have can help address critical needs of our members.
- It is time to put our money where our mouth is; we promised R & E traffic to be delivered via the pipes we have spent so much building. Let us work together to make that a reality!

Thank You

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