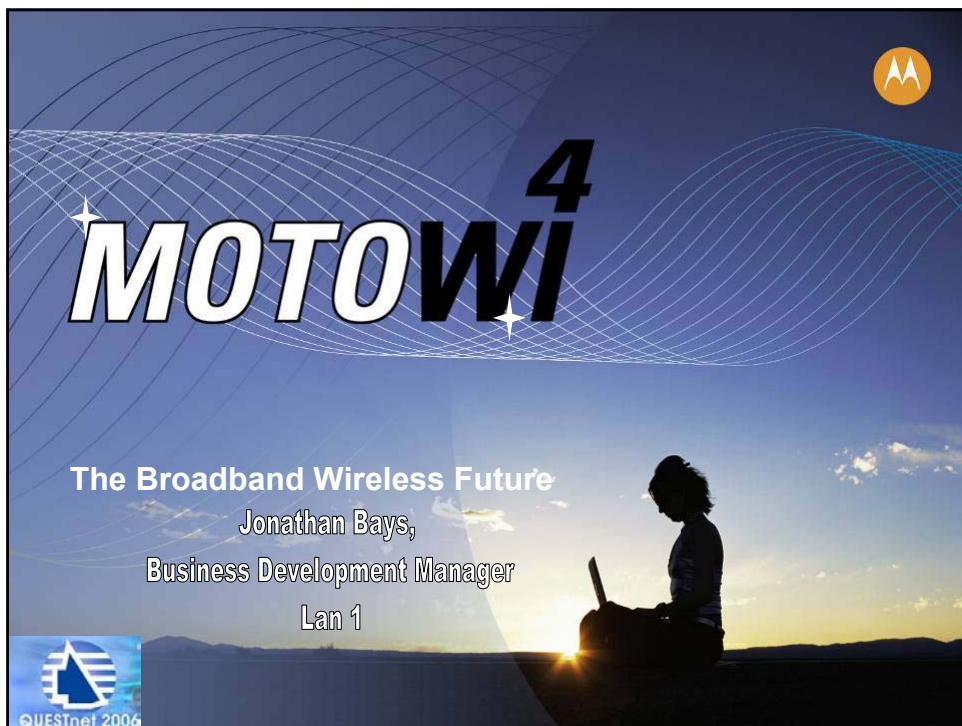




Agenda

- Lan 1
- Motorola Canopy
- Technical Overview
- Canopy case study
- Canopy Applications



QUESTnet 2006

Lan 1
IP Storage, IP Networking, IP Security



Introducing Lan 1

- Privately owned Australian national, value-added specialist distributor
- 3 technology areas IP Networking, Storage & Security
- Committed to providing superior levels of support



IP Networking – Motorola



- Global leader in mobile, wireless & broadband technology
- Develop & manufacture public & enterprise wireless communications
- Provide enterprise carrier class WIP infrastructure
- Canopy ISP Service



MOTOROLA

*Authorised Canopy
Solution Distributor*





Canopy Technical Overview

- *Developed by Motorola Labs (>65 Patents)*
 - *Launched June 2002*
 - *Over 180,000 units deployed*
 - *Very Reliable - 45 Year MTBF*
 - *Deployed by over 900 Service Providers*
 - *Over 1500 Private System Deployments*
 - *Deployed in over 85 countries*
 - *Point to Point and Point to Multipoint Solution (5.7 GHz, 2.4 GHz & 900MHz)*



Canopy Base Site Example



Cluster of Smart Antennas
With Fully Integrated Electronics

Ethernet Output over
Outdoor CAT-5 Cables

Power-over-Ethernet (PoE)

GPS Synchronization

Wireline or Wireless
Backhaul Options

Hardened IP Switch and Power
Distribution in Outdoor Enclosure

AC Power from any Source

Sample Complete 6-Sector Base Site





Canopy's Main Components

Access Points (AP)



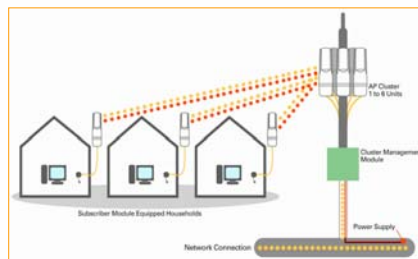
Subscriber Module (SM)



Backhaul Modules
(BH)



Canopy Point-to-Multipoint System



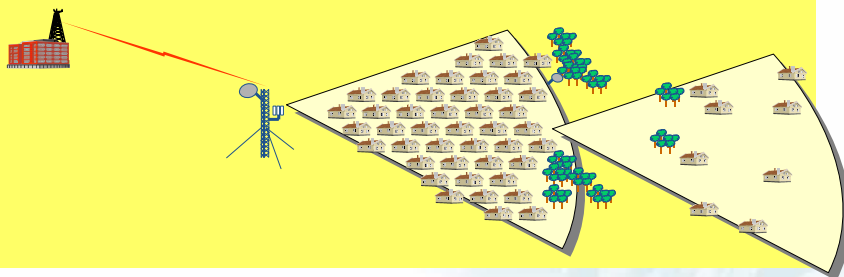
- ***Enables the Delivery of Broadband Access to Multiple Locations from a Single Access Point***
- ***System is Optimized to Perform in High & Low-Density Environments in the Presence of External Interference***
- ***Connectivity to a Maximum of 200 Subscribers Per Access Point***





Reaching Subscribers

- **Point-to-point 5.7 GHz Backhaul To Reach An AP Cluster**
- **Remote 900MHz AP To Reach Around Obstructions (NLOS) Or Small Pockets Of Customers**



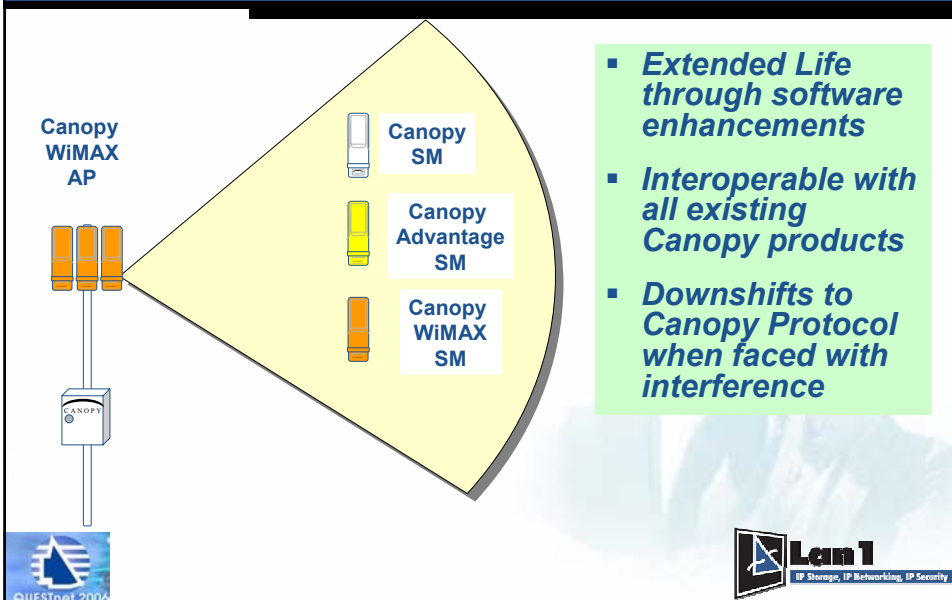
Canopy Advantage Platform

- **Expanded Throughput for Multipoint Networks**
 - AP peak throughput goes up from ~7Mbps to ~15Mbps
 - Subscriber peak throughput increases from ~7Mbps to ~15Mbps
- **Decreased Latency**
 - Roundtrip latency ~ 5 – 7.5 ms.
- **Upgradeable for Delivery of Enhanced Services**
 - 20 Mbps AP (Requires R7 SW)
 - Forward Error Correction (FEC)
 - 20 Mbps SM - Option
 - Committed Information Rate (CIR)
 - VLAN Tagging at the SM – Option
- **Clear Upgrade Path to WiMAX with out retrofitting the deployed CPE!**





Our Vision Unlicensed WiMAX AND Co-Existence with Canopy



What Makes Canopy Different

- Canopy Delivers Superior Performance
 - ***Sustained Throughputs***
- Canopy Is Designed To Mitigate RF Interference
 - ***Industry Leading System***
 - ***Install Anywhere***
 - ***GPS Synchronisation***
- Canopy Gracefully Supports Growth From Islands To Contiguous Coverage
 - ***Only Product On The Market That Can Support A Large-scale Deployment***
- Canopy Offers A Better Price Point Than Any Other Wireless Broadband Alternative





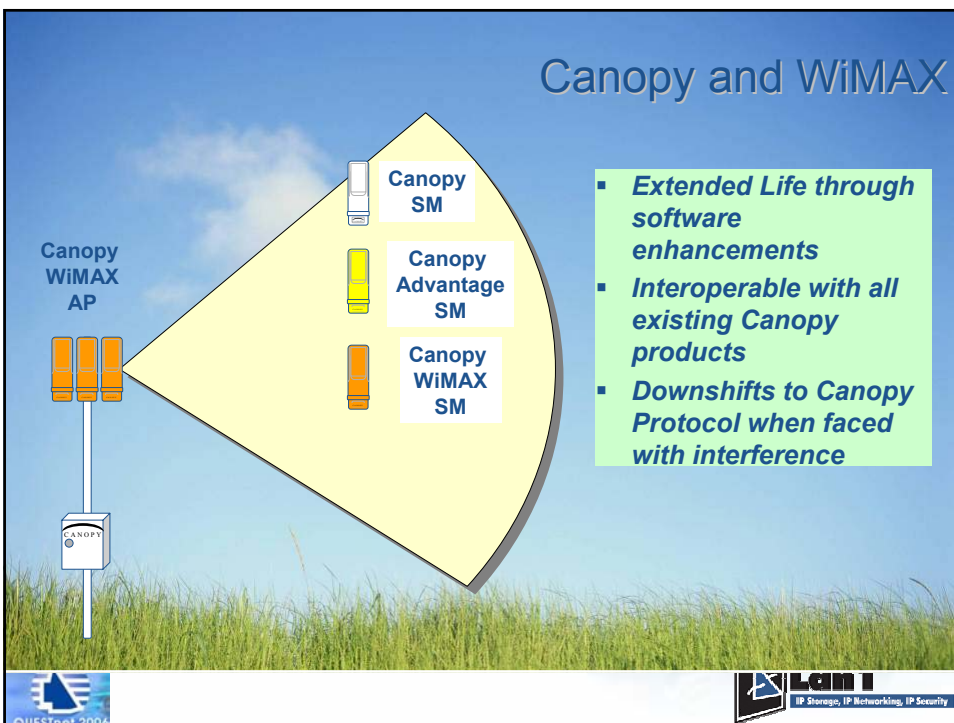
Performance Data: 900 MHz

	Typical LoS Range*	Signaling Rate	Latency	Aggregate Throughput
2.4/5.8GHz Canopy	3-8 Km	10 Mbps	15 msec	7.5 Mbps
2.4/5.8GHz Canopy Advantage	3-8 Km	20 Mbps	7 msec	15 Mbps
900 MHz Canopy Advantage	20 Km	5.5 Mbps	15 msec	4.8 Mbps

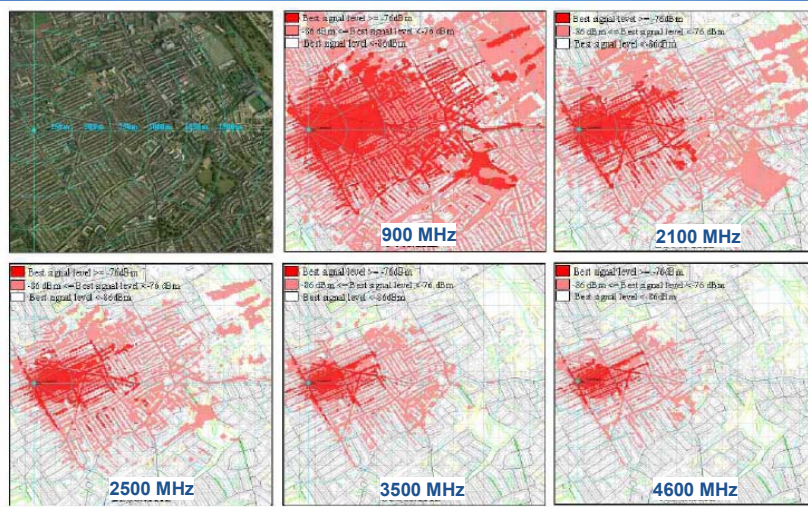
Design the Network to Meet Bandwidth Demand



* With beam concentrator



WiMAX – what is not mentioned in the hype:



Cell Density: More Base Stations required



YLESS4U

- Full National Telecommunications Carrier licence granted in Nov 2004
- Interconnect arrangements established for both data & voice with ActewAGL/Transact Communications



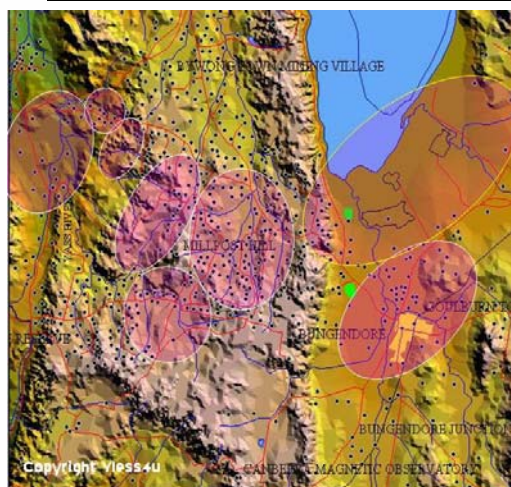


YLESS4U Location

- Situated in the Northern NSW/ACT border areas
- Approximately 15kms from the National Parliament House
- Rapidly growing Professional/Para-Professional population
- Many hold very senior positions in the Federal & ACT Public Service – High Court Judges, Secretaries of Departments, National Security Agencies, Defence, University Professors etc



YLESS4U Coverage areas





Regional Telecommunications issues

- Serviced by many telephone exchanges
 - Many Exchanges do not have DSLAM's
 - Extensive use of Pair Gain systems
 - ISDN & PSTN not available within 12-20kms of Parliament House (as crow flies)
 - Lack of cable pairs for POTS (Plain Old Telephone Services)



YLESS4U

- Quasi Mesh network
- Backhaul – Point to Point links (16) Layer 2 network
 - Natural Ventilation of housing shelters with fan forced ventilation for extreme high temperatures during Jan/Feb
- All critical base stations serviced by sustainable energy - solar and/or wind
 - Five days battery reserve
 - Electricity grid not available at many sites
- Client (Local Loop) Base Stations (18)
- Wireless Local Loop
 - Speeds up to 5mbps
 - Fixed wireless access – up to 15kms
 - Roaming client access – up to 5kms





- What spectrum do they use?
 - Public Park 900MHz, 2.4 & 5.8ghz
 - EIRP < 4 watts
- How do we get they get the coverage range?
 - High hills/mountains for Back Haul & Local Loop
 - Highest Site 1,200metres
 - Directional Antennae for both backhaul and Client bases.
 - Reuse of non-overlapping channels by careful mix of Horizontal, Vertical Polarisation and directional antennae



Case Study two Surgeons

- Located within 20Kms of Parliament house
- No PSTN since Nov 05
 - Lightning damage to 200metres of local rural loop cable affecting 20 services.
 - Telstra unable to restore service till march 06
- Provide high speed internet and telephony replacement services





Case Study Community Services

- Local communities have been generous with assistance
- YLESS4U provides as a community service
- Wamboin regional rural Fire headquarters
 - 1024/512kbps service, unlimited downloads
 - Used for access to NSW fire services
 - Weather information (wind direction/speed, temperature, humidity, pressure etc.
 - IP Camera Surveillance
- Braidwood State Emergency Service HQ
 - 1024/512kbps service, unlimited downloads



Case Study ATUG Conference

- Temporary Broadband wireless connectivity to national Museum for conference 17km link to YLESS4U backhaul network Wamboin
 - 3Mbpsdown 1Mbps up at 1 watt EIRP
 - Tested Thursday Commissioned Monday
 - 4WD vehicle parked outside venue with providing repeater access to wireless Hotzone in museum
- Outbound telephony replacement service
 - VoIP service through YLESS4U Soft switch cross connected to PSTN via 3rd party



