Wireless Networks Project Concept Note

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OUTLINE

- Introduction
- Problem definition
- Objectives
- System model
- Expected outcome
- Conclusions

Problem Definition

- Poor health indicators eg low doctor-patient ratio.

- 3 main hospitals QECH, KCH and MZCH

- Referral Hospitals receive a large number of patients from remote rural communities despite the fact that health units exist in these communities because they want to access specialists and high technology equipment.

- Health practitioners in the rural healthcare units do not have access to the specialist consultation services which are available in referral hospitals.

- Transfer of patients to Referral Hospitals may also be difficult because most people are too poor to meet the costs of transfer.

- Lack of access to scientific literature and quality education materials by Health Workers and Medical Students.

Problem definition 2

- Realize that transporting health information and services through ICT's, is faster and less expensive than transporting either patients or doctors.

- Realizing that ICT enhances access to accurate and timely health information and services.

- Use of ICT's (Telemedicine/e-health) has the potential to mitigate the problems allowing for equitable health care, and Continuing Medical Education (CME)

Project objectives

- Overall objective is to implement and evaluate a pilot Telemedicine Project designed to demonstrate how the use of information and communication technologies (ICT) can support the delivery of community based health care services.
- Specific Objectives
  - To provide easy access to data and voice services in health institutions of Malawi
  - To test the suitability of wireless access infrastructure for delivering multimedia applications such as telemedicine,
  - To serve as a case study for administrations in in the central and local government departments in Malawi looking to implement wireless technology.
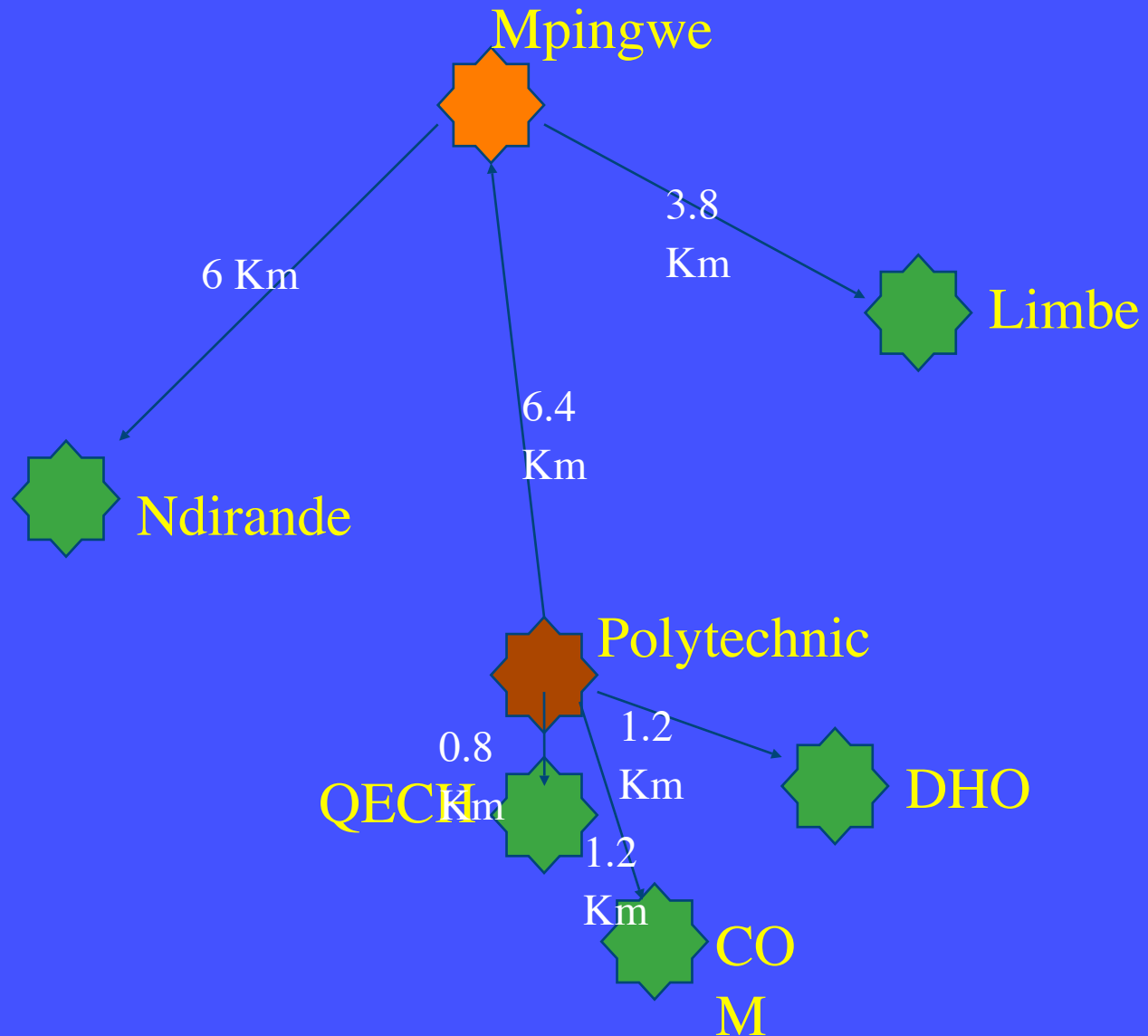
Methodology

- Pilot project approach
- Participatory Rapid Appraisal (PRA)
- Baseline survey
- Development
- Assessment and optimisation
- Implementation
- Monitoring
- Evaluation
- Training/ workshop: Stakeholders, Users

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System Architecture

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Mpingwe

Limbe

3.8 Km

6 Km

6.4 Km

Ndirande

Polytechnic

1.2 Km

0.8 Km

QECH

DHO

1.2 Km

COM

Sites GPS Coordinates

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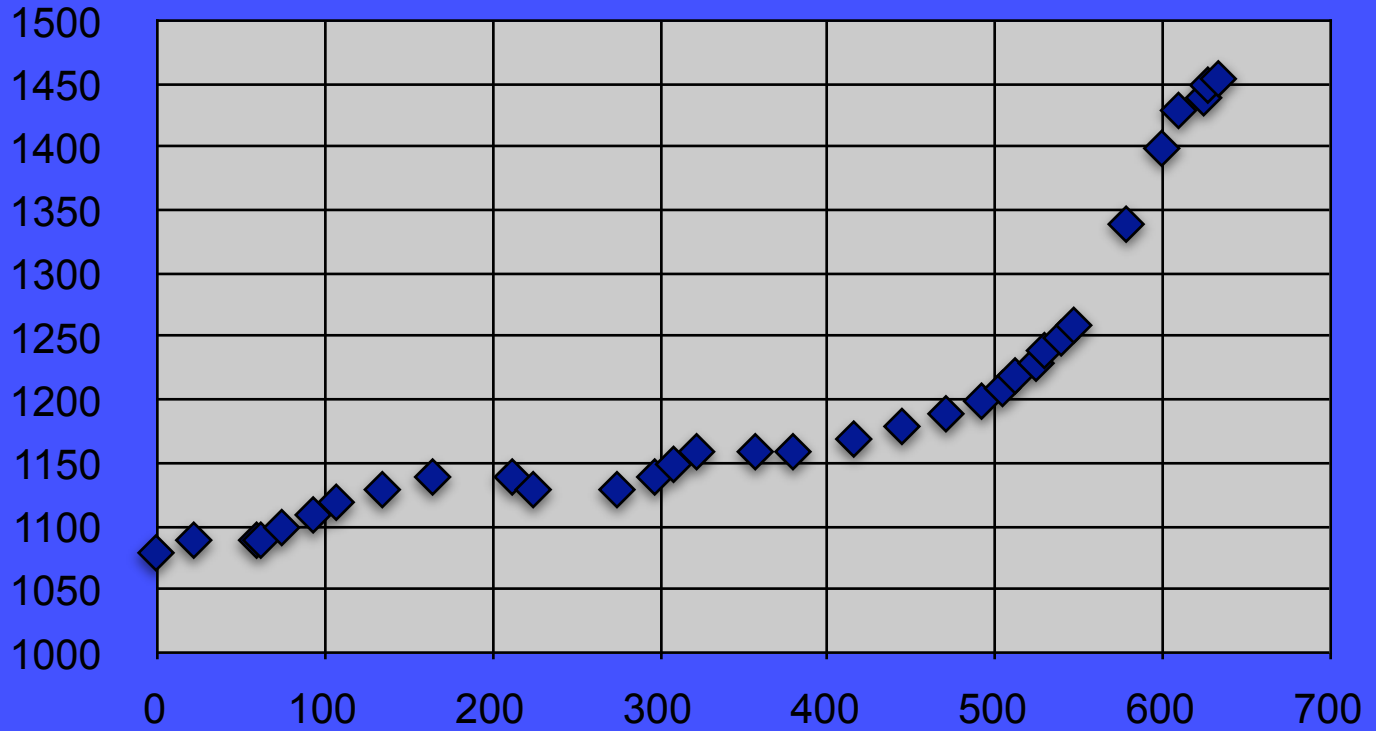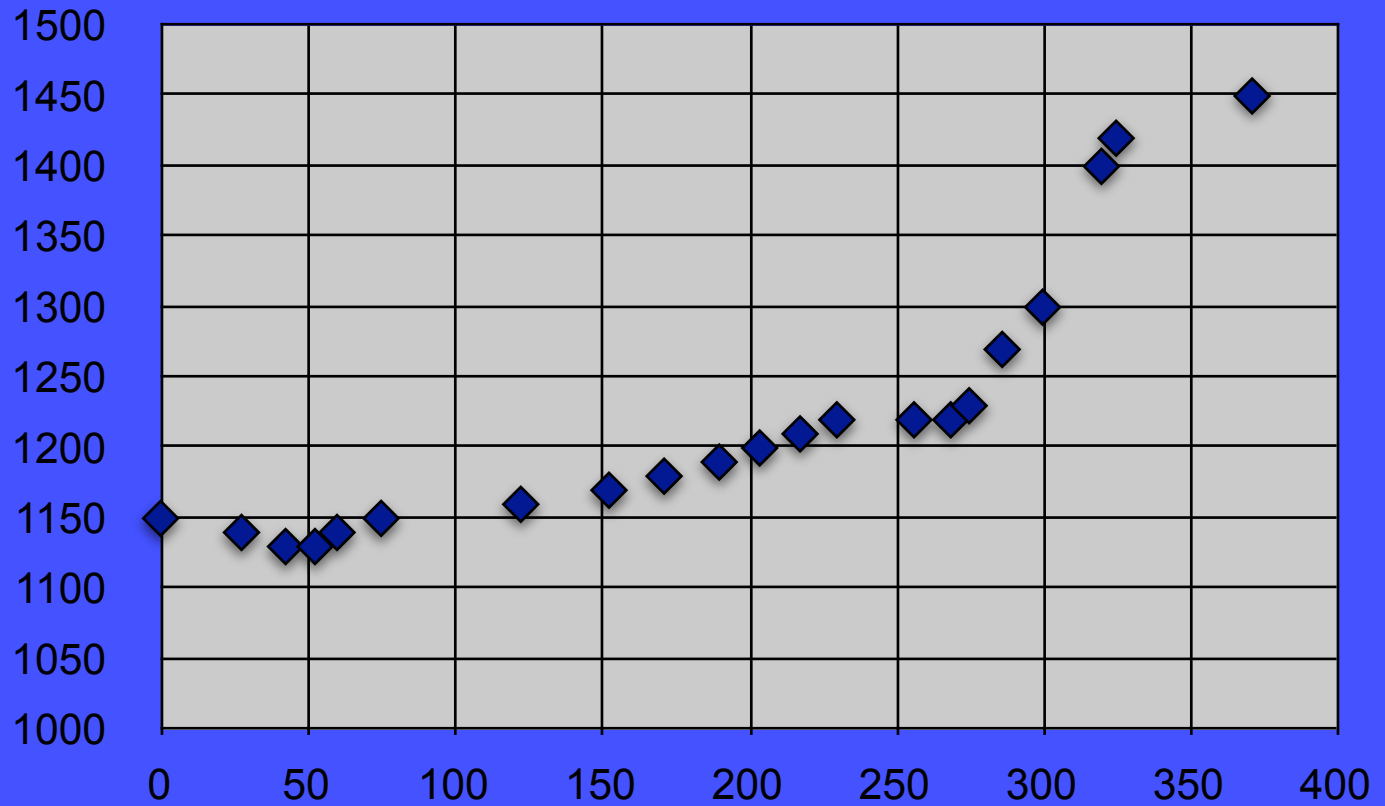|	Northing	Easting	Elevation
Poly	8252267	717167	1088
QECH	8252263	716403	1120
Limbe	8250559	719809	1163
Mpingwe	8251461	723479	1457
Ndirande	8254808	718497	1112
DHO	8251988	716034	1087
COM	8252239	716008	1172

Poly-QECH-COM Profile
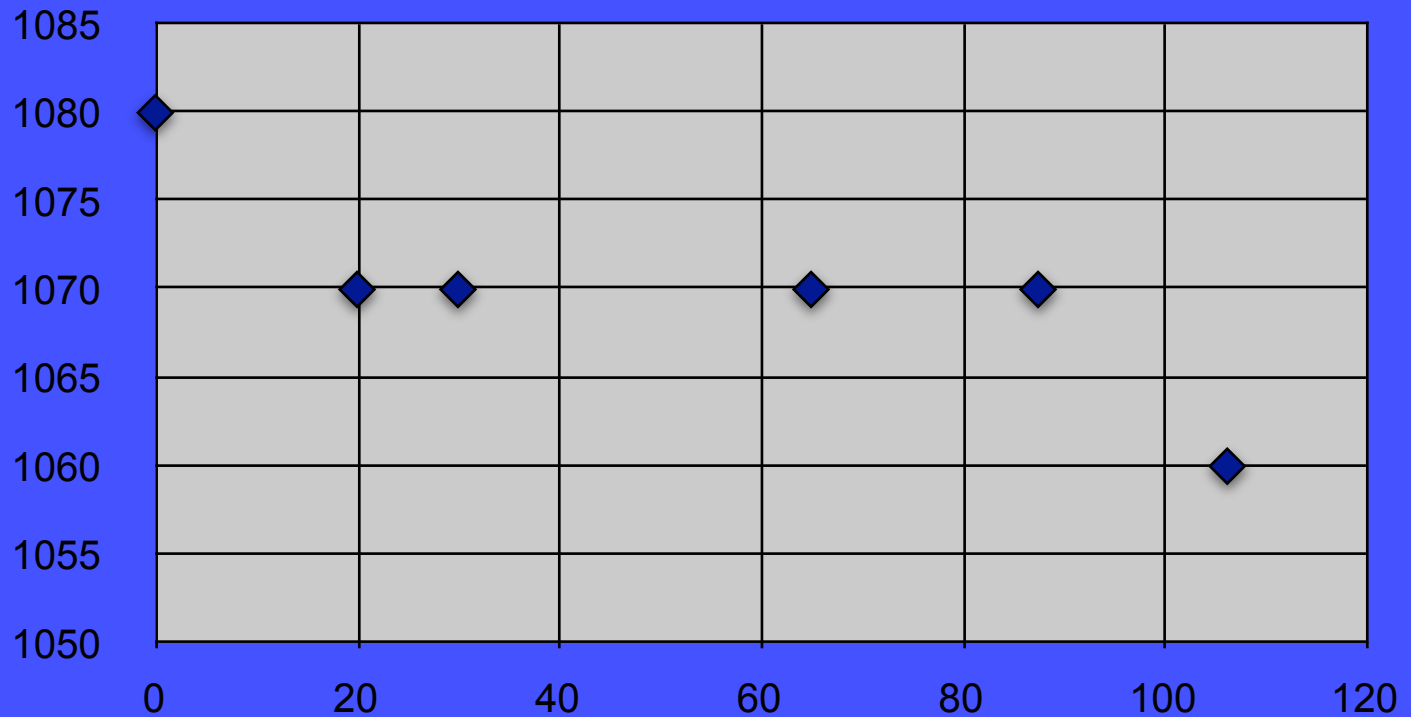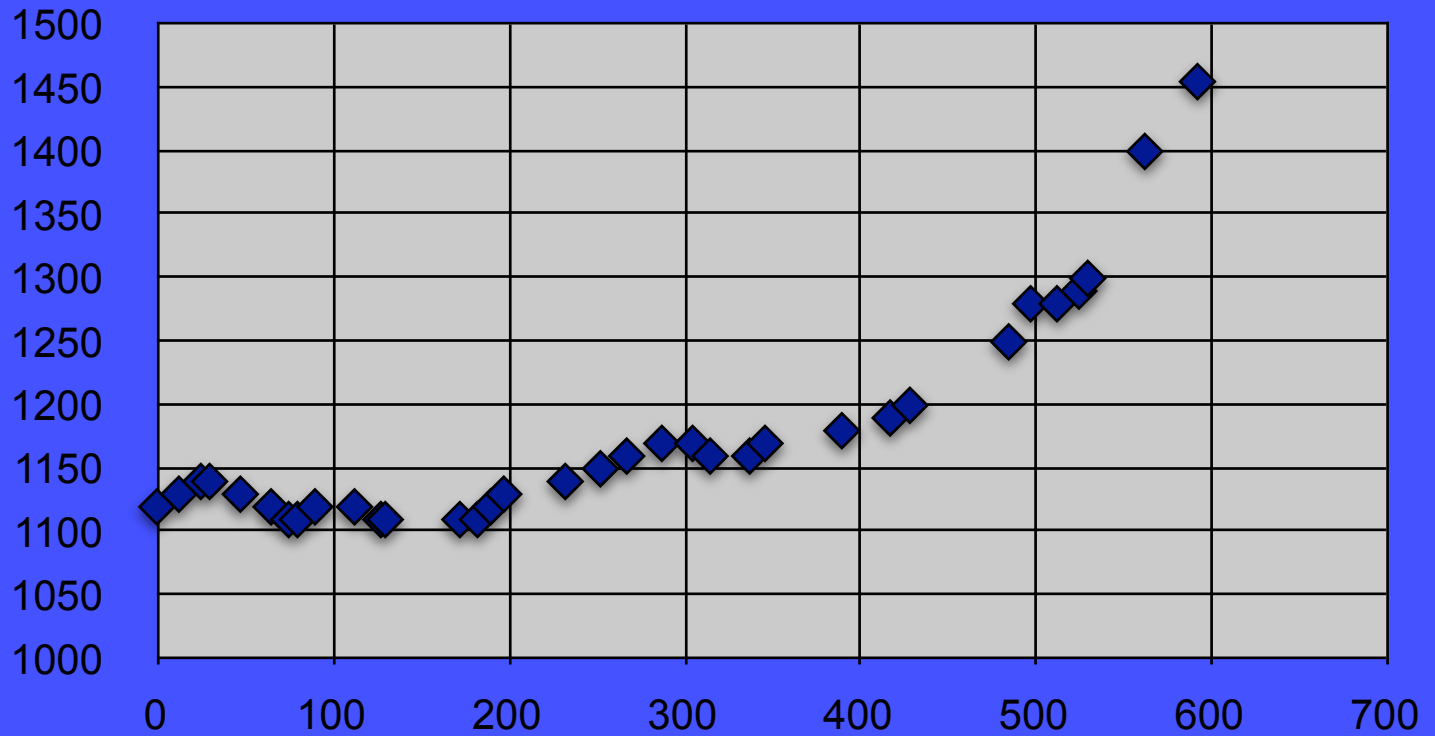
Mpingwe-Poly Profile

Mpingwe-Limbe Profile

Mpingwe-Ndirande Profile

Descriptive data for Site

	QECH	NDIRANDE	LIMBE
Patients per day	1150 (out) 160(In)	1000 (out)	800 (out)
Doctors/ clinician/ nurse	9/-/227	0/2/16	0/2/10
Telephone	Yes	unreliable	Unreliable
Email	Yes(2 offices)	None	None
Internet	Dial-up	None	None
Support	Yes-Start with Gyna and Obs	Yes	Yes

ICT Situation @Poly

- Internet Connectivity-
  - 128/64 (current), 512/256 (planned), 1024/256 required
  - ISP Ethernet cable, VSAT appropriate
- LAN
  - 150 wired
  - Wireless: CISCO Antenna and Bridge
- Others
  - Fibre connection to COM (part of the proposed MAREN)
- Servers
  - SUN for E-learning, internet connectivity
  - Compac: Student information system
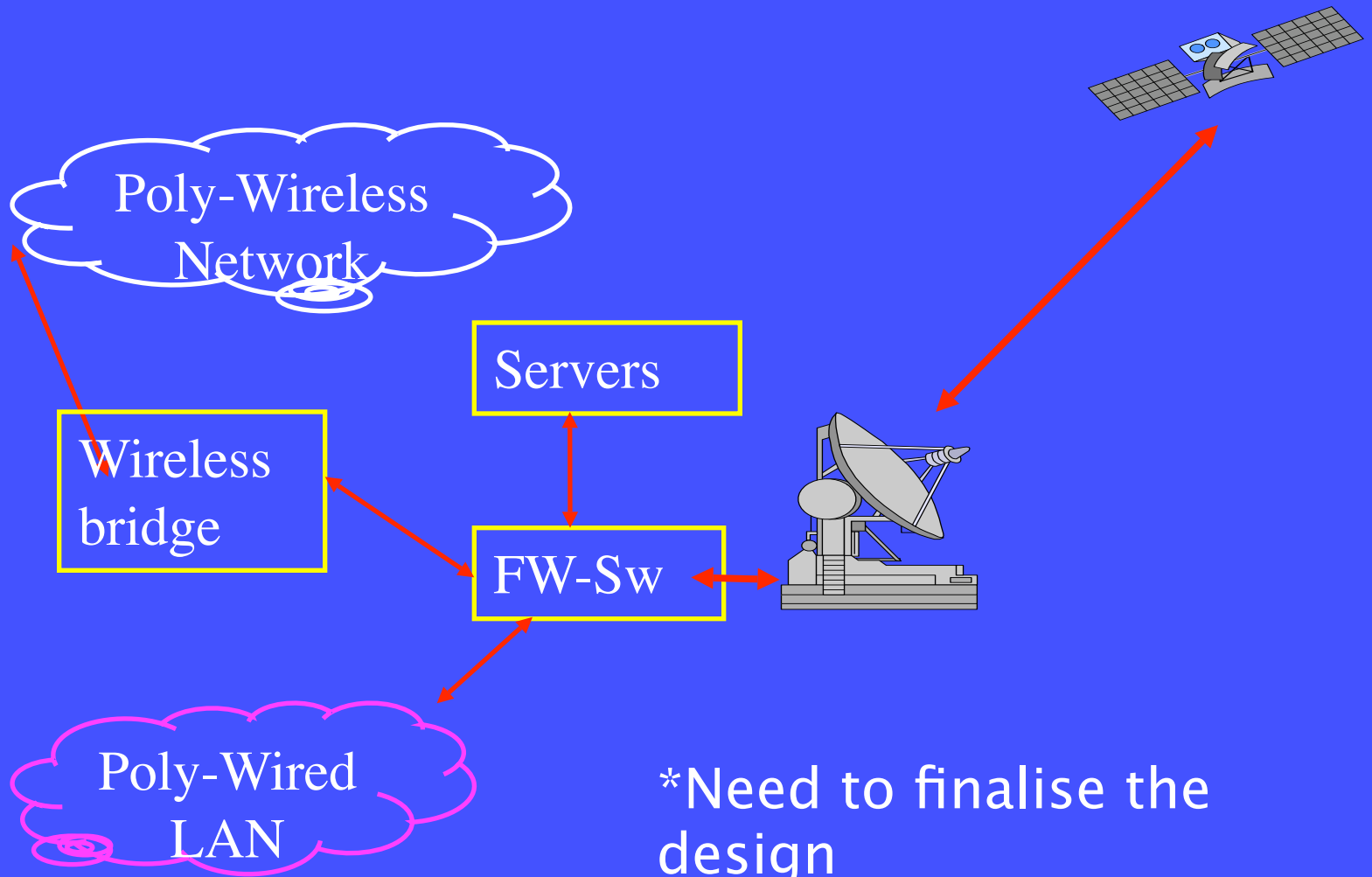 - SUN for Students portal and University Management Information system

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Requirements for Managed Sites

	QECH	NDIRANDE	LIMBE
Computer with ups	3	3	3
Bridges	1	1	1
Routers	1	1	1
Hubs/switches	Depends on units to be connected	Depends on units to be connected	Depends on units to be connected
Antenna	1	1	1
accessories	WebCam, Digital Camera, VOIP,etc	WebCam, Digital Camera, VOIP, etc	WebCam, Digital Camera,VOIP, etc

Tentative Requirements for Poly Node

Poly-Wireless Network

Servers

Wireless bridge

FW-Sw

Poly-Wired LAN

*Need to finalise the design

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Requirements for Repeater @ Mpingwe

- One Radio (One arm) versus multi-radios

Remarks

- Complete project proposal: Technical and Financial
- Complete design of the network
  - Link design
  - Capacity estimation
  - Interference and Noise mitigation
  - Appropriate hardware, software and tools
  - Test and experimenting tools
- Business model for sustainability
- Project management
- Network Security
- Experience from other similar projects
- Open research issues

Thank you

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