Village Telco

- The Problem
- Village Telco
- Mesh Potato
- Dili Village Telco
Cities of the Future
The Problem

Help. I'm being gouged by my operator!
• In many countries mobile phone calls are very expensive
• For example US$0.25 cents/minute
• Average Income $1.52/day
• messages delivered by driving, runners, tax on business
• A phone call should be a human right, not a privilege of the rich
Village Telco
Mesh Wifi

- No AP

Mesh Wifi

Regular Wifi
Advantages of Mesh Networks

Extended range
Village Telco Goals

- Small Telco business for 2nd or 3rd world
- Self sustaining business (viral growth)
- Scalable up and down
- Business for a reasonably geeky entrepreneur
- $5,000 Capital
- 6 months break even
- Grounded in business (not tech or charity)
Village Telco and Cell Phones

- Call Cost
- Community Approach
- Unlicensed Spectrum
- Infrastructure cost and availability
- Cell Phone networks don't scale down
- Capital (it's not just the handsets)
Ideas

- Cell Networks (closed, strong licensing, high cost/bit) versus the Internet (open standards, unlicensed, anyone can connect, low cost/bit).
- Community ownership versus big business or government
- Development: Many good projects have been ruined by money
- Voice is the killer application.
Mesh Potato

- wifi land line
- POT-ATA
- target USD$60
- open hardware
- product
- custom
- dev world
• Design for real world problems based on field experience of Village Telco team

• Reverse polarity on DC connector

• 240VAC connected to DC connector!

• Wide range AC adaptor (350VAC)

• Humidity, rain, hail, connector weatherproofing

• Lightning protection on phone port
Dili Village Telco

- First real world deployment of Village Telco
- Partnership with Fongtil – Timorese IT & Wifi guys
- Not just technical problems!
Life in the Developing World

- Timor was part of Indonesia until 1999
- Studied IT in Indonesia
- Involved in Timorese independence movement in 1996
- Jumped in Polish embassy to avoid arrest
- Spent 4 years in Portugal (political asylum)
- The whole country of Timor Leste was REBOOTED in 1999
- Wants to help Timor develop
- No one knows how to use computer
- No networking or IT knowledge
- Decided to work for NGO Forum (Fongtil)
- Fongtil organisation helps other NGOs in Timor with IT, VOIP, training, PC repair
- Lemi is motivated to help his country
Life in the Developing World 3

- Bandwidth, Virus
- Power lost for hours each day
- Local Expertise, Linux command line
- Relative Cost
- Shipping (mail service, couriers)
- What happens when the foreigner goes home?
- Making anything work in the developing world is very difficult
Dili Village Telco - Goals

Goals

- Train Timorese to install a Village Telco network
- Install 100 Mesh Potatoes
- Build a local call telephone network
Project Plan

- Rowetel provides training and equipment
- Fongtil and Timorese people perform installation
- Fongtil and Timorese people run and maintain network
Surprises

- How bad Wifi Interference can be
- Killer app is VOIP for local calls
- Value in even partial functionality
- Each phone call is like a valuable gift
- Ease of installation, no 1st world guy
- Very popular project with Timorese
- Local demand very strong
Outcomes

- 70 nodes deployed, demand for more
- Very easy to set up
- Some problems with mesh links
- Timorese training Timorese
- A phone call can save a 3 hour walk
- Connecting rural Clinics, Police, Ambulance, NGOs, University IT support
- Really helping people every day!
- Land line training
What Worked

- Ease of Set up
- Training
- Timorese training Timorese
- Due to popular demand - expansion to two other towns (Baucau and Ermera)
- End users very, very happy
- Strong demand for expansion
- You really can make phone calls.....
What went Wrong

- Nasty Interference in Dili
- Usual schedule slips and staff movements
- Ease of use idea breaks down in some cases and we are back on the command line
- Reliance on 3rd party hardware
- Local calls means no business model
Patience

- Different to the 1st world
- Imagine your power going off for several hours a day
- Usefulness in even partial functionality
- 1/5 tech projects actually work
- It's OK if it takes a few more months
- as long as WE know how.......
Future

- Timorese team will continue to expand in 2011
- Improve long distance links
- Work on business model
- Timorese now spending own valuable $ now grant money has finished
- In Developing World projects it doesn't get any better than that.....
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- Village Telco community
- http://dili.villagetelco.org
- TAPR