InfiNet wireless

THE INFINET SUCCESS STORIES


InfiNet
wireless
InfiNet
wireless

Welcome!

It is with great pleasure that I share with you here some of the success stories InfiNet Wireless has had over the past few years, thanks to the fruitful and loyal relationships we have developed with our global community of partners and customers.

Established in 1993, InfiNet Wireless is one of the world's largest privately owned Fixed Broadband Wireless Access (FBWA) R&D and manufacturing companies. With more than 23 years of intense customer based research and product development, our range of wireless connectivity solutions are the preferred choice of service providers of all types and who require uncompromising reliability.

To date, we have built a solid foundation in fixed wireless technologies and currently have thousands of deployments in over 120 countries, from the plains of Siberia to the depths of the Sahara. Our core philosophy of providing the most flexible, reliable, cost-effective and innovative wireless solutions available today has helped us reach a leading position in the marketplace in all key segments of the industry. We are fast becoming the benchmark for carrier grade and multiservice broadband wireless solutions.

Deployed on a truly global basis, our solutions have been chosen to provide strategic infrastructures for organisations such as British Telecom, LCR Honda, Anglo-American, Fujitsu-Siemens, SINOPEC China, TNK-BP, Total, China Mobile, Dubai Port World, to name just a few.

Our world-class R&D facilities enables us to develop leading wireless solutions that give us the cutting edge over our competition. These are backed up by industry-standard certification and recognition to give our customers the peace of mind they require when deploying mission-critical wireless networks of all sizes.

Our company is built on the foundations of our hard working team of over 200 engineers. Most of them have gained their extensive experience from both the military, aerospace and commercial industries, which combine a multitude of wireless technologies as well as our own proprietary hardware and software platforms, thus allowing us to develop the exact solutions that our end customers specifically demand from us. We are always looking to provide the best and most innovative wireless solutions, developing what the market needs and when it is needs them. Although we are confident in our technical and commercial abilities, we know we need to constantly listen to our customers' and partners' feedback. We look forward to continuing the successful development of our company, whilst adding significant value to the businesses of our partners, wherever they are located.

Dmitry Okorokov,
CEO, InfiNet Wireless

About InfiNet Wireless

InfiNet Wireless is a market-leading provider of innovative, flexible, reliable and cost-effective wireless and networking solutions. We are fast becoming the leader of unparalleled performance, reliability and the lowest total cost of ownership (TCO) in the industry.

Company History

1993 – Development of our very first SkyMAN solution

1995 – Launched the first wireless internet access service in the Russian Federation

1998 – Art Communications deployed our solutions in Moscow, quickly becoming one of the largest FBWA networks in the world

2003 – The InfiNet Wireless brand is launched globally, with major projects won in Saudi Arabia and Malaysia

2007 – Developed a new and unique wireless network architecture, called MINT, providing a rich set of functionality and ease of scalability

2008 – Launch of InfiLINK 2x2 - the first affordable Point-to-Point (PTP) MIMO solution in the marketplace operating in the 5 GHz frequency bands

2009 – Launch of InfiMAN 2x2 - the world's first MIMO Point-to-Multipoint (PMP) solution

2010 – Launch of the InfiMAN 2x2 product range in the 3.5 GHz bands

2010 – Major functionality upgrade to the InfiLINK 2x2 PRO and InfiMAN 2x2 families, including Gigabit Ethernet ports and throughputs of up to 300 Mbps

2011 – Launch of integrated 28 dBi wireless units to enable coverage of distances over 50 km

2012 – Developed a unique Instant DFS technology, an interference mitigation feature allowing the operating frequency to switch to a clean band without any packet loss, the very first of its kind in PMP networks globally

2013 – Launch of new Smn/Lmn subscriber units with a performance of more than 200 Mbps

2015 – Launch of the InfiLINK XG - the flagship PTP wireless with capacities of up to 500 Mbps, a new TDMA protocol and intra-site synchronization

2016 – Commercial launch of the InfiLINK XG 1000, with capacities of up to 1Gpps, effectively doubling those of previous product families. Revamping of the InfiMAN 2x2 product family. Launch of new software tools: InfiPLANNER PTP planning tool and InfiMONITOR, our new Network Management System

RELIABILITY: Over 500,000 InfiNet Wireless units have withstood the most challenging environmental conditions across five continents, many of which remain in full operation even after 15 years of continuous use. InfiNet Wireless can rightly claim that it delivers to its customers some of the most robust wireless units in the marketplace.

PERFORMANCE: High-capacity 500 Mbps speeds and ranges of up to 100 km, enabling InfiNet Wireless to deploy industry-leading infrastructures for fully-fledged triple-play support, both in metropolitan and rural networks, and which require the highest Quality of Service (QoS) and performance requirements.

FLEXIBILITY: Topology-agnostic, multiple frequency bands, universal wireless platforms can be tailored to individual customer requirements to give them exactly the solution they demand.

INTEGRATION: Wireless units which are seamlessly integrated into virtually any network infrastructure (including MPLS), delivering the industry's richest set of networking features and benefits to the end users.

Solutions

To ensure consistency and technological integrity, **InfiNet Wireless** develops, manufactures and maintains its own hardware platforms, its own operating system and its own network architecture.

The company's range of high-tech wireless units are used to create Fixed Broadband Wireless Access networks using both Point-to-Point and Point-to-Multipoint solutions which combine carrier-class performance, high reliability and an extensive networking and operational functionality.

Point-to-Point

InfiNet delivers a wide range of Point-to-Point solutions starting from 19 dBi units with 8 Mbps capacity up to our flagship product, **InfiLINK XG**. This latter PTP solution in the sub-7 GHz frequency bands reaches a peak of 500 Mbps of net throughput in 40 MHz of spectrum and more than 10[illegible]bps in only 10 MHz. It is the highest performing PTP solution available in the marketplace today.

Key applications of the family include:

- 4G/LTE/WiMAX BTS High-capacity backhaul
- WISP infrastructure backhaul
- A cost-effective alternative for legacy microwave links or copper-based leased lines
- WISP Internet Points Of Presence for rural areas
- NLOS backhauling using lower frequency bands
- Reliable backup for fibre lines, high-speed FSO or millimetre-wave links

Point-to-Multipoint

InfiMAN 2x2 is our innovative high-speed Base Station and CPE range, available for both licensed and unlicensed bands, using MIMO 2x2 technology. The Base Station unit provides a high sector capacity of up to 240 Mbps, reaching distances of up to 30 km.

Key applications of the family of solutions include:

- High-Speed local or wide area corporate networks
- CCTV and video surveillance networks
- Triple-play services for ISPs and service providers of all types
- Long-range rural connectivity
- Government and municipal networks

Enforta *Russia*

Enforta was founded In October 2003 by a group of telecommunication industry executives. Its objective is to provide broadband telecommunication solutions based upon wireless and other state-of-the-art technologies in Russia's regional capitals.

"InfiNet Wireless has been a valued strategic partner to Enforta for over five years. In over 50,000 fixed subscriber installations, InfiNet Wireless's equipment has proven to be reliable, feature rich, and well supported. For operators with bandwidth-hungry subscribers, InfiNet Wireless's products offer an outstanding price-performance ratio."

Lee Sparkman,
President of Enforta

Enforta's goal was to provide a full portfolio of broadband services to its SOHO, SME and Enterprise customers covering high speed internet access, local and national telephony, email, website hosting and dedicated VPN services for secure communication between home workers and branch offices. Achieving this with a broadband wireless network was both innovative and highly challenging in terms of working with a new technology on such a large scale. In particular, the challenges of wide-scale deployment across major cities was a deployment scenario that had not been tried anywhere else in the world.

To build a cost-effective, scalable national network using Wireless technologies in 3.4–3.7 GHz and 4.9-5.9 GHz, and also 6.0–6.4 GHz bands, Enforta chose InfiNet Wireless's solution. Thanks to the high performance of the InfiNet Wireless's solution (up to 300 Mbps) and a wide range of network functions, including routing, switching and QoS, Enforta offers a full range of services to meet the needs of large organisations, enterprises, small and medium businesses and private clients.

Sector

Telecommunications

Challenges

- Limited spectrum availability
- Lengthy regulatory process for approvals
- VoIP is regulated
- Demanding climatic conditions

Solution

- InfiLINK 2x2 high-capacity Point-to-Point solutions
- InfiMAN 2x2 Point-to-Multipoint solutions
- More than 50,000 subscriber terminals and more than 2,500 InfiNet Wireless Base Stations

Customer Benefits

Reliable coverage of wide areas

Ability to connect remote subscribers

Significant cost reduction on wireless infrastructure

Rapid deployment of networks and connectivity of new subscribers

IRSN *Russia*

IRSN, the largest internet provider in the Irkutsk region of Russia, provides communication services to government and corporate clients, as well as consumers.

"We have installed several dozen radio channels which stretch over long distances. There were no problems with the installations. The largest distance of 60 km is served with 78 Mbps. One of the divisions of the Ministry of Emergency Situations of the Russian Federation operates on this channel successfully."

Sergei Kuzin,
CEO, IRSN

Previously, the provider was using satellite communication channels, which made it impossible to implement new interactive applications such as video conferencing, voice transfer, or connecting more than three computers to the internet at one time. This was due to the technological limitations of the components and the use of multiple satellite channels.

Faced with these difficulties when working on joint projects between the Ministry of Emergency Situations and the Federal State Unitary Enterprise of Radio and TV design, IRSN took the decision to modernise the existing network backbone and to move the links to a wireless access model.

The solution provided by InfiNet Wireless was Point-to-Point wireless links, built using InfiLINK 2x2 units with integrated high gain antennas. The link length ranged from 11 km to 60 km with capacity of up to 300 Mbps at 40 MHz.

IRSN

Sector

Telecommunications

Requirements

- Large extension of the channels, including connections above water
- Constant work in conditions such as fog, snowfall and low temperatures
- Transferring a wide range of traffic
- VLAN separation networks

Solution

- More than ten InfiLINK 2x2 PRO Point-to-Point links
- High-gain integrated antennas

Customer Benefits

Cost effective solution for the operator, allowing the connection of a large number of new subscribers

Reliable links for the connection of state agencies and security services

Total length of backbone route is 600 km

Over 60 access nodes

Sevenet *Slovakia*

Sevenet specialises in a range of business, public sector and consumer online services. These include traditional public internet access, a range of bespoke service offerings to business communities such as leased lines and wireless network installation services for local municipalities, as well as backbone connectivity for smaller ISPs.

"InfiNet Wireless offered us benefits that proved invaluable, high availability and a great price-performance ratio. After using InfiNet Wireless's solutions in our network for some time without experiencing any technical issues, we were confident that the company's technology was exactly what we had been looking for in order to achieve our corporate goals. The comprehensive training programme and on-going support offered by InfiNet Wireless and its local partner Inter Crown Europe made a big difference to us."

Ernest Toth,
co-owner of Sevenet

Sevenet deployed a new state-of-the-art platform based on InfiNet Wireless's solutions, running along an optical backbone and an Ethernet-to-the-Home network in Sturovo. In addition, Sevenet's network is based on a star topology, with a consolidated network operating centre located in Sturovo. Connectivity to the many smaller public sector customers is achieved through various wireless links from InfiNet Wireless. For example, Sevenet deployed a number of R5000-Omx links operating at full capacity (i.e. 300 Mbps) in the 5 GHz frequency bands, in conjunction with external high performance antennas.

By using InfiNet Wireless's solutions, Sevenet was able to deliver the required broadband connectivity to its customers, which resulted in higher network reliability and much improved customer satisfaction.

As an added bonus, Sevenet achieved significant cost reductions in its operating expenditure by not spending additional resources on licensed microwave links. These have a similar initial outlay and availability but come with high licensing fees.

Sector

Telecommunications

Challenges

- A large, diverse customer base with different needs
- Strong competition from major service providers offering broadband access in bigger cities
- Competition from smaller WISPs offering low-cost wireless connectivity in towns and villages

Requirements

- Cost effective wireless infrastructure
- High-capacity backbones to support IP TV and Surveillance

Solution

- InfiLINK 2x2 wireless Point-to-Point solution with capacity up to 300 Mbps throughput

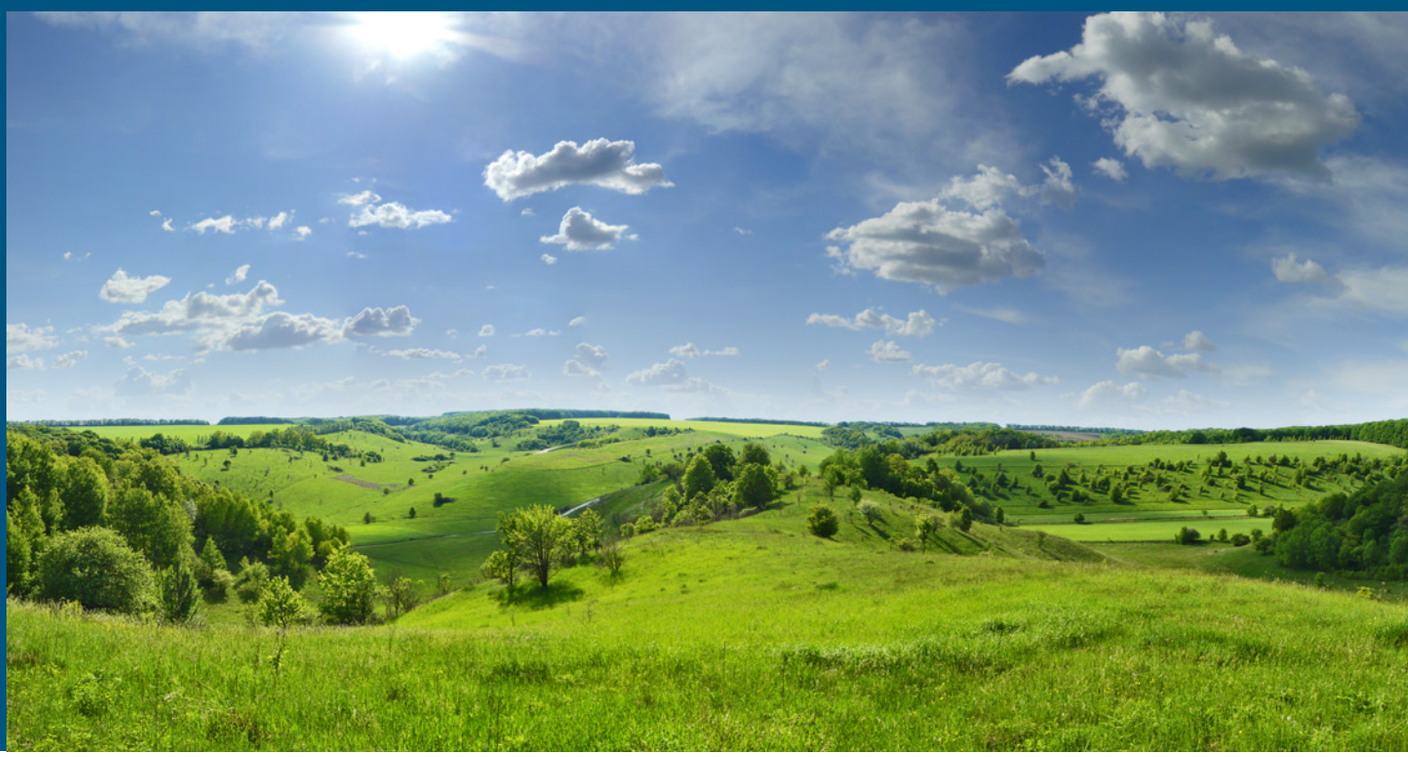
Customer Benefits

Delivery of required broadband connectivity with higher network reliability for customers

Significant reductions in operating expenses for Sevenet

National Radio Association *Russia*

The National Radio Association is the official body responsible for the national radio frequency. It has been created with the support of the State Communications Committee and GSN, Russia.



In 2009, Geyser-Telecom launched a network to provide wireless broadband access for the National Radio Association in the Moscow and Kaluga regions, using InfiNet Wireless R5000. This network provides data transfer between stationary automatic radio control systems (ARMS) on mobile radio communication networks on the IMT-2000/UMTS frequency.

The main element of the ARMS is stationary DF (direction-finding) complex “BARS”, which produces constant monitoring of the noise in Moscow and Kaluga. Information from ARMS is sent to the analysis centre in Krasnoznamensk.

The network consists of six Point-to-Point solutions, three of which have a length of 23, 43 and 45 kilometers. For customers, the main requirement is the high reliability of the communication channels. Therefore, equipment with a high power transmission must be used (Ot/50.36.300 and Ot/50.48.500). On the equipment with shorter distances, standard equipment can be used (L/50.36.63) with a frequency range of 4.95 – 5.05 GHz.

Sector

Telecommunications

Requirements

- Highly reliable communication channels
- Integration with noise monitoring

Solution

- InfiMAN 2x2 – high-speed Point-to-Multipoint providing 240 Mbps capacity

Customer Benefits

High power transmission

High reliability of the communication channels

Economically effective solution

DIGI SPORT *Hungary*

Digi Sport is a premier sports channel broadcaster in Hungary and part of the Digi TV group: a leading broadcast, cable and internet provider offering nationwide TV, internet, VoIP and 3G services across a number of Eastern European countries.

As part of its mandate to provide coverage of national, as well as international sporting events, Digi Sport identified a requirement to provide live broadcast coverage of a national volleyball event taking place at the Sportmax Arena in Budapest, Hungary.

The Sportmax Arena is some 3 km distance from DigiSport's closest optical transmission node and typically live event broadcasts of this nature would be conducted through satellite uplink transmission, in order to avoid issues of reliability and to provide continuous live streaming of the event.

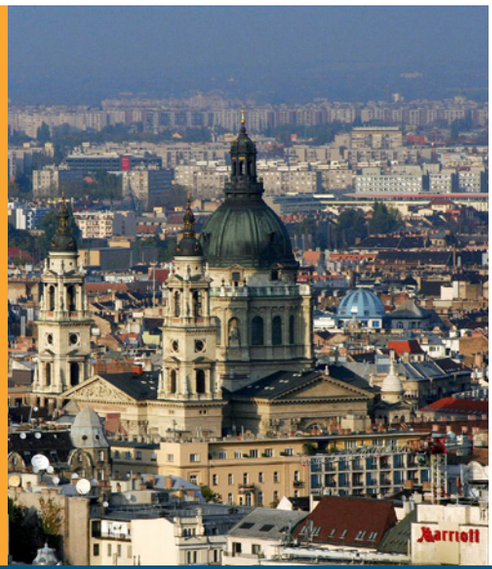
However, this form of live video distribution can be expensive, with costs including the lease of fully-equipped broadcast vehicles, staff and satellite uplink charges. Therefore, DigiSport took the decision to broadcast the competition across a high-frequency, high-bandwidth wireless link between the Sportmax venue and its optical transmission node.

Sector

Telecommunications

Requirements

- To provide a reliable, high bandwidth wireless link suitable for live TV transmission
- To operate the link across an urban landscape with significant line-of-sight challenges and obstacles
- To provide high capacity and consistent throughput with near zero packet loss, for error-free TV transmission



Solution

- InfiLINK 2x2 PRO
- Integrated 28 dBi antennas

Customer Benefits

Fast setup and easy deployment

Link optimisation in real-time through integrated planner & tools

High reliability and stability, high and consistent throughput even with high spectral interference

Competitive costs compared to satellite transmission

Tisser Kft *Hungary*

Tisser Kft is one of a new breed of emerging ISPs and media companies in Hungary that utilises high-bandwidth connections to consumers to provide TV, Internet and IP phone services. Tisser Kft uses InfiNet Wireless to provide high capacity "wireless to the home" solutions for triple-play.

Its business model has been built using a backbone fibre-optic cable network to deliver next generation ultrafast Ethernet-to-the-Building services.

In mid-2009, Tisser was asked to supply its triple-play service offering to a number of customers based in residential apartment blocks in Tiszaújváros, around 175 km North-West of Budapest. The apartment blocks required high-capacity connections to the Tisser backbone of at least 40 Mbps per apartment block link. This would normally have been achieved with a "Fibre-to-the-basement" (FTTB) solution, reaching an Ethernet distribution node in each block that would then supply residential apartments and small businesses directly with their internet, TV and IP telephone service.

Because of the immediate lack of availability of fibre to these apartment buildings, Tisser turned to Crown-Tech, an integration specialist for wireless systems, to explore the possibility of using broadband wireless links as an alternative to high-capacity fibre links. Crown-Tech conducted a number of site surveys and eventually recommended field-trialing an installation of InfiNet's InfiMAN 2x2 and InfiLINK 2x2 units to provide the necessary links and high-capacity bandwidth to the core backbone.

Tisser Kft

Sector

Telecommunications

Requirements

- To rapidly deploy high-capacity wireless bandwidth links to consumer apartment blocks for delivery of voice, video and internet services
- To offer an alternative technology solution to “Fibre-to-the-Home” (FTTH)

Solution

- InfiMAN 2x2 300 Mbps Point-to-Multipoint Base Stations
- Each Base Station served with LINK 2x2 50 Mbps high capacity client links

Customer Benefits

Supreme reliability of the system provided a viable alternative to fibre deployment

Savings of 90% on the budgeted maintenance costs, coupled with a 40% increase in subscriber growth, made the systems incredibly economical to deploy

Highly efficient and focused spectrum usage provided maximum bandwidth in a narrow and congested 5 GHz spectrum field

Significantly reduced deployment time over fibre installation and reduced upfront network investment due to product flexibility and ease of deployment

Royal Telecom and InfiNet Wireless provide connectivity in Bucaramanga *Colombia*

Royal Telecom is a Columbian distribution partner of InfiNet Wireless. It was established in 1999 and has been a major player in the Columbian telecoms space for over a decade, with a presence nationwide spanning from Bogota to Medellin and Cartagena to Manizales. It specialises in the wholesale distribution of communications and security solutions, offering with first class service from globally recognised brands.

Royal Telecom was approached by its customer, Telebucaramanga, the premier supplier of telephony, broadband Internet and Digital Satellite services to households and SMEs in Bucaramanga, the capital city of Santander, Colombia. It needed to supply two customers with a reliable, high capacity long distance link. Royal Telecom suggested InfiNet Wireless's Point-to-Point products as the ideal solution for the challenge and the company installed two InfiLINK 2x2 PRO units and one InfiLINK 2x2 LITE unit. InfiNet Wireless's products provided Royal Telecom with a solution that exceeded the capacity and had better system gain than that of its competitors.

InfiLINK 2x2 is a wireless Point-to-Point solution which combines high-speed capability, up to 280 Mbps throughput, with a rich set of best-in-class features and benefits. It supports leading-edge radio protocols, providing unrivalled spectral efficiency and wireless transmissions over distances in excess of 80 km. The radio link for Telebucaramanga stretched across 103 km and the capacity achieved was 30 Mbps, helped by the 34 dBi gain antennas. This provided Telebucaramanga with a flexible, robust and reliable solution to provide connectivity to its customers.

telebucaramanga

Sector

Telecommunications

Requirements

- Robust long distance microwave link
- High capacity

Solution

- InfiLINK 2x2 PRO and InfiLINK 2x2 LITE
  Point-to-Point connectivity

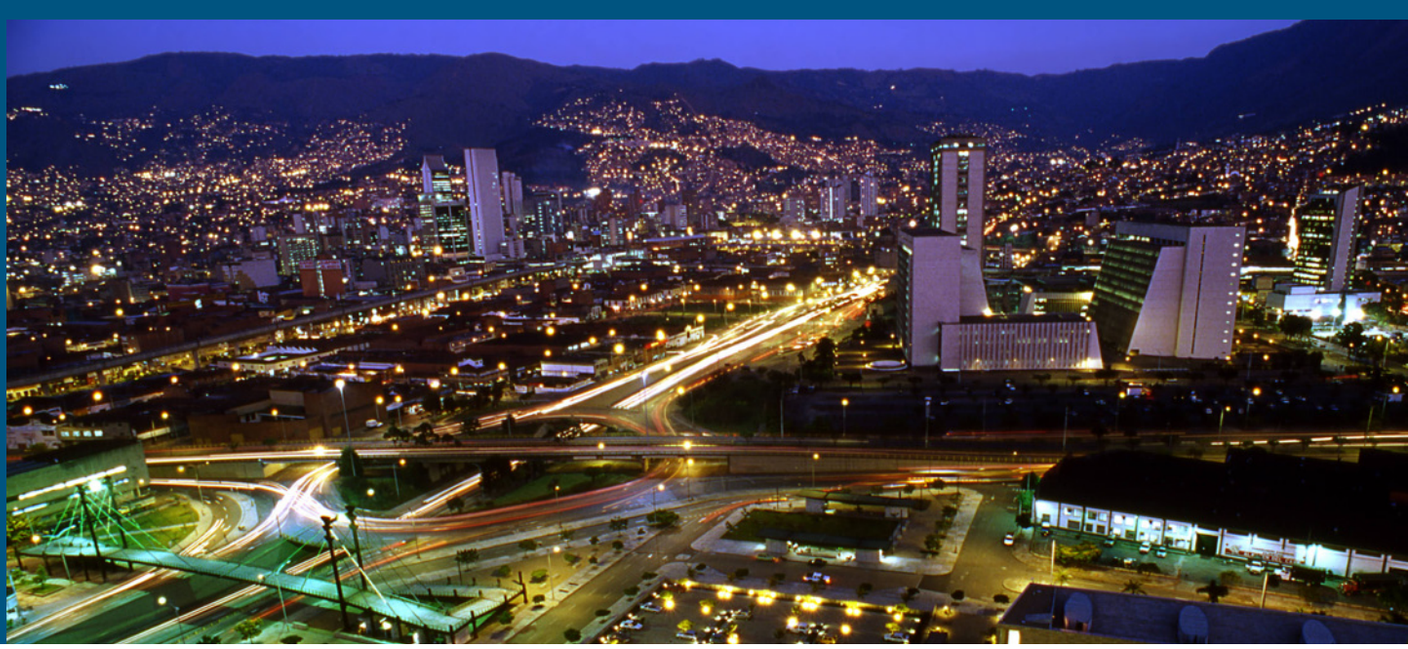
Customer Benefits

Reliable link over 103 km

30 Mbps capacity

InfiNet Wireless and Royal Telecom provide backhaul peace of mind for UNE *Colombia*

Royal Telecom is a Colombian distribution partner of InfiNet Wireless. It was established in 1999 and has been a major player in the Colombian telecoms space for over a decade, with a presence nationwide spanning from Bogota to Medellin and Cartagena to Manizales.
It specialises in the wholesale distribution of communications and security solutions, offering first class service from globally recognised brands.



One of Royal Telecom's customers, UNE, a nationwide telecommunications company in Colombia that provides fixed and wireless broadband access and cable television, required a solution to backhaul its LTE Base Stations using a microwave link on an unlicensed band. Having compared InfiNet Wireless's range of products with others available on the market, Royal Telecom recommended its Point-to-Point products to provide a solution. In comparison with its competitors, InfiNet Wireless's products offer the best RF performance and system gain, the highest capacity and the best QoS available.

InfiNet Wireless Point-to-Point solutions are being used to connect the Base Stations, using the InfiLINK 2x2 LITE and InfiLINK 2x2 PRO products. 17 InfiLINK 2x2 PRO and six InfiLINK 2x2 LITE units have been installed to connect three bases stations and seven CPEs. This will be followed soon with two further InfiLINK 2x2 PRO and InfiLINK 2x2 LITE units. InfiLINK 2x2 is a wireless Point-to-Point solution which combines high-speed capability, up to 280 Mbps throughput, with a rich set of best-in-class features and benefits. It supports leading-edge radio protocols, providing unrivalled spectral efficiency and wireless transmissions over distances in excess of 80 km.

Sector

Telecommunications

Requirements

- Provide backhaul to LTE Base Stations using a microwave link

Solution

- InfiLINK 2x2 LITE and InfiLINK 2x2 PRO units to connect Base Stations and CPEs

Customer Benefits

High-performance, flexible backhaul solutions

Easily scalable system

High capacity and excellent QoS

Reliable wireless solutions for Mada Communications *Kuwait*

Mada Communications has positioned itself as one of the leading providers of internet and VPN connectivity in the Gulf region. From its early days of establishment in the 1980's, serving as a communications consultancy to the Ministry of Communications in Kuwait, Mada has fast become the pioneer in bringing wireless internet solutions into the region, catering for the requirements of corporations and individuals on all levels.

In early 2012, and following an unprecedented surge in demand for higher bandwidth by customers in the Kuwaiti market, Mada took the decision to swap its then existing Point-to-Multipoint infrastructure (based on WiMAX & pre-WiMAX) to a new and more advanced platform that would cater for today's requirements as well as having the ability to fulfil future demand.

Mada selected InfiNet Wireless's MIMO range of solutions (InfiMAN 2x2 and InfiLINK 2x2) over competitive solutions available in the marketplace, and conducted an extensive field trial based on a stringent testing and acceptance plan. One of the major limitations that Mada faced on its previously deployed WiMAX network was the inability to work on different modes (Bridge/VLAN/Router Modes). With InfiNet Wireless, it has the option to have multiple topologies and modes on different CPEs that are connected to the same Sector, depending on each customer's specific requirements.

Another major drawback of the old WiMAX network was the fixed ratio of the download/upload nature, which resulted in unused bandwidth and limited upload provisioning. With InfiNet Wireless's "Adaptive TDD Feature", Mada is now able to provide the exact upload bandwidth required by each customer and, at the same time, significantly increase the efficiency of each Base Station sector.

Sector

Telecommunications

Requirements

- New infrastructure to replace an existing WiMAX network, providing increased reliability and coverage
- High capacity Base Stations and subscriber terminals
- Cost-effective

Solution

- InfiMAN 2x2 and InfiLINK 2x2 product families in the 3.5 GHz frequency bands

Customer Benefits

Significantly reduced outages

"Install-and-forget" infrastructure

Increased geographical coverage and available capacity

Wireless broadband in Jamaica *Jamaica*

DEKAL Wireless is Jamaica's first island-wide broadband Wireless Internet Service Provider (WISP). Its aim is to provide its subscribers with access to the Internet anytime, anywhere in the country, whilst maintaining the highest quality of service possible, the most flexible and hassle free service provision, at the most economical and affordable price.

InfiNet Wireless and its local partner SUPERWIFI Solutions were approached by the service provider to design and implement an island-wide wireless solution as an overlay network to its already existing overhead fibre network, which itself was experiencing frequent downtime. The terrain across Jamaica has always been a challenge to any wireless provider, not helped by the presence of numerous mountains in the country, which makes it difficult to achieve Line-Of-Sight (LOS) conditions and provide the ultimate connectivity.

InfiNet Wireless's range of Point-to-Point solutions, InfiLINK 2x2, was selected as the best available solution, combining non-LOS capabilities with high throughputs of up to 280 Mbps and a range of Quality of Service (QoS) features to offer DEKAL's customers a reliable service and full peace of mind.

DEKAL SUPERWiFi

Sector

Telecommunications

Requirements

- To bring affordable and reliable broadband access to the whole of Jamaica with excellent, consistent performance
- To deploy an infrastructure that requires minimal support and maintenance
- To provide long-range backhaul to reach all parts of the country

Solution

- InfiLINK 2x2 Point-to-Point connectivity with 300 Mbps capacity and 200mW transmit power
- Third party high performance antennas to cover long distances

Customer Benefits

Highly reliable and easy to deploy core backbone network in the 5 GHz frequency bands

Highly affordable solution for rural broadband with minimal support and maintenance

Highly robustly solutions to cater for extreme and inclement weather conditions

Long distance WiMAX for Saudi Arabia's leading telecoms provider *Saudi Arabia*

Integrated Telecom Company (ITC) is one of Saudi Arabia's leading telecoms service providers. Established back in 2005, ITC is committed to providing the best next-generation data, connectivity and internet services for its business customers and consumers throughout the kingdom.

ITC partner, European Telecom International, chose InfiNet Wireless's R5000 family of products for last mile wireless Point-to-Point access. InfiNet Wireless offered not only proven hardware reliability but a wide range of products providing wireless transmissions in excess of 80 kilometers. All of this was made possible at a highly cost effective price and with fast and effective technical support.

Since installing the R5000 family of products in ITC's extensive network, European Telecom International has been impressed with the reliability of the service – providing high bandwidth even across ultra long distances.

Sector

Telecommunications

Requirements

- Dedicated bandwidth for ultra long distance
- Reliable WiMAX service delivery
- Highly cost effective price
- Fast and effective technical support

Solution

- InfiNet Wireless's R5000 family

Customer Benefits

Stand-alone monitoring

Wireless transmissions in excess of 80 km

Highly cost effective technology in comparison to wired-connection

Multiple Input/Multiple Output (MIMO) 2X2 architecture

2010 FIFA World Cup *South Africa*

Lasernet was selected by word of mouth and referral as a primary connectivity provider to specific third party clients for the World Cup 2010 that was hosted here. Lasernet have an extensive private network in Johannesburg, Cape Town and Durban. Our core business is the movement of large data files utilisingutilizing our high speed Point-to-Point connectivity to our clients.

Associated to our data transfer capabilities are the added value services in the media industry, we provide teleconferencing, media streaming, data archiving and just recently the ability for live broadcast over IP. Lasernet have been operating in the media industry since 2005 and provide high speed connectivity to almost all post facilities, local broadcasters, as well as many SME and corporate clients. In 2008 we exclusively chose InfiNet Wireless products as our core link infrastructure, this decision proved very successful and has enabled us to expand rapidly making use of the robust technology provided by the InfiNet Wireless product range.

The advent of the WC 2010 required us to provide various connectivity solutions, specifically where the national telcos were unable to deploy in the tight time scales this period presented. A few of the instances are detailed below:

LASERNET

Sector

Telecommunications

- **Lasernet provided connectivity for Adidas at the Sandton convention centre**

  Adidas had on the ground camera crews doing coverage of the WC 2010, daily this coverage was downloaded and edited in the studio and the finished Quicktime media file was then transferred over the Lasernet network via Smartjog to New York and was made available to the international contingent for broadcast. To achieve this, Lasernet installed a Point-to-Point InfiNet Wireless link from Sandton to our central switching facility, and provided transfers speeds in excess of 100 Mbps. The efficiency of the solution proved very successful and was utilised during the entire period of the World Cup 2010.

- **Lasernet provided connectivity for Castrol to Johannesburg and Cape Town stadiums**

  Castrol had a requirement to stream multiple clips to both the Johannesburg and Cape Town stadiums. The content was varied but included interviews and informational content that visitors to their hospitality tents could view. They provided multiple PC's in order to allow multiple users to access their streaming and web content, both in Johannesburg and Cape Town. This service was also utilised during the entire WC 2010 event and was achieved by installing temporary InfiNet Wireless links over multiple hops to finally terminate at the hospitality tent areas at both stadiums.

InfiNet wireless

LASERNET

Sector

Telecommunications

- **Lasernet provided walk in clients with a facility to transfer daily content**

Lasernet, out of necessity, became a portal for freelance producers, editors and cameramen to walk in to our offices and have the facility to transfer and publish their content to the international market. These clients would shoot footage of daily events and then edit and transfer from our local switching centres in Johannesburg, Cape Town and Durban. The current telco facilities could not provide the speed to the freelance community and our cost effective transfer facility utilising our InfiNet Wireless regional networks proved highly successful for these clients.

- **Lasernet provided a quick link for FIFA streaming**

Lasernet were requested, at short notice, to provide a link to FIFA in order for them to stream internationally. This was utilised over a period of two days and again proved to be very successful in facilitating the live stream required by FIFA.
These are but a few of the instances where Lasernet were instrumental in providing connectivity during our hosting of the WC 2010. Our connectivity options are being required by more and more clients that find themselves without connectivity from the national telcos due to instability of diginet and ADSL. The opportunities we are presented with because of this are immense, and due to our robust infrastructure on the InfiNet Wireless range of products we are able to continue our dynamic growth.

LASERNET

Sector

Telecommunications

Requirements

- Transmission of large media data volumes
- Establishing the communication channels for international streaming broadcast
- Connectivity for large amount of subscribers

Solution

- High-speed links with InfiLINK 2x2 Point-to-Point (speed more than 100 Mbps)
- InfiNet Wireless links over multiple hops to the hospitality tents areas of two stadiums

Customer Benefits

The highest performance

Easy and fast deployment

Simultaneous transmission of different data type

InfiNet Wireless provides flexible microwave communications solutions to Zanlink *Zanzibar*

Zanzibar is an archipelago located in the Indian Ocean off the eastern coast of Tanzania, and consists of numerous small islands and the two main islands: Unguja (referred to informally as Zanzibar) and Pemba. **Zanlink** is the leading ISP in Zanzibar and provides communications coverage, connectivity and enterprise services across the entire geography of Zanzibar.

Zanlink turned to InfiNet Wireless for a more flexible solution that would meet its needs and would also reduce the operational costs needed to upgrade its wireless backhaul network. InfiNet Wireless's Point-to-Point and Point-to-Multipoint solutions were attractive to Zanlink primarily because of the operational flexibility and savings that the solutions could bring: frequency allocation for the InfiLINK 2x2 backhaul units can be selected and allocated through software across a variety of frequencies from 4.9 to 6.0 GHz from a central management location, meaning fewer visits to the Base Station sites to upgrade or replace deployed units. In the same vein, the InfiNet Wireless units can also be software-upgraded for capacity increases, meaning the network link capacity can be scaled quickly and easily as demand across the backhaul network grows, again giving Zanlink the flexibility to upgrade without the need to physically visit the Base Station location.

The success of the InfiNet Wireless products in the Zanlink core infrastructure has led Zanlink to broaden the use of InfiNet Wireless products across its network. Its improved stability and throughput over previously deployed equipment, has led to the introduction of InfiNet Wireless solutions beyond the backhaul network and into the client connectivity layer, where Zanlink is now using InfiNet Wireless's solutions to also deliver wireless broadband connectivity and services directly to client premises as well as across the backhaul network.

zanLINK

Sector

Telecommunications

Requirements

- High capacity backhaul
- Extended frequency range for the wireless backhaul
- Reduction of operational costs
- Simple and flexible backhaul capacity upgrade

Solution

- InfiLINK 2x2 Point-to-Point links and InfiMAN 2x2 Point-to-Multipoint systems

Customer Benefits

Improved throughput and stability of the wireless backhaul infrastructure

Increased capacity that can be upgraded remotely (without need to visit Base Station sites)

Minimization of installation and maintenance costs

Immediate upgrade of service and capacity

InfiNet Wireless brings mobile connectivity alive *China*

As the leading mobile service provider in mainland China, the China Mobile Group boasts the world's largest mobile network in terms of geographical coverage, and the world's largest mobile customer base, with over 781 million end-users. In the XingJiang province, in the north-western part of the country, the operator needed a fixed broadband wireless network to transfer securely and reliably its business customers' sensitive data.

"We are extremely impressed with the quality of InfiNet Wireless's solutions which provide us with a network that has become the envy of our competitors. We can now provide our end customers with the high performance and reliability they require and expect from us to stay ahead in their respective market sectors. The support from YingBao and InfiNet Wireless's local team has also been excellent."

Fan Jinzhu,
Network Monitoring & Maintenance Centre Deputy Manager for China Mobile

The operator approached InfiNet Wireless's regional partner in this part of the country, XingJiang YingBao, to design and deploy a solution that would meet both its current and future requirements, and allow it to deliver the highest performance and throughput possible, compared to other systems already deployed in the country. YingBao demonstrated InfiNet Wireless's capabilities by providing a highly secure network that was robust and reliable, as well as guaranteeing ultimate peace of mind to China Mobile's customer-base. The cost-effective solution from InfiNet Wireless included both Point-to-Point and Point-to-Multipoint high performance wireless units.

中国移动 China Mobile

Sector

Telecommunications

Requirements

- Wireless backhaul links for carrying sensitive business data securely
- High capacity
- Cost-effective

Solution

- InfiLINK 2x2 PRO R5000-Mmx series for the backbone layer
- InfiMAN 2x2 Point-to-Multipoint deployed for the access layer

Customer Benefits

Highly secure and reliable solution

High capacity network with very low latency

InfiNet Wireless offers wireless solutions for Astel Company *Kazakhstan*

ASTEL is the largest service provider and system integrator in the Republic of Kazakhstan. ASTEL has been successfully using InfiNet Wireless' equipment as its key «last mile» solution equipment provide since 2005.

Due to the rapid growth ASTEL's customer base a need for a reliable technical solution which provides a high quality and a stable performance with minimal operational and capital investments became obvious. The equipment's ability to cope with extreme weather conditions was also a significant deciding factor, therefore ASTEL yet again opted for InfiNet Wireless' solutions, which stood out from its business rivals.

Numerous tests of broadband wireless access systems of various manufacturers were carried out, and only InfiMAN 2x2 Point-to-Multipoint solution demonstrated the required stability and reliability in extreme weather conditions. This product offering from InfiNet Wireless can withstand a high level of interference and also proved to be the most financially viable.

ASTEL
Комплексные решения связи

Sector

Telecommunications

Objectives

- Cost-effective solution
- High-capacity longhauls
- A stable operation in fog, snowfall and low temperature conditions
- Flexible support of various types of data traffic
- Extensive support of VLANs & Quality-of-Service

Solution

- 154 InfiMAN 2x2 Point-to-Multipoint Base Stations with thousands of Subscriber Terminals

Customer Benefits

Stable operation in fog, snowfall and low temperature conditions

City-wide and region-wide coverage

Low CAPEX and OPEX

The scalable solution allowing to connect a big number of subscribers

Kapulan provides wireless Internet solutions using InfiNet Wireless products *Hungary*

Kapulan Kft is an Internet service provider that has been operating in the Győr-Moson-Sopron county of Hungary since 2013.

Kapulan had been using Point-to-Multipoint technology for public internet access and required a solution that could also deliver a high quality connection for businesses in the overcrowded 5 GHz spectrum.

As a result, Kapulan chose the InfiNet Wireless solution. Kapulan now provides a competitive leased line service using the InfiMAN 2x2 equipment, offering 25/25 Mbps and 50/50 Mbps leased lines with the latency of just 2-3 ms. Digitop now provides a reliable internet connection for its clients and offers a scalable and dependable solution to future customers.

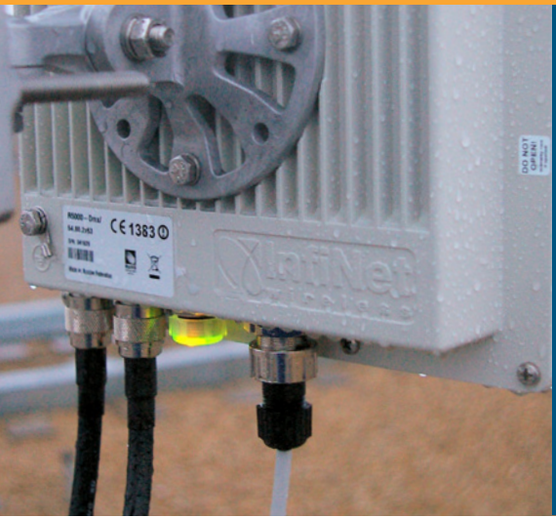
Kapulan

Sector

Telecommunications

Challenges

- To provide a reliable, high speed internet connection as an alternative option to optical fibre
- To provide business users with a high quality Internet service across an ever crowded 5 GHZ spectrum and a 35 km link



Solution

- InfiMAN 2x2 Point-to-Multipoint solutions
- InfiLINK 2x2 Point-to-Point solutions

Customer Benefits

Faster data rates and high bandwidth

It substantially rectified and improved connectivity issues and provided a future-proof connection with an assured level of high bandwidth and low latency

Provided the client with a high bandwidth and low latency offering

Gave the client a competitive edge over other ISP's

TNK-BP *Russia*

Samotlorneftegaz is TNK-BP's top producing site and the company's biggest subsidiary in the Russian Federation. Its core activities are the exploration and development of oil and gas fields, parametric drilling, exploration, appraisal and production wells for hydrocarbons and extraction, transportation, treatment, processing and sale of hydrocarbons and the construction of oil and gas field facilities. Responsible for developing the central and south western sectors of the Samotlor field, the company currently produces 65% of its recoverable reserves.

As a part of the company's "Asset for the future – Intelligent oil well" programme, TNK-BP looked to InfiNet Wireless and MTS, the leading telecommunication providers in Russia and the CIS countries, to deploy a wireless telecommunication infrastructure for the Samotlor oilfields in the Khanty-Mansiysk Autonomous Region in Russia, approximately 2,500 km north east of Moscow.

Taking into account the territorial nature of the project with harsh environments and temperatures as low as -55°C, MTS proposed InfiNet Wireless's broadband wireless access solution to carry a variety of transmitted traffic - video, voice, data and SCADA applications - as well as meet high reliability and safety requirements.

The solution supports Internet access, the corporate network, telephony, the transmission of surveillance footage and telematics to provide the remote management of key processes.

At present, the network includes 62 Base Stations and about 2,500 subscriber terminals, ensuring reliable and stable communication within a radius of 20 km from the point of data transfer, with speeds of up to 60 Mbps.

Sector

Mining

Requirements

- A reliable communications network to provide Internet access and video surveillance, as well as support all existing SCADA applications
- Improved quality and reliability of remote site monitoring
- Cost effective solution, which still maintains maximum safety and reliability levels

Solution

- Long range multipoint solution based on dozens of multi-sector Base Stations and thousands of CPEs

Customer Benefits

Reliable communications platform, linking remote sites at distances of up to 20 km

Robust and sustainable connectivity in challenging weather temperatures as low as -55°C

EVRAZ KGOK *Russia*

EVRAZ KGOK is one of the five largest ore mining companies in Russia. Its main deposits of titanium magnetite ores, containing a much sought-after vanadium alloy component, are located some 140 km from its sister plant EVRAZ NTMK, all in the Sverdlovsk region in the Urals Federal District. This mine is strategic to the Russian economy as it is a main centre for the national production of high-tensile, alloy steel products.

The deployment of the network started in November 2012 and was completed in March 2013, covering more than 80% of the entire plant and the surrounding areas (more than 60 km²). High reliability and fully secure wireless connectivity was delivered to all work areas and across all routes of transport, including four raw material mine pits. The backbone network consists of 22 Base Station sectors, spread across 14 locations to give full coverage, with up to three sectors installed on specific locations to cater for the difficult terrain.

To ensure the reliability of the links, each subscriber terminal was equipped with two omnidirectional antennas. Each terminal was configured in a specific way so as to ensure seamless roaming from one Base Station to another. The switching time achieved is less than one second. Seamless integration with an already existing wired network was achieved via the use of fibre optic cabling, as well as through the use of InfiLINK 2x2 PRO family.

The moving vehicles were each equipped with InfiMAN 2x2 Lmnc subscriber terminals to provide the required data and video links throughout the loading, unloading, earth moving and tracking activities. Each terminal was configured in a specific way so as to ensure seamless roaming from one Base Station to another and in any one of four pre-defined frequency channels.

EVRAZ

Sector

Mining

Challenges

- Difficult terrain and harsh climate
- Linking moving vehicles with fixed locations

Requirements

- High-speed and reliable links for data and video transmission
- Creating a unified network across the entire plant
- Integration with GPS monitoring systems to gather information about the location of each vehicle

Solution

- InfiLINK 2x2 Point-to-Point solution which provides broadband capacities of up to 300 Mbps
- InfiMAN 2x2 Point-to-Multipoint solution with capacity of up to 240 Mbps
- Available capacity of at least 10 Mbps per vehicle, travelling at speeds of up to 60 km/h

Customer Benefits

Enabled reliable data transfer, thus dynamic management of moving fleet and stock

Provided full coverage of the entire area, with no black spots

Significant improvement in overall productivity of the mine and associated plants

PT Saptaindra Sejati (SIS) *Indonesia*

PT Saptaindra Sejati (SIS) is a well established and rapidly growing modern mining contactor in Indonesia, providing integrated mining services to a number of customers across the region.

Mining locations can often be positioned in difficult-to-reach locations, and even the top of the mines themselves can introduce significant technical challenges in laying and maintaining a communications and IT infrastructure network.

PT Saptaindra Sejati (SIS) approached its preferred integration partner, Wirakom, to recommend, design and support a suitable network for its needs. InfiNet Wireless was chosen on the basis of a number of key factors that differentiated it from its competition; its support of wireless communications across the unlicensed spectrum and its reliability and ability to cope with difficult terrain, geography and weather conditions.

Another key factor in choosing InfiNet Wireless's solutions centred around its "Greenfield mode" feature, which PT Saptaindra Sejati (SIS) believes has brought additional stability to the wireless communications links, particularly in times when atmospheric interference is at a high.

Sector

Mining

Challenges

- Bandwidth links between remote mining operation and administration centres
- To achieve over 100 Mbps and across distances in excess of 29 km through difficult terrain
- High-reliability and uptime requirement
- Difficult environmental factors
- Efficient, low-cost solution with rapid deployment and remote support capability

Solution

- InfiLINK 2x2 PRO Mmx
- InfiMAN 2x2 Smnb
- InfiLINK 2x2 LITE Smn
- Greenfield mode feature

Customer Benefits

A consistent and reliable high speed network across the mining site

Stability and reliability of the link across a difficult terrain and through extreme weather conditions

A low-cost, high performance solution with rapid deployment and minimal customer resource required to install, commission and upgrade the solution

LUKOIL *Russia*

LUKOIL is a major international oil and gas company, accounting for 2.2% of the global output of crude oil. The company implements oil and gas exploration and production projects in 12 countries but is most active in four federal districts of the Russian Federation: the North West, the Volga, the Urals and the South. At the end of 2012 LUKOIL's six refineries had produced 73.5 million tons of crude oil a year.

In order to ensure that its extraction facilities meet the latest industry ecological standards and safety policies, LUKOIL needs to ensure that its SCADA systems need to be controlled in real-time. As a result, LUKOIL required a reliable network solution, driven by a Point-to-Point arrangement, which would provide an increase in Base Station capacity and coverage. With this in mind, LUKOIL approached integration specialist Lukon in order to put in place a highly reliable, robust and secure communications system.

Due to the locations of the Base Stations, LUKOIL needed equipment that could operate in harsh environments; covering up to 15 km. Lukon suggested and trialled the robust and reliable InfiMAN 2x2 with its Integrated Sector Antenna Base Stations, ensuring maximum RF performance with the benefit of quick and simple installation processes.

LUKOIL OIL COMPANY

Sector

Oil&Gas

Requirements

- Real-time control of SCADA system
- Robust design to operate in harsh environments – temperatures as low as -55°C
- Coverage of up to 15 km
- Quality of Service support for a variety of traffic

Solution

- 3 InfiLINK 2x2 long-range backhauls, Point-to-Point high-capacity products
- 12 InfiMAN 2x2 Base Stations with 77 CPEs, Point-to-Multipoint high-capacity

Customer Benefits

Low entry costs

Better ROI achieved through the use of more capacity in less spectrum, the use of wider channel sizing and unprecedented radio performance

Reliability across all types of terrain and climate

Trustworthy communications for an industry that demands consistency

InfiNet drills for success at China Petroleum and Chemical Corporation *China*

DongYing Oilfield, located in the ShanDong province of China, and operated by China Petroleum and Chemical Corporation, is a crucial part of the local economy and one of the largest oilfields in the People's Republic of China.

The oilfield had an existing and unreliable infrastructure that was over ten years old. The local operators approached InfiNet Wireless's partner in the region, BoDaXun, to help them identify a suitable and robust solution that would both meet their current needs and also future proof the network for years to come. BoDaXun recommended InfiNet Wireless's solutions, a combination of Point-to-Point and Point-to-Multipoint topologies, as the best infrastructure that would provide a cost-effective, stable and reliable wireless network with unprecedented low latency. BoDaXun deployed InfiNet Wireless's Poin-to-Point solutions, InfiLINK 2x2, for all backhauling and remote data transfer links, and the Point-to-Multipoint solutions, InfiMAN 2x2 and associated subscriber terminals, to aggregate the oil well data and provide the optimum performance to China Petroleum and Chemical Corporation. The oilfield operators were impressed by the simplicity of installation and ease of alignment of the wireless units, the flexibility and high reliability they offered, the improved QoS offered by InfiNet Wireless, the net throughput at each location as well as the support offered by BoDaXun and InfiNet Wireless locally. The entire infrastructure will be constantly monitored by InfiNet Wireless's InfiMONITOR, a complete software toolbox of network management and monitoring features, which includes flexible viewing options, performance monitoring, configuration of all network elements, user management as well as advanced fault management.

LUKOIL OIL COMPANY

Sector

Oil&Gas

Requirements

- Network capable of carrying video surveillance traffic reliably
- High capacity links to collect and dynamically transfer complex oil-well data
- Wireless solution that could be deployed rapidly and cost-effectively

Solution

- InfiLINK 2x2 PRO Mmx series
- InfiLINK 2x2 LITE Lmn series fitted with high-gain external antenna
- InfiMAN 2x2 for Point-to-Multipoint
- InfiMONITOR (Network Management System)

Customer Benefits

Video surveillance data streams transmitted dynamically without jitter or delay

Highly reliable solution

One unified network management system for the entire oil field

Orekhovo-Zuevsky Power Lines *Russia*

Utilities provider **"Electroset"**, based in the Orekhovo-Zuevo region, provides services to local government organisations and end-users in the region.

The main purpose of the new fixed wireless network was to reduce downtime on the electricity grid, control the energy consumption of end-users and collect and transfer information from end-users' energy meters to a processing centre. It required 100% coverage of the whole town.

The plan was to link 266 district transformer substations. In total, there are three stages of construction:

During the first stage, to ensure maximum coverage, the central Base Station was chosen, at a height of 70 m. On this, four Base Stations were mounted. This point provides access for up to 80% of the transformer substations (TS) around the city. 15 subscriber terminals were also installed here.

At the second stage of construction, additional relay points were established to provide access to the remaining TS. This forms a backbone network and expands its coverage zone without loss of signal quality and wasting a large amount of frequency resources.

For the third stage mass connection of the TS is planned to support the wireless broadband access.

Sector

Energy

Challenges

- A wide coverage area - 200 km²
- A large number of end-users
- Connecting 100 subscribers in one sector

Requirements

- Minimise power loss
- Control and metering of electricity consumption by users
- Provide remote access to the data from the metres and transmit for central processing

Solution

- InfiMAN 2x2 Point-to-Point solution

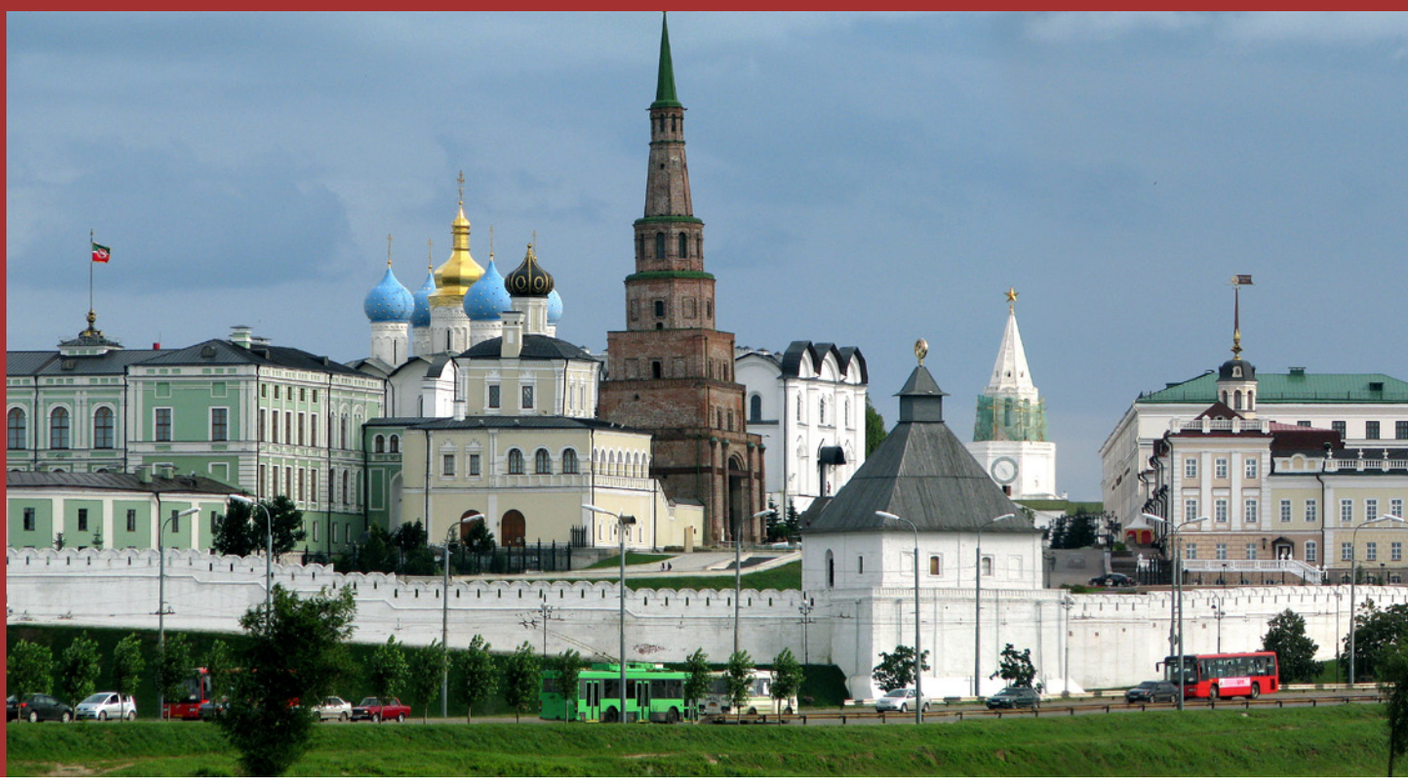
Customer Benefits

Private single network for the collection and transmission of data from end-user devices

Substantial energy savings by end users

TatAISenergo *Russia*

TatAISenergo, a division of Tatenergy, provides technology solutions to the utility industry which include design, construction, installation and the subsequent management and maintenance of IT Infrastructures in the Republic of Tatarstan.



TatAISEnergo determined a need for a high capacity wireless network that could be deployed quickly to provide its end-customers' Smart grid, SCADA and CCTV systems, with up-to-date communications at a reasonable cost, and with the capability to transmit E1 streams.

This project includes 7 installed Base Stations, 100 Smnc Subscriber Terminals (small form factor that is optimal for urban installations).

The InfiNet Wireless InfiMAN 2x2 solution encapsulates E1 streams into IP packets with TDM over Ethernet equipment, transmitting from the Base Station to the Customer Premises Equipment (CPE), meaning that TatAISenergo is able to connect disparate users, where previously connectivity was unavailable.

Requirements

- Fast deployment of a high capacity wireless network
- Capability to transmit E1 streams
- Capability to provide smart grid, SCADA and CCTV systems

Solution

- InfiMAN 2x2 Point-to-Multipoint solution
- 32 Mmx Base Station sectors (4 sectors in each BS)
- 100 Smnc Subscriber Terminals
  (small form factor that is optimal for urban installations)

Customer Benefits

Robust and reliable equipment,
high bandwidth of radio link

High real throughput,
quick and easy installation

QoS, reach routing
and security feature set

Donbassenergo *Ukraine*

PJSC Donbassenergo currently enjoys a 4.6% market share for electricity production and 11.6% in thermal generation in the country. The company has two thermal power plants there – Starobeshivska TPP and Slovianska TPP.

During the redevelopment of the Starobeshivska and Slovianska power plants, Donbassenergo realised a need for an advanced video surveillance solution to be deployed over a new wireless infrastructure.

Donbassenergo's demanding specification centred around the need for images from their surveillance cameras to be viewed remotely, online, 24 hours a day, showing the different areas of construction progress and also the automated dispatch management system in the power station.

During the construction phase, the surveillance cameras were moved to different areas of the sites, so it was necessary to ensure the continuity of connection wherever they were relocated. The system needed to be robust for this harsh environment.

InfiNet Wireless's solution was based on the InfiLINK 2x2 LITE technology. More specifically, the deployment was finalised using a number of Smn units integrated with 19 dBi antennas for the remote camera sites, all connected with InfiNet Wireless's InfiMAN 2x2 Base Stations operating with a capacity of 300 Mbps.

Challenges

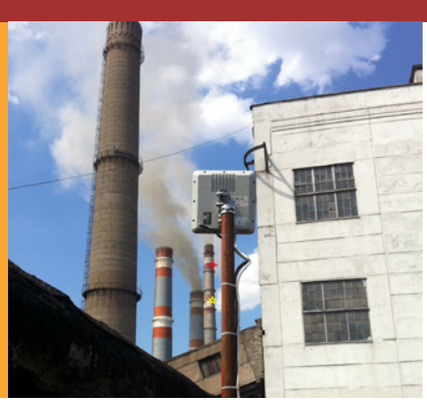
- A high level of electromagnetic interference
- Constant movement of cameras to new locations throughout the construction process

Requirements

- Deploy a reliable and redeployable video surveilance system to monitor the reconstruction process of the power plant
- Provide Internet access to users for remotely viewing images from the cameras
- High reliability links
- Ability to install cameras and local switching nodes anywhere on the construction site

Solution

- InfiLINK 2x2 LITE Point-to-Point solution
- InfiMAN 2x2 Point-to-Multipoint solution, with Base Stations of up to 300 Mbps capacity



Customer Benefits

Economically effective solution

Full integration with local switching nodes to provide access to the existing network data via InfiNet's wireless technology

High reliability of the communication channels

Olympic Games 2012 *United Kingdom*

When London won the bid to host the 2012 Olympic Games, the safety and security of both competitors and spectators was of paramount importance.

"UK Broadband's and InfiNet Wireless's reputation and experience were paramount in the decision to partner with them – and the project was a huge success as a result. Our collaborative approach enabled us to maximise our collective expertise in providing a solution that was consistent, cost effective and most importantly, one that overcame all of the challenges with delivering CCTV transmission over land and sea."

Phil Doyle,
Managing Director,
Quadrant Security Group

With the Olympic sailing taking place in Weymouth, in the south of England, Dorset Police had to undertake its largest security operation to date to ensure the safety of thousands of visitors and athletes. They required a reliable wireless infrastructure that would provide secure CCTV transmission from both fixed and mobile locations.

The strict conditions imposed by the Olympic tender committees meant that the selected solution had to be reliable, cost efficient and with no adverse impact on the environment. Taking into account the location of the deployments, the solution also had to be able to withstand harsh sea-air conditions.

UK Broadband Ltd and Quadrant Security Group, working closely with InfiNet Wireless, submitted a proposal to provide a comprehensive solution to Dorset Police. This submission, based primarily on InfiNet Wireless's InfiLINK 2x2 and InfiMAN 2x2 families of wireless solutions, was ultimately successful in winning the bid.

London 2012

Sector

Safety

Requirements

- Span a wide geographical area (land & sea)
- Deliver fixed and mobile coverage
- Deployable on a temporary basis and cost efficiently
- Had no environmental impact
- Could withstand harsh sea-air conditions

Solution

- InfiLINK 2x2 - wireless backbones with a capacity of up to 280 Mbps
- InfiMAN 2x2 – user terminals and Base Stations with a capacity of up to 240 Mbps per sector

Customer Benefits

Provided required bandwidth

Significant reduction in capital and operating costs

Large number of connection points

Rapid network deployment

“Safe City” Programme *Russia*

The company “Nasha set” or “Our network” (under the trade mark A-TEL), is one of the providers of telecommunication services for the “Safe City” programme. Implemented by the Government of Moscow, A-TEL provides a system of urban public CCTV, main high-speed links and network segments of “last mile” connectivity to transmit signals from a large number of cameras overlooking the streets.

To develop this integrated project, A-TEL turned to SPC Dateline – a highly respected telecom infrastructure solutions provider. Given the specific nature of the project – an urban environment with a large number of connection points over a large coverage area - Dateline suggested the use of InfiNet Wireless’s InfiLINK 2x2 solution of high-speed backbone channels (Point-to-Point) and the InfiMAN 2x2 Base Stations and terminals (Point-to-Multipoint).

The main challenge of this project was a complex electromagnetic environment with a high density of radio coverage and the absence of reliable data on the spectrum workload. The regular transmission of video streams would lead to a significant increase of traffic on the input network, so it was decided that InfiNet Wireless’s automatic frequency selection mode would be the best solution. Thanks to the ease and speed of deployment of InfiNet Wireless’s solutions, A-TEL was able to quickly deploy and secure its network under the requirements laid out by the Moscow Government’s Department of Information Technology.

Sector

Safety

Requirements

- High-capacity to enable the transmission of surveillance footage
- A large number of connection points across a vast area
- Equipment that could operate in conditions with strong interference and on a crowded spectrum

Solution

- InfiLINK 2x2 for the main backhauls
- InfiMAN 2x2 for the “last mile” connection

Customer Benefits

Fast deployment of the network

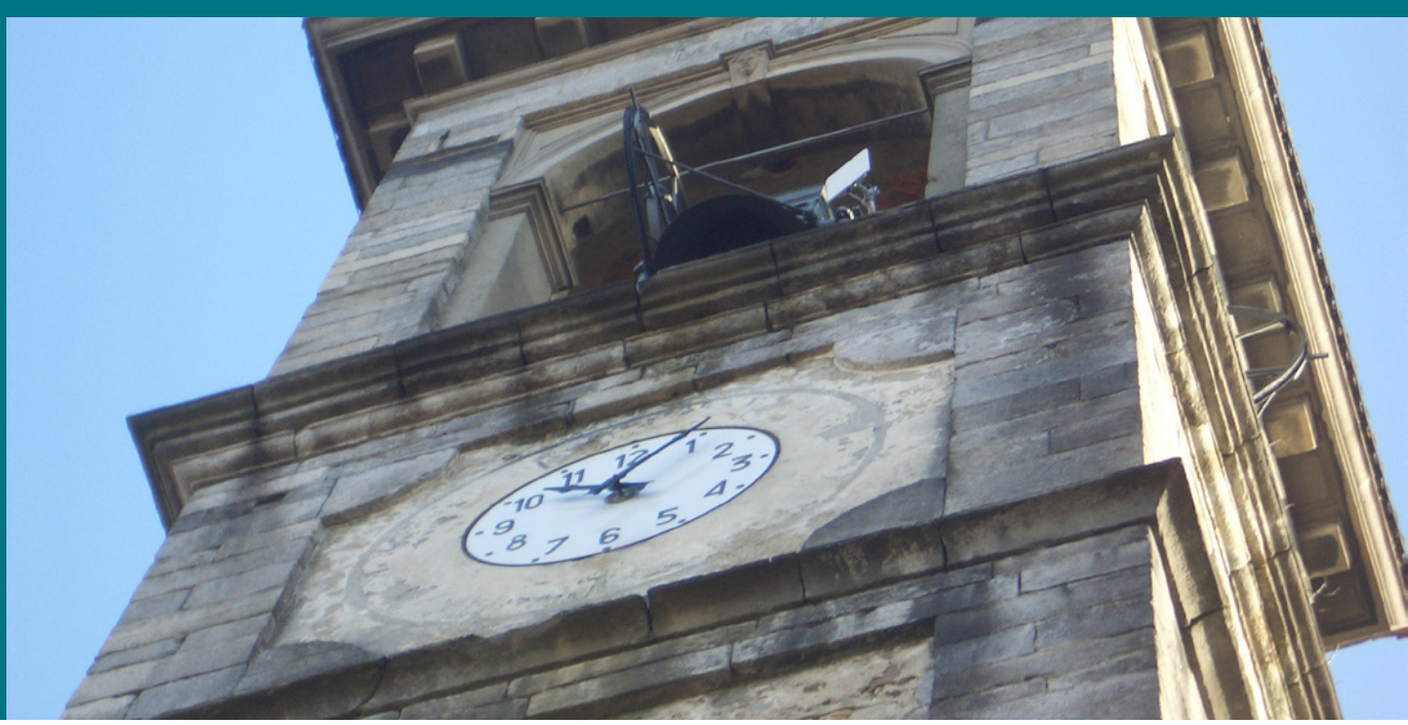
Low capital and operating costs

Reliable connections in all weather conditions

Centralised monitoring and management

Urban Video Surveillance Network In Sumirago *Italy*

In 2009, the town of Sumirago identified the need to deploy a video surveillance network across key areas of the town. Its purpose was to provide the local residents and businesses with an additional level of safety and security within their community.



Sumirago is a small town in the region of Lombardy. SIR.tel. srl., an InfiNet Wireless Gold Channel Partner with extensive experience in the design and distribution of broadband wireless architectures and solutions, was chosen to work in partnership with Tel.e.Sic to plan and deploy the wireless surveillance network across the municipality.

In January 2010, the Sumirago Police Department in Italy brought into service their newly commissioned wireless video surveillance network, which provided coverage across key areas of the town.

The overall result was a reliable and easy-to-deploy urban video surveillance system. It was commissioned quickly with minimal disruption to the local community and has the ability to quickly scale-up or redeploy elements of the surveillance network when required, for additional video surveillance camera points or other types of traffic across the network.

SIR.tel. WIRELESS & VIDEO SOLUTIONS

Sector

Safety

Challenges

- To provide a cost-effective video surveillance solution based on a wireless network
- To ensure scalability for future growth of the network
- To provide high efficiency and throughput in a Point-to-Multipoint architecture

Solution

- InfiMAN 2x2 Point-to-Multipoint solution
- Dynamic Access Marker software feature for improved network resilience

Customer Benefits

Easy to scale up and redeploy camera sites due to wireless infrastructure and InfiNet Wireless's software upgrade capability

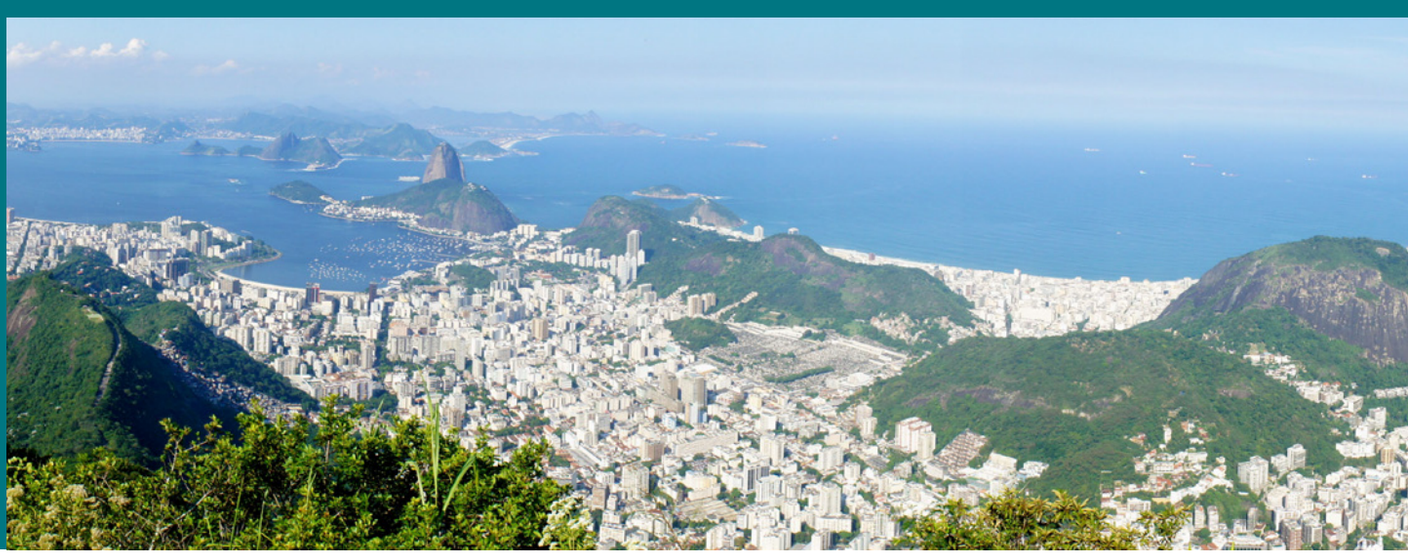
Installation and commissioning of network without intrusive construction techniques

Ability to carry other data/voice traffic whilst still prioritising video traffic

Highly resilient network

City-Wide Wireless Video Surveillance And Security Network *Brazil*

As part of a "growth acceleration programme", the Brazilian Government is making progressive investments in order to narrow the gap between the richer and poorer districts of the region, aimed at reducing violent crime and improving the overall security and personal safety of its citizens across the region.



"InfiNet Wireless's InfiMAN 2x2 range of products and technology offers a high-capacity wireless network that is quick to deploy and incredibly economical to operate. The excellent performance and bandwidth flexibility of the technology enables us to significantly reduce our deployment time and upfront network investment. Coupled with outstanding customer service and support, this made InfiNet Wireless the perfect and obvious wireless technology partner for Comtex."

Sergio Nercessian,
Comtex

The State of Rio de Janeiro has made the decision to deploy a new wireless broadband network. It specifically supports existing CCTV and newly-expanding IP surveillance systems across 26 targeted areas of the city, with the goal of an expected completion within 12 months for the entire project. The City of Rio de Janeiro turned to Comtex, a specialist in the development and deployment of video surveillance solutions and electronic security, to build the next generation wireless CCTV/IP Surveillance network. Following extensive trials with a number of different wireless networking solutions, Comtex decided on InfiNet Wireless' InfiMAN 2x2 MIMO high capacity, Point-to-Multipoint wireless technology to provide the wireless infrastructure that would serve the city's surveillance and safety network.

InfiNet Wireless's technology enables lower cost, high-speed throughput applications, over extended coverage areas of challenging terrain. InfiNet Wireless's reputation for reliability and robustness across difficult terrains and through varying environmental and climatic conditions is well known across the industry.

Sector

Safety

Requirements

- To deliver a scalable and cost-effective solution for next-generation CCTV and surveillance systems across 26 targeted areas of the city within a 12 month timeframe
- To deploy an IP surveillance wireless networking solution that will be able to integrate with existing CCTV technology
- To provide a solution that will be capable of supporting additional networking and communications services for the 2016 Olympic Games

Challenges

- Difficult terrain
- Varying environmental and climatic conditions
- Tight project deadlines

Solution

- InfiMAN 2x2 MIMO high-capacity Point-to-Multipoint broadband wireless
- InfiMAN 2x2 standard capacity Point-to-Multipoint broadband wireless

Customer Benefits

Deployable across geographically challenging terrain that normally inhibits regular wireless technology

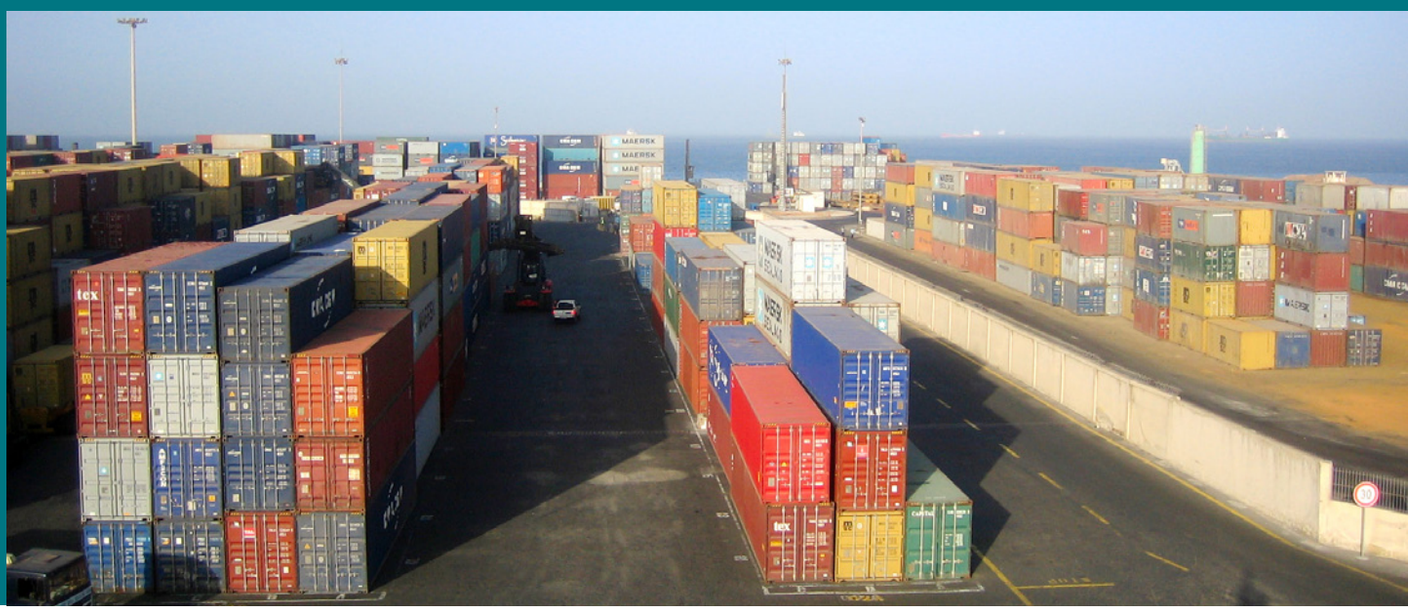
Significantly reduced deployment time

Provides the local government with the option to overlay communication and data services over the wireless network

Provides future-proofing upgrade capability for security and public services in preparation for the 2016 Olympic Games

Dubai Port World *Senegal*

Dubai Port World is a global marine terminal operator with 49 terminals in 27 countries. It ranks amongst the world's four largest container terminal operators. In June 2007, DP World announced that the Port of Dakar, Senegal, had awarded it the concession to operate and further develop the existing container terminals at Dakar, with the aim of more than doubling the capacity of the existing terminal.



DP World took the decision to prioritise the security coverage across the Dakar Port site in order to improve the control, access and health & safety processes throughout the facility. As part of this initiative, the need for real-time video-surveillance across the existing four terminals was identified as a priority, including at the main access point, which was also the location where employees were paid their salaries. Improved security at this point would not only enhance the overall security of goods and services to the site, it would also act as a safety mechanism for the employees.

INEXO, a systems integrator specialising in wireless and networking solutions and part of the Ceron group, was approached by DP World and its local technology solutions partner in Senegal to design and integrate the networked wireless video surveillance solution. INEXO specified InfiNet Wireless's InfiMAN 2x2 products to support the majority of the pre-installed camera locations, where the throughput and distance support of the systems proved more than adequate for video transport, even when line-of-sight paths were partially obstructed. InfiNet Wireless's R5000-O and R5000-Om products were deployed as Base Station masters for the site.

The low latency of the InfiNet Wireless solution also proved a deciding factor for the deployment, since the surveillance was based on PTZ (remote-controlled) IP Video Cameras, which require low-latency transmission in order for the cameras to be quickly manoevered into their surveillance positions from the control centre.

DP WORLD

Sector

Safety

Objectives

- To provide a cost-effective video surveillance solution based on a wireless network
- To ensure scalability for future growth of the network
- To provide high efficiency and throughput in a Point-to-Multipoint architecture

Challenges

- Point-to-Point and Point-to-Multipoint solutions – InfiLINK 2x2 and InfiMAN 2x2
- Dynamic Access Marker software feature for improved network resilience

Solution

- InfiMAN 2x2 series Base Stations for Point-to-Multipoint applications
- 3 InfiLINK 2x2 Smn integrated antenna CPEs
- 13 x InfiMAN 2x2 Smnc with 35 Mbps net throughput integrated antenna CPEs
- 1 x InfiMAN 2x2 Omx dual radio 54 Mbps Base Station
- 1x InfiMAN 2x2 Omx MIMO high-capacity Base Station

Customer Benefits

Cost effective, high bandwidth link with unrivalled price-performance ratio

Rapid deployment: less than one working week including mast erection with no effect on the day-to-day running of the facility

High reliability and throughput across difficult non-line-of-sight terrain and in difficult climatic conditions

Increased security and safety awareness for employees, guests and cargo across the facility

Swindon Borough Council *United Kingdom*

Since the UK's Crime and Disorder Act of 1998 was implemented, local authorities are required to give high regard to crime prevention. Crime reduction and community safety are at the heart of their medium and long term planning strategies and day-to-day practice. Swindon Borough Council is at the forefront of tackling crime. As part of this initiative it was the first Council to implement wireless closed-circuit television (CCTV) surveillance as part of its crime reduction policy, transforming Swindon for the future.

"We were fascinated to hear about the capability of the latest radios from InfiNet Wireless. When we were advised that we could have a completely compatible, integrated solution for our housing stock and for fixed and rapid deployment of street cameras, we could immediately see that it was ideal for any local authority like us."

Mark Walker,
Housing and Regeneration Manager for Swindon BC

An extensive network covering tens of square kilometres and supporting approximately 200 camera feeds has been implemented across Swindon. The meshing capability of InfiNet Wireless radios makes them a key element in the solution. Deployable cameras can connect to any wireless node on the fixed camera network to provide real time video feeds in the central monitoring station. These cameras are proving to be an invaluable tool in preventing transient anti-social behaviour.

The integrated approach provides Swindon with a versatile and mobile CCTV network that can be deployed rapidly in hotspot areas, where required, without the need for expensive leased line installations with long lead times, giving Swindon a flexible, robust and scalable solution.

Swindon Borough Council has saved a significant amount of money on its CCTV transmission costs by implementing a wireless IP infrastructure instead of traditional wired analogue circuits.

SWINDON BOROUGH COUNCIL

Sector

Safety

Objectives

- House burglary prevention
- Prevention of petty crime, graffiti, street robberies and vandalism
- Scalability of the system, with minimal investment

Requirements

- Wide area network connectivity between council buildings
- Broadband initiatives for digital inclusion
- Metropolitan wireless hotzones for Council employees or public access
- In-vehicle surveillance for public transport and emergency services vehicles

Solution

- InfiLINK 2x2 Point-to-Point
- InfiMAN 2x2 Point-to-Multipoint

Customer Benefits

High speed multiservice network infrastructure

Minimal packet loss

QoS support

InfiNet wireless

Global-Line *Hungary*

Wireless ISP Global-Line needed to change its business model, as the scope for a traditional Internet service provider was becoming increasingly limited. InfiNet Wireless and Inter Crown Europe helped it change to cater for a new market.

"InfiNet Wireless provides greater long-term customer benefits and exceptional commercial and technical support. We decided to use InfiNet Wireless products as the backbone links for the IP surveillance system."

Viktor Szechenyi,
CEO, Global-Line

New growth was needed by the business. One of the opportunities available was to offer IP video surveillance to businesses and local authorities in the city of Hatvan and neighbouring towns.

Since this would involve streaming high-resolution pictures, it was clear that the existing network needed to be upgraded. Extra capacity and new management tools would be the minimum requirements. A detailed performance testing, which compared other vendors' options with an InfiLINK 2x2 solution, suggested that any short-term cost savings on other kits would be outweighed by the superior performance and cost effectiveness of the InfiLINK 2x2 platform. InfiNet Wireless's commercial and technical support was superior too.

The potential for interference and pulse collisions in a busy municipality was quickly neutralised by the rapid response of InfiNet Wireless's support team. One of the characteristics of InfiNet Wireless hardware is that it offers excellent diagnostic features and these enabled the team to make rapid progress in ironing out possible problems. Global-Line reports that the links work flawlessly.

Global-Line

Sector

Safety

Challenges

- High load unlicensed frequency ranges in an urban environment

Requirements

- High-capacity backbone
- Low latency and jitter
- Minimal packet loss
- QoS support

Solution

- 16 InfiLINK 2x2 high-capacity Point-to-Point solution

Customer Benefits

Flawless network operation across areas with a lot of radio interference

Stable, robust and secure communications to provide the local authorities with video surveillance and security services

Up to 80 Mbps throughput in crowded urban environments

Excellent diagnostic features and support services

InfiNet wireless

City of Kaposvár develops innovative wireless approach to crime prevention *Hungary*

Kaposvár is an historic city located in the south-west of Hungary, some 185 km distance from Budapest, and is one of the principal cities of Transdanubia and the capital of Somogy County

With this growth in population and visitor numbers comes the constant need for increased security and crime prevention across the breadth of the city, and with this in mind the local council began planning how to implement a strategy that would help to discourage crime and reduce its occurrence in public areas.

The project was implemented by InfiNet Wireless partner in Budapest – SinusNet – the company, bringing together highly qualified engineers with long-term experience in creation of telecom infrastructure and in development of IP-networks.

The aggregation of the camera video streams is provided by InfiNet Wireless's InfiMAN 2x2 series of Point-to-Multipoint broadband wireless Base Stations, offering unparalleled reliability and throughput to fully meet the needs of the bandwidth-hungry imaging network.

SINUS NETWORKS

Sector

Safety

Requirements

- Absolute reliability
- High throughput
- Uninterrupted operation
- Real-time video streaming
- Support of different types of applications

Solution

- InfiMAN 2x2 Point-to-Multipoint Solution

Customer Benefits

Scalability

Easy and fast deployment

The highest throughput for bandwidth-hungry imaging network

Unrivaled reliability

Cherwell District Council Selects InfiNet Wireless Solutions To Provide CCTV Infrastructure In Banbury *United Kingdom*

Banbury is the principal regional town of North Oxfordshire, U.K., lying 100 km north-west of London and 60 km south-west of Birmingham.

The town and surrounding areas come under the local government jurisdiction of Cherwell District Council, who – in partnership with Thames Valley Police- had previous commissioned an urban-area CCTV project to improve the security of residents and businesses across the town.

InfiNet Wireless teamed up with its strategic partner, UK Broadband (UKB), who also enlisted the assistance of CDS Systems - one of Europe's largest independent providers of integrated security systems - to submit a joint proposal for this project based around InfiNet Wireless's InfiLINK 2x2 Point-to-Point broadband wireless solutions.

Cherwell District Council now has a state-of-the-art, fully functional and extremely reliable broadband wireless solution that has removed the need for expensive cables, thus saving significant costs on leased lines rental as well as providing them with the flexibility to add additional CCTV cameras in the future with minimal additional cost.

Cherwell DISTRICT COUNCIL NORTH OXFORDSHIRE

Sector
Safety

Challenges

- To provide high quality, cost-effective wireless CCTV connectivity
- Allow flexibility in deployment locations for new cameras – including the deployment of temporary facilities
- Reduce current CCTV operating costs by eliminating the need for fixed-line leasing

Solution

- InfiLINK 2x2 Mmx, Point-to-Point solutions, offering throughput of up to 280 Mbps at distances up to 30 km

Customer Benefits

Reduce operating costs by eliminating expensive line rental costs from incumbent operators

Scalable design, allowing for additional cameras to be quickly and easily added in the future

Flexible and easy-to-maintain solution

High-capacity platform, essential for real-time video streams

Patrolling the wild “Jungle Zone” of Colombia with long distance CCTV backhaul *Colombia*

The need for better, more reliable video surveillance can be seen as a global issue. Areas with high levels of crime need to be able to quickly dispatch the relevant units to deal with various situations. This was a problem that was facing the local authorities based in the Southern part of Columbia in what is known as the ‘jungle zone’.

“The InfiNet Wireless solutions that were implemented in this project allowed us to fix the backhauling issues faced by the local authorities within this region of Southern Columbia. We were not only able to execute this project in a very short space of time, but also provide our customer with a robust and stable system. As the solution had a mean time between failures guarantee of 15 years, IKUSI has also seen a cost saving in terms of resources and the money that we were spending on travelling to remote areas to correct maintencance issues.”

Ramon Montes,
IKUSI Colombia Manager

IKUSI, part of the Velatia Group based in Mexico is a multinational company that specializes in telecommunications and service system integration solutions, had been asked by the local authorities to provide a CCTV backhaul solution for deploying CCTV regionally. In an effort to find the most cost effective solution and network structure, many other competitor brands were tested and evaluated. However, the InfiNetWireless brand succeeded in solving above and beyond what was required and the InfiLINK 2x2 LITE product was installed with an external antenna and a license for 50 Mbps of bandwidth.

The solution was jointly installed by Royal Telecom, a long standing partner in the telecommunications industry of InfiNet Wireless equipment for South American customers. The full installation of the network backhaul was achieved in less than 3 days and operation commenced shortly after this. Once the backhaul was successfully switched on, the customer saw that the wireless broadband capabilities outperformed traditional fibre optics in terms of performance, costs and time saving. The system is now also scalable, as IKUSI only initially required the solution to cover distances of 50 kilometers with a bandwidth of 50 Mbps, but the current InfiNet solution can actually transmit at a bandwidth of 180 Mbps.

Sector

Safety

Challenges

- Providing a robust network backhaul to coverage area 50 kilometers away from the main monitoring site, and to be able to withstand high humidity levels, rainfall and jungle terrain
- A backhaul network that can transmit CCTV footage and video data at high speed and consistent quality, without lag
- A cost effective set-up that supports future improvements and additional points

Solution

- InfiLINK 2x2 LITE
- Smn 23 dBi integrated antenna

Customer Benefits

A robust network that features hardened radios and functions in extreme humidity. InfiLINK 2x2 LITE has IP66/67 waterproofing and dust maintenance certification.

Ease in maintaining network due to the 15-year guarantee of consistent working

Future-proofed system that can be upgraded easily when improvements are required in speed and stability

Control over the bandwidth allocation in the area. The solution now supports level 2, 3 and 4 traffic sources without diminishing the speed in video data.

Trésor Public and The National Agency for ANINF *Gabon*

Trésor Public, the Treasury of Gabon, experienced major connectivity issues for many years which meant that its workforce often couldn't access the valuable data it needed to do its job properly and efficiently.

In order to fix such unreliable infrastructure once and for all, and enable its financial teams to work productively across its various sites located in Libreville, Port Gentil, Franceville, Oyem and Bitam, the management team at the Treasury consulted with the National Agency for Digital Infrastructure and Frequencies (ANINF).

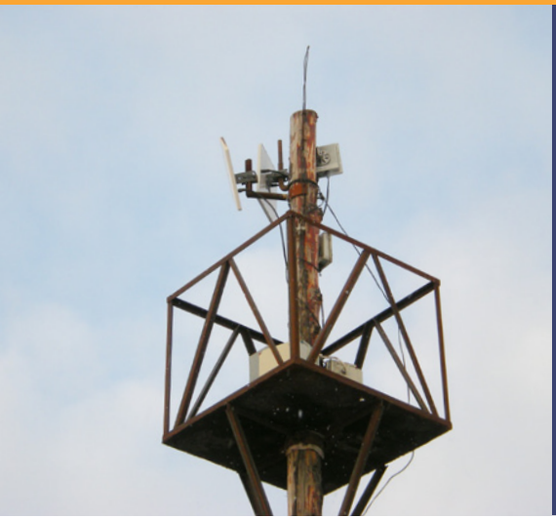
The requirements set right from the start were demanding and were centred around a solution that would provide high capacity, uncompromised reliability, security, scalability, and ease of management, while being cost effective, and possessing the ability to cater for future requirements as they emerge at a later date.

Sector

Government / Social

Requirements

- Greater connectivity and improved reliability
- Secure connection
- Easy management



Solution

- InfiMAN 2x2 Point-to-Mulitpoint solution
- InfiLINK 2x2 Point-to-Point solution

Customer Benefits

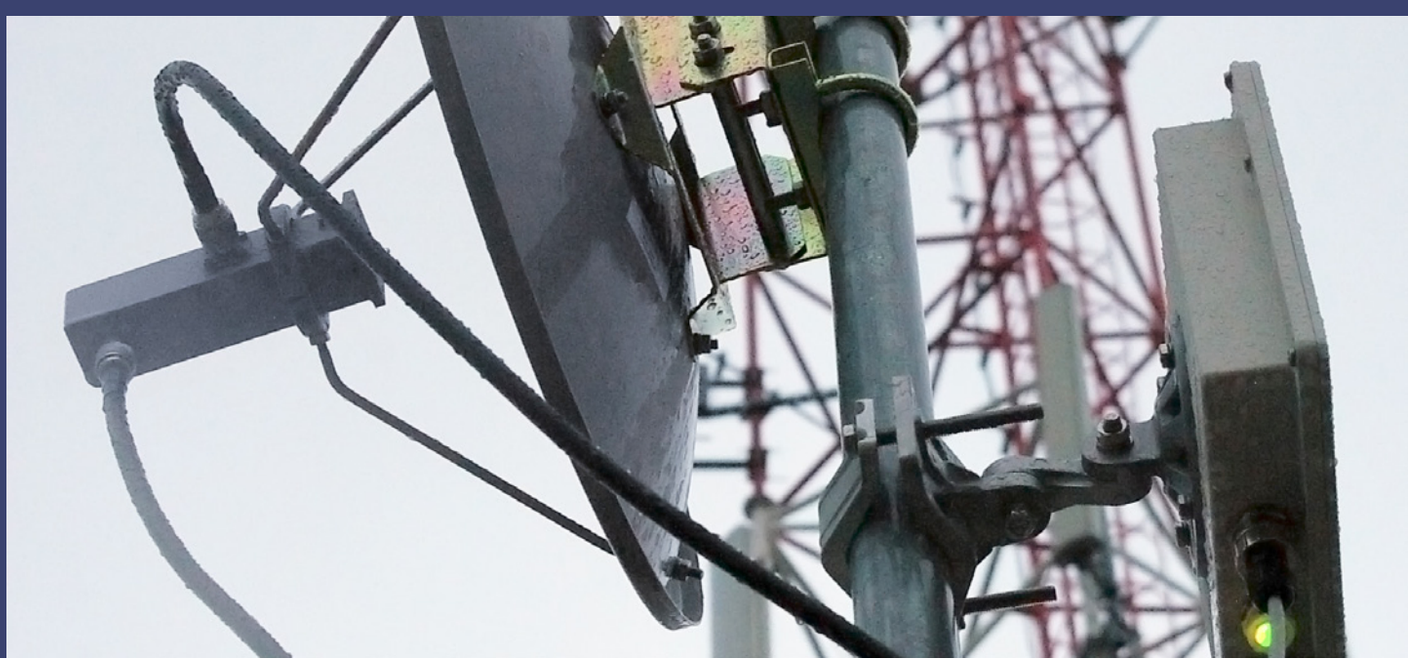
Robust and reliable infrastructure for critical applications

Increased productivity through the reduction of previous network failures and downtime

Quick and dependable access to required data

Toldy Ferenc Hospital *Hungary*

The Toldy Ferenc Hospital at Cegléd in Hungary provides medical and hospital facilities to nearly 170,000 in- and out-patients across the region. It has grown rapidly in recent years, and the expansion of its facilities has included the acquisition and development of a number of satellite buildings around the city to house many of its specialist departments, although the overall administration of the hospital still resides at the main central facility.



"I would like to thank ICT Systems and InfiNet Wireless for their enthusiastic support and overall performance in supporting this project. The InfiLINK 2x2 offers the same robustness as a Free Space Optic link for a much more reasonable price."

Maria Kecskes,
Head of IT department
Toldy Ferenc Hospital at Cegled

In 2010, the hospital needed to provision a high-throughput and highly reliable link between its main location and one of its satellite clinics, some 2 km distance from the main hospital, with the ability to support a minimum of a 100 Mbps full duplex capacity and offering 24x7 availability. The customer approached ICT Systems, based on its previous experience in working with them on previous successful projects, initially proposing to procure a Free Space Optics link because of FSO's renowned high interference protection.

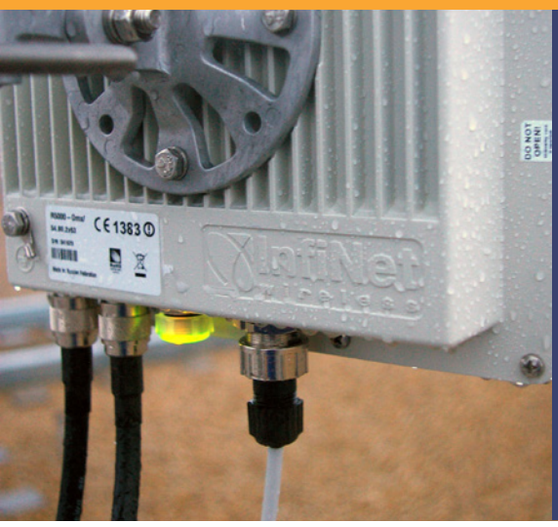
ICT Systems discussed the requirements with the IT department at the Toldy Ference Hospital, and understood they needed the ability to transmit both voice and data traffic across a high-capacity link that was around 2 km in distance. Since the link would be carrying voice traffic, it was imperative that it had minimal latency, and also that it had 24/7 reliability, in order that the satellite clinic had uninterrupted access to the main hospital facilities and staff.

Sector

Government / Social

Requirements

- Provide a stable and highly reliable link between main hospital building and satellite clinical centre
- Required 24/7 operation because of the nature of hospital business
- Needed to be deployed quickly (could not wait for a leased line provision) and cost-effectively



Solution

- InfiLINK 2x2 300 Mbps Point-to-Point solution operating in the 5 GHz spectrum

Customer Benefits

High bandwidth, high throughput link

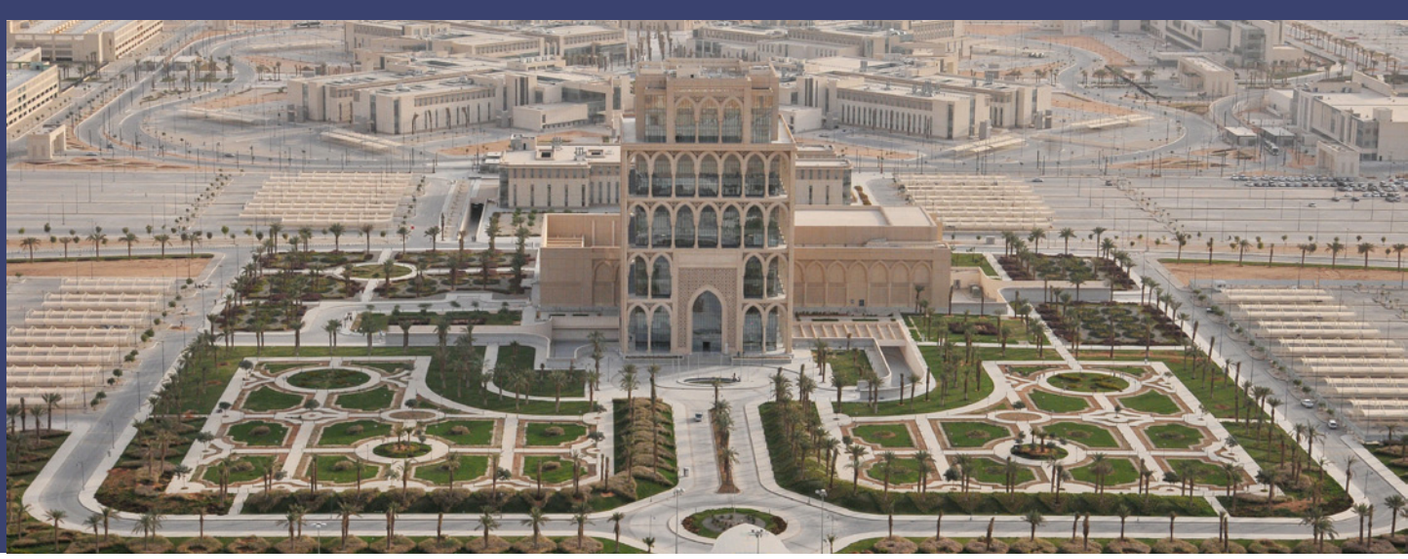
Highly reliable for a 24/7 operation across all types of terrain (including NLOS) and climate

Low latency for support of voice and video traffic

Attractive price levels compared to traditional leased lines and free-space optic solutions

InfiNet Wireless provides reliable connectivity to King Abdulaziz University *Saudi Arabia*

King Abdulaziz University was founded in 1967 in Jeddah, Saudi Arabia. It is the largest university in the western province of Saudi Arabia and is the only education institution in the region that includes two separate campuses in two different locations - one for male students and another for females. The university has a number of scientific and theatrical fields of study including Ocean Sciences, Nuclear Engineering and Medical Sciences.



"We are exceedingly pleased with the reliable connection that the InfiNet Wireless solution has provided us with. Our students and staff are now able to work productively with much faster connectivity speeds and downtime has been significantly reduced. The ongoing support from Eurotel has also proven invaluable."

Eng. Abdulhaleem Alhelo,
Network Department Manager
at King AbdulAziz University

The university uses a student portal to link the colleges across the two campuses with its main administration centre. Due to the geography and topology of the area, e.g. the university is located between two large mountains, the deployment of a fibre-based infrastructure was simply impossible to achieve due to terrain, logistics and associated costs.

In 2009, the university approached United Horizon major systems integrator in Saudi Arabia and with support from our local partner Eurotel in Middle East, to conduct an audit of its facilities and recommend a solution that would provide both students and staff with fast and reliable connectivity across its campuses. InfiNet Wireless's solutions were quickly identified as the best-fit solution as they were well proven in similar environments, connecting such remote areas and in a challenging desert climate.

United Horizon deployed a number of InfiNet Wireless's InfiLINK 2x2 Point-to-Point links to provide extensive network coverage for the whole University.

Sector

Government / Social

Requirements

- Connect the two main campuses of King Abdulaziz University with the administration quarters
- Provide reliable connectivity in difficult terrain
- Provide connectivity in high temperatures

Solution

- InfiLINK 2x2 Point-to-Point solution

Customer Benefits

Increased productivity for students and staff

Significant reduction in downtime

Najran University *Saudi Arabia*

The University IT department approached Electronic Saudi Networks (e-Saudi), InfiNet Wireless' local partner in Saudi Arabia, to discuss and design a brand new infrastructure which would meet the present and future demands of its students and staff, be available 24/7 and enable them to work productively.

The University's previous infrastructure was based on MPLS leased lines supplied by a local service provider and capable of a maximum of only 20 Mbps. This was complemented by wireless WiMAX links which were limited to 54 Mbps and configured as backup for the fixed part of the network which was not stable enough. The LAN and WAN infrastructures at the University were complex, expensive and supplied by different manufacturers, making any seamless integration very challenging.

The University's primary objective was to select a scalable solution that could be deployed rapidly and cost effectively, and one which students and staff could rely on at all times. The new solution required by the IT management team had to be deployed as an overlay to the existing wired network, be seamlessly integrated with the existing routing and switching back-office hardware, as well as provide future proofing and easy scalability. Such a solution had to connect the existing 32 sites using both Point-to-Point and Point-to-Multipoint topologies, providing a minimum bandwidth of 300 Mbps to all remote sites. It had to be robust enough to deliver triple play services (i.e. voice, video and data traffic) and cover distances of up to 37 km from the main campus. After testing solutions from various vendors, the University ultimately selected InfiNet Wireless's range of InfiMAN 2x2 and InfiLINK 2x2 solutions to provide the optimum performance to its end users, rapid deployment and excellent value for money, well within the allocated budget.

جامعة نجران
NAJRAN UNIVERSITY

Sector

Government / Social

Requirements

- Scalable solution
- High capacity and performance
- Fast deployment
- Cost-effective broadband wireless solution

Solution

- Mmx 28 dBi
  (with integrated antenna) for long distances
- Mmx 23 dBi
  (with integrated antenna) for short and medium distances
- Mmxbs Base Station
  (16 dBi gain and 90' degree sector antenna)

Customer Benefits

Delivery of voice, video and data traffic

Highly reliable solution

Integratation with existing NMS platform

InfiNet wireless

Rapidly Growing Branch Network with InfiNet Wireless for Tamer Group *Saudi Arabia*

Founded in 1922 and headquartered in Jeddah, Saudi Arabia, Tamer Group is a leading healthcare, beauty care, prestige products, and fast moving consumer goods company that is focused on meeting the growing needs of the Saudi and Middle East communities.

"I am extremely pleased with the InfiNet Wireless solutions – the reliability and stability of the network has allowed us to deploy and support several business critical processes. Based on our experience with InfiNet Wireless, I am confident that as we expand our operations, we will rely on InfiNet Wireless solutions for our wireless network infrastructure".

Mr. Al Jammal,
Head of IT Operations & Network Infrastructure at Tamer Group

In an effort to support the exponentially growing business Tamer Group has opened several new facilities across the Kingdom. In Jeddah the Group's incumbent wireless network was proving to be unreliable and could not provide the bandwidth necessary to support the business. When it came to selecting a vendor for the new wireless network, the decision to go with InfiNet Wireless was an easy one. Working with United Horizons, InfiNet's partner in Saudi Arabia, Tamer Group conducted a POC at just one of the sites. Confident in the results, they then went ahead and deployed InfiNet's InfiLINK 2x2 PRO and InfiLINK 2x2 LITE 5 GHz family of products across all 20 locations in Jeddah. For the critical connection between their data center and head office, Tamer Group deployed the R5[illegible]Omx model as it could support speeds of up to 300 Mbps over the 50 km distance. For connections between all other sites, Tamer Group deployed the Smn and the Lmn products. One of the biggest benefits of the InfiNet Wireless solution has been the ability to transmit significant volumes of business critical data between their various sites. They currently depend on the InfiNet solution for exchange synchronization of their Storage Area Networks (SANs) in their data center and disaster recovery sites. The entire deployment process took just 3-4 working days and was managed completely and professionally by United Horizons.

TAMER

Sector

Government / Social

Requirements

- Reliable and stable network
- High bandwidth over large distances
- Cost-effective solution

Solution

- InfiLINK 2x2 PRO 5 GHz
- InfiLINK 2x2 LITE 5 GHz

Customer Benefits

Lower Total Cost of Ownership (TCO)

Ability to transmit business critical data over long ranges at high speeds

InfiNet wireless

Solovetsky's religious organization monastery *Moscow region, Russia*

The Abode "MONSEGUR" "Orthodox Church of the Theotokos", located in the Dmitrovsky district of Moscow, Russia, has embraced today's online technology advances by innovatively broadcasting their daily religious services and seminars for their congregation members through the world wide web – and have actually done so for at least the past six years.

Over time, they have built a strong internet following, and typically attract over 500 members daily to participate in their church service broadcasts and remote seminars. The broadcasts have become so popular that the church has even diversified and expanded their range of broadcasted services, and now provides content to their audience through media such as web radio and cached video content in addition to live-streaming video. With these challenges in mind, Abode "MONSEGUR" turned to InfiNet Wireless to help them achieve their objectives of broadcasting high quality video and media to their audience. The brief was not easy: it would require a direct communications link from the monastery to the main infrastructure hub – at least 15 km distant - that could broadcast video and content with a throughput of at least 200 Mbps, whilst operating in the harsh climate that the region is known for in the winter months.

Rather than take the more expensive and cumbersome approach of laying a direct copper or fiber link across the 15 km stretch, InfiNet Wireless proposed a wireless alternative using their InfiLINK 2x2 Point-to-Point wireless broadband system to the monastery. The wireless link has easily been able to cope with the harsh climatic challenges – not only those of extreme temperatures, but also problems that the severe weather creates for wireless Line-Of-Site systems such as signal dispersion or interference from heavy snowstorms and freezing fog – and through sun, rain, wind and snow, the Monastery has been able to provide comfort and support to its widespread congregation, wherever they may be.

The Abode “MONSEGUR”

Sector

Government / Social

Requirements

- Direct Line-Of-Site communications link of at least 15 km
- Bandwidth – up to 200 Mbps, low latency for live video streaming
- Ability to work at sub-zero temperatures – potentially in excess of -30°C in winter months

Challenges

- The monastery is located in a remote area, some distance (at least 15 km) from the nearest populated areas and major communications hub
- Difficult climatic conditions

Solution

- InfiLINK 2x2 Point-to-Point

Customer Benefits

Scalable design, allowing for additional features to be quickly and easily added in the future

Flexible and easy to maintain platform

High capacity connection essential for real-time video and voice traffic

Agricultural Business Holding (ABH) Miratorg *Russia*

ABH Miratorg is one of the leading manufacturers and suppliers of meat in Russia. In 2010, with the support of the Government of the Russian Federation and the Ministry of Agriculture in Russia, Miratorg began construction of a modern farm in the Bryansk region which would be able to breed high yields of cattle.

Practically all of the buildings on this new farm were far away from populated areas and required the use of satellite communication stations to send information back to the company's central office in the village of Aladino. This became problematic because of the high overhead costs and low-bandwidth that the satellite network offered. Miratorg's management decided to build its own secure network on more reliable radio-based technology, WiMAX. The company selected InfiNet Wireless's Point-to-Point InfiLINK 2x2 PRO to build the network.

In Miratorg's case, each building has its own autonomous water supply system, including a water tower and an area where the automation control system is located, along with the water distribution system. InfiNet Wireless's equipment is installed on the water towers at heights between 12 and 25 metres. The water towers are linked to the administrative buildings by an Optical Fibre Transmission System (OFTS). Currently, there are 20 Point-to-Point links, which link 25 of ABH Miratorg's buildings to a single network. All channels use InfiNet Wireless's Mmx/5.300.2x200.2x28 solutions. The minimum length of the interval between the antennas is 9.6 km and the maximum is 25 km. Structurally, the whole radio network is divided into five separate fragments in seven districts of the Bryansk region. Each fragment is tied to the network through the existing OFTS. Eventually all the information arrives at the central site in Aladino.

MIRATORG
agribusiness holding

Sector

Enterprise / Finance

Requirements

- High-speed network
- A large number of channels, combined into a single network

Solution

- InfiLINK 2x2 PRO

Customer Benefits

Organised full coverage zone

Provided the required bandwidth

A general network – 20 Point-to-Point links, connecting 25 buildings

InfiNet Wireless delivers high quality connectivity to Mondelēz International *USA*

Mondelēz International Inc. is a major US multinational confectionery, food and beverage conglomerate, employing more than 100,000 people around the world. Its business includes the global snack and food brands of the well-known former Kraft Foods. Following a number of changes in the regulations of Saudi Arabia, the company is now able to import products directly to the country and sustain it regional growth. To accommodate this new market entry, it built seven large warehouses across the Kingdom and needed an IT infrastructure robust enough to support its ever growing requirements.

To provide connectivity across its sites, Mondelēz International worked with United Horizon major system integrator ins Saudi Arabia and with support our local partner in Middle East Eurotel, to find a suitable solution that would enable its business to operate at maximum capacity and without the worry of system downtime and delays. Eurotel was able to quickly demonstrate the reliability of InfiNet Wireless's solutions and how dependably they operated in such a harsh climate. This initial deployment enabled the food giant's employees to appreciate fast connectivity, allowing them to get on with their work across all of the sites using their usual back-office software tools, and ultimately increase their productivity. United Horizon installed InfiNet Wireless's InfiLINK 2x2 wireless Point-to-Point solutions, which combine high-speed capability with a rich set of best-in-class features. InfiLINK 2x2 is a family of Point-to-Point MIMO high-performance broadband wireless solutions which support multiple configurations for an all IP-based application, providing greater effective throughput (up to 280 Mbps) and increased link availability. The InfiLINK 2x2 units now connect the warehouses to a number of Internet Service Providers (ISP) so that the company can provide seamless connectivity to all its users via its global VPN network.

Mondelēz International

Sector

Enterprise / Finance

Requirements

- To provide high capacity connectivity across seven warehouses
- To operate reliably in extreme temperatures
- To enable maximum productivity in a fast moving goods environment
- A system with low latency

Solution

- InfiLINK 2x2 Point-to-Point

Customer Benefits

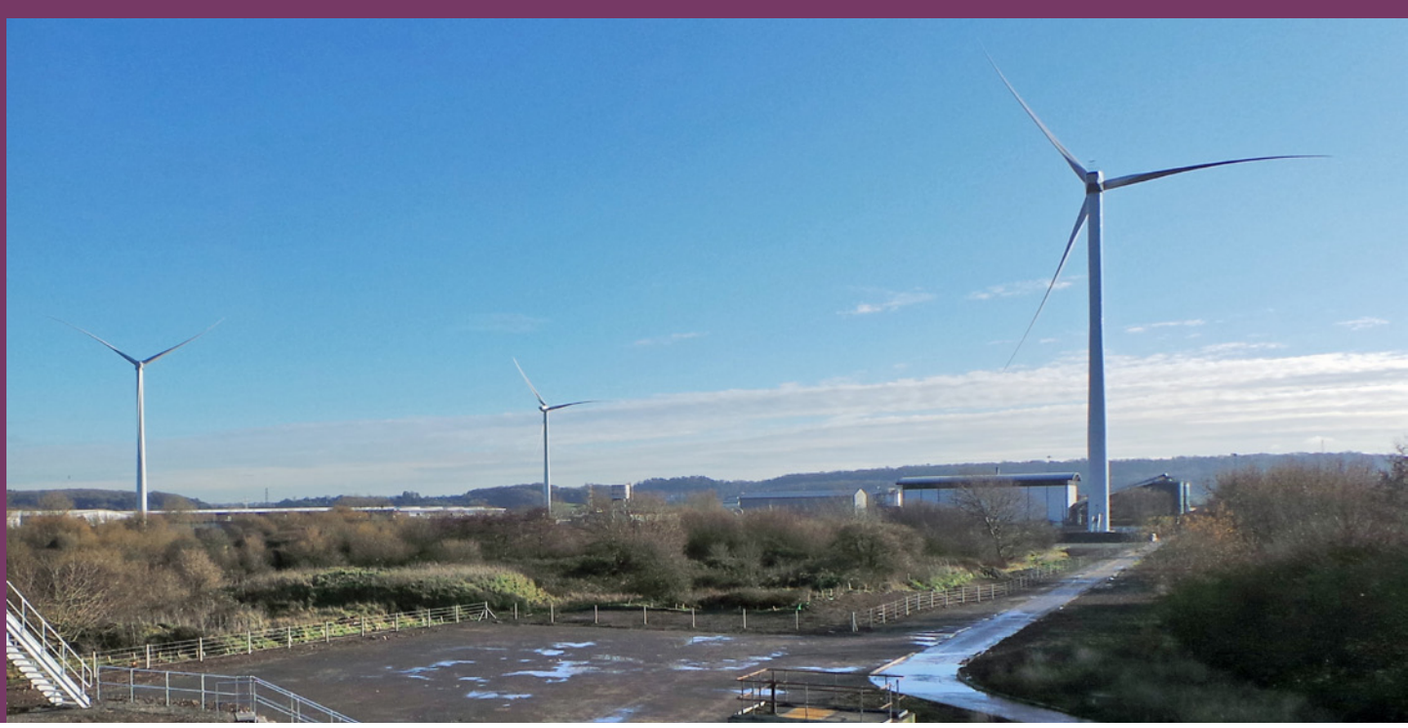
Increased goods turnaround through dynamic logistics and transactions

Improved productivity at all levels of the supply chain

Reliable connectivity

Wessex Water Taps Into Renewable Communications Technologies *United Kingdom*

Wessex Water is a regional water and sewerage business operating across the south and south-west of England, serving over 2.7 million customers across Dorset, Bristol, Somerset, most of Wiltshire and parts of Gloucestershire and Hampshire.



As part of this huge infrastructure development, Wessex Water required a cost effective telemetry Supervisory Control and Data Acquisition (SCADA) solution to provide communications and control connectivity across their vast network of pipelines, pumping stations and reservoirs. They asked McKelvie Solutions - a telecom system integrator and an IP radio solutions specialist with over 30 years experience in radio networks - to undertake an assessment of suitable microwave technologies, in order to determine the best solution on the market for the project.

Following a full assessment, of a number of vendor options available on the market, McKelvie Solutions selected InfiNet Wireless' technology as the optimum solution to meet Wessex Water's requirements.

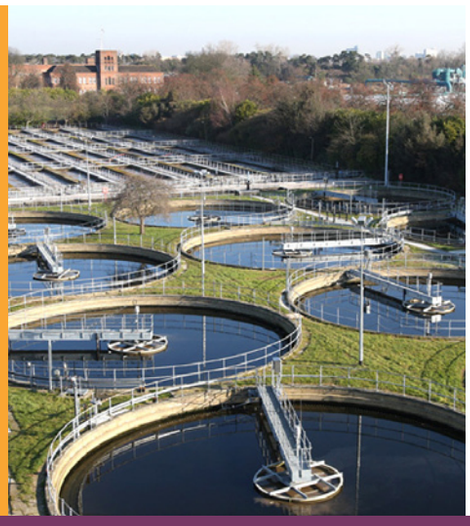
Low power consumption of the InfiLINK 2x2 LITE solutions, combined with the wind turbine supplied by Leading Edge Turbines, has helped to create a sustainable, eco-friendly, low emission solution to powering the network. Wessex Water now has a wide-area microwave radio network that can operate and be maintained over remote communication environments, that dramatically reduces maintenance and deployment costs, and is highly cost effective compared with other telecoms solutions available in the market today.

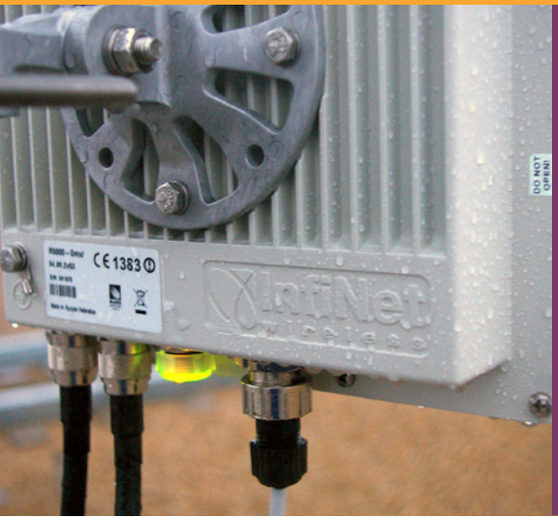
Sector

Enterprise / Finance

Challenges

- Operating on 24 VDC, tying in to existing power infrastructure used across the company
- Support LOS and NLOS radio links, making it ideal for remote solutions across difficult terrains or in urban areas
- Through spare capacity and software-enabled capacity upgrades, microwave network is future proofed for new IP applications such as IP CCTV or voice





Solution

- InfiLINK 2x2 LITE Point-to-Point Solution

Customer Benefits

Low power consumption, as some sites will be 'off-grid' as well as needing to operate from batteries fed through renewable energy technologies

LOS (Line-Of-Site) & NLOS (Non-Line-Of-Site) capability

The ability to use microwave radio using both licensed and license-exempt spectrum

The ability to operate at 24 VDC input

Khushhali Bank *Pakistan*

InfiNet Wireless helps Pakistan's **Khushhali Bank** to reach a wider audience in its mission to reduce poverty through Microfinance.

Khushhali Bank Limited has grown to become one of the largest banks in Pakistan and specialises in the relatively new field of Microfinance. It was formed as a part of the Government of Islamic Republic of Pakistan's Poverty Reduction Strategy and its Microfinance Sector Development Program (MSDP).

Khushhali Bank initiated a network upgrade and expansion program across its national infrastructure in order to improve the stability and reliability of its inter-branch transactions and communications.

For the wireless portion of the new network, Real Solutions, a trusted InfiNet partner in Pakistan, identified and benchmarked a number of available fixed broadband wireless solutions in the marketplace, ultimately selecting InfiNet's point-to-point solutions based on the InfiLINK 2x2 LITE family.

To date, all of the locations identified for the initial network upgrade have been connected through the new mixed fibre-optic/wireless infrastructure, and each location has experienced 100% uptime since the completion of this upgrade.

Sector

Enterprise / Finance

Challenges

- To provide high quality, 100% uptime wireless connectivity;
- Centralised operational infrastructure for remote monitoring and support of remote branch locations.

Solution

- Based on InfiNet Wireless' InfiLINK 2x2 LITE series

Customer Benefits

Stable broadband wireless platform

Over-the-air Frequency selection for base station units

Reasonable total cost of ownership and maintenance, perfect price-performance ratio

Improved capacity and services

Georgia Department Of Transportation *USA*

By improving the signal timing between traffic lights, Georgia's Regional Traffic Operations Program (RTOP) aimed to improve traffic flow and reduce vehicle emissions. To achieve this, it needed the fastest possible communications infrastructure.

The Georgia Department of Transportation (GDOT) has fine-tuned traffic flow by dedicating signal timing experts to focus solely on Atlanta's busiest arterial roadways. These signal timing experts are assigned corridors that cross city and county boundaries. They work with each local jurisdiction to make signal timing seamless as motorists cross them.

Georgia's road network has become as fast, fluid and responsive as an IT network. Having networked major arterial roads, new possibilities opened up. The fast communications that now run on the North-South and East-West arterials, for example, were originally intended to bridge communication between traffic signal controllers.

The capability offered by InfiNet Wireless helped the City of Roswell to expand its network to 50 Mbps and now the City and GDOT can share their video wirelessly. Eight to 15 separate MPEG-4 video feeds are achievable across one link.

The fluid infrastructure created by InfiNet Wireless will help the network to adapt and scale as requirements change. It offers the most adaptable, scalable and yet cost effective solution in an environment that is constantly moving.

Georgia Department of Transportation

Sector

Transportation

Requirements

- Fast, reliable communications that contribute to better traffic flow
- High bandwidth networking that is able to transport data rapidly across city and county borders
- A system quick enough to synchronise signal timings across a vast metropolitan area
- A flexible system that can be adapted as the infrastructure changes
- A networking infrastructure that is cost effective to install, reliable and can be managed with maximum economy
- A good local support team

Solution

- Installation of high-capacity Point-to-Point wireless network
- Specifically, InfiNet Wireless InfiMAN 2x2 Smc/54.300.2x63.2x21 | 4 licensed as a Point-to-Point, across 30+ km locations in the region covered by the Georgia Department of Transport

Customer Benefits

More efficient management

Better traffic flow, less congestion

Local support with rapid response and fault management

A system better suited to urban landscapes

InfiNet wireless

Ferrotramviaria *Italy*

Headquartered in Puglia, Italy, **Ferrotramviaria** manages North Bari's railroad and public bus transport services over a 1,400 km area, home to approximately 700,000 residents.

After installing a video surveillance system using leased lines, Ferrotramviaria SpA decided to implement a more advanced solution. Ferrotramviaria wanted to provide broadband interconnection among all its railway stations and to replace the existing leased line network. It wanted to run communication, security and safety applications while reducing operational costs. I-TEC Srl and partner Teckne Srl were chosen to design this new network infrastructure. Ferrotramviaria was looking to find the most efficient, cost-effective way to improve the performance of its network and become the technological leader among Italian railways.

Ferrotramviaria also required a cost effective and modern broadband network to support many different services, e.g. video, voice, data. It also needed to enable fixed-mobile communications between the stations and trains. This would allow the driver to see video images of passengers embarking and manage train carriage communications for service, location and emergency messages. The main challenge was bandwidth management and Quality of Service (QoS) across the whole network. To accomplish this, Teckne Srl asked I-TEC Srl to provide an FBWA solution to replace the existing leased lines. I-TEC Srl and partner Teckne Srl designed a new broadband communications network based on InfiNet Wireless radios. Not only did it provide CCTV surveillance from a central location, it also enabled Ferrotramviaria to implement a fixed mobile network between the railway stations and the trains. This network transports voice, data & video for in carriage services such as announcements and emergency messages.

FERROTRAMVIARIA SpA

Sector

Transportation

Requirements

- Use of Fixed broadband wireless access (FBWA) to provide broadband connection between railway stations and train carriages
- Run communication, security and safety services
- Replace existing leased line network

Solution

- InfiNet Wireless R5000-O single radio 36 Mbps, 5.4 GHz
- InfiNet Wireless R5000-O dual-radio 36 Mbps, 5.4 GHz
- Stella Doradus parabolic and panel antennas

Customer Benefits

Saved up to 90% in operational expenses

Reduction in initial outlay and increased speed of network deployment

Reliable alternative network based on leased line

Guaranteed bandwidth provision across the whole link

InfiNet wireless

LCR Honda Moto GP Team *United Kingdom*

Every year, **LCR Honda** competes in 18 motorcycle world championship events across different countries. At each race location, both engineering and mechanical teams rely heavily on high-speed, high-capacity communication connections to provide real-time track-side information such as the analysis of racing data, complex vehicle and driver performance analytics as well as weather forecasts and live video images from the race.

"The wireless network travels with us from race to race and is easily set up at each location with a minimum of fuss. It provides us with a reliable communications infrastructure, accessible by all elements of our team – from customer services and hospitality, through to live event broadcast delivery and even race team communications between engineers, race strategy teams and riders."

Brian Harden,
Data Engineer, LCR Honda

At each location, a new telecommunications infrastructure has to be rapidly established across a variety of floor plan layouts, because each track has its own unique arrangement. Prior to using InfiNet Wireless's InfiMAN 2x2, LCR Honda typically established a number of external fixed connections for each five-day race event. However, with the InfiNet Wireless solution, only one external connection is required to link directly into the wireless network and the wireless infrastructure can then be easily distributed throughout each required part of the track and facilities. This easily connect all of the team's infrastructure together. Because it is wireless-based, it can be deployed quickly and at a fraction of the cost of providing separate fixed line links.

Sector

Transportation

Challenges

- Stable and robust communications in environments with a lot of radio interference
- Organisation of communication channels in a variety of locations across the world

Requirements

- Easy to establish wireless networking solution that is transportable to each new location
- Optimal bandwidth to support data, voice and media streaming
- Cost effective solution to provide temporary worldwide connectivity
- Minimal network management and technical support requirement

Solution

- InfiMAN 2x2 Point-to-Multipoint

Customer Benefits

Low entry costs

Quick return on investment

Worldwide connectivity

Reliability across all types of terrain and climate

Security in the fast lane at Ain Sokhna Free Road *Egypt*

The National Company for Building, Developing and Operating Roads which required a high-capacity broadband infrastructure to provide real-time surveillance across the strategic Ain Sokhna Free Road, which is 120 km long, including monitoring of all of its exit junctions and toll gates. The road has a total of 28 exits that require monitoring 24 hours a day to meet the strict control, safety and security requirements. In addition to this, the road operator also wanted an easily scalable network that it could add new sites and services to in the future.

"InfiNet Wireless offers the network stability and performance required to provide safety and security to both staff and users of the Ain Sokhna Free Road. Not to mention, the National Company for Building, Developing and Operating Roads is impressed with its ease of use, network management and potential for scalability as and when required in the future. InfiNet Wireless really does offer the best solution to securely carry voice, video and data over a reliable and future-proof wireless infrastructure."

Ahmed Abd El-Fattah,
NextGen's General Manager

It approached NextGen Communications, one of InfiNet Wireless's channel partners in Egypt, to design, implement and commission the entire Fixed Broadband Wireless Access (FBWA) network. NextGen recommended solutions from InfiNet Wireless which are known to be the most flexible and easily scalable solutions available today in the marketplace, solutions which can seamlessly carry both video and voice traffic with no detriment to the speed of the network. InfiNet Wireless InfiLINK 2x2 Mmx and Smn Point-to-Point FBWA wireless infrastructure was selected to provide a series of secure communications links, ranging from 50 Mbps to 300 Mbps, offering high speed connectivity to carry the traffic from the IP cameras to the main operating centre in Cairo. Almost immediately after the initial deployment of the network, the ease of scalability was demonstrated to road operator when they needed to implement a new IP telephony system on all exits. The InfiNet Wireless network simply and smoothly accommodated the new requirement without the need to add any further hardware or software.

Ain Sokhna

Sector

Transportation

Challenges

- To provide a reliable high-speed network for traffic management
- To provide a large number of data transmission channels, seamlessly combined into a single and manageable platform

Solution

- InfiLINK 2x2 Point-to-Point

Customer Benefits

Scalable design, allowing for additional features to be quickly and easily added in the future

Flexible and easy to maintain platform

High capacity connection essential for real-time video and voice traffic

Technological Radio Network In The Gulf Of Finland *Russia*

Rosmorport was founded in 2002, aiming to speed up the development of Russian sea transport infrastructure, providing safe navigation through navigable waters of Russian seaports and increasing the competitiveness of Russian seaports under its remit.

"This was both a very interesting and a very challenging project, and proved the immense capabilities and flexibility of InfiNet Wireless wireless broadband technology and expertise. Before the project could even start, a range of complex tests had to be undertaken to prove the viability of the technical design solution proposed by InfiNet Wireless. Having proven it in the field, the application of this technology to marine systems' radio networks has now given us the confidence to extend into more similar scale projects - both in Russia and beyond - with InfiNet Wireless proving it can tackle and solve the toughest of technical challenges."

Igor Malygin,
Deputy Head Of Geyzer-Telecom's System Integration And Development Department

The project aims to deliver a technology upgrade to communications services and overall operations efficiency to a number of Rosmoport's divisions including the Port Administration Authorities through to radio engineering posts, customs, marine operations - and even extending out onto seaborne vessels such as icebreakers, harbor pilot services and merchant ships operating in the Gulf of Finland. The most challenging part of a system was to provide a seamless and reliable wireless communications to moving vessels at the sea. Multiple extensive trials were conducted aboard two icebreaking vessels as well as the pilot boat verified the network's ability to providing lossless and high-capacity bandwidth in a variety of weather conditions: travelling at a minimum of 12 knots, the transmission speeds were measured between 4 Mbps and 42 Mbps for uninterrupted data, voice and video services, concluding that the system was completely viable for seaborne wireless broadband communications. Following the success of the initial trials of the system, the network was commissioned and installed. Now 33 Base Stations supporting 200 stationary subscribers have been installed at numerous seaport locations across the region.

Sector

Transportation

Objectives

- To provide a flexible wireless coverage to both mobile and fixed locations
- To improve the network efficiency and technical operating characteristics of the existing WipLL and provide expansion capability beyond the limits of this existing technology infrastructure
- The consolidation of all government organization network infrastructures around the Gulf of Finland region into a single, cohesive network infrastructure
- To provide network users with high speed Internet access

Solution

- 33 InfiMAN 2x2 Base Station sectors
- 200 InfiMAN 2x2 subscribers

Customer Benefits

Enabled reliable data transfer, thus dynamic management of both mobile and fixed location subscribers

Provide full coverage of the entire area, with no black spots

24x7 reliability, even in the harshest environment conditions

InfiNet Wireless and Tec45 Improve Public Safety with Optibus Transport Company *Mexico*

León is a city and municipality in the Mexican state of Guanajuato. The metropolitan area surrounding the city is home to approximately 1.8 million people, making it the seventh most populous area of Mexico.

"Before we started using the InfiNet Wireless network, we couldn't see real-time video and it was practically impossible to monitor security in the city. Today, the InfiNet Wireless equipment helps us to collect billing information and utilise IP telephony and station alarms. Now, we can monitor security cameras in real-time which are linked to security agencies across the city and we work together to provide a safe and secure city for citizens."

Fernando Hernandez Garcia,
Optibus Director

Optibus operates the cities bus rapid transit (BRT) system, founded in 2003, they were the first city in Mexico to implement such a system. It operates a large network of buses within the city and its municipal areas running across 65 stations, 5 different lines and with a daily ridership of around 350,000 people. In order to keep passengers safe, the company maintains a network of CCTV cameras to monitor and prevent crime. **Tec45** – an approved supplier of InfiNet Wireless solutions – provided total support to Optibus during the process of implementing the changes: putting together the proposal, engineering the process and overseeing the project, integrating OptiBus' systems and providing after-care, post-sale services and technical support.

Optibus has seen a significant improvement since the overhaul. Cameras at bus stations are supported by a network with the bandwidth capacity to transmit data in real time, and staff is able to monitor and collect data and passenger billing information remotely. With one monitoring centre in the Optibus head office, staff is able to collate data from 53 connected bus stops across five separate Base Stations. The new technology has allowed Optibus to bring its avoidance alarm, telephone usage, report collection system, video security and overall system monitoring completely online – providing a much more efficient and reliable network.

Optibus
Sistema Integrado de Transporte

Sector

Transportation

Challenge

- To provide an improved network with a larger amount of bandwidth capacity which can satisfy the needs of a large network used for a transport company operating in Mexico.

Solution

- 5 InfiMAN 2x2 basestations
- 55 InfiMAN 2x2 subscriber terminals
- 3 InfiLINK 2x2 Point-to-Point

Customer Benefits

A more efficient and reliable network, enabling all systems to be utilised and monitored completely online

Improved bandwidth capacity, enabling staff to collect and monitor real time data

Reduced costs in employment due to the system being completely online

After-care, technical and post-sale service

NCE Network Consulting Engineering *Italy*

NCE Srl. is a company which specializes 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 community 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 distance from each other.

The link needed to be able to transport real-time, bandwidth-intensive multimedia data streams across a Line-Of-Site (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).

NCE

Sector

Service providers

Requirements

- 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

- InfiLINK 2x2 high-capacity Point-to-Point solution
- 2 [illegible]000-0m with external antenna backhaul

Customer Benefits

Software-programmable frequencies minimizes cost and allows flexibility in deployment and upgrade scenarios

Support for L2+ features (IP Routing, QoS, VLAN and rapid STP) across Cisco networking

High reliability and spectral frequency optimization

High capacity (50 Mbps+) minimum real throughput over 65+ km range

D-Link *Eastern Europe*

D-Link's Eastern European team recognized that a potential lack of leased-line availability through the region could indeed cause an issue for its partners when bidding to deploy multi-site enterprise and SME networks.

D-Link Europe had decided to enter into the enterprise and business solutions arena to challenge the dominance of existing incumbent players such as Cisco in the midmarket and service provider networking segment.

Their offer of leading edge, high performance technologies in the enterprise LAN, WAN, Wireless and Security segments pose a strong competitive threat to the incumbent players, whilst in addition being positioned as highly price-attractive solutions to their target market segments.

In Hungary alone, D-Link's partner base has already deployed InfiNet Wireless's solutions into at least four service provider/ Wireless-ISP networks offering end-user Wi-Fi and high-capacity Cable/ETTH (Ethernet-to-the-Home) connectivity, as well as providing campus services to a number of medium and large enterprise networks.

D-Link is now partnering with InfiNet Wireless to offer InfiNet's Point-to-Point and Point-to-Multipoint wireless solutions across its entire Eastern European region, and the joint proposition of the two companies extends beyond just their respective product portfolios to offer partners and customers support, training and integration services.

D-Link
Building Networks for People

Sector

Service providers

Requirements

- To enable SME and Enterprise businesses to connect wide-area networking applications where leased-line availability is scarce
- To offer distribution and channel partners the ability to send D-Link Enterprise data networking solutions end-to-end to customers who want to adopt IP technologies across multiple sites
- To overcome the sales obstacles of multi-site IP networking technologies where leased-line availability or high costs become a barrier to deployment
- High-reliability and uptime requirement for constant information and communications for IP, Ethernet, storage area networking and VoIP traffic
- Efficient, low-cost solution with rapid deployment required

Solution

- InfiLINK 2x2 long-range backhauls, Point-to-Point high-capacity products

Customer Benefits

Cost effective, high bandwidth link with unrivalled price-performance ratio

High reliability and throughput across difficult non-line-of sight terrain and for difficult environmental conditions

Enables D-Link business partners to offer an end-to-end multisite IP networking solution rapidly and without reliance upon broadband or leased-line availability

Easily integrated into standards-based IP networking equipment and fully supports D-Link applications and equipment across an IP solutions backbone

Tom-Technik Kft. *Hungary*

Tom-Technik Kft. is an established ISP operating primarily in the Southern Plains of Hungary, with technical operations centred in Békéscsaba.

Through close relationships with a core ecosystem of partners and servicing a wide geographical area, Tom-Technik regularly participates in Rural Development Projects aimed at improving access to broadband infrastructure in rural or “technologically under-developed” areas.

As part of one of these projects, Tom-Technik secured EU funding to bring broadband internet into technically underdeveloped areas in Békés County, in the South Eastern part of Hungary.

Tom-Technik contacted Crown-Tech with the need to develop a feasible and cost-effective wide-area wireless network that could be rapidly deployed and easily maintained, targeted at offering affordable broadband connectivity for rural communities across the regions.

Following extensive field trials of the network architecture, Crown-Tech specified a wide-area network based exclusively on two vendors, with InfiNet Wireless playing the key role in the core backbone of the wireless network, linking together smaller rural “collector” nodes with its high-capacity, Point-to-Point backhaul products.

Tom Technik Kft.

Sector

Service providers

Requirements

- To bring affordable and reliable broadband access to rural communities
- To deploy a rural broadband network that requires minimal infrastructure support and maintenance
- To utilize wireless backhaul technologies to quickly deploy the community networks

Solution

- InfiLINK 2x2 300 Mbps, 200mW Point-to-Point wireless backhaul products
- GRANTE high performance antennas

Customer Benefits

Highly reliable and easy to deploy core backbone network based on 5 GHz wireless

InfiNet Wireless's open standards allows easy deployment and integration of CPE units to the core network

Highly affordable solution for rural broadband with minimal support and maintenance cost profile

Highly robust InfiLINK 2x2 links mean fewer links required for high bandwidth transmission rates despite inclement weather conditions

Breitbandnetz-Sachsen Uses InfiNet Wireless To Deliver World-Class Wireless Local Loop *Saxony, Germany*

Breitbandnetz-Sachsen GmbH plans, builds and operates high-speed broadband connectivity networks across Saxony, Germany, for both consumer and business customers.

"InfiNet Wireless's MAN range of solutions provided us with the opportunity to address this market segment without the need for any technical compromise at all in our designed solution. Speed, throughput, latency and deployment cost targets were easily reached – and maintained – throughout the trial by InfiNet Wireless, and although the point cost of individual units may not have been the cheapest of the products tested, the overall cost of ownership and deployment of the InfiNet network solution as a whole made it the most financially attractive – and technically reliable – of all of the solutions assessed."

Dr. Thomas Witt,
The Project Leader and Design Authority at NU GmBH

Unlike many networks around Germany, Breitbandnetz-Sachsen's network is built completely independently of the conventional telephony network, allowing their customers to benefit from high-speed broadband communications and triple-play (voice, video/TV, data) services without legacy infrastructure restrictions.

Founded in 2010 from the NGN (Next-Generation Networks) division of NU GmbH, Breitbandnetz-Sachsen still works closely with NU across numerous infrastructure projects, including most recently the planning and development of local loop access across its network.

Following a set of successful trials, NU and Breitbandnetz-Sachsen decided on the InfiNet Wireless range of Point-to-Multipoint products as the solution of choice for their local loop wireless MAN (Metropolitan Access Network) deployments.

Breitbandnetz Sachsen GmbH

Sector

Service providers

Requirements

- Local loop deployment for wireless broadband services to local customers, delivering consistent 10-100Mb/s services
- Point-to-multipoint MAN (Metropolitan Access Network) capability
- Low latency and high reliability connections for delivery of voice, video, data, TV services
- Frequency band stability and accuracy
- Low cost of ownership in terms of support, deployment and management

Solution

- InfiMAN 2x2 Point-to-Multipoint Base Stations
- InfiMAN 2x2 CPE radios operation at full capacity

Customer Benefits

Highly stable broadband wireless platform with consistent and reliable throughput across all types of terrain and through variable weather conditions

Improved capacity and services that can be upgraded/switched on remotely without need to visit Base Station sites

Reduced deployment and support costs, high price, performance ratio

Over-the-air frequency selection for Base Station units with minimal frequency drift

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