



Campus to Campus Data Communications

Case Study – Pembroke Secondary College, Victoria

The College

Pembroke Secondary College is a three-campus college situated in the foothills of the Dandenong Ranges in Victoria. The College's two junior (7-10) and one senior (11-12) campuses allow the College to offer a wide range of learning experiences and maintain the care that comes with a smaller school.

WAN History

Prior to the most recent WAN upgrade, the College was utilising two parallel 2.4GHz wireless links between its Senior Campus and Mt Evelyn Junior Campus and one 2.4GHz and one 5.8GHz wireless link between the Senior Campus and Cambridge Junior Campus. As line of sight to Mt Evelyn was obstructed by a nearby hill, Mt Evelyn links were repeated via a third party communications tower in Mooroolbark. The old links provided approximately 3-5Mbps of half duplex bandwidth for Curriculum and for Administration network connections.

WAN Upgrade Project

In 2007 the College received funding from the Department of Education and Early Childhood Development to upgrade its wide area network infrastructure. The College investigated the options and engaged Wave1 to conduct a comprehensive site assessment and to propose a variety of capacity and topology options. It was determined that sufficient direct line of sight was achievable from approx 30m above ground level at the Senior Campus to the existing antenna mast at the Mt Evelyn Campus. A direct path option was very attractive as it eliminated the third party repeater site and associated access and ownership issues.

The College selected a proposal from Wave1 which involved removing the old infrastructure and upgrading the network to deliver much high speeds and increased reliability. The project included installing a 30m monopole at the Senior Campus, which was carried out with extensive consultations with the College and their Architect. The location of the new monopole was carefully chosen, taking into account optimal line of sight position and also the proposed campus redevelopment. The new high speed full duplex 160Mbps licensed microwave link between the Senior Campus and Mt Evelyn and two parallel class licence 108Mbps links between the Senior Campus and Cambridge Junior Campus were installed in October 2008. One of the features of the 160Mbps licensed link was its capability to carry two independent networks via link's two separate 100BaseT data interfaces, this enabled the College to interconnect the student and the administration inter-campus networks without the use of any additional routers.

"Pembroke Secondary College, with three campuses in the Yarra Valley Hills and with considerable distance between them, has significant technical and physical issues in maintaining and upgrading our network communications at a level that matches our current needs and allows for future expansion. Wave1 were of critical importance in achieving our goal of having the best communication network possible. Their expertise, patience and willingness to 'go the extra yard' were all central elements in the highly successful upgrade recently completed. I have no hesitation in giving Wave1 my personal recommendation.

Aidan Ryan, College Principal, Pembroke Secondary College"

"Pembroke Secondary College is a member of the yvelc (Yarra Valley e-Learning Community) and has undergone significant change in the way e-learning and technology is used in our classrooms. This huge and rather rapid revolution led to our previous intercampus wireless links being oversubscribed for 7 hours every school day. Pembroke's technical team, together with Wave1 settled on a solution that was delivered within budget and most significantly, met the performance criteria. The College, subsequently, has been able to continue the delivery of pervasive technologies across its campuses.

Phil Wigley, ICT Manager, Pembroke SC"

Benefits

The new microwave WAN provides the following benefits to the College:

- Allow additional concurrent devices to access the network at the remote campuses without bandwidth denial, providing for growth
- Amalgamation of duplicate links providing simplified and central management and allowing us to optimise allocation of bandwidth between the Administration and Curriculum networks
- Allow students and staff to easily access the central LMS (Learning Management System) that provides for a variety of learning mediums, such as audio and video to be delivered in a timely manner
- Provide sufficient bandwidth to cope with the "burst-able" and "on demand" nature of data communications in an educational environment
- Facilitate central data backups, utilizing significant bandwidth that is available off peak
- Provide a platform for a future converging IP telephony solution pending budget allocation

Contact Details

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Senior Campus monopole and 160Mbps licensed microwave link to Mt Evelyn Campus



Mt Evelyn Campus mast and 160Mbps licensed microwave link to Senior Campus



Cambridge Campus mast and two parallel 108Mbps class licence links