

connecting those who need it most



ICT/IoT Deployments for Health Care & Disaster Relief
ICTP Trieste - March 2015

Our mission is to get the tools of Information and Communications Technologies (ICTs)
-- computing, Internet access, telephony --
to the people and organizations who need them most,
in rural and under-served areas in the developing world



Our Mission



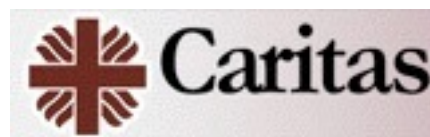
Inveneo at a Glance

- San Francisco based non-profit social enterprise
- Founded in 2004, by Silicon Valley technologists
- Designs and deploys turnkey basic ICT infrastructure solutions for organizations in developing countries
- Building an ICT Entrepreneur partner & capacity-building program to 90 partners in 28 countries
- Delivering systems and projects, with partners, in 25+ countries



Bob Marsh, ICIP Training | Cameroon

Who We Serve





**Temporary Relay Station
Tacloban, Philippines**

**Needs-Based Solutions for
Network Infrastructure**



**Tower Safety Training
Freetown, Sierra Leone**

**Deployment and Support
Led by Local ICT Entrepreneurs**

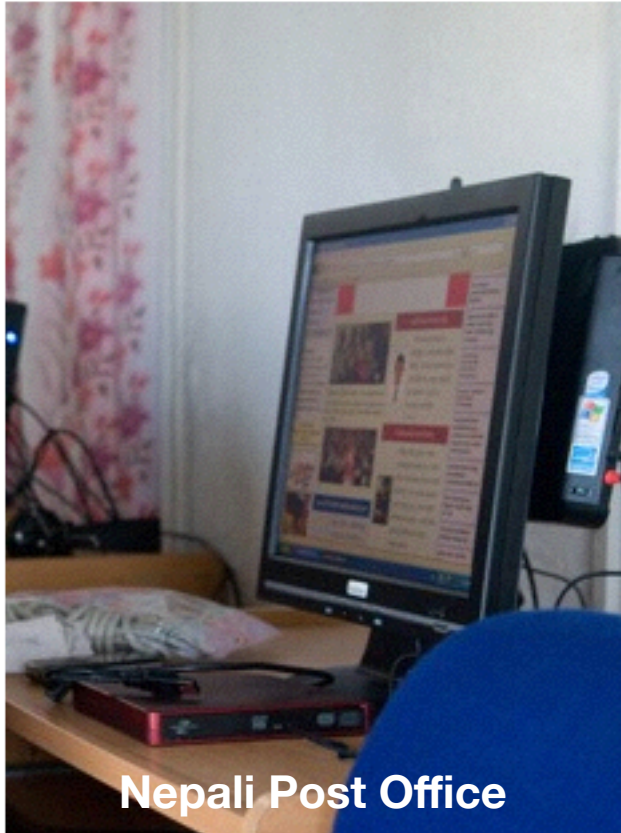
How we work

Rural ICT Challenges

- Power, unreliable or non-existent
- Heat, humidity & dust
- Lack of affordable Internet connectivity
- Inexperienced users and administrators
- Expensive, inappropriate or inaccessible solutions
- Lack of professional IT support



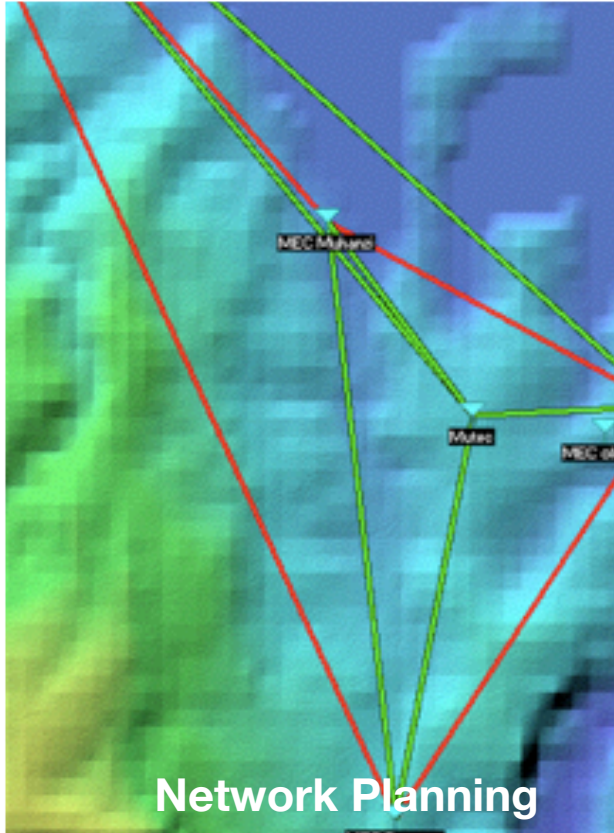
Solutions Integrate Relevant Technologies



Nepali Post Office

Hardware

Ultra-low-powered
computing &
wireless networks



Network Planning

Software

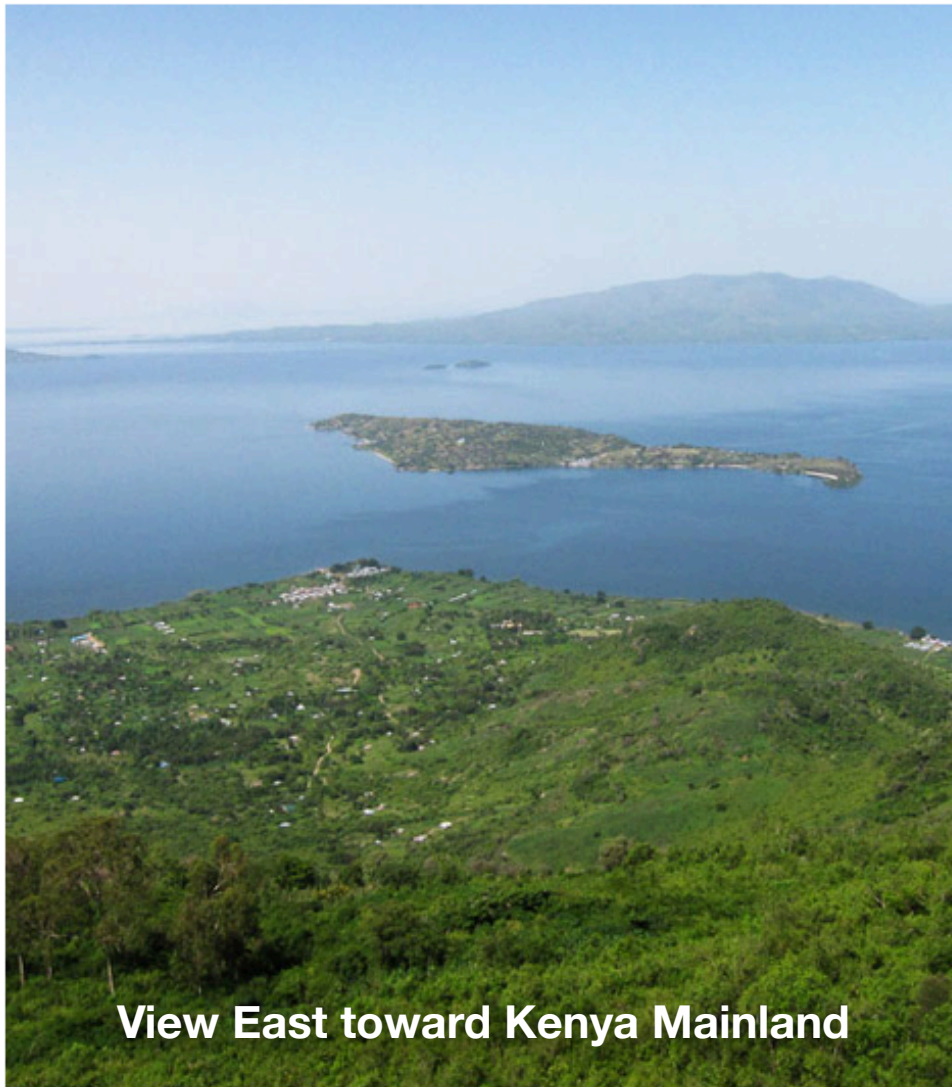
Microsoft and Linux OS
SMS Integration
Network Management



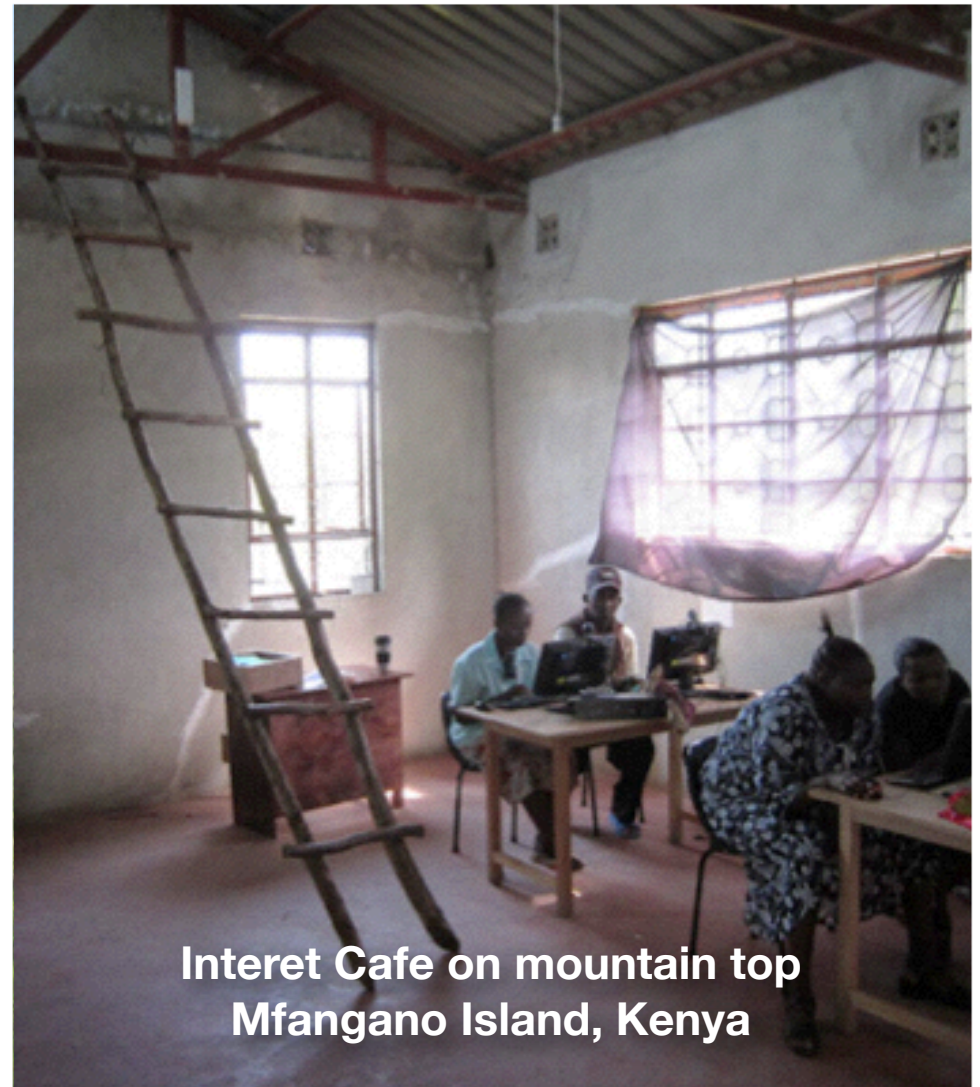
Burkina Faso School

Power

Solar + Batteries
Grid + Batteries
Power Protection



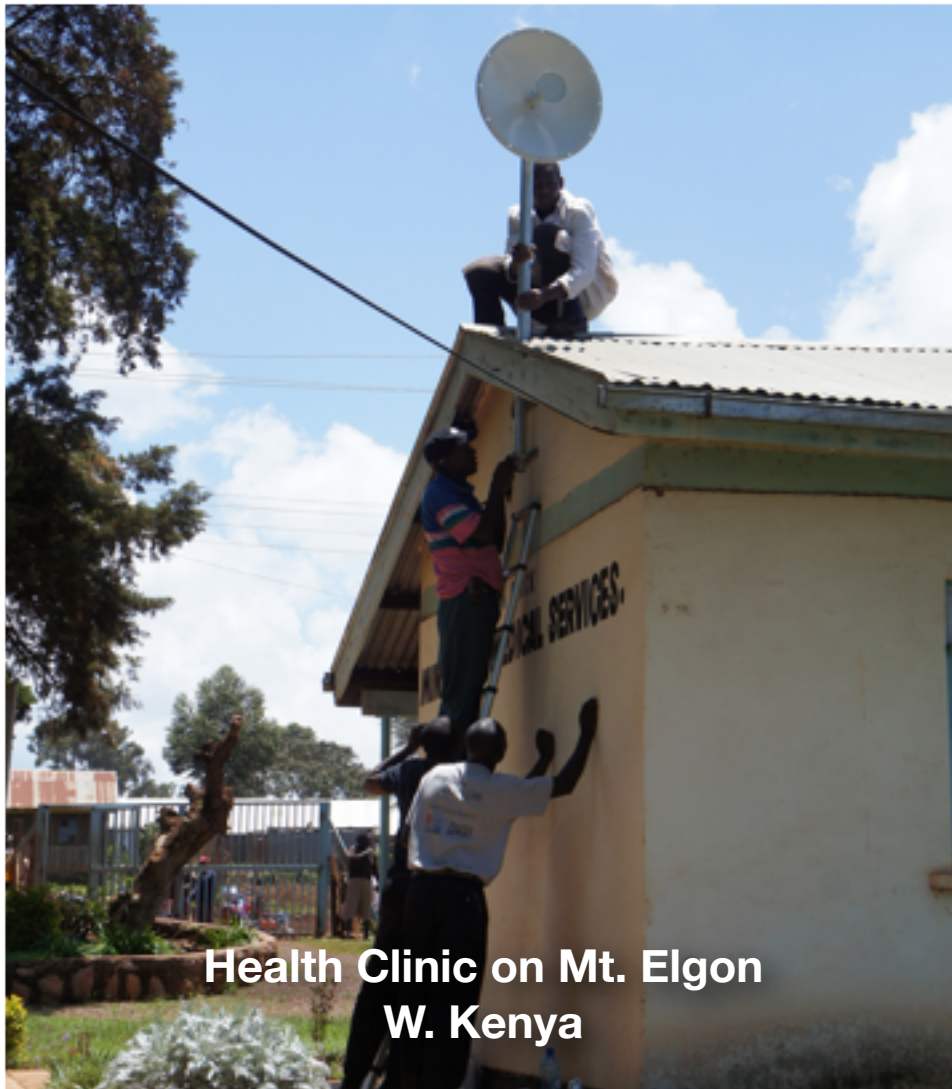
View East toward Kenya Mainland



**Interet Cafe on mountain top
Mfangano Island, Kenya**

OHR Kenya Health Care

Clients:	OHR Foundation
Location:	Mfangano Island, Lake Victoria, Kenya
Project:	Ekialo Kiona ("Whole World") Centre
Sector:	Health Care, HIV/AIDS
Scope:	1 locations
Partner:	WinAfrique Nairobi
Reach:	15,000 people on island



**Health Clinic on Mt. Elgon
W. Kenya**



**Inveneo & WinAfrique core team
Eldoret, Kenya**

Ampath Kenya Health Care

Clients: AMPATH Foundation, USA
 Location: Eldoret region to Lake Victoria, Kenya
 Project: Ampath WAN Health Network
 Sector: Health Care, HIV/AIDS
 Scope: 33 locations
 Partner: Setright Nairobi
 Reach: 300,000 people





**Telecentre
Masai Mara, Kenya**

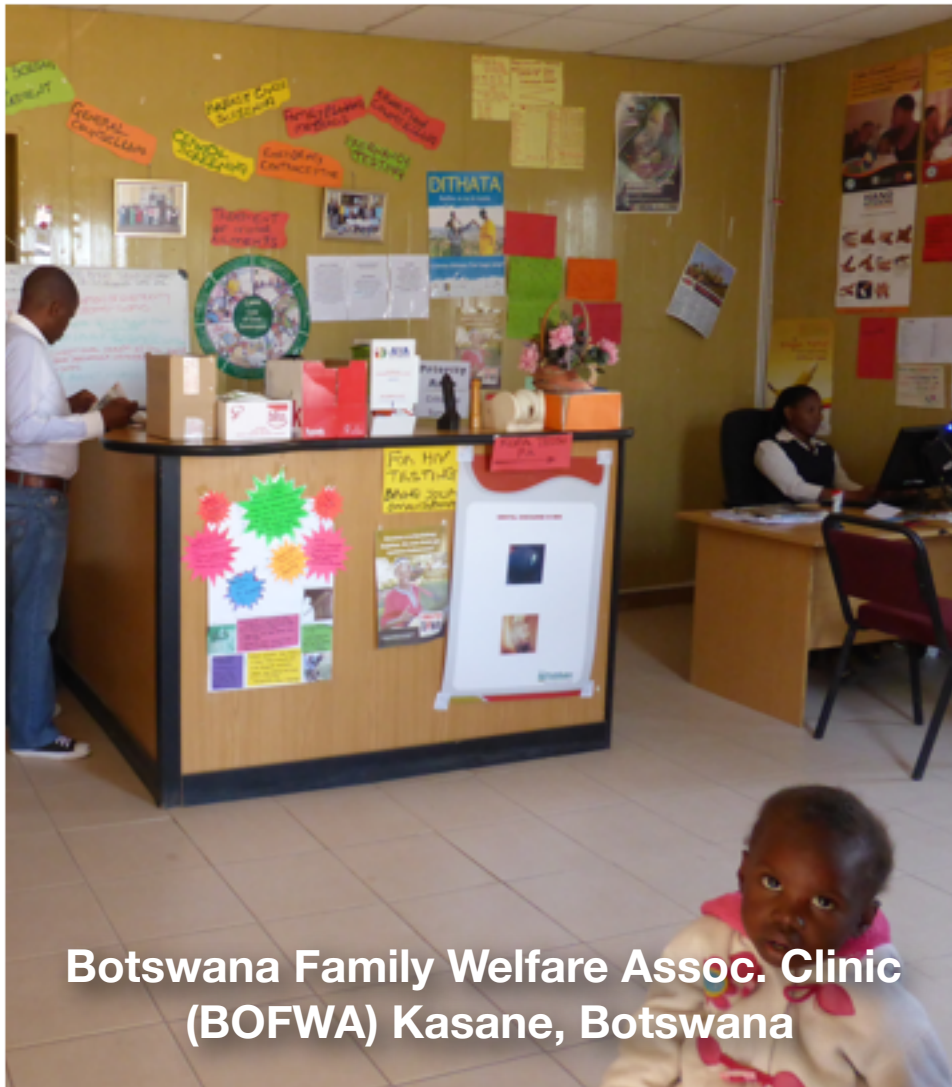


Cisco Health Presence System

Sekenani Clinic Health Care

Clients: Cisco Systems
Location: Sekenani Gate, Masai Mara, Kenya
Project: Solar Powered Health Clinic
Sector: Health Care
Scope: 1 locations
Partner: Setright, Nairobi
Reach: 10,000 people





**Botswana Family Welfare Assoc. Clinic
(BOFWA) Kasane, Botswana**

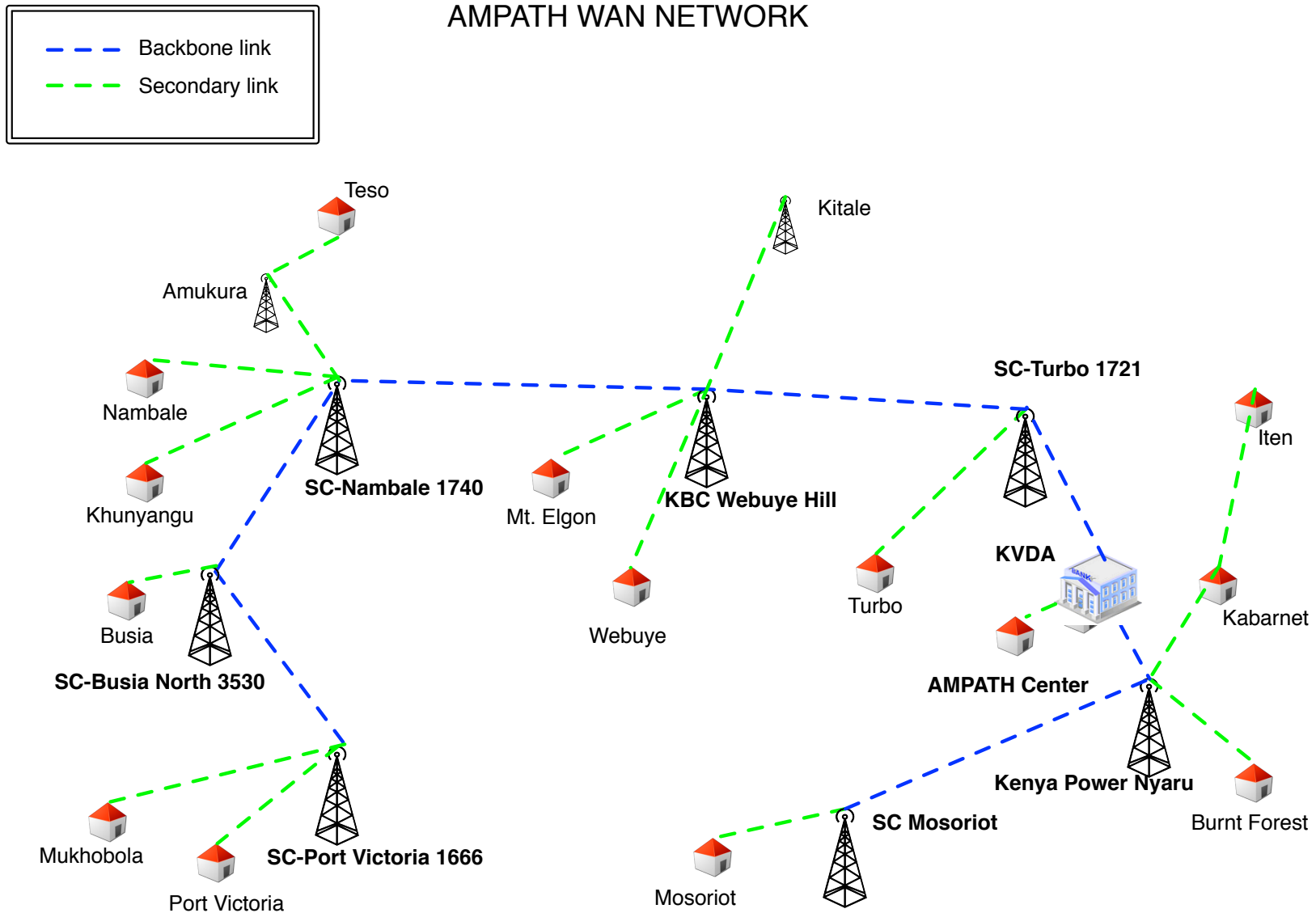


**Internet Cafe on mountain top
Mfangano Island, Kenya**

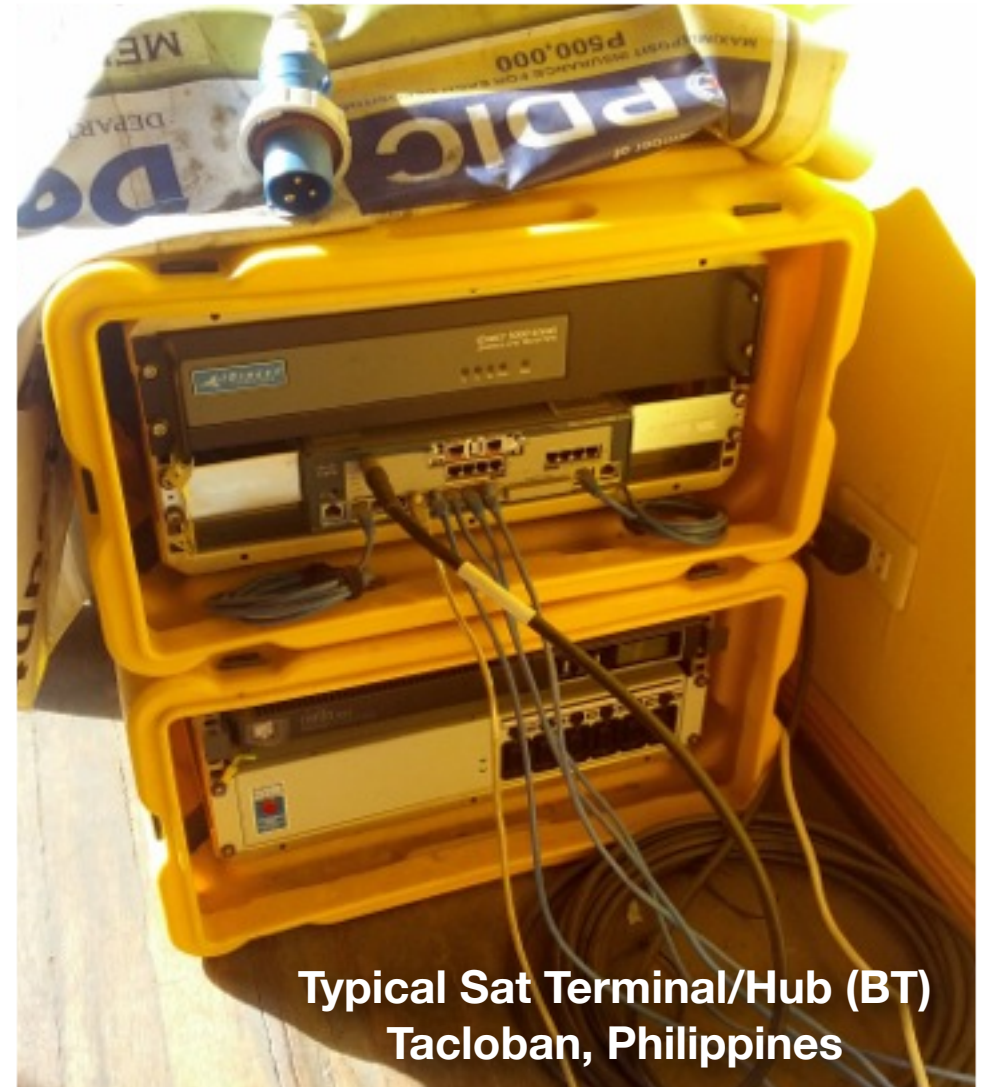
Maatla Project Health Care

Clients: FHI360 and USAID
 Location: Kasane, Chobe Province, Botswana
 Project: Maatla NGO Capacity Building
 Sector: Health Care, HIV/AIDS
 Scope: 13 locations
 Partner: Pele Investmens, Compudex & ConsultIT
 Reach: 100,000 people, 4 provinces

AMPATH WAN NETWORK

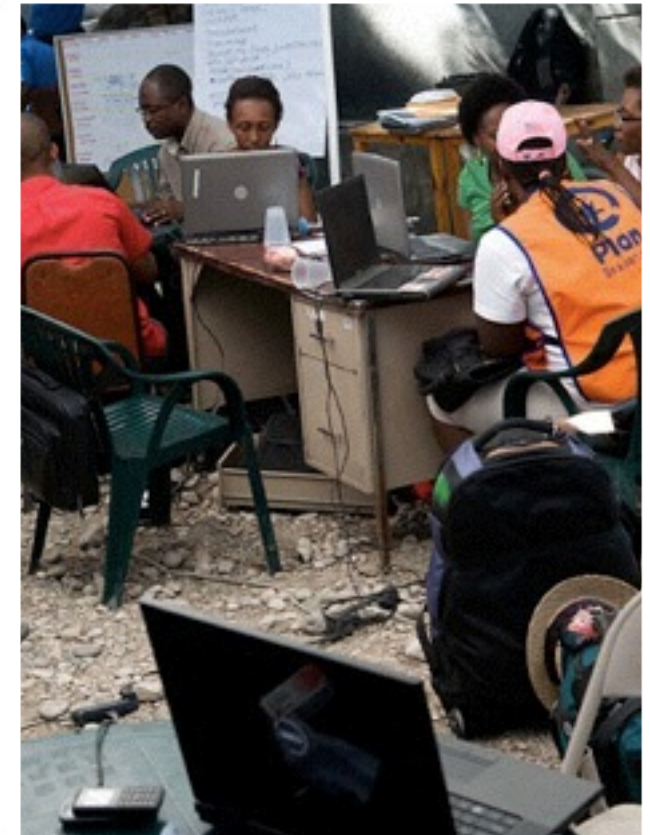


Ampath Network Diagram, Kenya



Typhoon Haiyan Relief Projects

Clients:	United Methodist Communications, Nethope
Location:	Tacloban, Philippines
Project:	Typhoon Haiyan Relief communications
Sector:	Emergency Relief
Scope:	15 locations
Partner:	Local ISPs, UN WFP/ETC
Reach:	50,000 people in region



Clients:	NetHope, 18 major NGOS including Care, CHF, WVI
Location:	Port au Prince
Project:	Battery-powered broadband network spanning PaP
Sector:	Emergency Relief
Scope:	23 locations
Partners:	MultiLink, Access Haiti. HTG, NetHope
Reach:	200,000 people

Haiti disaster network **Relief Projects**



**Inveneo Luxury Accommodation
Tacloban, Philippines**



**Temporary Office Space
Tacloban, Philippines**

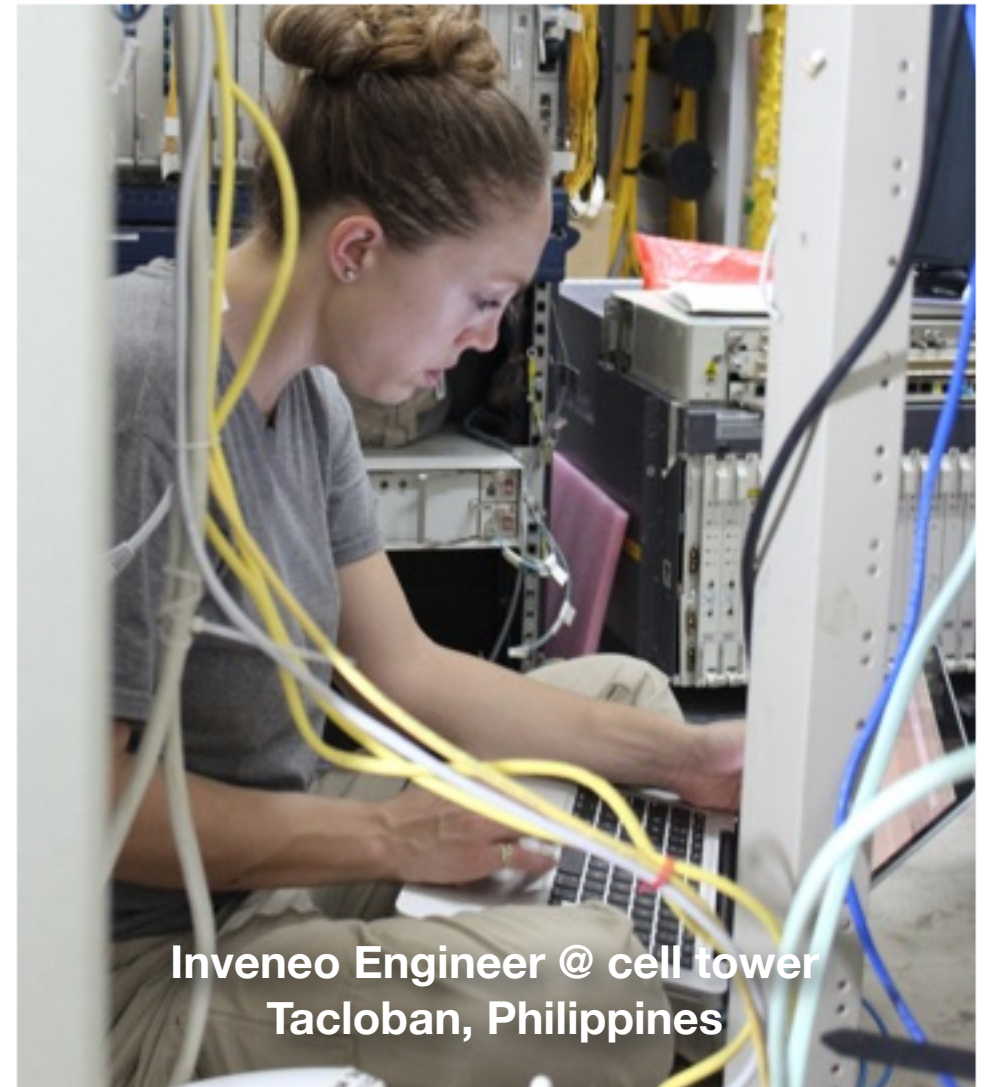
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 Scope: 15 locations
 Partner: Local ISPs, UN WFP/ETC
 Reach: 50,000 people in region





**Relay Station on Water Tower
Tacloban, Philippines**



**Inveneo Engineer @ cell tower
Tacloban, Philippines**

Typhoon Haiyan

Relief Projects

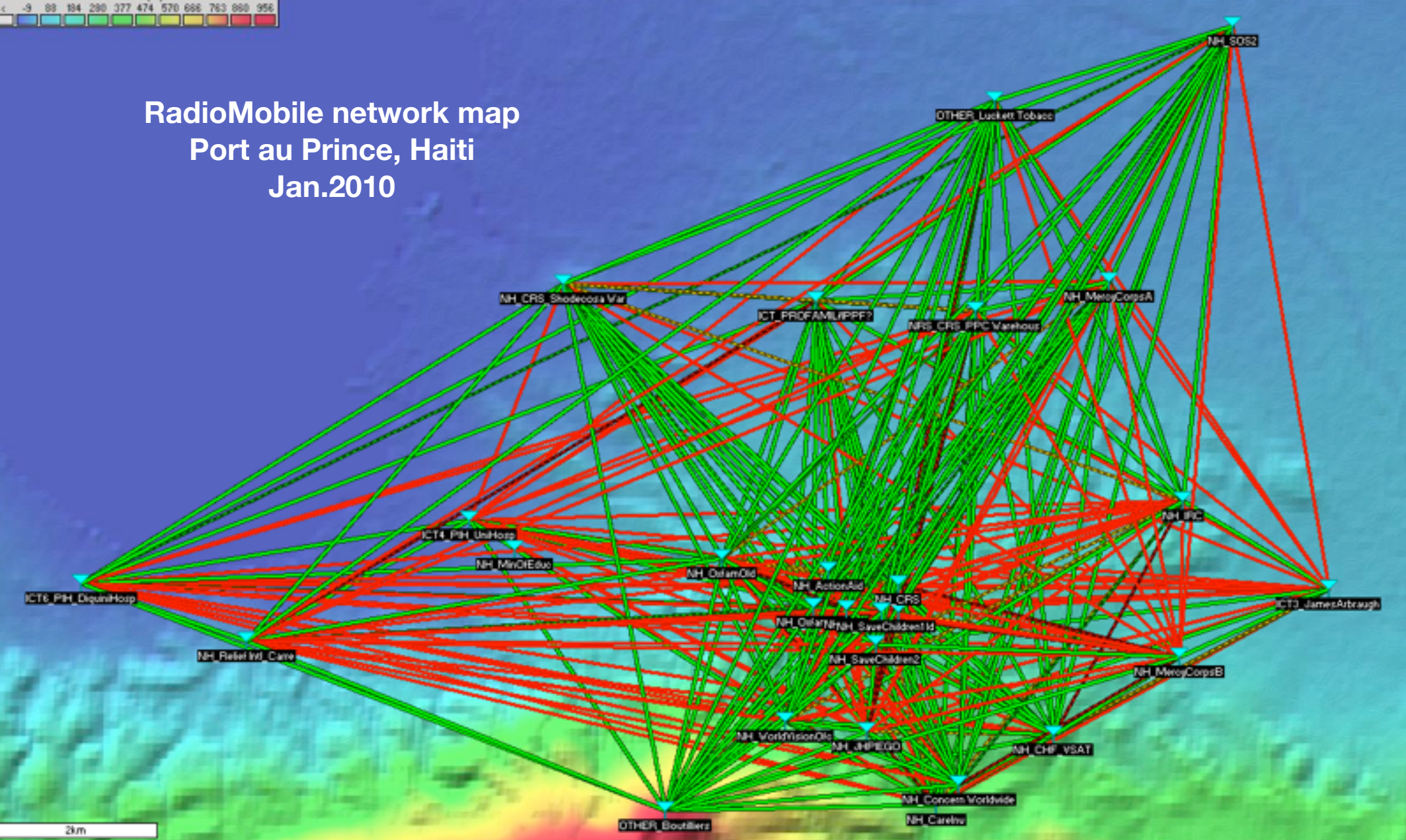
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RadioMobile network map

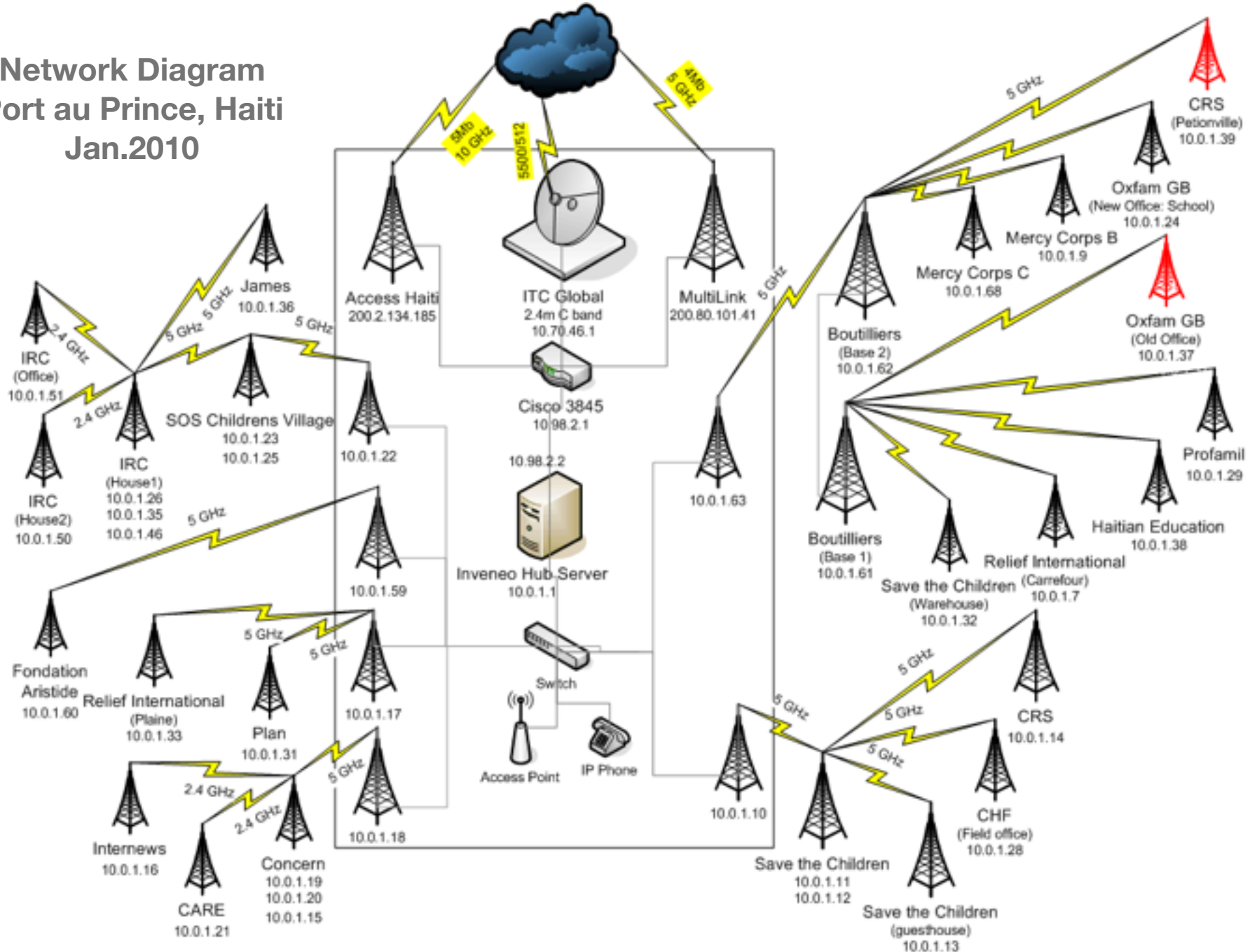
Port au Prince, Haiti

Jan.2010



Coverage Mapping, Haiti

Network Diagram Port au Prince, Haiti Jan.2010



Network Topology Planning, Haiti

Planning where and how to deploy
Accra, Ghana Dec.2014



Lots of gear — how to get it there?
where to store it safely?



Ebola Emergency Relief Projects

Clients: Facebook, Nethope, Paul Allen Family Foundation
Location: Sierra Leone & Liberia
Project: Ebola Emergency Communications Initiative (ERCI)
Sector: Emergency Relief
Scope: up to 100 locations
Partner: Damsel BC Sierra Leone, Techaide Ghana
Reach: 500,000+ people in region



Key Elements for Relief Deployments

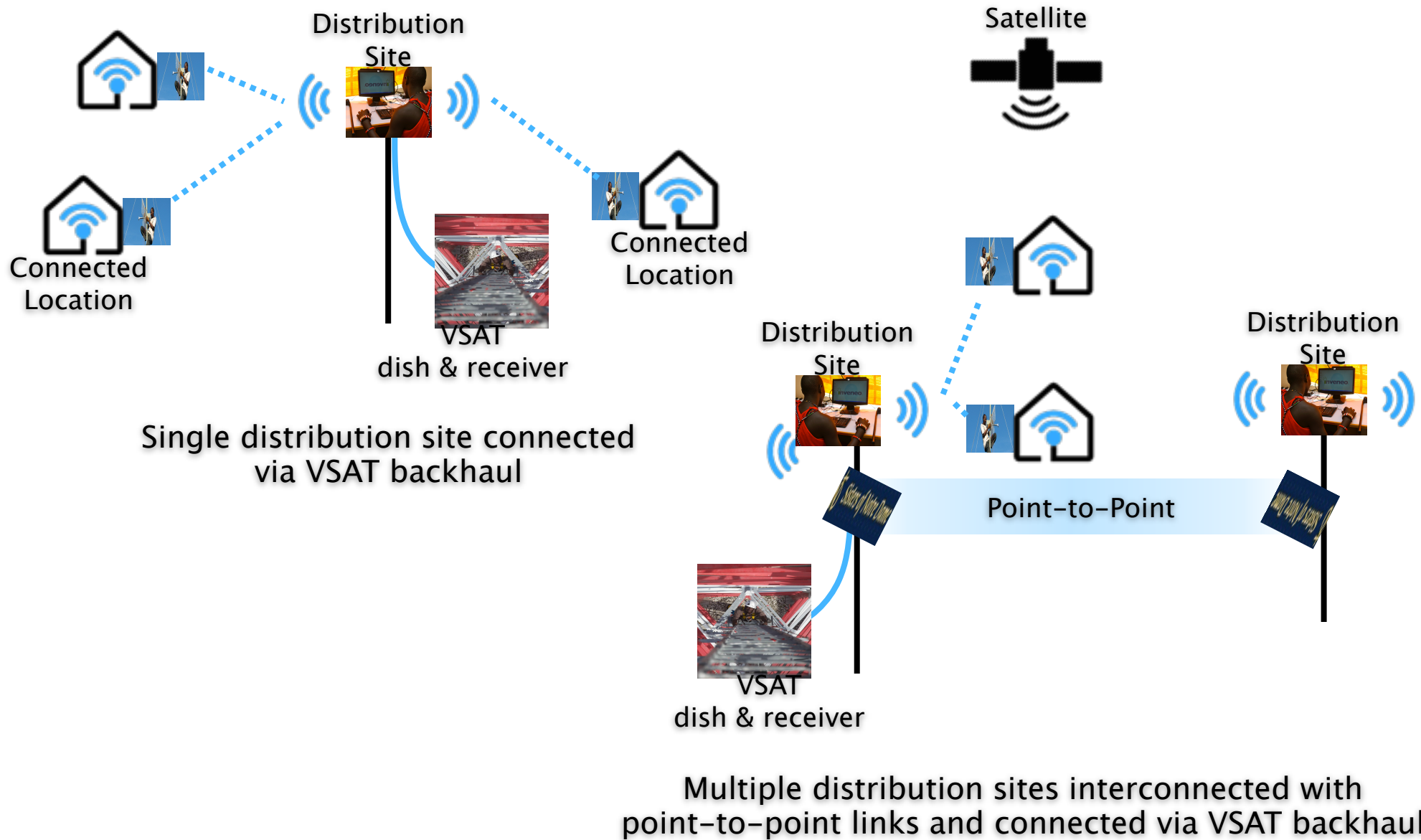
Preparation:

- Arrange partnerships
- Funders- local staff, govt, ISPs, MNOs
- Plan equipment & kits
- Survey sites, locally &/or remotely
- Plan Logistics
- Document all configurations
- Allow for contingencies
- Keep it Simple!

Field Work:

- Structure work in clusters
- Adapt to conditions
- Work around delays
- Document all changes
- Be consistent & repeatable
- Stay safe!
- Be efficient!

VSAT Backhaul to Distribution Kits



Relief Projects Ebola Emergency

Sites



Connected Site
Sierra Leone



Distribution Kit @ Tower site

Ebola Emergency Relief Projects

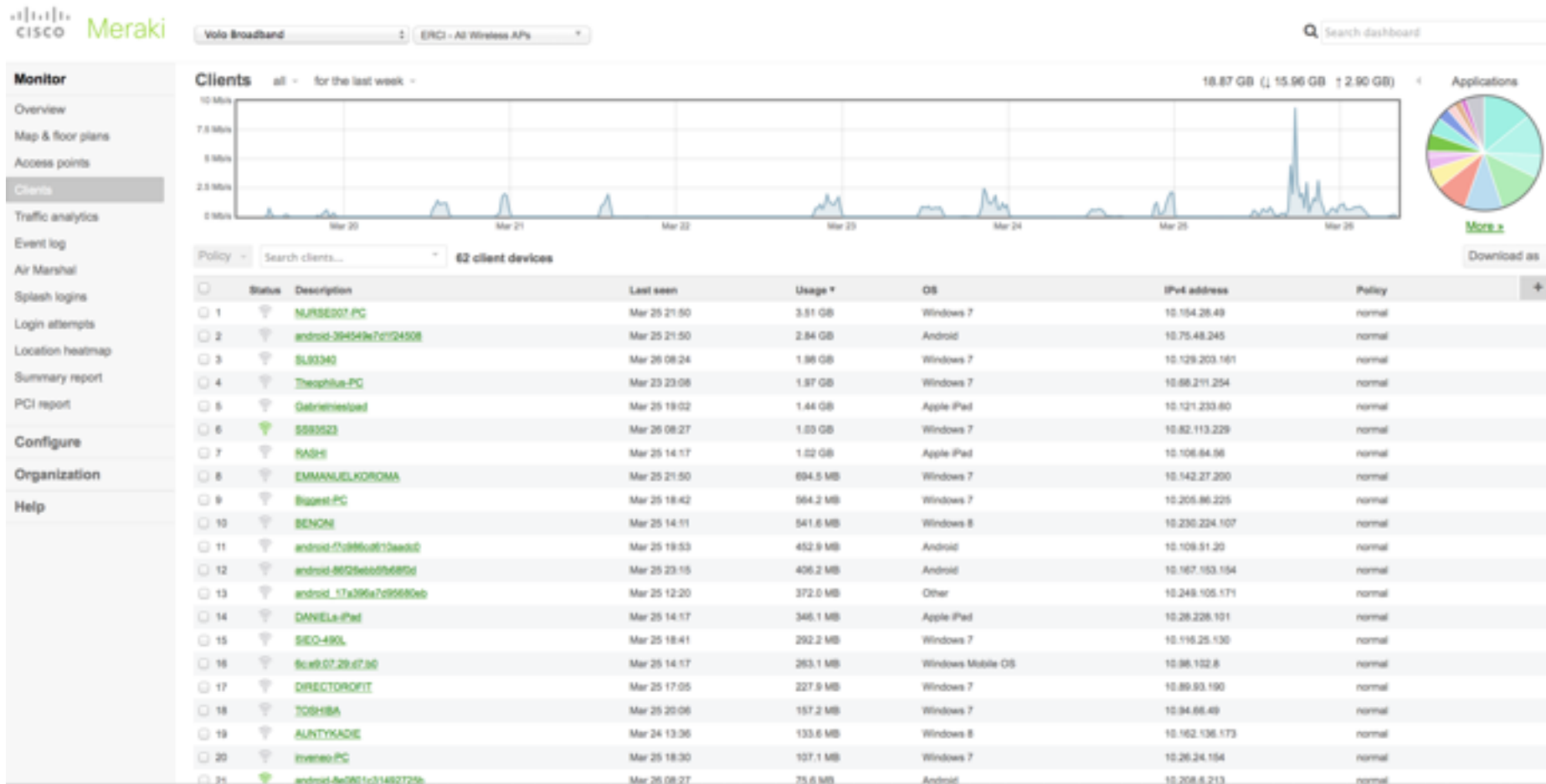
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Network Managment Software

- **Confluence** - Documentation
- **towerDB** - Site Inventory / Lifecycle / GIS analysis
- **Meraki Dashboard** - Local AP management / monitoring
- **Zabbix** - Kit infrastructure monitoring
- **Freshdesk** - Support and Dispatch Ticketing
- **TikManager** - Kit router management
- **ArcGIS Online** - Geo analysis & data sharing (FB team)

Cisco/Meraki Systems Manager screen

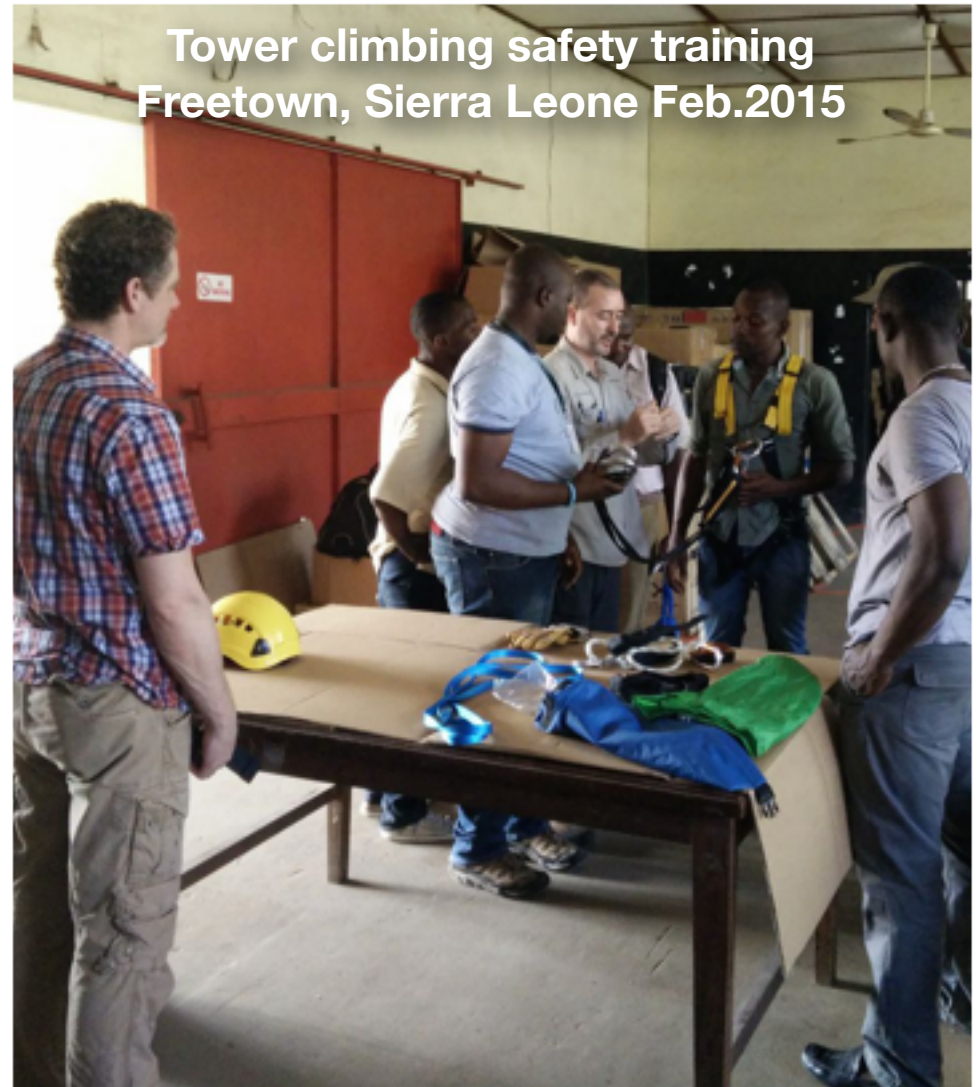


**The NOC team training
Accra, Ghana Jan.2015**



Techaide is Inveneo's long-time partner in Ghana, and is managing the ERCI Network Operations Center

**Tower climbing safety training
Freetown, Sierra Leone Feb.2015**



Damsel Business Centre is Inveneo's long-time partner in Sierra Leone, and is deploying & maintaining ERCI sites

Relief Projects Ebola Emergency



Useful Links

.....
<http://blogs.wsj.com/digits/2015/01/21/tech-firms-extend-internet-access-to-help-ebola-treatment-in-africa/?KEYWORDS=ebola>
.....

www.inveneo.org

www.nethope.org



Grazie molto

Questions please ...