THE ARAVIND EYE HOSPITAL
TELEMEDICINE PROJECT

The Things I Thought I’d Never Do

Sonesh Surana
I290: Designing Rural Computing Applications
Guest Lecture
November 4, 2008
Timeline

- **2004**: 1 day
- **2005**: 107 days (Aug 2004: 1 day, June 2005: 24 days, Dec 2005: 37 days)
- **2006**: 26 days (Aug 2005: 21 days)
- **2008**: 12 days (Feb 2006: 6 days, Jan 2008: 12 days)
- **Total**: 146 days
Tower Challenges?
Training Challenges?
Pls dont use this computer. Because this is Server. Pls Co-operate to this.
“So then we put the separate modem at chimney now the link has been up it means, in Theni router-3 we put the ath1 card and it is focusing the new separate modem at chimney.

We have pointed out one think ie we put the new wireless card in the existing modem(suppose we put the ath1 in , Theni router-3 , already it connected to SBS through ath0) the link quality will be down).”
Power Challenges?
Poor Quality Power

Spikes and Swells:
- Lost 50 power adapters
- Burned 30 PoE ports

Low Voltages:
- Incomplete boots
- HW watchdog fails

Frequent Fluctuations:
- CF corruptions
- Battery Damage

Voltage Range

Number of Instances seen over 6 weeks

- 500 to 1000
- 400 to 500
- 300 to 400
- -300 to -400
- -400 to -500
- -500 to -1000

Veerampattinam
Villianur
“Affordable” UPS systems ($300) are of *standby-type*
- Primary source is grid
- Secondary source is battery
- Good quality power supplied only during outage!
Real Cost of Power

- Assume 7W

- Monthly Costs
  - Grid: $0.25
  - UPS + Battery: $6.08 (24X more!!)
  - 50W Panel + Controller + Battery: $8.24
Some Results
Operational Results

Migration at Aravind

- Maintenance
- Management
- Installation
- Equipment Supply

2007: 5 more clinic links
Patient Throughput

90,000 patients screened; vision restored for 15,858

Number of Patients

Time in Months (Jan 2006 to September 2008)
Thank You!