

Equity of Access for Remote Campuses

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Summary

Characteristics of remote campuses

Competing technologies

Example solutions

Technology update

Shameless self promotion



Characteristics of remote campuses

Availability of services

Proximity

Size

Stage of development

Importance



Availability of Services

Private Fibre

Private Microwave

Dark Fibre

Managed Service

NBN?????





Proximity

Close by (under 2 km, 1 – 10 gig)

Same metropolitan area (2 – 10 km, 100 M – 1 gig)

Same region (10 – 100 km, 100 M – 500 M)

Distant (more than 100 km, 100 M – 500 M)





Size

Capacity varies with function and student numbers

100 Mbps is cost effective entry point

Microwave maxes out at around 4 Gbps





Stage of Development

New campuses are simple to integrate

Aesthetics matter

Achieve stake holder buy in





Importance

Difficult to measure

Politics can be key

Microwave a cost effective option when budget is limited





Competing Technologies



Private Fibre

Very high capacity (1 – 100 gig)

High capital cost

Difficult to access ducts and pits

Catenary (overhead) is exposed

Great flexibility



Private Microwave

High capacity (1 – 4 gig)

Medium capital cost

Easy deployment (usually!)

Great flexibility





Dark Fibre

Very high capacity (1 – 100 gig)

Low capital cost

Easy deployment

Extremely limited availability

Great flexibility



Managed Services

Relatively low capacity (sub 1 gig)

Low capital cost

Easy deployment

Limited control



NBN

Limited availability

Plans are published for geographic coverage

No commercial services announced

Fibre limited outside high population density areas



Example Solutions



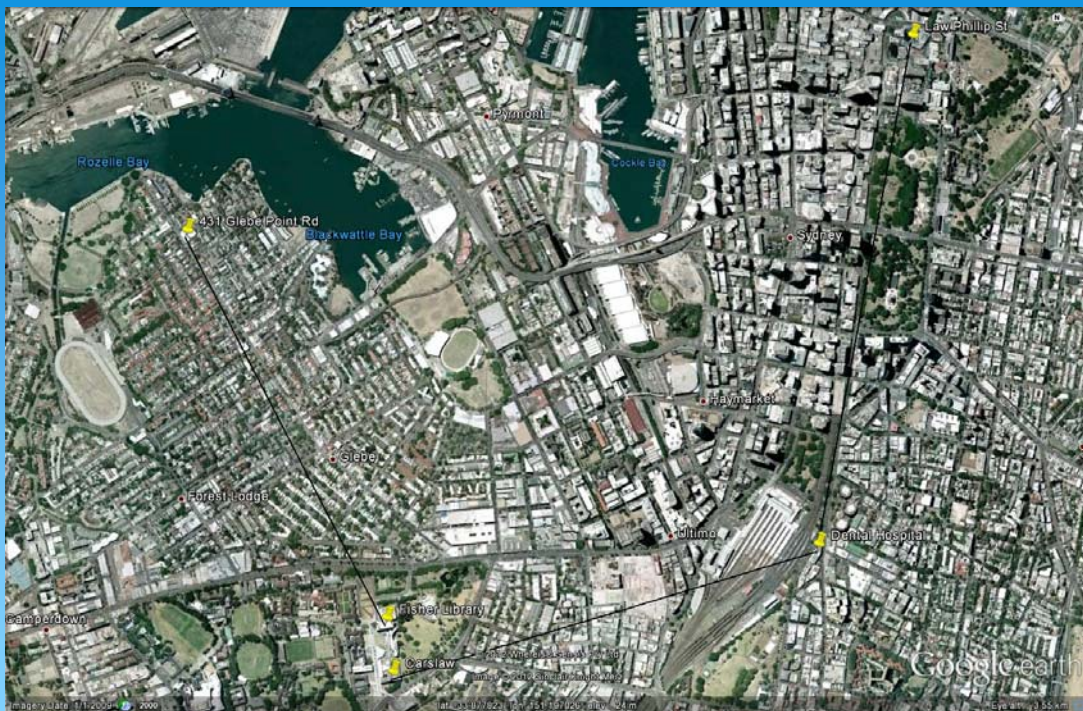
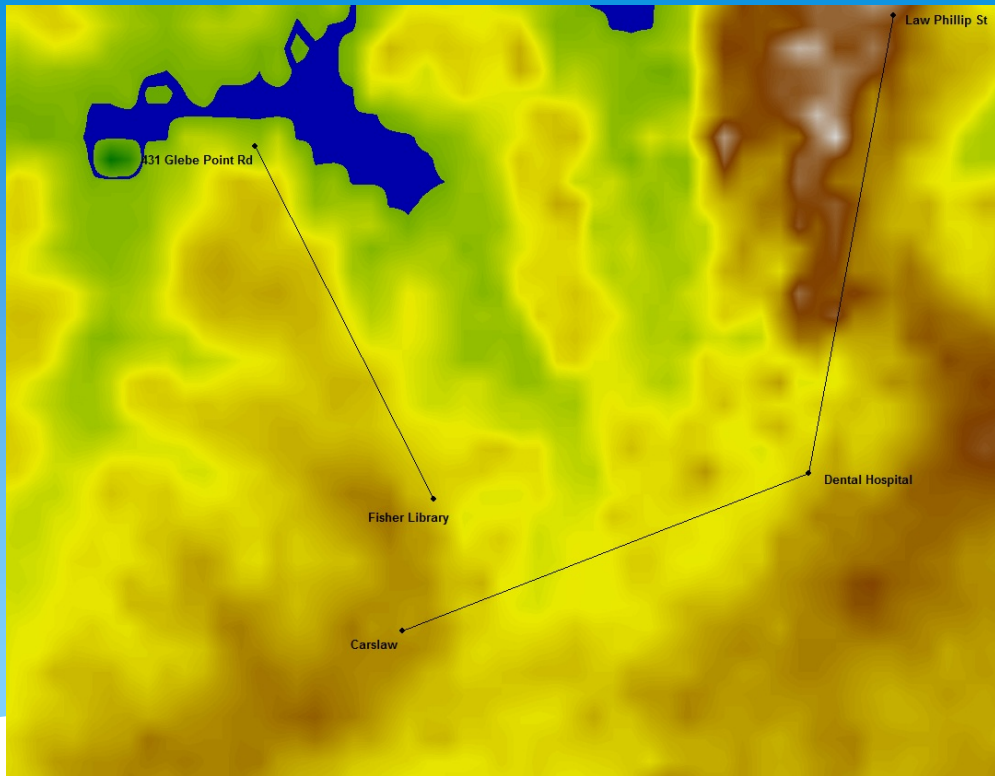
Close

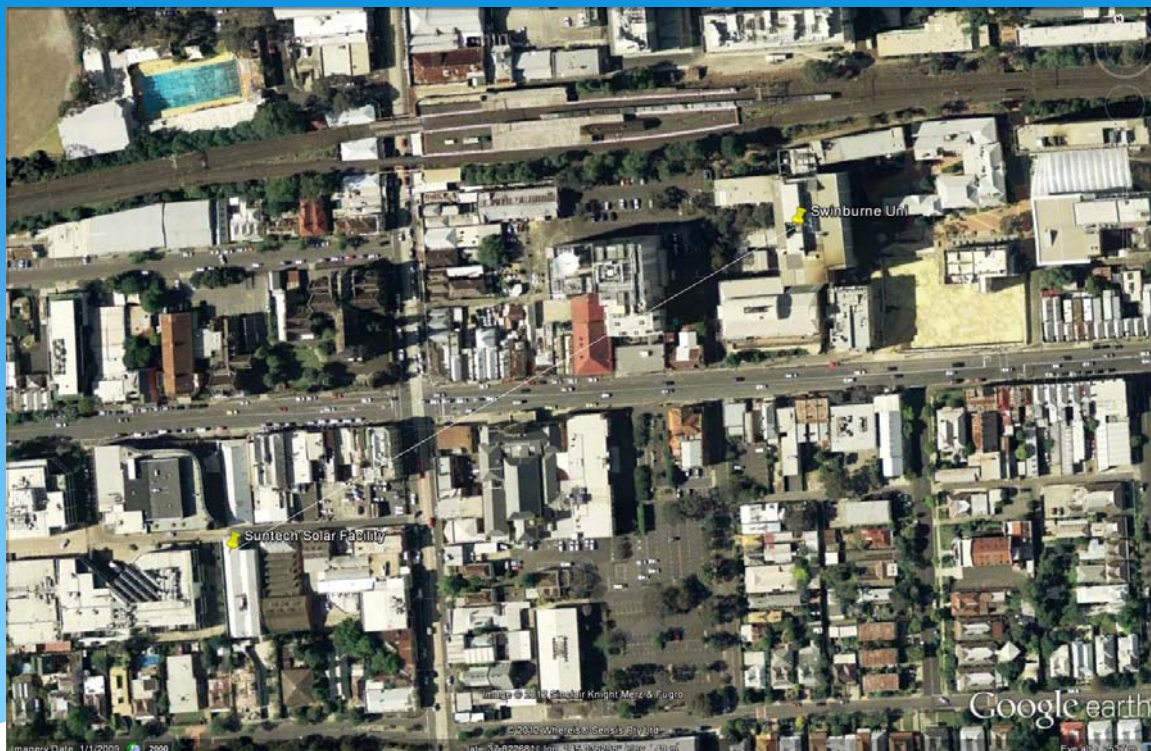
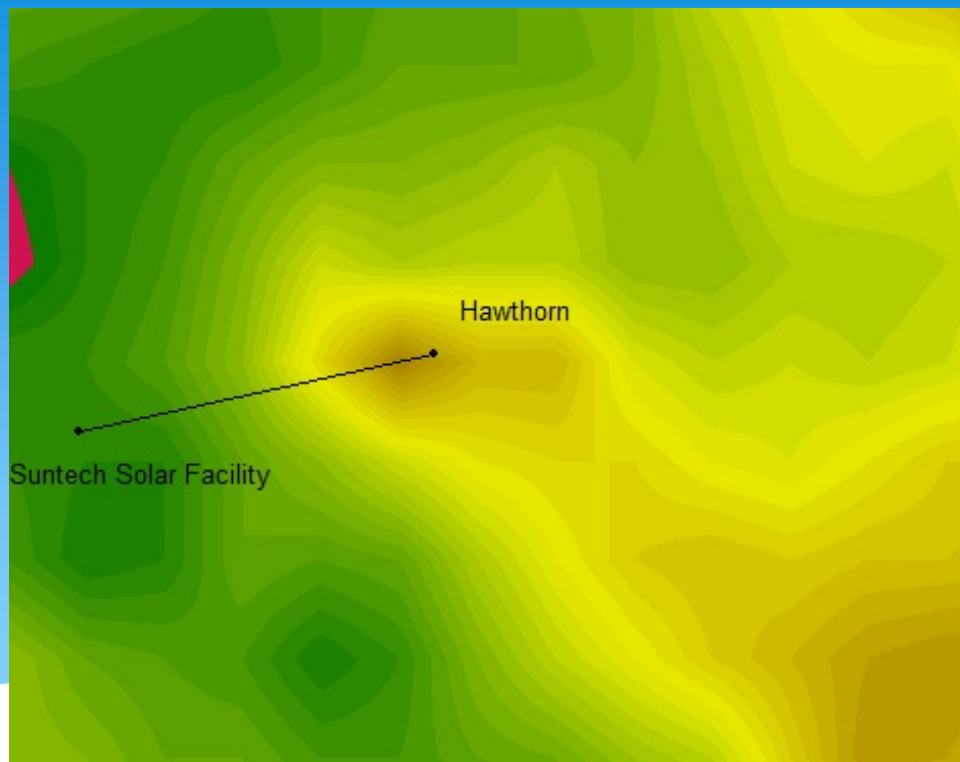
University of Sydney, GigE

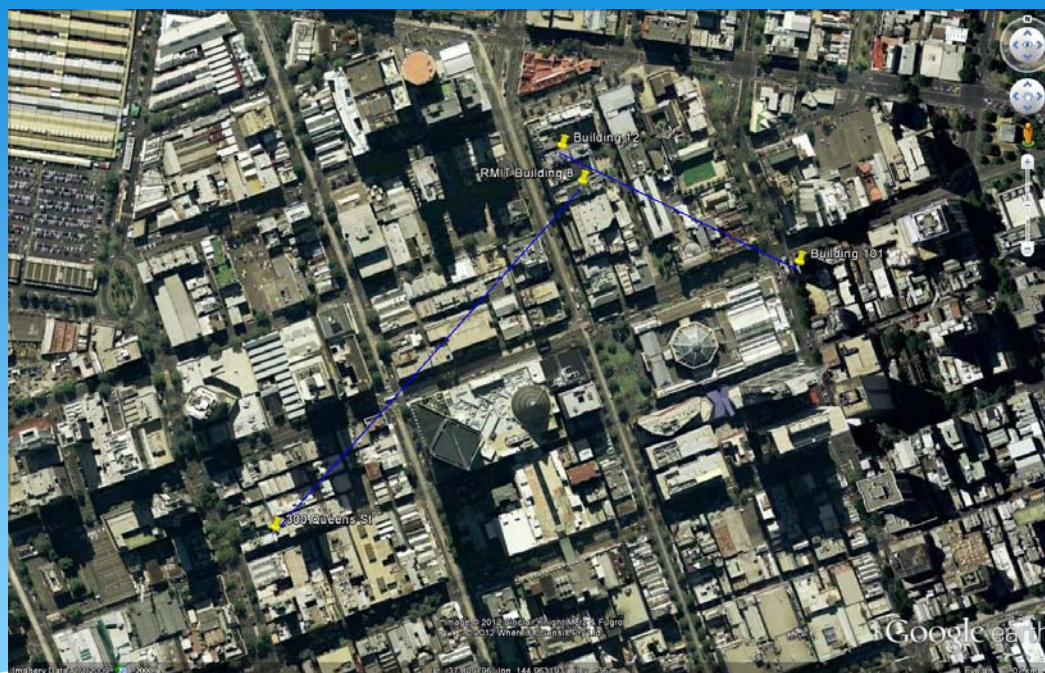
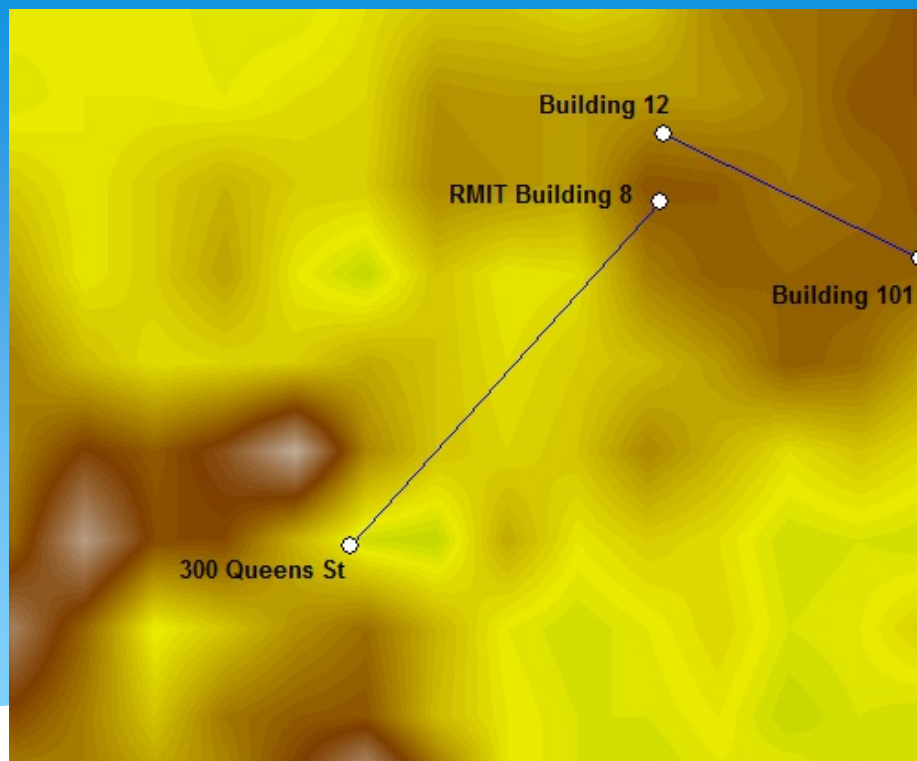
Swinburne University, GigE

RMIT, GigE







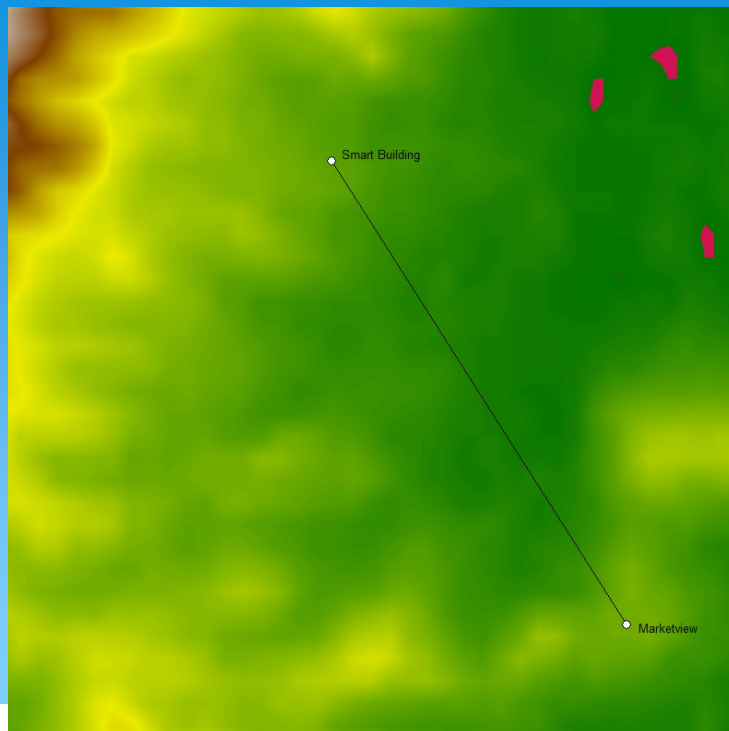


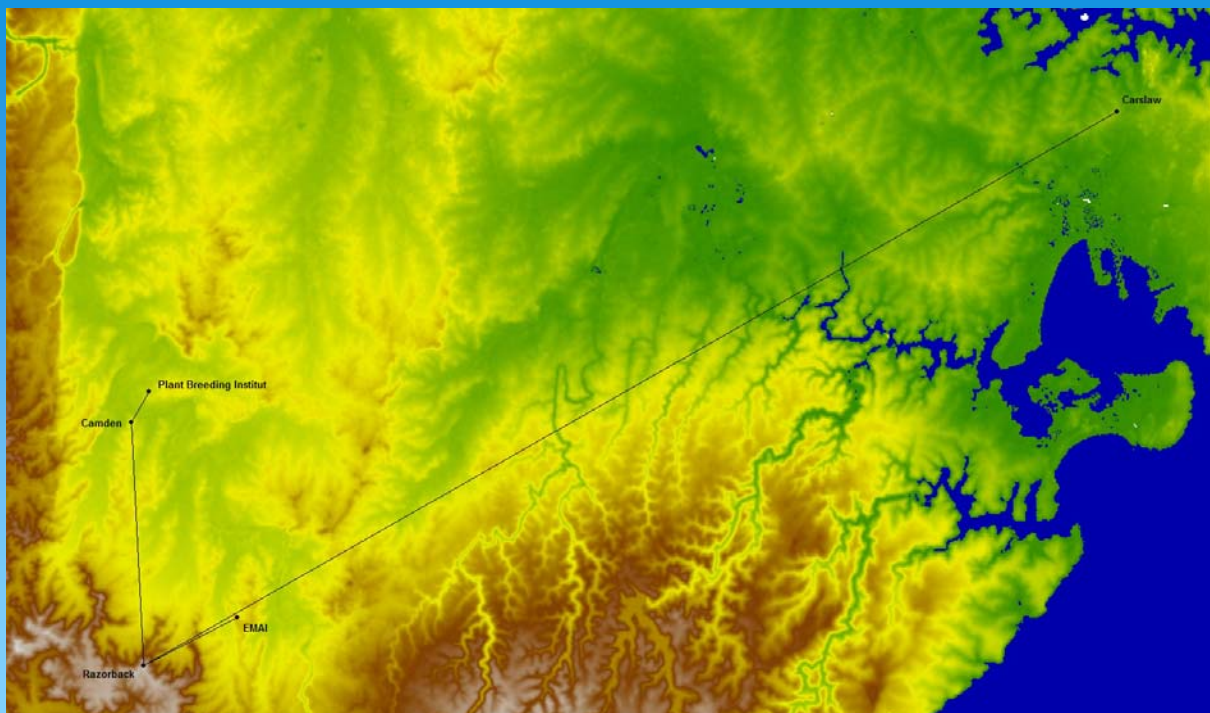
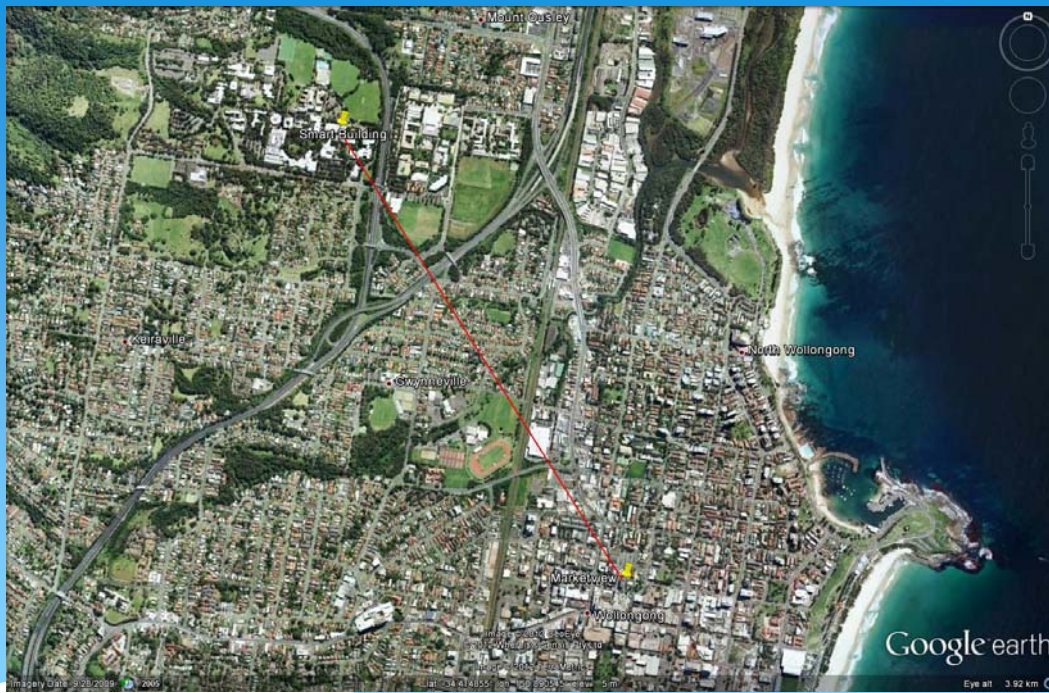
Metropolitan

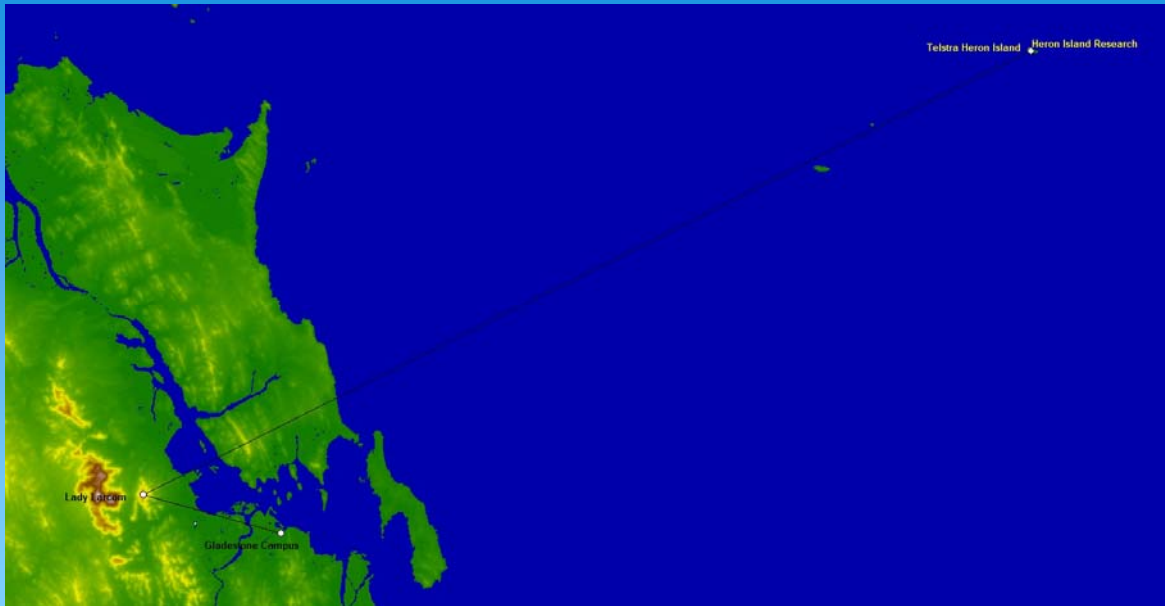
UoW, 100 Mbps

UoSyd, 100 Mbps

UoQ, 200 Mbps







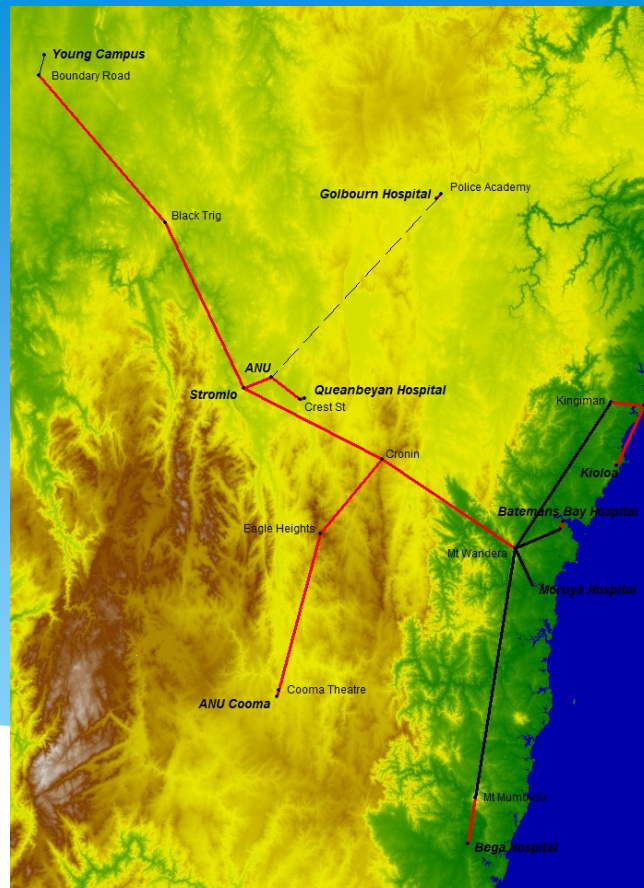
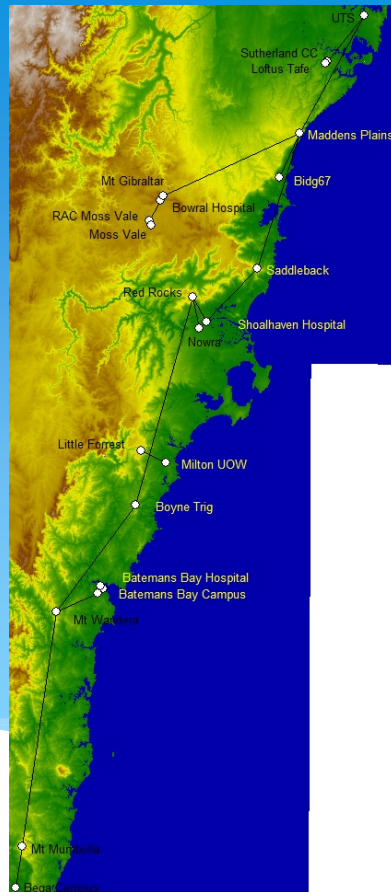
Distant

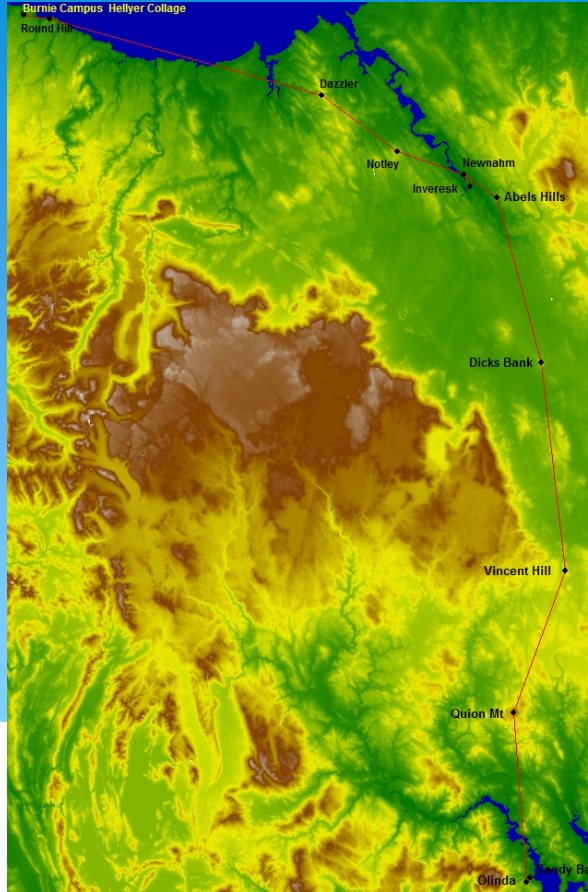
UoW, 100 Mbps

ANU, 100 Mbps

UoTas, 200 Mbps







Technology Update

Capacity – up to 4 Gbps

- Channel concatenation
- Higher modulation (256-2048 QAM)
- 10 G interfaces

Reliability – ACM

- Rate adaption

Compression

- Payload
- Headers

ATI

Twenty years supporting the Tertiary sector

Unashamedly an Engineering organisation

Warrant performance and design

Unmatched support capability and commitment



Take Home Message

Microwave is competitive

Capacities are massive

Deployment is cost effective

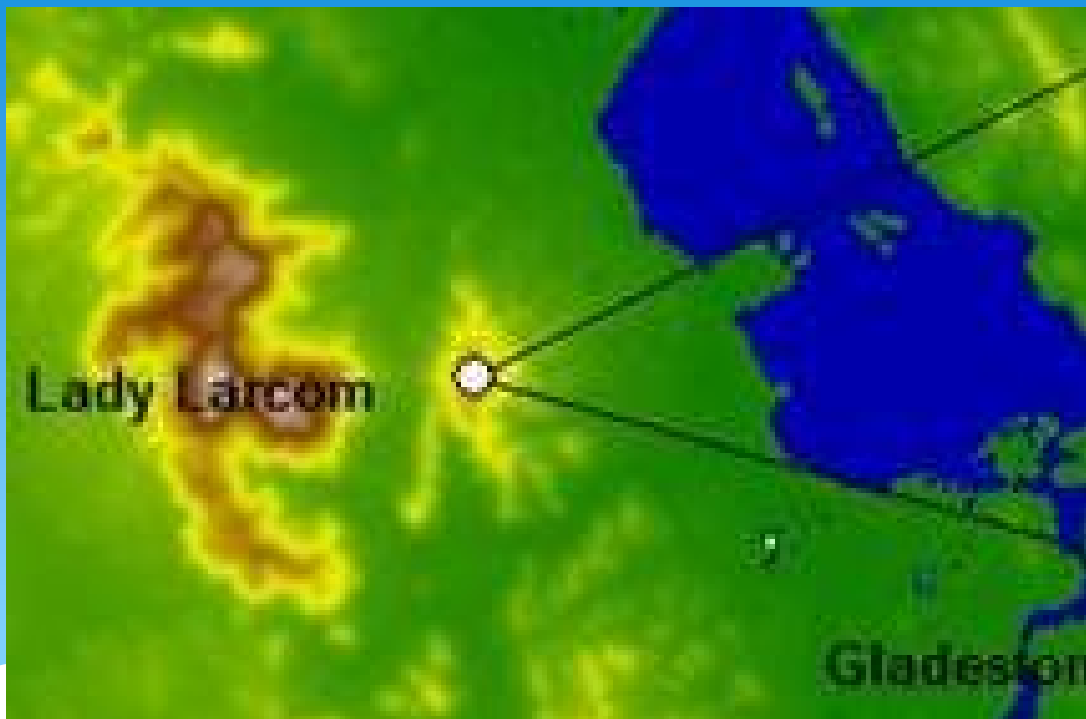
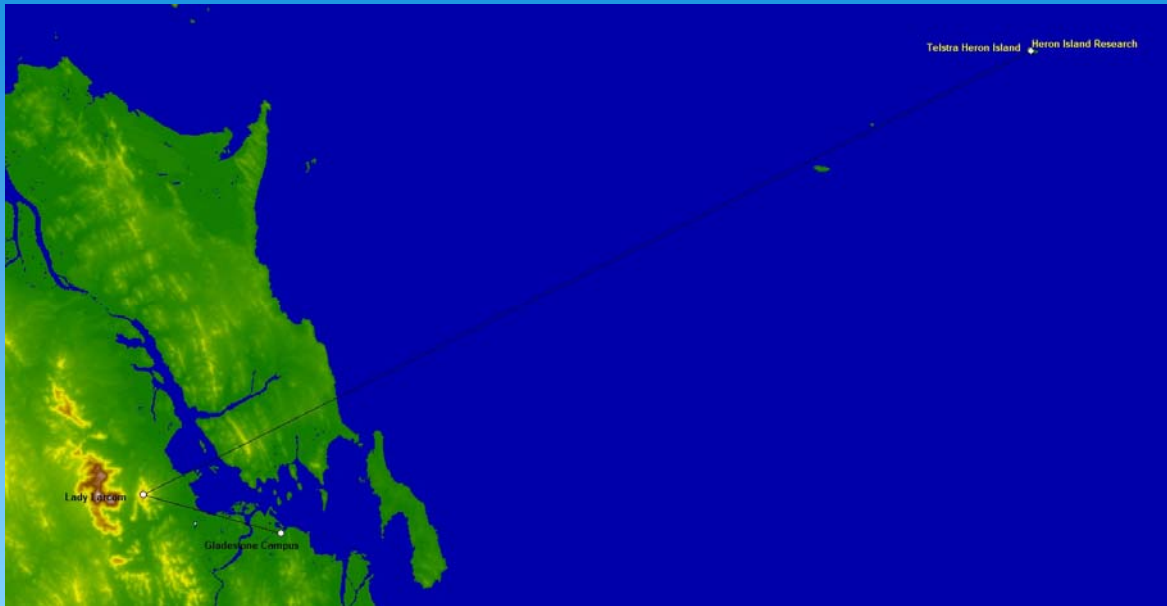
Reliability and support are key

ATI is Microwave



Heron Island

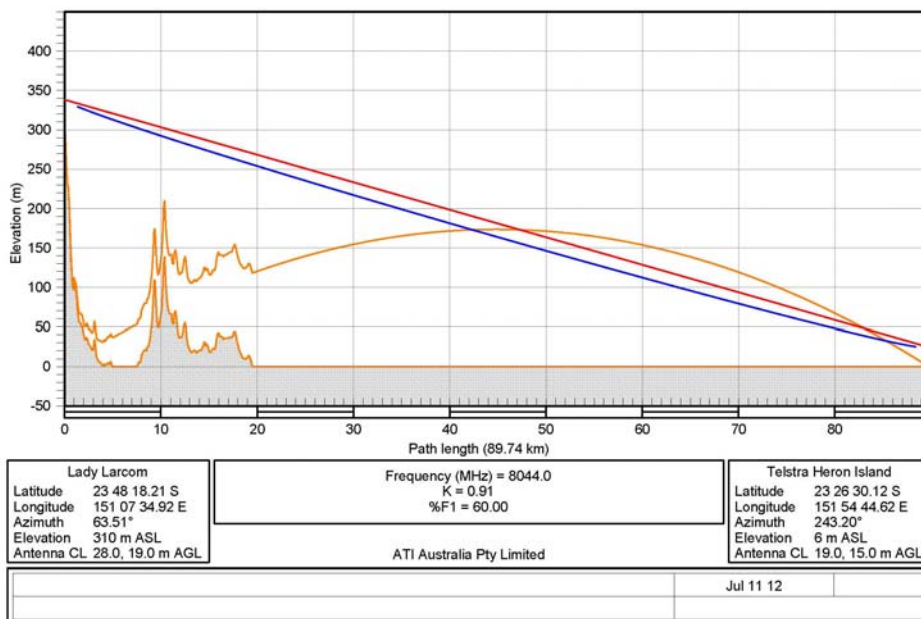
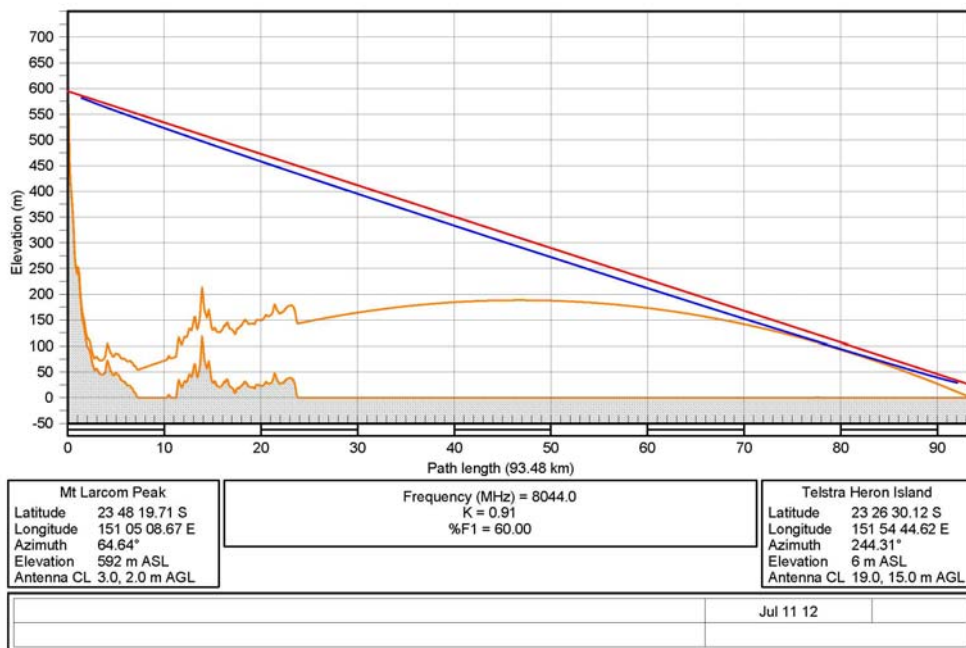


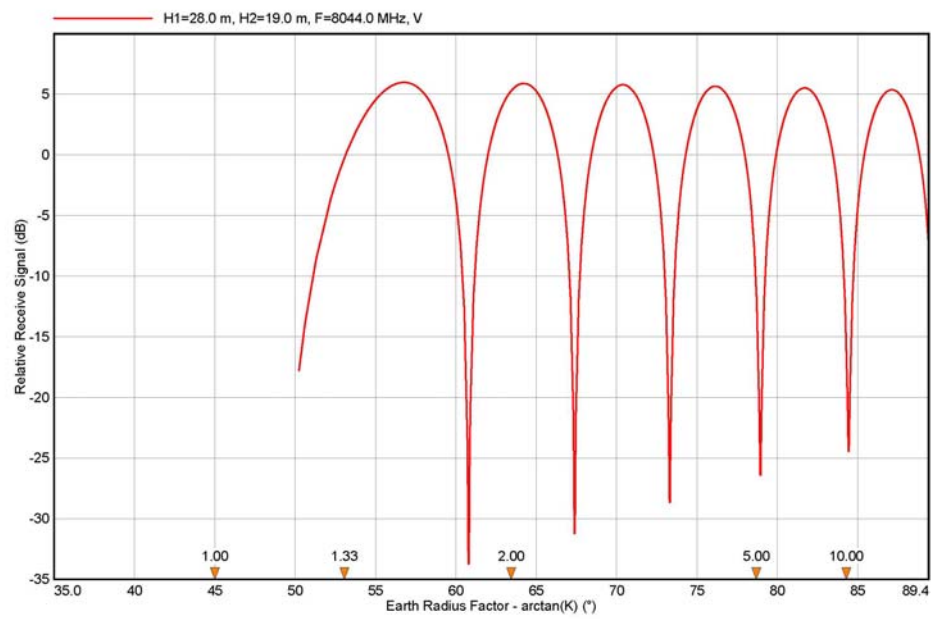
















Thank You

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