University of highlands and islands

[Business](#)

Company: ThusCustomer: University of Highlands and IslandsSubmitted by: LEWISDate: August 2000Living in a remote area can be mentally, as well as physically, isolating. Communication with family and friends is tricky, and services that we take for granted in more central locations, such as shops, schools and health centres, aren't easily accessible. Simple things, like going out for a pint in the ' local' or doing the weekly shop are a real challenge. For those living in the most northerly parts of Scotland, where the winter months bring extreme weather conditions, the sense of isolation is even more acute.

Travelling becomes impossible at times and telephone lines are often brought down by high winds. For younger people, who feel the pull of urban life down south, it is particularly difficult. Highland life, however, can also inspire both self-sufficiency and innovation. An example of this is a scheme that uses that latest communications technology to link the colleges as far a part as Perth to The Shetland Isles (280 miles) and Stornoway to Moray (120 miles). It's a project that enables the colleges to act as a single university, allowing people in each of these remote communities to take part in higher education. It also puts the Highlands and Islands of Scotland at the forefront of networking innovation.

The problem

The University of the Highlands and Islands Project (UHI) links 14 Academic Partners across an area about one fifth of the size of the UK. Although it's still in the early stages of applying to become a university, UHI is already playing an essential role in providing a range of higher education courses to the community it serves. Backed by the Millennium Commission and the European Regional Development Fund, the project is investing in the

technical infrastructure to enable the creation of a distributed campus for all the colleges involved. The Academic Partners have 20, 000 students and serves a population of half a million people. The backbone linking the colleges, which makes the development of the University possible, is its technical infrastructure. In 1997, the communications company, Thus, undertook an ambitious brief to create a Wide Area Network based on its own proprietary system that would provide the project with major bandwidth capability for the delivery of data services.

The solution

To do this, Thus has extended its own network infrastructure from Aberdeen in the east and Greenock in the west to provide a resilient route to Inverness and from there to the Western Isles and to the Orkney and Shetland Isles. This extends the reach of the Thus network reach by another 500 miles improving communication options for the entire community in these remote areas. The project was implemented using the latest Fibre Optic technology to extend the East coast from Aberdeen to Thurso and in order to cope with the geography the Western and Northern Isles routes have been implemented using the latest microwave SDH radio equipment. These radio routes presented the Thus project team with many challenges not least of which was the remoteness of the sites and the extreme weather conditions experienced during the installation phase of the project making the alignment of the microwave radio antennae from hilltop to hilltop very difficult. Futhermore, Thus had to negotiate with Landowners, Local Councils and various statutory bodies including Scottish Natural Heritage to gain permission to establish new hilltop sites in sensitive areas.

The results and the future

" The team at Thus really threw themselves behind the cause. It was great to work with a company that really shared our enthusiasm and determination to introduce technology that really makes the colleges function as one university," said Jem Taylor, network development manager at UHI." There were setbacks caused by weather and terrain, but the infrastructure is now in place, and is stronger and more resilient than anything the islands have had before. The developments over the last two years have been really quite radical and the Highlands and Islands will benefit from the vastly improved communications for many years to come." The most tangible advantages that the network has brought to the students are a single email system and sophisticated high-bandwidth video conferencing services. On a day-to-day basis, students can videoconference into seminars so that those on the mainland can participate on courses being run out of the Islands, and vice versa.

This enables free and easy communication between students on the same course but in different locations. The network also provides other vital services on the University project's operational side. Tutors and administrative staff are able to access information on all the students regardless of their location. Information on library loans, admissions and union services are all contained on one system." Using technology to bring the colleges together is an exciting opportunity for the people in northern Scotland. Thus is providing the glue that links all the sites and faculties," said Taylor.

" For the students it's like having one campus except that you can't necessarily walk from department to department." A good example of the capability of the network is the planned media studies course offered by UHI. The WAN provides enough bandwidth to allow real-time video transmission. In practise this means that the film production studio in Stornoway can edit content being produced in Skye, 50 miles away, to create a news programme or documentary. The network is leased to the university project on a fixed fee basis, so no matter how much the traffic increases the costs remain the same. This provides the most economical solution for the project.

Up to 20, 000 higher education and further education students use the network for study and hundreds of staff use it for operational and administration purposes." Thus came up with the best proposal on both bandwidth and price," said Taylor. " As Millennium Commission funded project, we have to be careful in the investments we make, so much time was taken to study the proposals put forward by the various telcos. Having a fixed fee for the network makes our budgeting much easier and presents an opportunity for us to be as innovative as possible in how we use it." Thus developed its network for three customers, with Vodafone and Cellnet also benefiting from the higher bandwidth capacity to the Islands.

The infrastructure has the capacity available to provide access for other businesses working in the area and has been designed so that upgrade can be done without interruption to the service." There are so many advantages of having such a sophisticated network in place," said Taylor. " But the overriding benefit is that people in the community can make choices about their education in a new and revolutionary way."