



Connecting remote training facilities with InfiNet Wireless

Challenges

- To deliver a reliable, high bandwidth wireless link across a 65 km Line-of-Sight span;
- To be able to deliver real-time, multimedia and IP services across the link;
- To overcome RF spectral frequency pollution to provide high bandwidth in excess of 30 Mbps.

Solution Technology

- InfiLINK 2x2 Series MIMO;
- 2 x R5000-0m 200mw external antenna backhaul elements.

Business and Technical Benefits

- High capacity (50 Mb/s+) minimum real throughput over 65+ km range;
- Software-programmable frequencies minimises cost and allows flexibility in deployment and upgrade scenarios;
- High reliability and spectral frequency optimisation;
- Support for L2+ features (IP Routing, QoS, VLAN and rapid STP) across Cisco networking.

Introduction

NCE Network Consulting Engineering Srl. is a company which specialises in the fields of computer security, network infrastructure design and technology-related consultancy services. The company is headquartered in Valverde, Italy and provides the B2B and B2C business sector with a number of technology services but in particular with a focus on ICT solutions and training support to help improve the efficiency and productivity of their customers' infrastructure.

To support their ongoing operations, NCE identified the need for a high performance, long-range wireless link to connect together two of their corporate sites, some 65 km distant from each other. The link needed be able to transport real-time, bandwidth-intensive multimedia data streams across a line-of-sight (LOS) configuration, as well offering load-balancing and redundant link protection through a separate lower capacity link with automatic failover. In addition, the link needed to be capable of supporting standard Layer2+ features such as VLAN support, IP Routing and QoS, with the main link acting as a connection between two Cisco LAN/WAN switches supporting rapid STP (SpanningTree Protocol).

Challenges

There were two major challenges that NCE faced with the specification of the radio link between the two sites. Firstly, the installation would need to be able to support an adequate level of throughput across the 65 km link in order to sustain the real-time multimedia streaming – at least 30 Mbps constant throughput was specified as a minimum service level, and this would be a realistic requirement given the nature of the traffic profile. Secondly, the link would need to overcome significant RF (Radio Frequency) "pollution" at one of the two sites, since the bandwidth spectrum at the location was heavily used by a number of other companies also wanting to overcome the disadvantage on not being able to deploy leased lines at the location.

Solution

NCE worked in conjunction with wireless and networking specialist ALLNET.ITALIA S.r.l. to test a number of vendors equipment across the link to gauge suitability for the application. NCE and ALLNET eventually chose InfiNet Wireless's InfiLINK 2x2 R5000-0m products as the vendor of choice for the wireless link, based on a number of factors including performance, reliability and cost. The InfiLINK 2x2 utilises MIMO technology to combine high-speed capability (up to 300 Mbps throughput) with unrivalled spectral efficiency and wireless transmissions over distances in excess of 80 km.

In order to overcome the RF pollution at the second site, the RF spectrum was analysed using the integrated R5000 spectrum analyser and additionally verified with an external, Anritsu portable spectrum analyser, and a frequency of 40 MHz was chosen in order to optimize the throughput and maximize the spectral efficiency. One of the advantages of the InfiLINK 2x2 equipment is the capability to easily change the required frequency of the link through software without the need for additional equipment.

With the link stabilized, the link achieved a bandwidth performance of between 60 and 90 Mbps, with a Real Measured Throughput of 50 Mbps for IP traffic, some 5 dBm improvement over the nearest competitive equipment trialled over the distance and almost double the required capacity as stipulated by the customer. The link has proved reliable in a business critical environment, and further longer distance links – over 100 km – are now being planned and deployed as part of the network expansion.



About InfiNet

Established in 1993, InfiNet Wireless is one of the largest privately owned Fixed Broadband Wireless Access (FBWA) development and manufacturing companies in the world. With more than 15 years of intense customer based research and product development, InfiNet's range of wireless connectivity solutions are the preferred choice of global communication corporations and governments who require uncompromising connectivity. To date, InfiNet Wireless has forged a solid foundation in fixed wireless installations, and currently has over 70,000 deployments from the plains of Siberia to the depths of the Sahara and have been successfully deployed in over 35 countries. Its philosophy of providing the most flexible, reliable, cost-attractive and innovative solutions in the industry has helped it to reach the market leader position for Wireless solutions in Russia and Central & Northern Asia, and is the benchmark of carrier grade multiservice broadband wireless access systems.

About Allnet Italia

ALLNET.ITALIA was founded in 2000 in Bologna, Italy, as a subsidiary of ALLNET GmbH, a major European distributor of networking and telecommunications with headquarters in Bavaria, Germany and Monaco. ALLNET is a leading market provider of information technology and high value-add solutions, specializing in Networking and Telecommunications VOIP, Video over IP, Wireless and Security networking, and is known as one of the most innovative and dynamic distributors in the Italian market. This achievement is based on ALLNET's business philosophy of working closely with partners - be they customers or vendors - and providing pre and post sales technical support, training and logistics to the highest standards across the industry.