Collaborative Optical Leading Testbed

Overview

There has been significant growth in the demand for bandwidth and the rollout of broadband communications services to businesses and residential users with communications network traffic doubling every 9 – 12 months, mainly due to the Internet. Catering for this burgeoning demand requires a high reliability, low cost and low maintenance infrastructure that will support broadband communications into the future. Currently the DSL rollout combined with cable (HFC) rollout is providing a good short term solution to this growing demand, however it is critical to start investing in optical access networks that will provide the only realistic alternative for broadband access into the future.

The Collaborative Optical Leading Testbed (COLT) is a world class project providing the latest broadband services to homes, businesses, educational institutions and healthcare facilities in Ballarat, Victoria. COLT involves the rollout of optical fibre to the premises and it utilises a world class Passive Optical Network (PON) product deployed by CEOS. COLT is a unique collaboration between international leaders including Cisco, Intel, Corning, Agilent as well as numerous Victorian organisations including CEOS, c-Ballarat, Redcentre, Powercor, CommTel, IP Systems, Pacific Broadband Networks and others. COLT provides services including high speed data and Internet access, multiple voice lines, video on demand, Interactive TV/home entertainment, video conferencing and telemedicine applications including large image transfer for real-time diagnosis.

COLT is a $25M project including a $4M grant from the State Government of Victoria through the Science, Technology and Innovation (STI) Initiative and $21M of industry contributions. The STI Grant has provided the catalyst to achieve the long term goal of COLT for the ubiquitous rollout of broadband services. COLT will accelerate the deployment of next generation communications in regional Victoria resulting in millions of dollars of exports and the creation of many new jobs. COLT has a growing list of participants that have open access for the research and development of broadband technologies & applications.

Ballarat has developed a world class communications and IT sector over the last decade. They have a clear strategy to continue to build public and private sector research and product development. COLT will assist Ballarat to become one of the key centres of excellence in communications and information technology in Victoria. The participants of COLT are working closely with the Victorian Photonics Network, a State Government initiative, to rollout a cutting edge communications network that will position Victoria as a premier global investment location.

Summary

COLT is a 2 year project focussed upon the deployment of a Passive Optical Network (PON) for Fibre to the Home/Business (FTTx) solutions in Ballarat. COLT uses state of the art network infrastructure and it provides access to the latest broadband communications services.

Future of the Testbed

All project participants, including industry and universities, have ongoing access to COLT for the research and development of broadband technologies and applications.

Project Duration & Funding

Project Duration: **2 years and then ongoing**

STI Initiative – Victorian Government: **$4,000,000**

Total Contribution from Foundation Members: **$9,500,000**

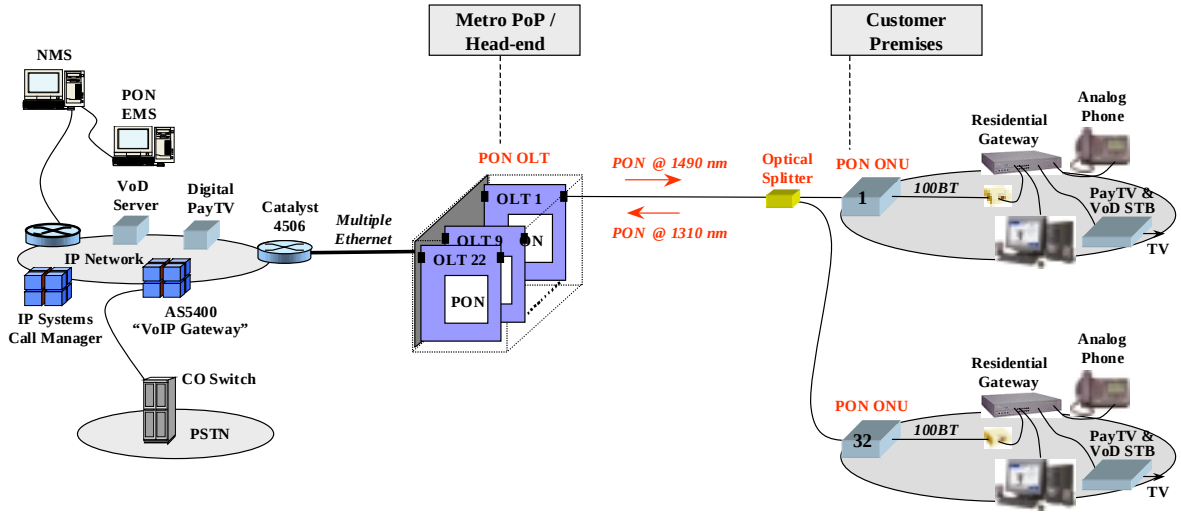
Potential Contributions from New Members: **$9,500,000**

Total Contributions from Associate Members: **$2,000,000**

Total Funding for the COLT Project: $25,000,000

COLT Network Architecture

The COLT project and PON product is strategically positioned to take advantage of the huge growth in optical ethernet. This is very well suited to supporting data (and IP traffic), voice, video, and interactive broadband services. The interconnection architecture is based on a passive optical network that has individual optical fibres from the metro "point of presence" (PoP) each connecting up to 32 buildings. This is intrinsically reliable and it does not require any upgrade to the installed plant for higher bandwidth solutions in the future.



Technology Organisations Involved in COLT Project

CEOS Pty Ltd – Supply of leading FTTx optical technology that will form an integral part of COLT. CEOS will also manage the project and provide a contact point for the STI group.

Cisco Systems – Cisco is the world leading supplier of communications network equipment. Cisco equipment will be deployed in the COLT testbed and it will provide a state of the art broadband network.

Intel Australia Pty Ltd – Intel is the world leading supplier of communications network processors and communications hardware. Intel components and hardware will be used to power COLT.

Corning Cable Systems Pty Ltd – Corning is the world leading supplier of optical fibre and fibre management equipment. Corning will supply optical fibre cable to connect users on COLT.

CommTel NS Pty Ltd – Systems integration of the optical and electronic network equipment for COLT together with the development of next generation fibre and component management technology.

IP Systems Pty Ltd – IP Systems is a supplier of voice over Internet Protocol (VoIP), video conferencing, high speed data and other broadband services. IP Systems will provide VoIP & other broadband services on COLT.

Agilent Technologies Australia Pty Ltd – Agilent is the world leading supplier of network test equipment. Agilent equipment will be used to test the performance of COLT.

Pacific Broadband Networks – Supply of cable TV equipment to operate with the PON equipment on COLT. PBN will also provide access to trial FTTx networks in Australia, Europe and China.

Bandspeed Inc. – Bandspeed is a world class supplier of 802.11 wireless "smart antennas". Bandspeed "smart antennas" will be used to provide a wireless connection for COLT.

SecureNet Ltd – SecureNet is a supplier of encryption & digital certificate technology to be utilised on COLT.

Virtual Photonics Inc. – VP is the world leader in photonics computer aided design tools. They will provide simulation software for modeling photonics components, sub-systems and the ePON architecture in COLT.

Yes TV – Yes TV is a world leading supplier of VoD and iTV services that will be utilised on COLT.

PIVoD – PIVoD is an Australian supplier of VoD, digital TV, video conferencing and other services.

RED*lab* Test Facility – RED*lab* is a world class test facility for R&D of communications, photonics and high tech electronics products. The COLT participants will have open access to RED*lab* at no cost.

Regional Groups / Hospitals

Ballarat City Council – Networking communities of interest for the COLT project.

c-Ballarat – Networking communities of interest and assisting with management of the COLT project.

Regional Connectivity Project – Networking communities of interest for the COLT project.

Ballarat Technology Park – Networking communities of interest for the COLT project.

Wendouree West Resident's Committee – Networking communities of interest for the COLT project.

Local Telecom and Internet Ltd – Regional Internet Service Provider that will trial broadband services.

Ballarat Hospitals – Broadband telemedicine applications and services on COLT.

Austin Hospital – Broadband telemedicine applications and services on COLT.

Peter MacCallum Cancer Institute – Broadband telemedicine applications and services on COLT.

Industry Networking, Capital and Incubator Organisations

Redcentre (Redstart Pty Ltd) – Redcentre has a diverse range of associates including universities, SMEs and established organisations. Redcentre will provide networking and project management services for COLT.

Information City Victoria Pty Ltd (BITS Incubator in Melbourne & Ballarat) – SMEs from this Incubator will have the opportunity to develop broadband technologies and applications on COLT.

Digital Harbour Pty Ltd – Digital Harbour is managing the Commtech Port at the Docklands, Victoria. SMEs at the Commtech Port will have open access to trial their technologies and applications on COLT.

Citadel Pooled Development Ltd – An investment fund for opportunities that emerge from the COLT project.

University and CRC Organisations

The University of Ballarat – Research into services and applications to be deployed on COLT.

The Australian Photonics CRC – Photonics Research Laboratory (PRL) at The University of Melbourne – Development of photonics technology to be deployed on COLT.

CUBIN – Research into network management software and applications for ePON & COLT.

Swinburne University – Research into next generation broadband architectures and Internet Protocol.

The Australian Telecommunications CRC – Royal Melbourne Institute of Technology (RMIT) – The RMIT group (ATCRC) will research network management solutions, network topologies & traffic analysis for COLT.

Centre for MicroPhotonics – Development of photonics technology to be deployed on COLT.

Victoria University – Development of photonics technology to be deployed on COLT.

Communication Carriers and Fibre Providers

Powercor – Providing optical fibre and network infrastructure that forms the basis of COLT.

VicTrack – Providing fibre to connect selected Melbourne based participants with COLT.

State Government

Department of Innovation, Industry & Regional Development– Assisting in the growth of the ICT sector in Victoria and accelerating regional access to broadband technology and applications.

International Technology Organisations and Universities

GEANT : European Union Broadband Project – Collaboration between the GEANT project and COLT.

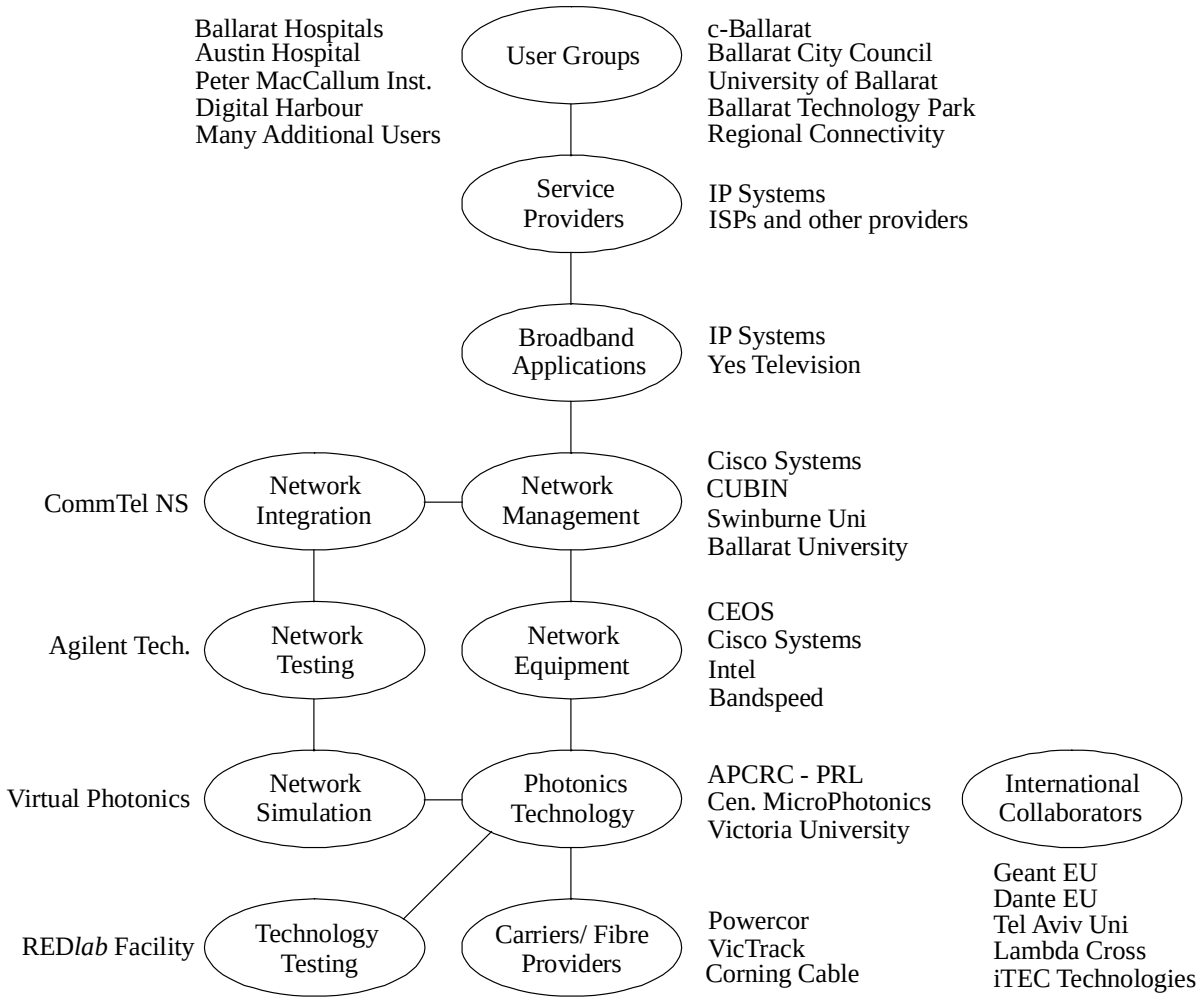
DANTE : European Union Broadband Project – Collaboration between the DANTE project and COLT.

Lambda Crossing (Orna Berry: Chairperson) – Testing of broadband photonics technologies on COLT.

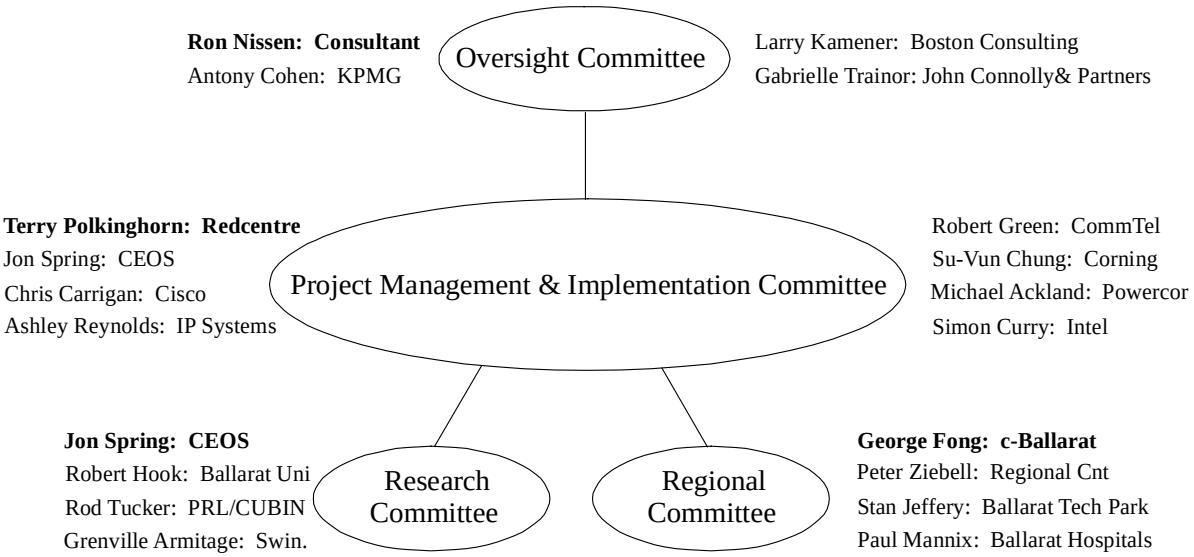
Tel Aviv University – Collaboration on the development of broadband optical technologies for COLT.

iTEC Technologies Ltd – Collaboration on the development of optical sub-systems for COLT.

Project Participants

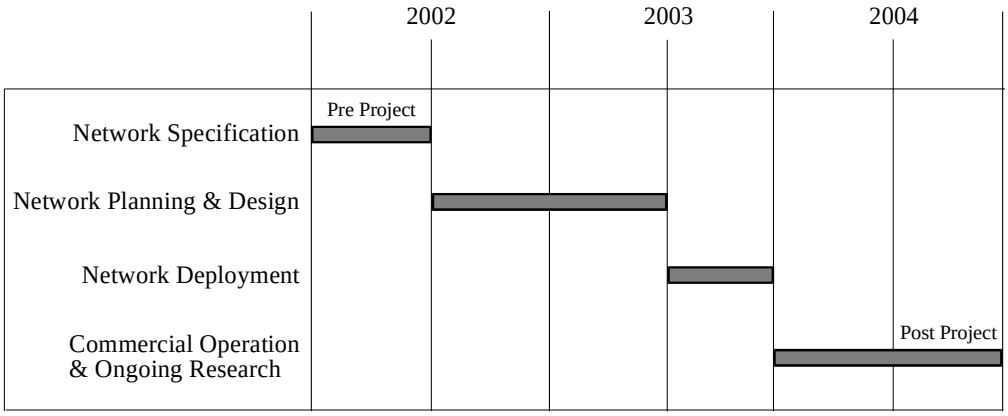


Project Structure and Governance



Timetable for COLT Testbed

COLT will be an ongoing testbed that will continue to operate well beyond the initial 2 year project. Following is an implementation time-line with Milestones for the project:



Future of COLT Testbed

Following the establishment of COLT during the next 2 years there will be ongoing open access to the testbed to current and future participants. COLT will be maintained and upgraded by the Foundation Members and it will provide a unique platform for the research and development of new communications products.

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