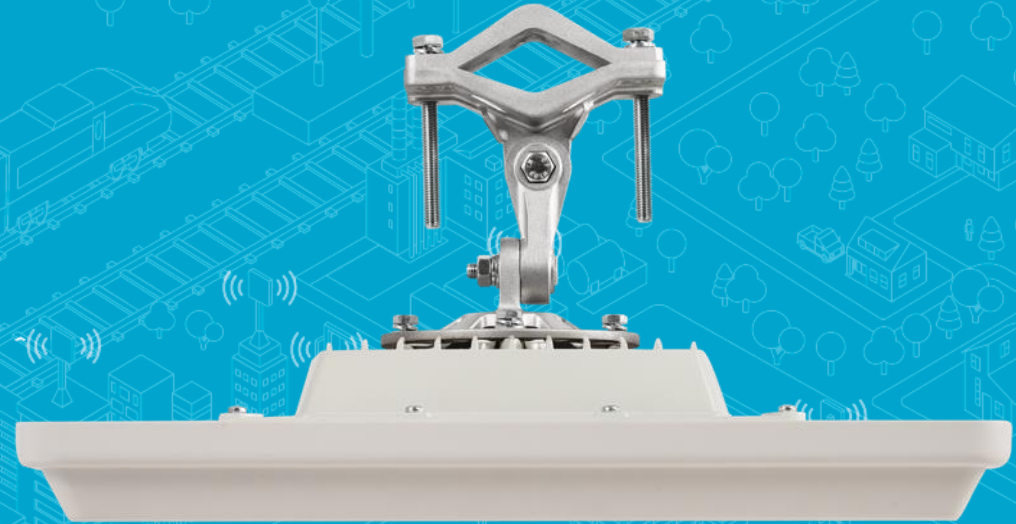


About



Infinet Wireless

The world's leading developer and manufacturer of Broadband Wireless Access solutions which are used to create carrier-grade wireless backbones and access networks for service providers.



More than 500,000
deployments in
over 130 countries



2,300 square
meters of own
production facilities



180
employees



30 offices around
the world, in the
strategically
important
countries



100+ major
distributors all over
the world

Infinet's Solutions Enable Telecoms Operators to Support Various Activities



Own transport channels

- Mobile operators.
 - Fixed line operators.
 - Specialist Mobile Radio operators.
-

Telecommunications services for corporate customers

- Multiservice network operators.
 - Alternative network operators.
-

Middle mile connectivity

- Communications network operators.
- Multiservice network operators.

Applications



Own communication channels

- Base station backhauled.
- Redundancy of fibre-optic communication links (InfiLINK XG).
- Transport channels for pico- and femtocells.

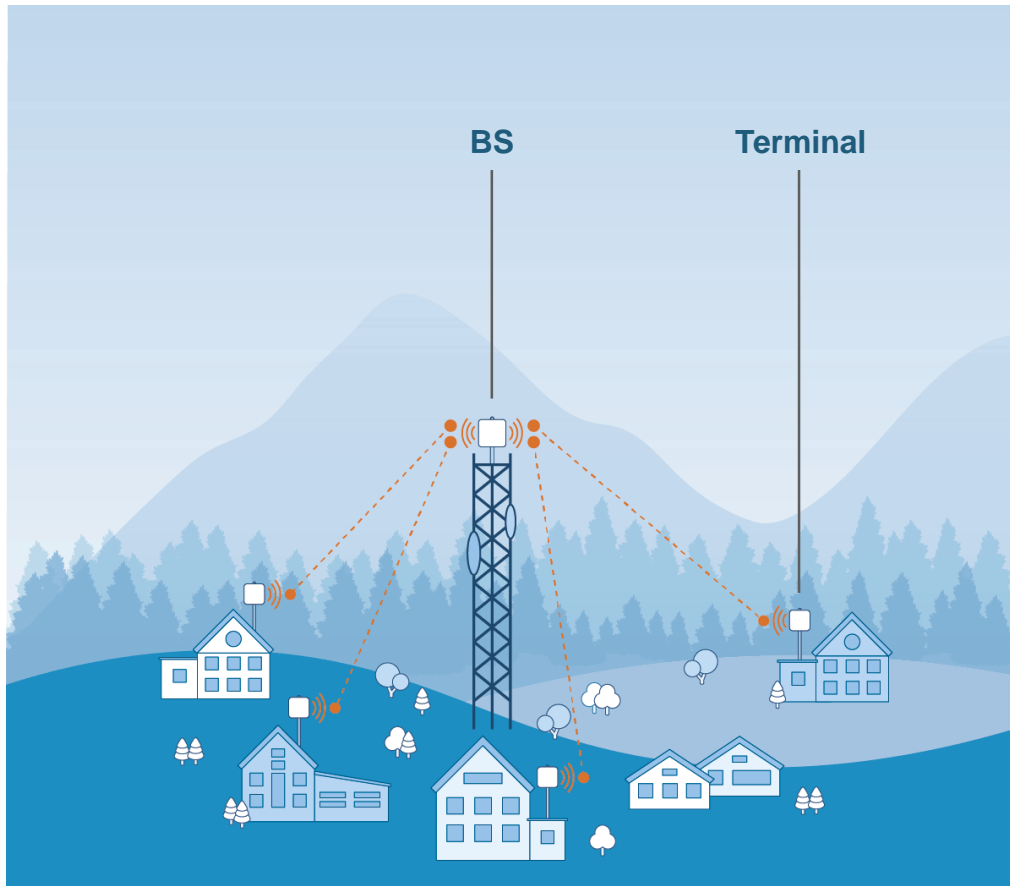
Services for corporate clients

- Point-to-Multipoint - connections for corporate and government customers.
- Point-to-Point - connections for VIP-customers.

Middle mile

- Transport channels for industrial and outdoor Wi-Fi networks.
- Connection of residential areas.

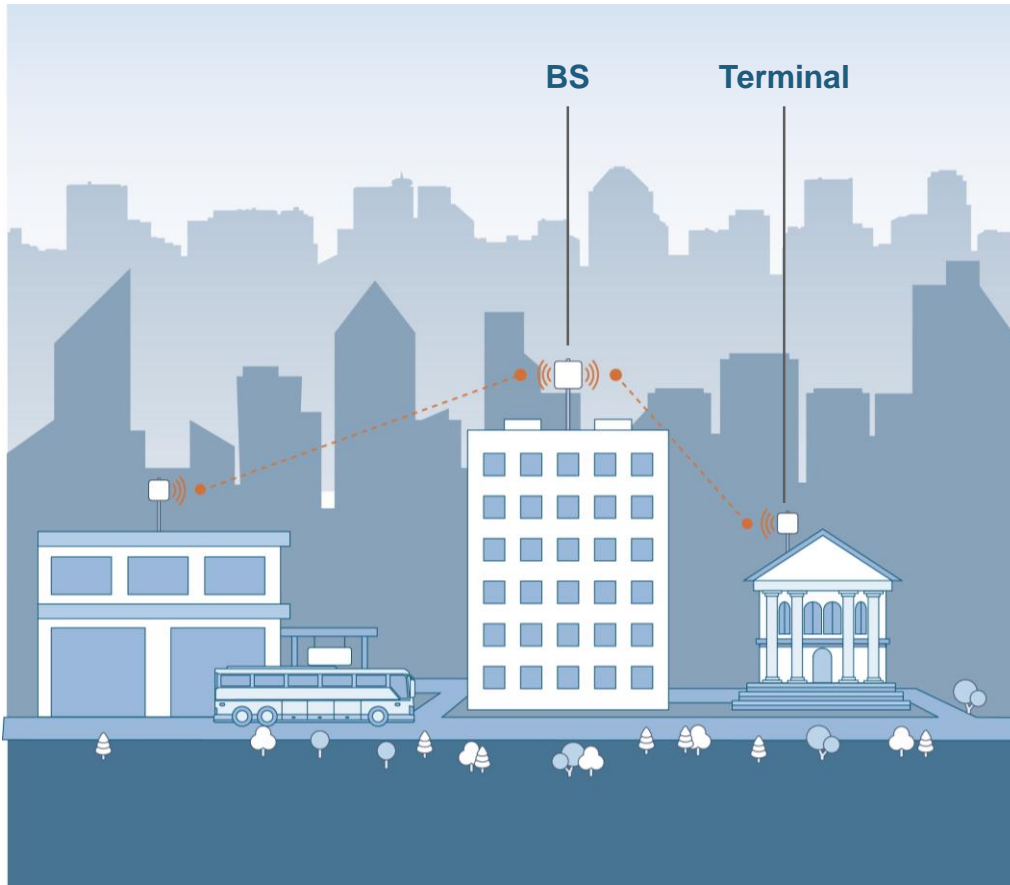
Network Integration for Remote Areas



Applications

- Connectivity for remote communities.
- Ranges of up to 80 km for PtP links and 30 km for PtMP configurations.
- Subscriber terminals with real throughput of up to 100 Mbps.

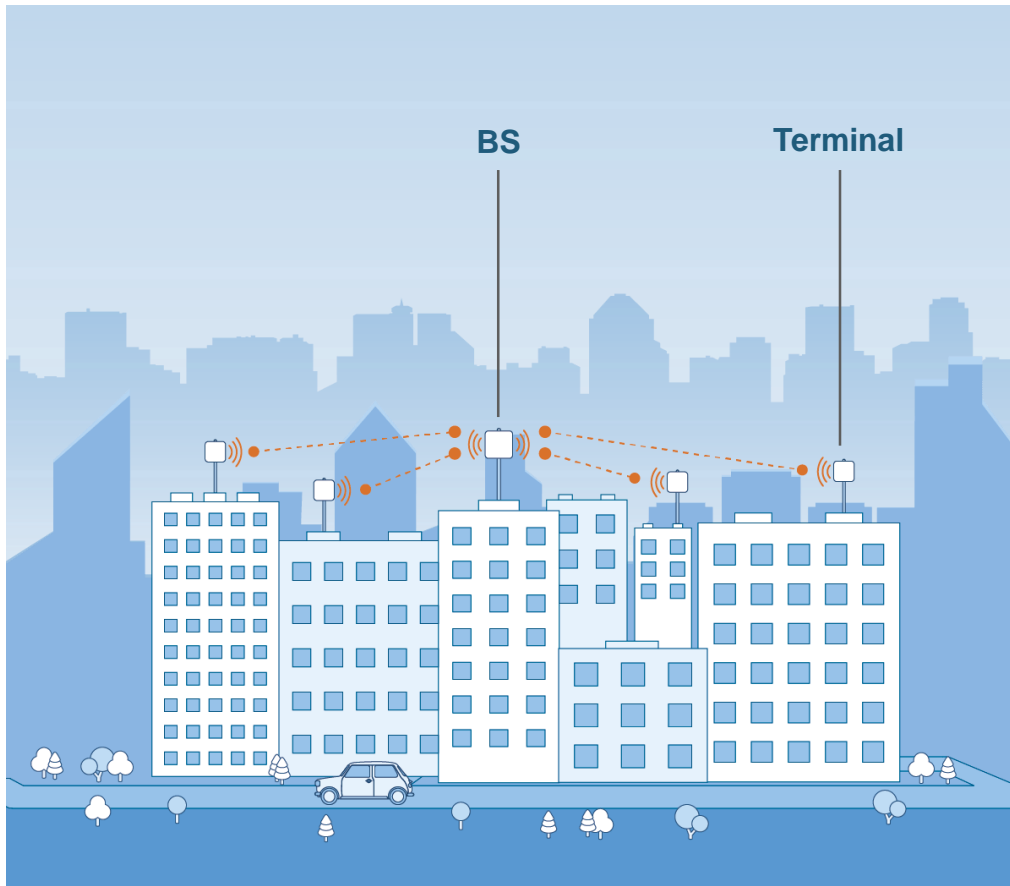
Corporate Client Connections



Applications

- Telecoms services for corporate customers in urban conditions.
- Internet access, VoIP and video services.
- Service plans for up to 50 Mbps real throughput per subscriber.
- Coverage range: up to 10 km (in urban conditions).

Middle Mile for Corporate Clients and Residential Areas



Applications

- Telecoms services for corporate customers in urban conditions.
- Internet access, VoIP and video services.
- Service plans for up to 50 Mbps real throughput per subscriber.
- Coverage range: up to 10 km (in urban conditions).

Infinet Wireless Solutions

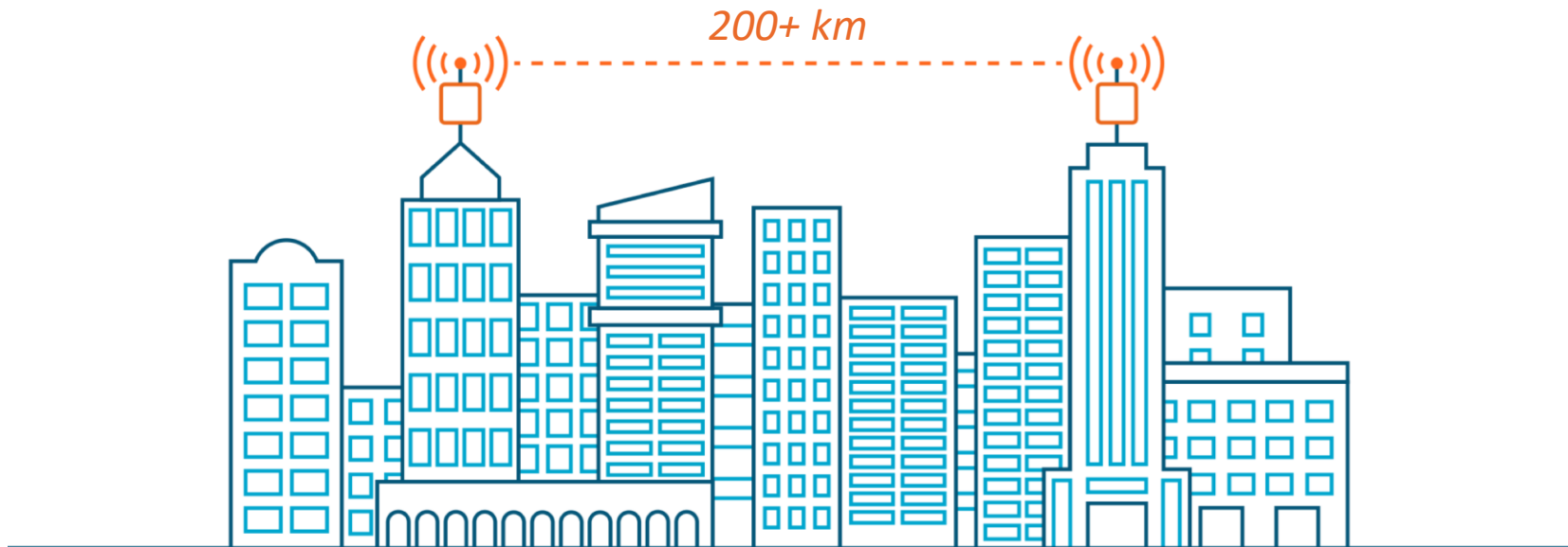


A complete range of wireless solutions for both PtP and PtMP fixed wireless deployments

Point-to-Point Wireless Solution



- 1 Real throughput – **up to 1 Gbps**
- 2 Single hop distance – **200+ km**
High-gain external antennas
- 3 Unlimited number of hops
- 4 Full QoS support
- 5 LOS/nLOS/NLOS connectivity
- 6 Flexible frequency planning



Quanta 5 & Quanta 6 – high-powered spectral efficient PtP solutions



- 1 Outstanding performance in high interference environments
- 2 Consume 30% less spectrum for the same capacity
- 3 Transmit power in a top-speed mode is 6 dB higher than other solutions

Quanta 5 & Quanta 6 help to build a high capacity last mile or a backhaul in a noisy environment.

NEW Octopus SDR



Quanta 70 – interference-less last mile access



- 1 Advanced radio signal processing algorithms ensure the wireless link robustness to precipitation
- 2 Extremely accurate and easy adjustment on azimuth and elevation thanks to precision mounting kit and RSSI indicator
- 3 Small form factor model allows low visual impact deployments

Quanta 70 has been designed for the last mile access and “light” trunk channels in the 70.5–76 GHz frequency range with the throughput of up to 480 Mbps.

NEW

Octopus SDR



InfiLINK Evolution – next generation system for last mile access







- 1 Works in 4.9–6.4 GHz frequency bands
- 2 Thanks to a built-in firewall and rich security features, traffic safety is under control
- 3 Create expert-level network design with advanced switching and routing features

InfiLINK Evolution allows building stable high-capacity last mile access in 4.9–6.4 GHz bands. It comes with network router functionality, security features, traffic shaping and prioritization.







Infinet Wireless Point-to-Point Portfolio at a Glance



Product Family	Key Features	Frequency Bands
InfiLINK XG 1000 	<ul style="list-style-type: none">• Transmit power up to 25 dBm• Net throughput up to 1 Gbps• 2xGigabit Ethernet & SFP interfaces• TDD sync	<ul style="list-style-type: none">• 5 GHz
Quanta 5 & Quanta 6 	<ul style="list-style-type: none">• Transmit power up to 27 dBm• Net throughput up to 650 Mbps• Gigabit Ethernet & SFP interfaces	<ul style="list-style-type: none">• 5 GHz• 6 GHz
Quanta 70 	<ul style="list-style-type: none">• Transmit power up to 11 dBm• Net throughput up to 480 Mbps• Gigabit Ethernet & SFP interfaces	<ul style="list-style-type: none">• 70 GHz
InfiLINK Evolution 	<ul style="list-style-type: none">• Transmit power up to 25 dBm• Net throughput up to 670 Mbps• Gigabit Ethernet interface	<ul style="list-style-type: none">• 5 GHz• 6 GHz






InfiLINK XG 1000 Product Portfolio



	Xm			Um
Models				
5 GHz	23 dBi 25 dBm	26 dBi 25 dBm	28 dBi 25 dBm	2x type-N 25 dBm
Capacity	QAM16: up to 370 Mbps; QAM64: up to 630 Mbps; QAM256: up to 1000 Mbps			
Channel Widths	2x10/2x20/2x40 MHz			
Duplex Modes	TDD Hybrid FDD			
TDD Sync	Via built-in or external (ANT-SYNC) GPS receiver			
Ethernet	2x Gigabit Ethernet, SFP interface			
Distance	10–20 km (max 25 km)	12–30 km (max 40 km)	15–40 km (max 50 km)	60+ km

Quanta 5 & Quanta 6 Product Portfolio



	Q5-18 Q6-18	Q5-23	Q5-25 Q6-25	Q5-28 Q6-28	Q5-E Q6-E
Models					
5 GHz	18 dBi 27 dBm	23 dBi 27 dBm	25 dBi 27 dBm	28 dBi 27 dBm	2x type-N 27 dBm
6 GHz	18 dBi 27 dBm		25 dBi 27 dBm	28 dBi 27 dBm	2x type-N 27 dBm
Capacity	650 Mbps				
Instant DFS	Supported, 5 GHz only				
Channel Widths	3.5/5/7/10/14/15/20/28/30/40/50/56 MHz				
Duplex Modes	TDD, Hybrid FDD (5 GHz only)				
Network Functionality	VLAN, QoS				
Ethernet	1x Gigabit Ethernet	Combo: 1xGE(RJ45), 1xSFP			
Distance	Up to 20 km	Up to 40 km	Up to 60 km	Up to 80 km	200+ km

Quanta 70 Product Portfolio








Models	Q70-39	Q70-50
Frequency range	70.5–76 GHz	
Antenna gain Transmit power	39 dBi 11 dBm	50 dBi 11 dBm
Capacity	480 Mbps	
Channel Widths	125 MHz	
Duplex Mode	TDD	
Interference Mitigation Techniques	ARQ	
Network Functionality	VLAN, QoS	
Ethernet	Combo: 1x Gigabit Ethernet port (RJ45), 1x SFP	
Distance	Up to 10 km	Up to 20 km



InfiLINK Evolution Product Portfolio



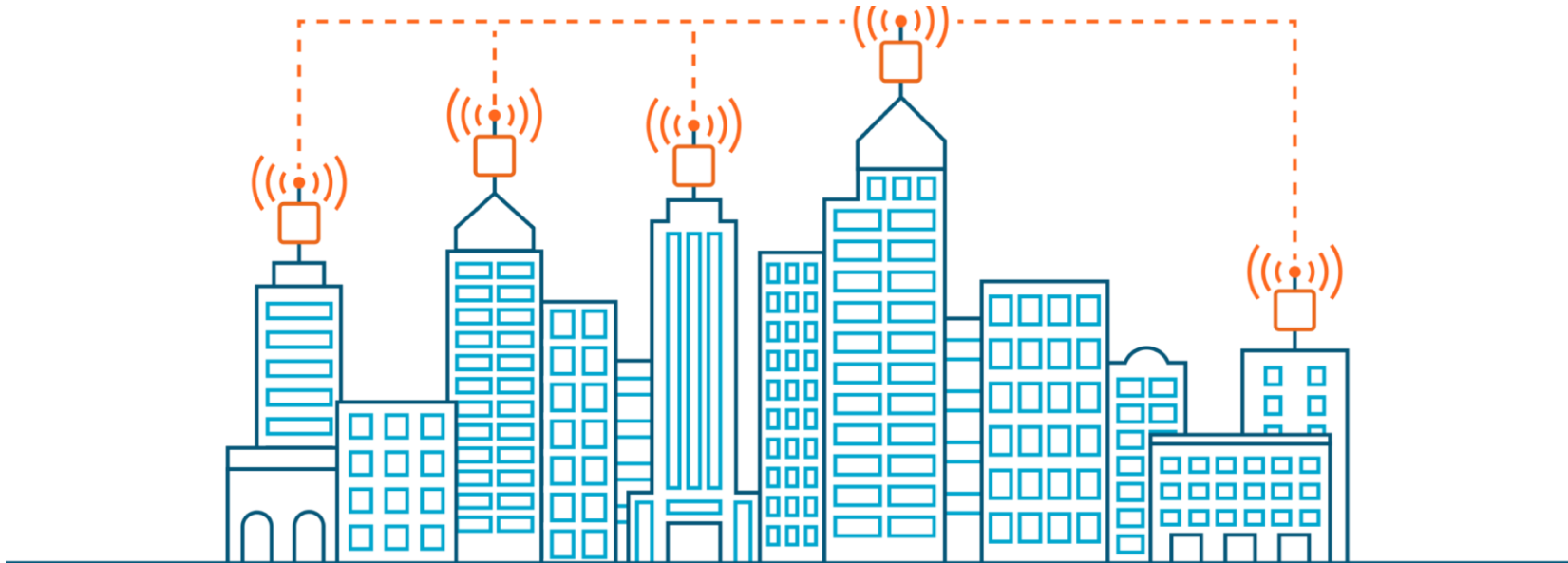
	E5-ST18 E6-ST18	E5-ST23	E5-ST25 E6-ST25	E5-ST28 E6-ST28	E5-STE E6-STE
Models					
5 GHz	18 dBi 25 dBm	23 dBi 25 dBm	25 dBi 25 dBm	28 dBi 25 dBm	2x type-N 25 dBm
6 GHz	18 dBi 25 dBm		25 dBi 25 dBm	28 dBi 25 dBm	2x type-N 25 dBm
Capacity	670 Mbps				
Channel Widths	20/40/80 MHz				
Duplex Modes	TDD				
Interference Mitigation Techniques	ARQ				
Network Functionality	VLAN, QoS				
Ethernet	1x Gigabit Ethernet				
Distance	Up to 10 km	Up to 15 km	Up to 20 km	Up to 30 km	40+ km

* Roadmap item

Point-to-Multipoint Wireless Solution



- 1 BS sector coverage: up to **40 km**
- 2 Sector Capacity: up to **800 Mbps**
- 3 Subscriber terminal capacity: in excess of **670 Mbps**
- 4 **TDD** synchronization and frequency reuse
- 5 **QoS** support
- 6 Sophisticated **L2/L3/L4 networking** functionality
- 7 **Interference mitigation** tools



InfiMAN Evolution – highly secured next-generation PtMP solution








- 1 Subscriber terminals work in 4.9–6.4 GHz frequency bands
- 2 Thanks to a built-in firewall and rich security features, traffic safety is under control
- 3 Value for money thanks to advanced switching and routing features
- 4 Compatible with base station sectors and subscriber terminals of the previous generation
- 5 Cost-effective base station for low-density sectors

InfiMAN Evolution allows to build stable high-capacity connectivity in 4.9–6.4 GHz bands. It comes with rich network router functionality, security features, traffic shaping and prioritization.








Base Station Sectors InfiMAN Evolution at a Glance



Product Family	Key Features	Key Features
InfiMAN Evolution E-BSI 	<ul style="list-style-type: none"> • Integrated 90 deg sector antenna • Sector throughput up to 800 Mbps • Gigabit Ethernet interface & SFP & SYNC 	<ul style="list-style-type: none"> • 5 GHz • 6 GHz
InfiMAN Evolution E-BSI-L 	<ul style="list-style-type: none"> • Integrated 90 deg sector antenna • Sector throughput up to 360 Mbps • Gigabit Ethernet interface & SFP & SYNC 	<ul style="list-style-type: none"> • 5 GHz
InfiMAN Evolution E5-BSQ 	<ul style="list-style-type: none"> • Integrated 90 deg sector beamforming antenna • Sector throughput up to 800 Mbps • Gigabit Ethernet interface & SFP & SYNC 	<ul style="list-style-type: none"> • 5 GHz
InfiMAN Evolution E-BSE 	<ul style="list-style-type: none"> • External antenna • Sector throughput up to 800 Mbps • Gigabit Ethernet interface & SFP & SYNC 	<ul style="list-style-type: none"> • 5 GHz • 6 GHz
InfiMAN Evolution E-BSE-L 	<ul style="list-style-type: none"> • External antenna • Sector throughput up to 360 Mbps • Gigabit Ethernet interface & SFP & SYNC 	<ul style="list-style-type: none"> • 5 GHz






InfiMAN Evolution Base Station Sectors



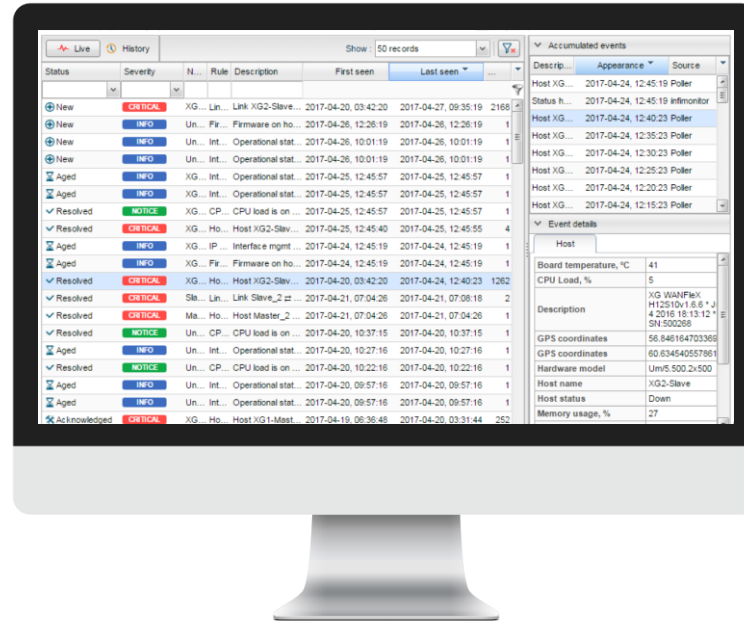
	E5-BSI E6-BSI	E5-BSQ	E5-BSE E6-BSE	E5-BSI-L	E5-BSE-L
Models					
5 GHz	16 dBi, 90° 27 dBm	21 dBi, 90° 25 dBm	2x type-N 27 dBm	16 dBi, 90° 27 dBm	2x type-N 27 dBm
6 GHz	16 dBi, 90° 25 dBm		2x type-N 25 dBm		
Capacity	Up to 800 Mbps, net			Up to 360 Mbps, net	
Channel Widths	20/40/80 MHz			20/40 MHz	
Modulation coding schemes	9 MCS – from BPSK 1/2 to QAM256 5/6				
Duplex scheme	TDD				
Ethernet	Gigabit Ethernet & SFP & SYNC				

InfiMAN Evolution Subscriber Terminals



	E5-ST18 E6-ST18	E5-ST23	E5-ST25 E6-ST25	E5-ST28 E6-ST28	E5-STE E6-STE
Models					
5 GHz	18 dBi 25 dBm	23 dBi 25 dBm	25 dBi 25 dBm	28 dBi 25 dBm	2x type-N 25 dBm
6 GHz	18 dBi 25 dBm		25 dBi 25 dBm	28 dBi 25 dBm	2x type-N 25 dBm
Capacity	20/50/670 Mbps, net (20/50/670 Mbps bitrate) – license upgradeable				
Channel Widths	20/40/80 MHz				
Modulation coding schemes	9 MCS – from BPSK 1/2 to QAM256 5/6				
Duplex scheme	TDD				
Ethernet	1x Gigabit Ethernet				

InfiMONITOR



Key features

Host data

- Display of key parameters values in real time

Link data

- Ability to view detailed information about downlink and uplink streams

Incidents

- Display of events in the feed with priority and object for which the event was created
- Ability to assign individual rules for creating events for different groups of hosts
- Email notifications about events to the employees in charge

Charts

- Charts with different parameters for hosts and links within arbitrary period of time

Automatic discovery

- Automatic discovery and adding of hosts and links from the same MINT network

Management & Operations



Unit Level

Web GUI

- ▶ Device settings
- ▶ Detailed statistics and diagnostics data
- ▶ Visual spectrum analysis, antenna alignment and throughput measurement

- ▶ Maintenance:
 - configuration/firmware upload/backup
 - factory reset
- ▶ Secure access using HTTPS protocol

Telnet/SSH

- ▶ In-depth configuration, diagnostics, monitoring and maintenance for advanced users, full functionality available

Network Level

InfiMONITOR – monitoring system

- ▶ Display of the wireless network structure with metrics about hosts and links in real time on the network map
- ▶ Creation of diagrams based on different parameters of hosts and links
- ▶ Automatic tracking of changes and creation of events according to the configured rules
- ▶ Email notifications to the employees in charge about critical events
- ▶ Lists of hosts and links with ability to view values of all parameters
- ▶ Automatic discovery of hosts and connections between them using WANFlex OS features, which provide information on neighboring hosts

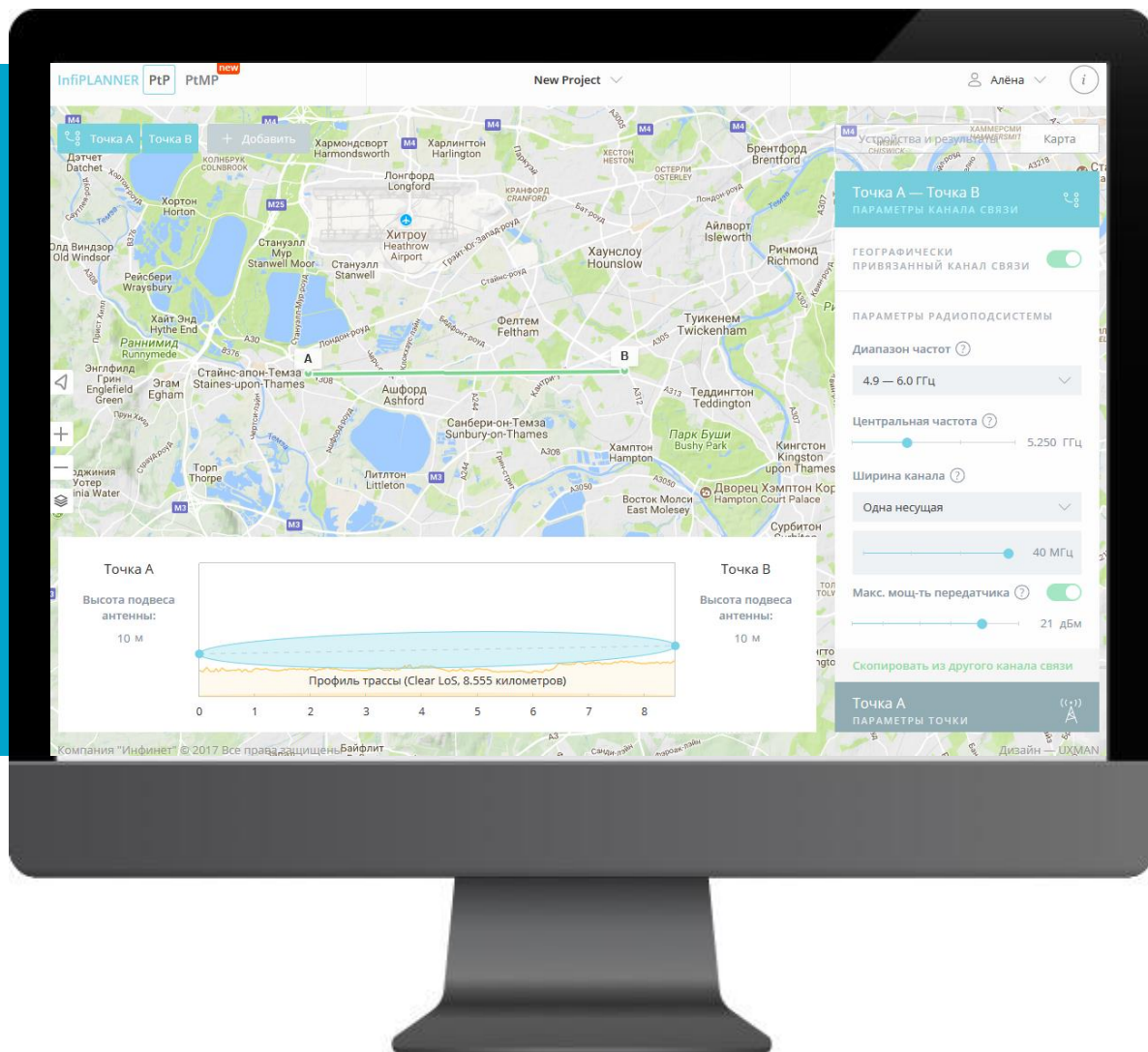
Radio Planning



InfiPLANNER

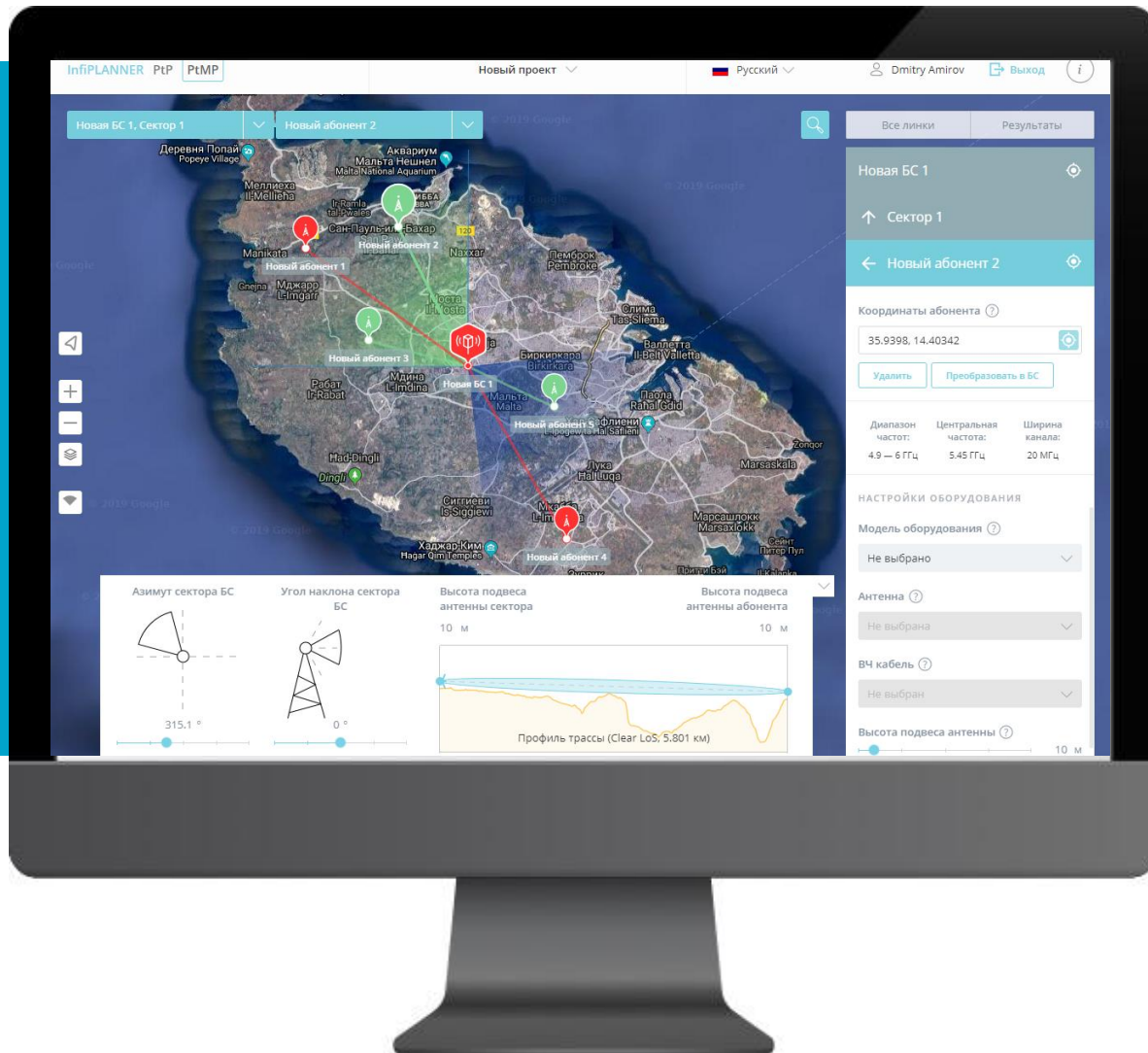
- ▶ Web-based PtP & PtMP estimation tool
- ▶ Key features:
 - Visual planning based on Google Maps integration
 - Complex radio propagation model ITU-R and Longley-Rice
 - Relief and Fresnel zone visualization
 - Throughput, link availability and expected modulation estimations
 - Detailed reporting
 - Assembling guide in PDF (PtP mode only)
- ▶ Available at <http://infiplanner.infinetwireless.com>

InfiPLANNER



Point-to-Point

InfiPLANNER



Point-to-Multipoint

Case Study



MADA - № 1 WISP in Kuwait.

The company provides telecommunications services for government and business customers.



Requirements

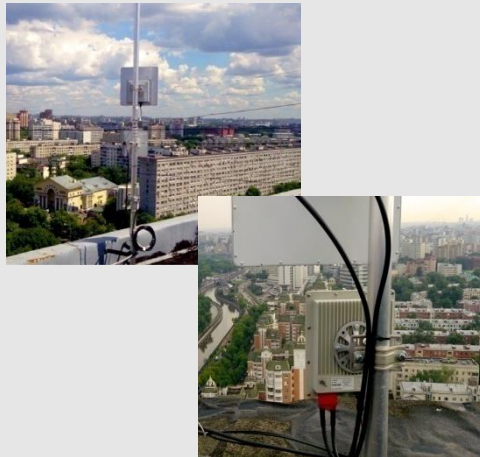
- High capacity to enable the transmission of surveillance footage.
- A large number of connection points across a vast area.
- Equipment that could operate in conditions with strong interference and on a crowded spectrum.



Infinet solutions

- InfiMAN 2x2.

Deployment of 70 Base stations



Service types

- Video surveillance in real time.

Case Study



DU - the largest multiservice networks operator in UAE.

The company provides mobile and fixed telephony, broadband connectivity and IPTV services all over the UAE. Implementation of LTE base station connectivity using Infinet equipment.



Requirements

- Large number of new subscribers.
- Multicast IPTV service.
- Communication at distances over 30km in harsh climactic conditions.
- Installation in nLOS conditions.



Infinet solutions

- 3G data transfer to the base station sectors.
- Hosted / virtual PBX for corporate customers.
- Multicast IPTV service.

Implemented more than 1000 units of Infinet equipment



Service types

- InfiLINK 2x2.

Case Study



Metronet UK



The largest alternative network operator in North West England (Manchester). The company has provided broadband wireless access services for corporate customers since 2003.

Requirements

- Video surveillance and data transfer (no less than 25 frames per second), database access.
- Basic infrastructure upgrade.
- High capacity.
- Reliability of equipment and providing flexible QoS features.



Infinet solutions

- Internet access.
- L2 VPN/Ethernet.
- Wireless video surveillance.
- VPN connections.

Implemented more than 1300 Infinet units



Service types

- InfiMAN 2x2 for last mile connectivity.
- BS sector R5000-Mmxbs with integrated sector antenna.
- Subscriber terminals R5000-Smc and R5000-Smnc.
- InfiLINK 2x2 PRO for backhaul: R5000-Omxs and R5000-Mmxs.

Case Study



Enforta

Russian national telecoms operator. Enforta has private customers in more than 200 cities and towns with 70% of the Russian urban population and also more than 40,000 corporate customers.



Requirements

- Networking in many regions including northern territories with extreme climactic conditions.
- Fast network deployment and connection of new subscribers.
- Minimum channel bandwidth - no less than 1-5 Mbps.



Infinet solutions

- Internet access.
- Telephony.
- L2/L3 VPN connections.
- Corporate networks (VPN).
- QoS services.



Service types

- InfiLINK 2x2 backbones.
- Base station sectors and subscriber terminals InfiMAN 2x2.
- Implemented more than 50,000 subscriber terminals and 2,500 Infinet base station sectors.

Case Study



PROSTOR Telecom (ZAO Kvantum)

One of the largest Russian BWA operators. Its customers are municipal authorities, enterprises, educational and commercial organizations. 70% of networks are built using Infinet equipment.



Requirements

- Obsolete infrastructure upgrade.
- New solutions in 6 GHz frequency band.



Infinet solutions

- Internet access.
- L2 VPN/Ethernet.
- Data transfer rate 4 - 30 Mbps.

Implemented more than 12 000 Infinet units



Service types

- Legacy-to-MIMO networks upgrade.
- New Development in 6 GHz frequency band.

Case Study



MTS is in the Top-10 biggest Telecom Operators in the world

Consolidated customer base of 100m+ subscribers. Mobile and fixed services in Russia. Largest telecom project in Oil & Gas sector implemented by one of MTS subsidiaries.



Requirements

- Despite having extensive fibre networks and multiple points of presence at most cities and towns across Russia, there have always been corporate customers requiring fixed connectivity located out of reach.
- TNK-BP requested a dedicated infrastructure to connect oil rigs in Samotlor oil field.



Infinet solutions

- Fixed Internet access.
- Fixed telephony using Voice-over-IP.
- VPN/"virtual LAN" services.
- Connectivity for Femtocells, providing local GSM/3G coverage at customer premises.
- Dedicated wireless network to provide SCADA services to TNK-BP in Samotlor oil field.



Service types

- Systems deployed in three Federal districts of Russian Federation (Ural, Siberia, Russian far East).
- InfiMAN 2x2 Point-to-Multipoint system:
 - Mmxb integrated antenna BS sectors.
 - Sm 19 dBi for short-to-medium range links.
 - Sm 23 and 28 dBi for long haul links up to 25 km.

Case Study



Beeline (VimpelCom)

One of the world largest telecoms operators. The company provides telephony and data transfer services including broadband access.



Requirements

- Cost-effective solutions.
- Full network feature set.



Infinet solutions

- Internet access.
- Fixed broadband wireless access.

**800 base stations and 8 000
Infinet subscriber terminals.**



Service types

- The company has used Infinet solutions since 2011.
- Solutions for femtocells for RZD.

Case Study



Z-Net – Hungarian ISP.

The company provides telecoms services for corporate and private customers. Z-Net's network is located in the south-western part of Hungary and covers more than 10,000 square kilometers.



Requirements

- Connection of remote subnets to main network.
- Minimum throughput – 200 Mbps.
- Visibility – 50% nLOS.
- Performance – 231 Mbps.
- Minimal latency.



Infinet solutions

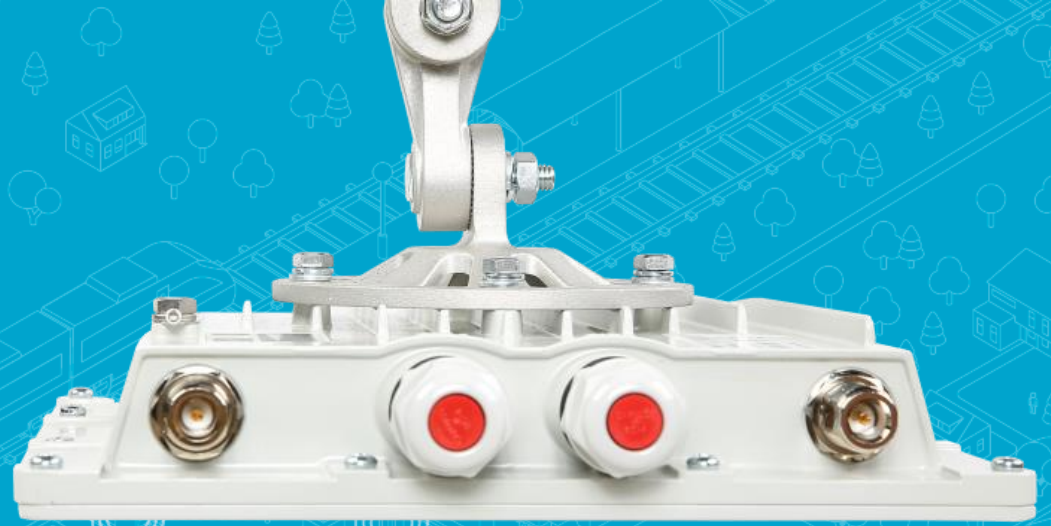
- Internet access.
- L2 VPN/Ethernet.



Service types

- 10 Point-to-Point sets InfiLINK 2x2 PRO.

Infinet's highlights



Outstanding solutions with the best performance



Thousands of successful deployments around the world



One of the world's Top 5 FBWA equipment manufacturers



Product development in our own world-class laboratory



Universal solutions for various industry sectors



INFINET
wireless

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