Sustainability for Community Networks - Exploring Open-Source billing solutions

Presented by

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The Connectivity Challenge

Nearly 3 Billion people are still offline

Internet growth is slowing down

We need innovative and complementary access solutions to connect those who need it the most.
Community Networks

Networks built by, and for, the communities they serve - In a very practical sense, they happen when a community comes together and builds local infrastructure that then connects to the rest of the Internet.

Complementary Access Solutions - They reach areas that complement the work of traditional telecommunications operators. And they often partner with these operators to work together on connecting the local network to the rest of the Internet.

Rely on Local Champions and Partners – Community networks are possible through the initiative of people in the community, and partners that can support them.
Networks Designed to Address a Community’s Needs

1. Different Sizes
   - 50 to 50000 users/people

2. Different Setups
   - Voice and SMS only
   - WiFi only
   - Mesh Network
   - Municipal Network

3. Different Purposes
   - Gain Access
   - Improve affordability
   - Greater openness, and
   - Autonomy

4. Different Governance Models
   - Non-profit member associations
   - Cooperatives
   - Small Businesses
   - Projects and partnership between government
   - NGOs
   - Internet Technical Community
   - Network operators and Academia
The Pillars of Community Networks

Policy & Regulatory
A favorable policy environment making it simple to start a network and run it

Backhaul
Access to fiber or to a favourable ISP willing to provide capacity to run the CN on

Knowledge/Know How
Technical capabilities required to maintain and expand the network. Understand the technologies used

Users
A critical mass of users that gain benefit from Internet access and help foster the network

Sustainability
Ability to keep the network running financially without external help or funding
The Challenges Community Networks Face

Financial
- Financial support
- Backhaul costs
- Equipment costs
- Sustainability
- Licenses costs
- Scaling

Technical
- Technical knowledge
- Access to backhaul
- Access to electricity
- Open-Source Solutions

Regulatory
- Spectrum licensing
- Recognition from regulators
- Access to universal service funds
Open-Source Solutions for CNs

• Network Management
  • A number of stable and well developed open-source tools available for bandwidth, network and device monitoring i.e LibreNMS, Nagios, MRTG, etc

• Authentication and Accounting Solutions (Billing)
  • Good AAA solution (FreeRadius)
  • Limited well-developed graphical user interfaces solutions for radius
Why is billing important for CNs?

- Billing is the ability for CNs to authenticate and account for usage on the network.
- Billing generates revenue to maintain their day-to-day operations.
- Revenues are needed to scale growth and connect more users beyond the initial deployment phase.
- Revenues improve sustainability and reduce dependence on grants and donations.
CN Open-Source Billing Solution Requirements

• Support for Radius, PPoE, L2tP, Hotspot, etc
• Simplified graphical user interface
• Ease of deployment – low to middle level sysadmin experience
• Deployment on low power hardware – i.e Raspberry pi
• Support for configurable pre-paid and post-paid billing packages
• Reports and stats options
• Community of support – including other CNs
We are looking for an open source billing solutions that we can recommend to CNs.
2022 Project Focus

New Deployments and Improvements

10 new or improved community networks

Training

New training courses and over 300 people trained.

Advocate for an Enabling Policy Environment

Fostering policies and regulations that enable CNs
Thank you.

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