Sustainability for Community Networks - Exploring Open-Source billing solutions

Presented by

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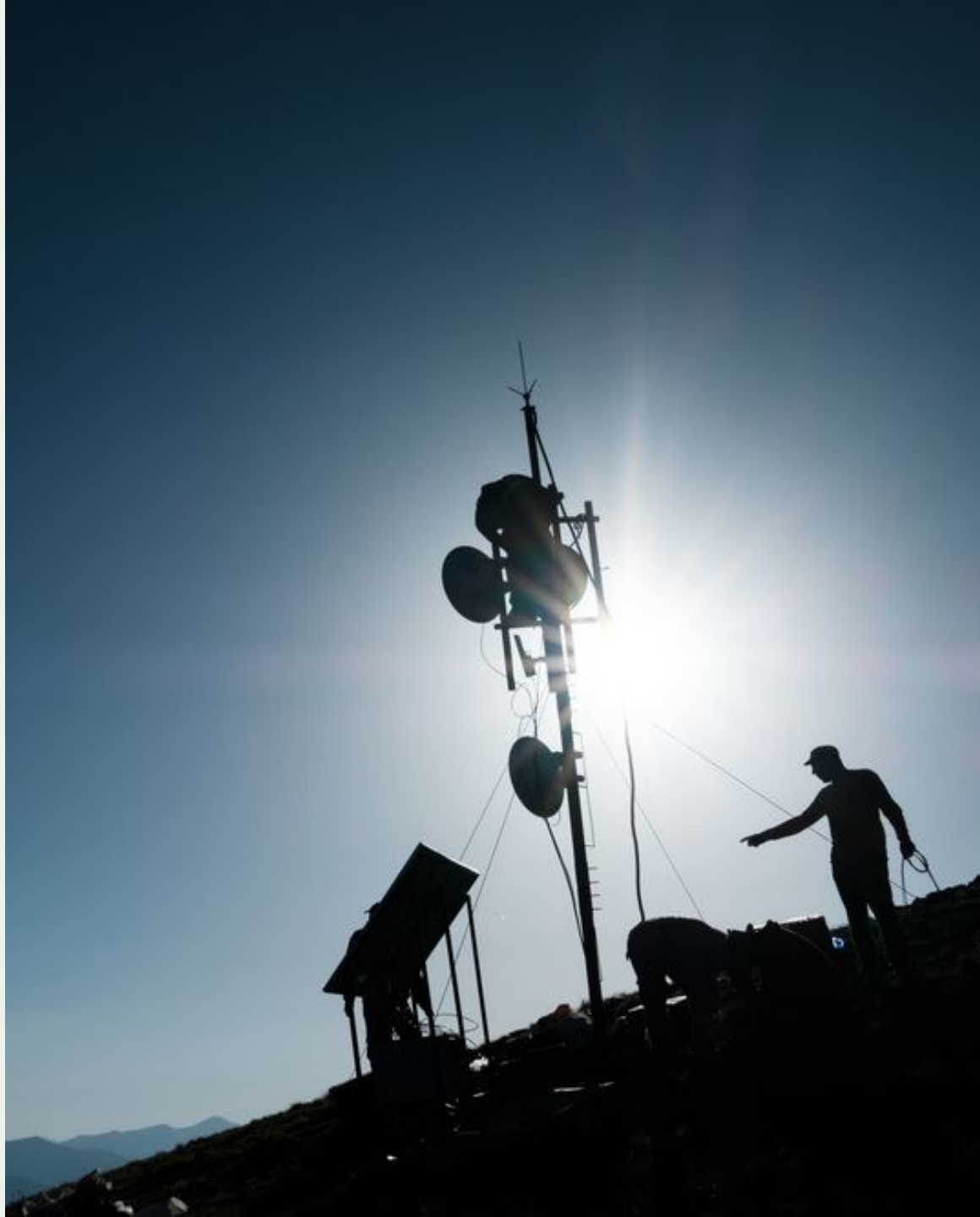
The Connectivity Challenge

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.

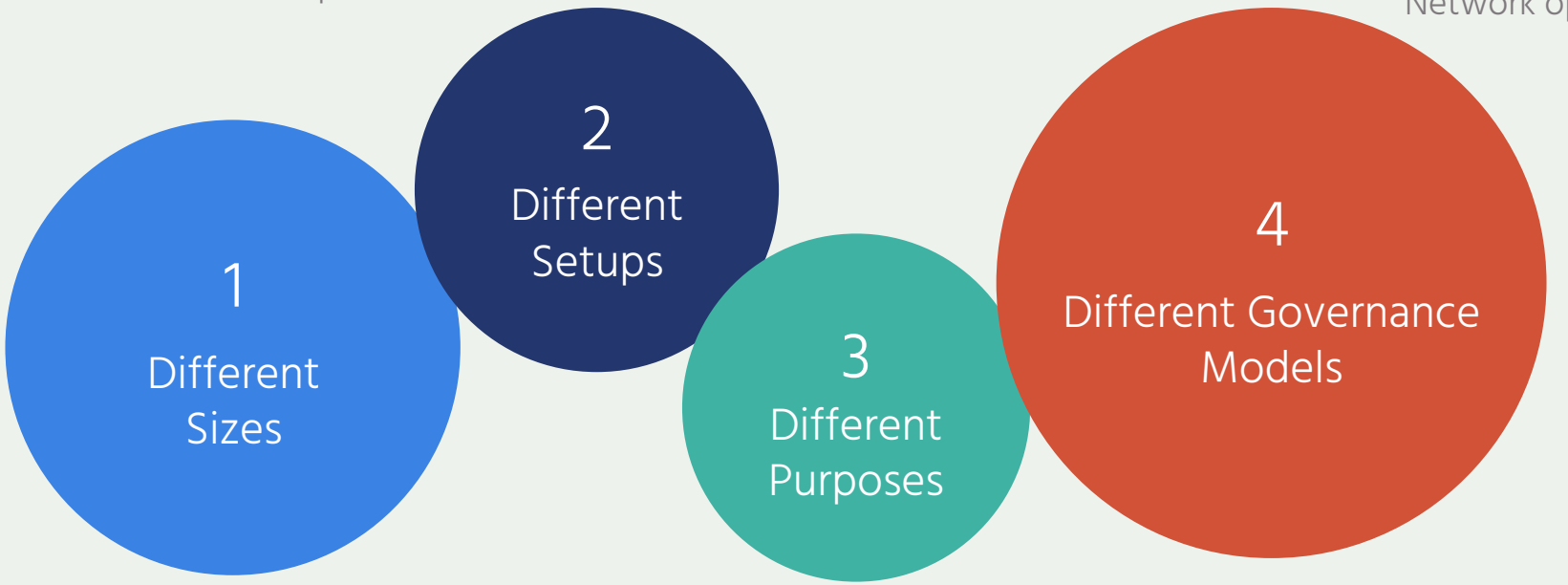
Complementary Access Solutions - They reach areas that complement the work of traditional telecommunications operators. And they often partner with these operators to work together on connecting the local network to the rest of the Internet.

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

Non-profit member associations
Cooperatives
Small Businesses
Projects and partnership between government
NGOs
Internet Technical Community
Network operators and Academia

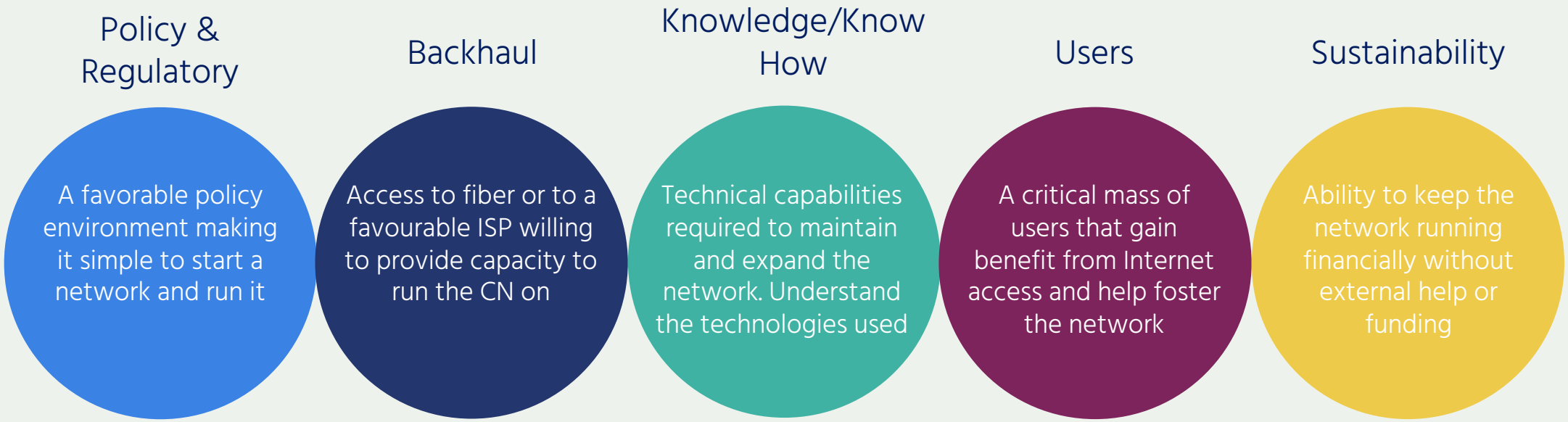
Voice and SMS only
WiFi only
Mesh Network
Municipal Network



50 to 50000 users/people

Gain Access
Improve affordability
Greater openness, and
Autonomy

The Pillars of Community Networks



The Challenges Community Networks Face

Financial	Technical	Regulatory
Financial support Backhaul costs Equipment costs Sustainability Licenses costs Scaling	Technical knowledge Access to backhaul Access to electricity Open-Source Solutions	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 ependence 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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