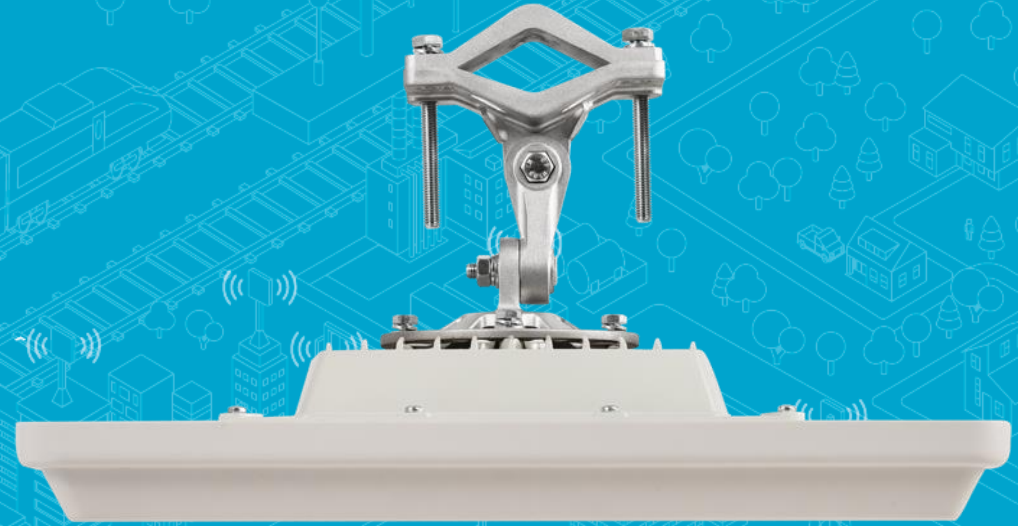# Infinet Wireless

Fixed Wireless Access For Telecommunications Companies

About

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Infinet Wireless

The world's leading developer and manufacturer of Broadband Wireless Access solutions 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 all major 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 backhauls.

- Redundancy of fibre-optic communication links (InfiLINK XG).

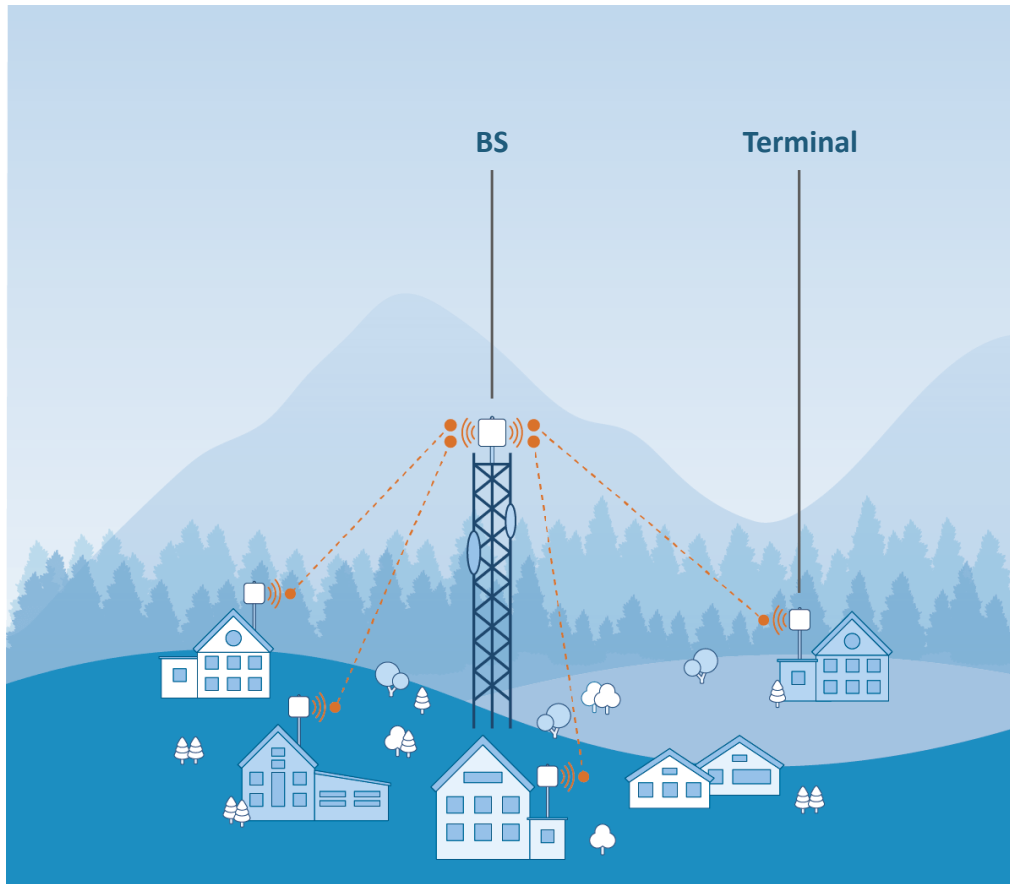- Transport channels for pico- and femtocells.

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.
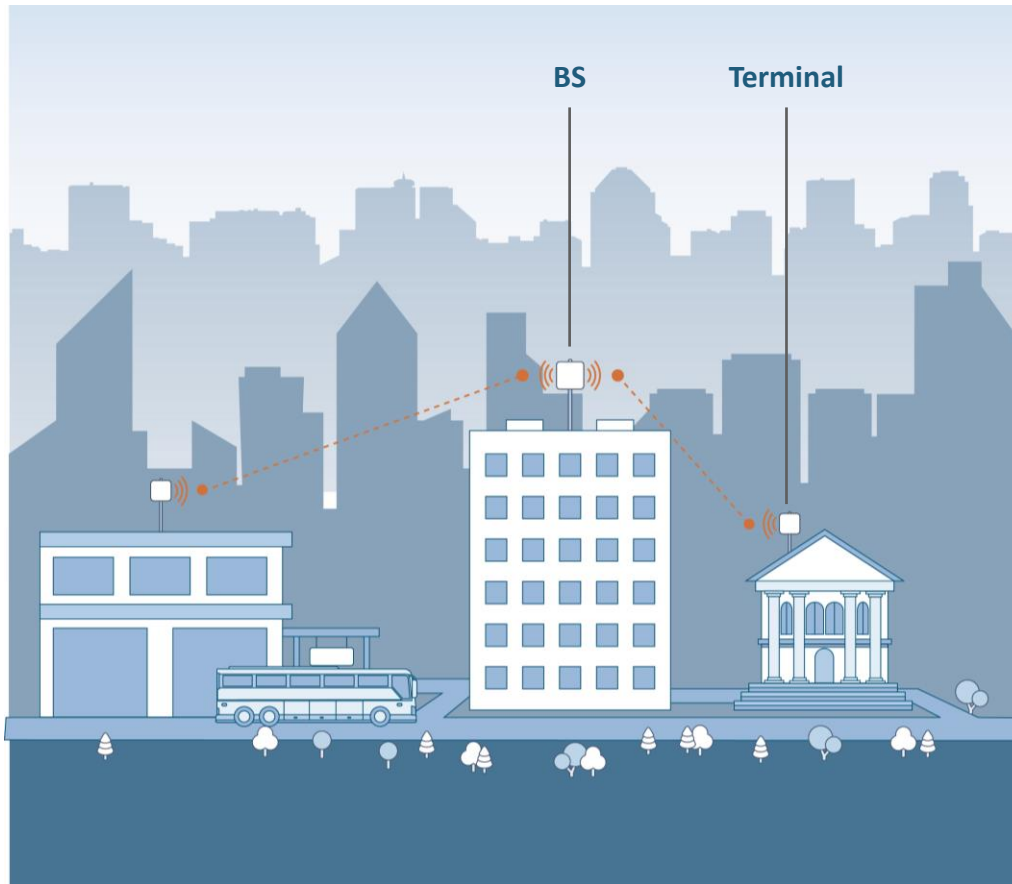
- Connection of residential areas.

Network Integration for Remote Areas

BS   Terminal

Applications

- Connectivity for remote communities.

- Ranges of up to 80 km for PtP links and 30 km for PtMP configurations.

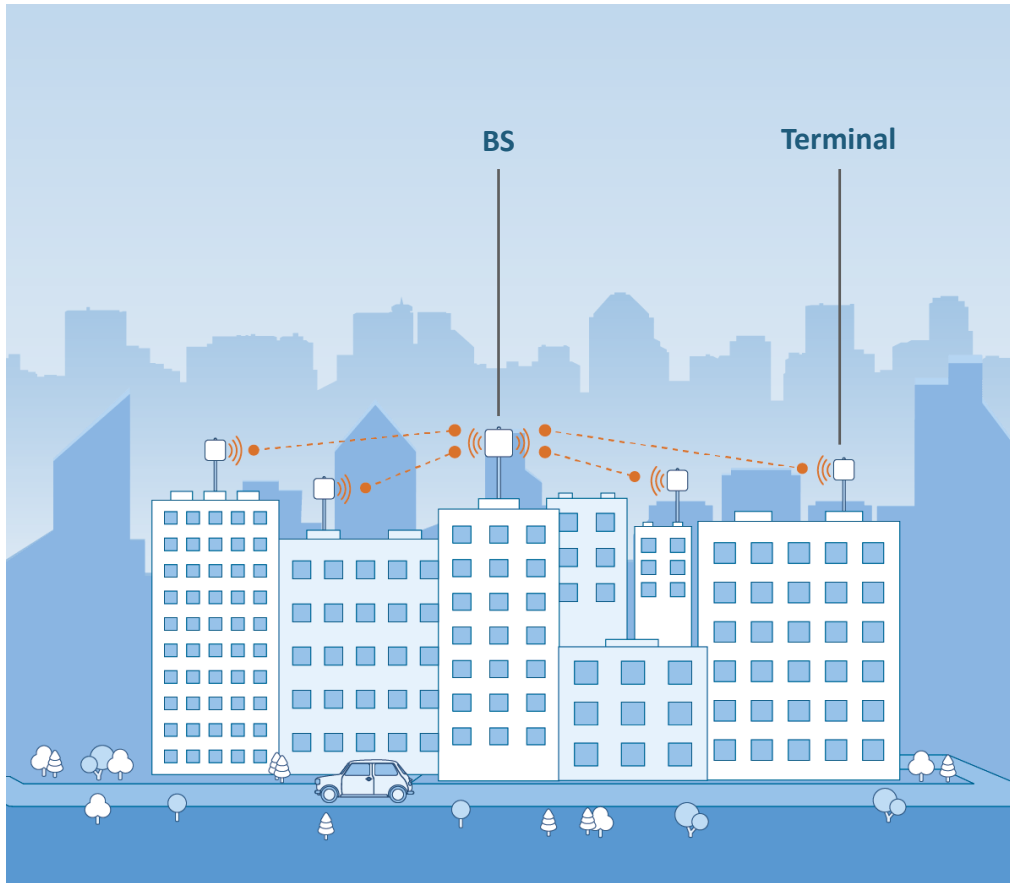- Subscriber terminals with real throughput of up to 100 Mbps.

Corporate Client Connections

BS   Terminal

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

BS   Terminal

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's Solutions

A complete range of wireless solutions for both PtP and PtMP fixed wireless deployments, all in sub-7 GHz bands

Point-to-Point Wireless Solution

● ● ●

1. Real throughput – **up to 1 Gbps**

2. Single hop distance – **up to 100 km**
   High-gain integrated antennas

3. Unlimited number of hops

4. Full QoS support

5. LOS/nLOS/NLOS connectivity

6. Flexible frequency planning

100 km
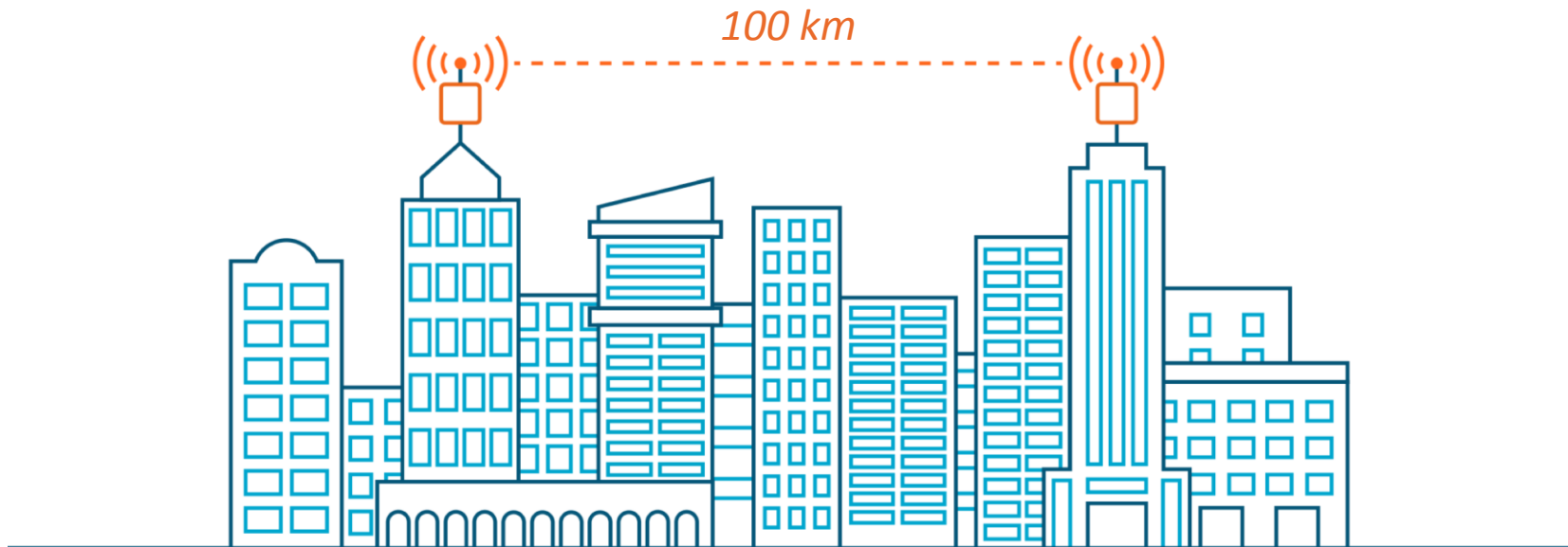
Quanta 5 - The Latest and Most Affordable SDR Point-to-Point Solution

① Capacity up to 460 Mbps and processing power up to 900,000 packets per second

② Quanta 5 supports 14 modulation-coding schemes dynamically selects the most suitable MCS even when operating in high interference environments

③ Superior interference mitigation through the support of Instant DFS and ARQ

Quanta 5 is a future-proof platform leveraging Infinet Wireless in-house designed Octopus SDR technology.

NEW Octopus SDR

Infinet Wireless Point-to-Point Portfolio at a Glance

Product Family	Key Features	Frequency Bands
InfiLINK XG 1000	• Transmit power up to 25 dBm • Net throughput up to 1 Gbps • 2xGigabit Ethernet & SFP interfaces • TDD sync	• 5 GHz
InfiLINK XG	• Transmit power up to 27 dBm • Net throughput up to 500 Mbps • 2xGigabit Ethernet & SFP interfaces • TDD sync	• 2 GHz • 3 GHz • 4 GHz • 5 GHz • 6 GHz
Quanta 5	• Transmit power up to 27 dBm • Net throughput up to 460 Mbps • Gigabit Ethernet interface	• 5 GHz
InfiLINK 2x2 PRO	• Transmit power up to 27 dBm • Net throughput up to 280 Mbps • Gigabit Ethernet interface • TDD sync	• 3 GHz • 5 GHz • 6 GHz
InfiLINK 2x2 LITE	• Transmit power up to 25 dBm • Net throughput up to 180 Mbps • 2xFastEthernet, PoE out	• 3 GHz • 5 GHz • 6 GHz

InfiLINK XG 1000 Product Portfolio

● ● ●

Models	Xm			Um
5 GHz	23 dBi | 25 dBm	26 dBi | 25 dBm	28 dBi | 25 dBm	2x N-type | 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

InfiLINK XG Product Portfolio

Models	Xm			Um
2 GHz		19 dBi | 27 dBm		2x N-тип | 27 dBm
3 GHz		22 dBi | 27 dBm		2x N-тип | 27 dBm
4 GHz		23 dBi | 23 dBm		2x N-тип | 23 dBm
5 GHz	23 dBi| 27 dBm	26 dBi | 27 dBm	28 dBi | 27 dBm	2x N-тип | 27 dBm
6 GHz	24 dBi | 27 dBm		27 dBi | 27 dBm	2x N-тип | 27 dBm
Capacity	QAM64 (< 340 Mbps), QAM256 (< 480 Mbps), QAM1024 (< 500 Mbps)			
Instant DFS	Supported, 5 GHz only			
Channel Widths	10/20/40 MHz			
Duplex Modes	TDD Hybrid-FDD (2, 3, 4, 5 GHz only)			
TDD Sync	Via built-in or external (ANT-SYNC) GPS-receiver			
Ethernet	2x Gigabit Ethernet, SFP-interface			
Distance	10-30 km (max 30 km)	12-40 km (max 50 km)	15-50 km (max 60 km)	100+ km

Quanta 5 Product Portfolio

	Q5-23	Q5-E
Models		
5 GHz	23 dBi | 27 dBm	2x N-type | 27 dBm
Capacity	460 Mbps	
Instant DFS	Supported	
Channel Widths	3.5/5/7/10/14/15/20/28/30/40 MHz	
Duplex Modes	TDD Hybrid-FDD	
Interference Mitigation Techniques	ARQ	
Network Functionality	VLAN, QoS	
Ethernet	1x Gigabit Ethernet	
Distance	10-40 km	40+ km

InfiLINK 2x2 PRO Product Portfolio

Models	Mmx			Omx
3 GHz		22 dBi | 23 dBm		2x N-type | 23 dBm
5 GHz	23 dBi | 27 dBm	26 dBi | 27 dBm	28 dBi | 27 dBm	2x N-type | 27 dBm
6 GHz	24 dBi | 23 dBm		27 dBi | 23 dBm	2x N-type | 23 dBm
Capacity	Up to 280 Mbps			
Instant DFS	Optional, 5 GHz only			
Channel Widths	5,6 GHz: 5/10/20/40 MHz 3 GHz: 3.5/5/7/10/14/15/20/28/30/40 MHz			
TDD Sync	Via external synchronization hub			
Ethernet	1x Gigabit Ethernet			
Distance	25-30 km (max 35 km)	25-35 km (max 40 km)	40-50 km (max 60 km)	90+ km

InfiLINK 2x2 LITE Product Portfolio

Models	Smn				Lmn
3 ГГц		19 dBi | 23 dBm	22 dBi | 23 dBm		2x N-type | 23 dBm
5 ГГц	19 dBi | 25 dBm	23 dBi | 25/27 dBm	26 dBi | 25/27 dBm	28 dBi | 25/27 dBm	2x N-type | 25/27 dBm
6 ГГц	19 dBi | 23 dBm	24 dBi | 23 dBm		27 dBi | 23 dBm	2x N-type | 23 dBm
Capacity	8/20/50/180 Mbps, net (8/20/50/300 Mbps bitrate) – license upgradeable Model with antenna gain 26,27,28 dBi – up to 180 Mbps				
Ethernet	1x Fast Ethernet	2x Fast Ethernet, PoE-out			
Distance	10-12 km	15-25 km (max 30 km)	25-30 km (max 40 km)	40-50 km (max 60 km)	75+ km

Point-to-Multipoint Wireless Solution

1 BS sector coverage: up to **40 km**

2 Sector Capacity: up to **250 Mbps**

3 Subscriber terminal capacity: in excess of **180 Mbps**

4 **TDD** synchronization and frequency reuse

5 **QoS** support

6 Sophisticated **L2/L3/L4 networking** functionality

7 **Interference mitigation** tools
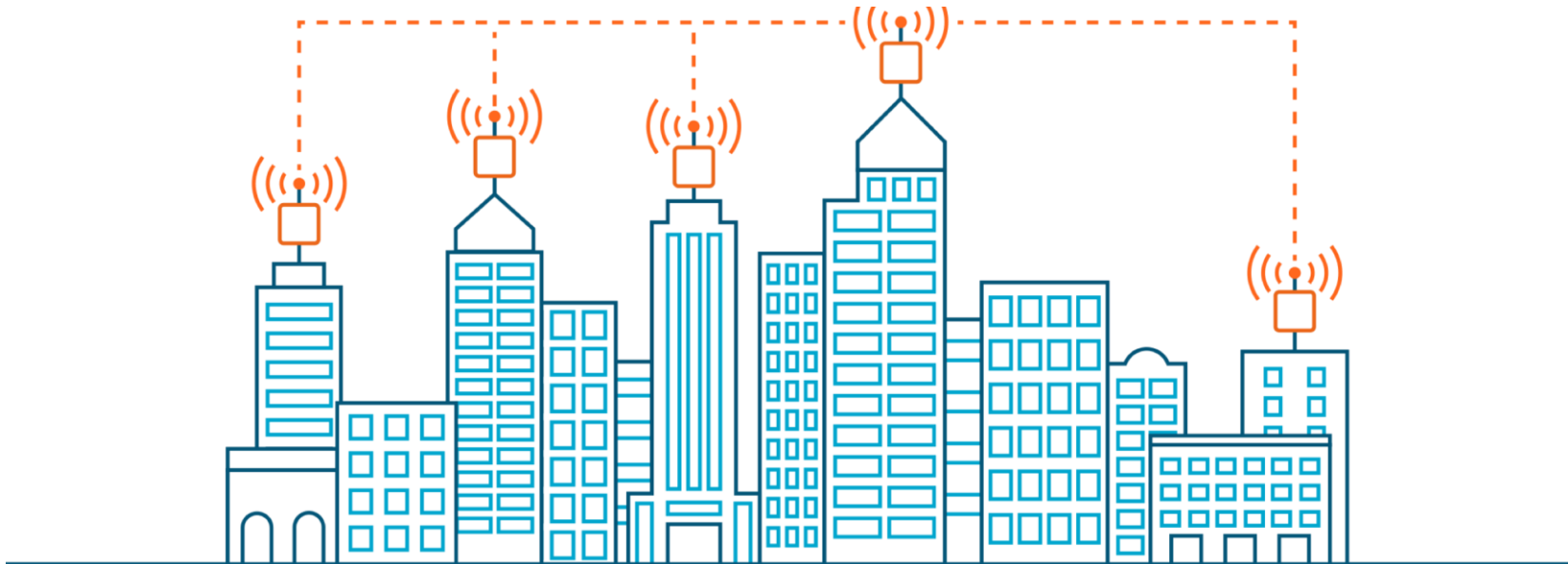
Base Station Sectors at a Glance

Product Family	Key Features	Key Features
InfiMAN 2x2 Qmxb	• Integrated 90 deg sector beamforming antenna • Sector throughput up to 250 Mbps • Gigabit Ethernet interface • TDD sync	• 5 GHz
InfiMAN 2x2 Mmxb	• Integrated 90 deg sector antenna • Sector throughput up to 250 Mbps • Gigabit Ethernet interface • Instant DFS • TDD sync	• 3 GHz • 5 GHz • 6 GHz
InfiMAN 2x2 Omxb	• External antenna • Sector throughput up to 250 Mbps • Gigabit Ethernet interface • Instant DFS • TDD sync	• 3 GHz • 5 GHz • 6 GHz
InfiMAN 2x2 Smnb	• Integrated 90 deg sector antenna • Sector throughput up to 150 Mbps • 2xFastEthernet, PoE out	• 5 GHz • 6 GHz

InfiMAN 2x2 Product Portfolio

Models	Base Station Sector				Subscriber Terminals							
	Qmxb	Mmxb	Omxb	Smnb	Smnc			Smn			Lmnc	Lmn
3 GHz		14 dBi, 90° 23 dBm	2x N-type 23 dBm			19 dBi 23 dBm	22 dBi 23 dBm				2x N-type 23 dBm	
5 GHz	21 dBi, 90° 25 dBm	16 dBi, 90° 27 dBm	2x N-type 27 dBm	16 dBi, 90° 27 dBm	19 dBi 25 dBm			23 dBi 25 dBm	26 dBi 25 dBm	28 dBi 25 dBm		2x N-type 25 dBm
6 GHz		16 dBi, 90° 23 dBm	2x N-type 23 dBm		19 dBi 23 dBm			24 dBi 23 dBm		27 dBi 23 dBm		2x N-type 23 dBm
Capacity	Up to 250 Mbps, net			Up to 150 Mbps, net	8/20/50/180 Mbps, net (8/20/50/300 Mbps bitrate) – license upgradeable. Models with antenna gain 26,27,28 dBi – up to 180 Mbps							
Instant DFS		Optional (only for 5 GHz)										
Ethernet	1x Gigabit Ethernet			2x Fast Ethernet (PoE-out)	1x Fast Ethernet	2x Fast Ethernet, PoE-out						
PtP					License upgrade			Ready			License upgrade	Ready

InfiMONITOR
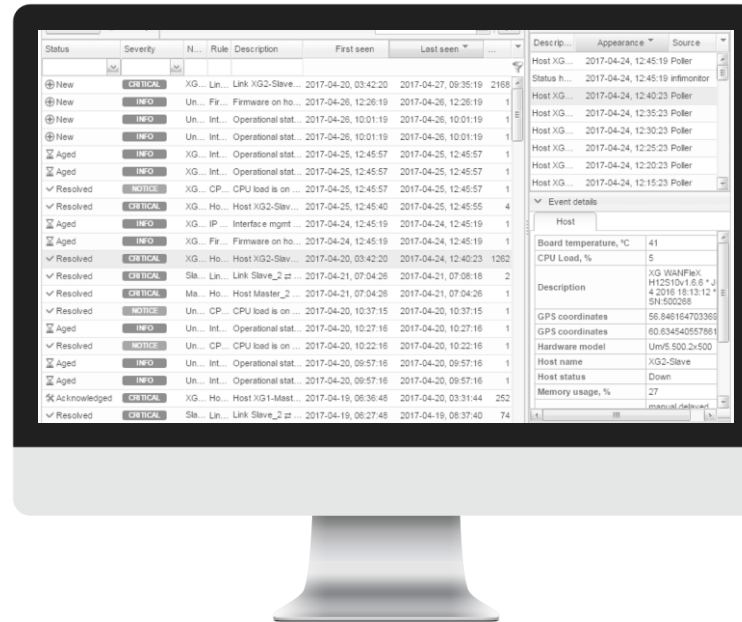
Key features

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
- Notifications for the responsible employees about events via email

Diagrams
- Diagrams 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	Network 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.

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 responsible employees 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
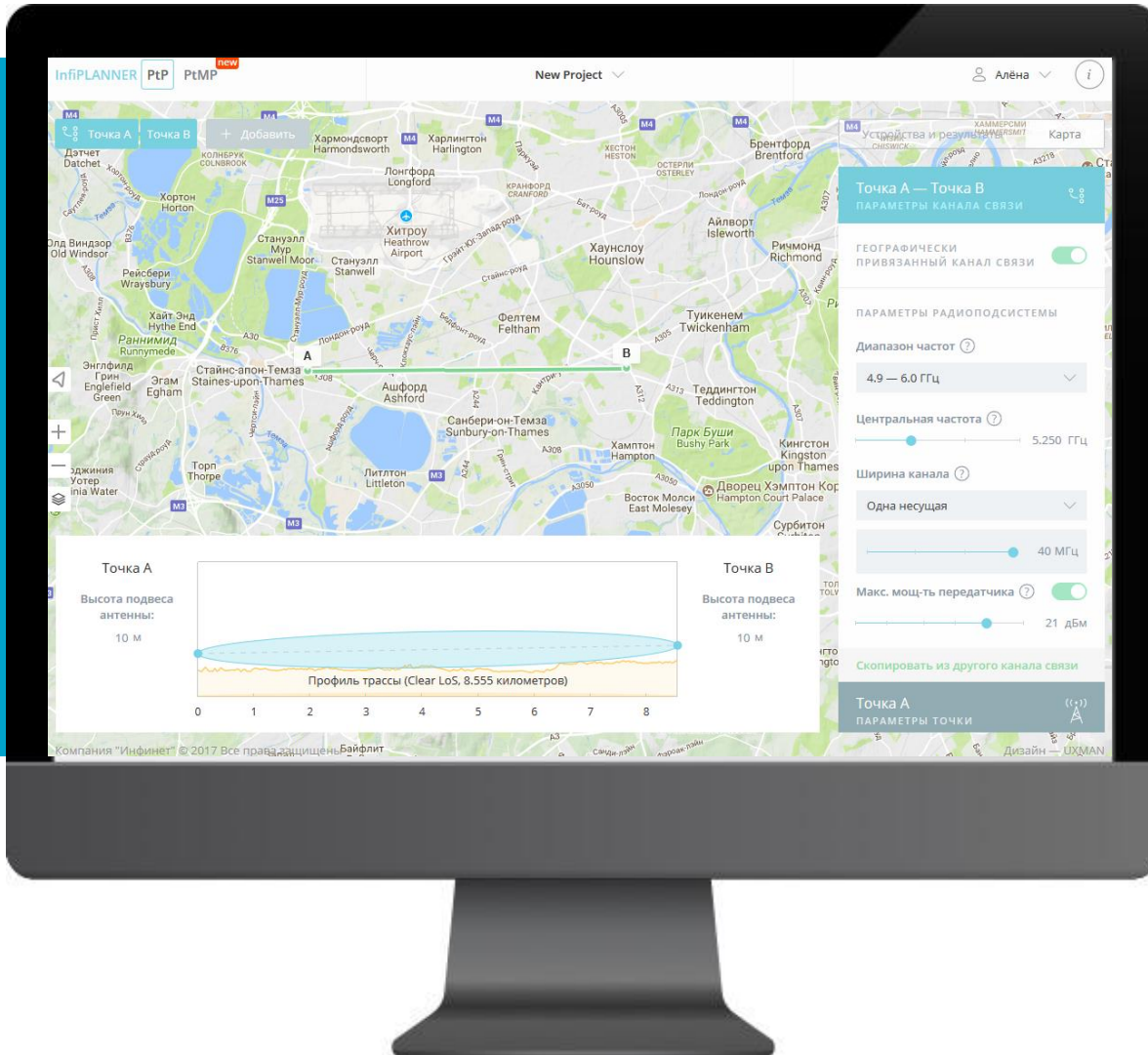
InfiPLANNER

«Point-to-Point»

InfiPLANNER
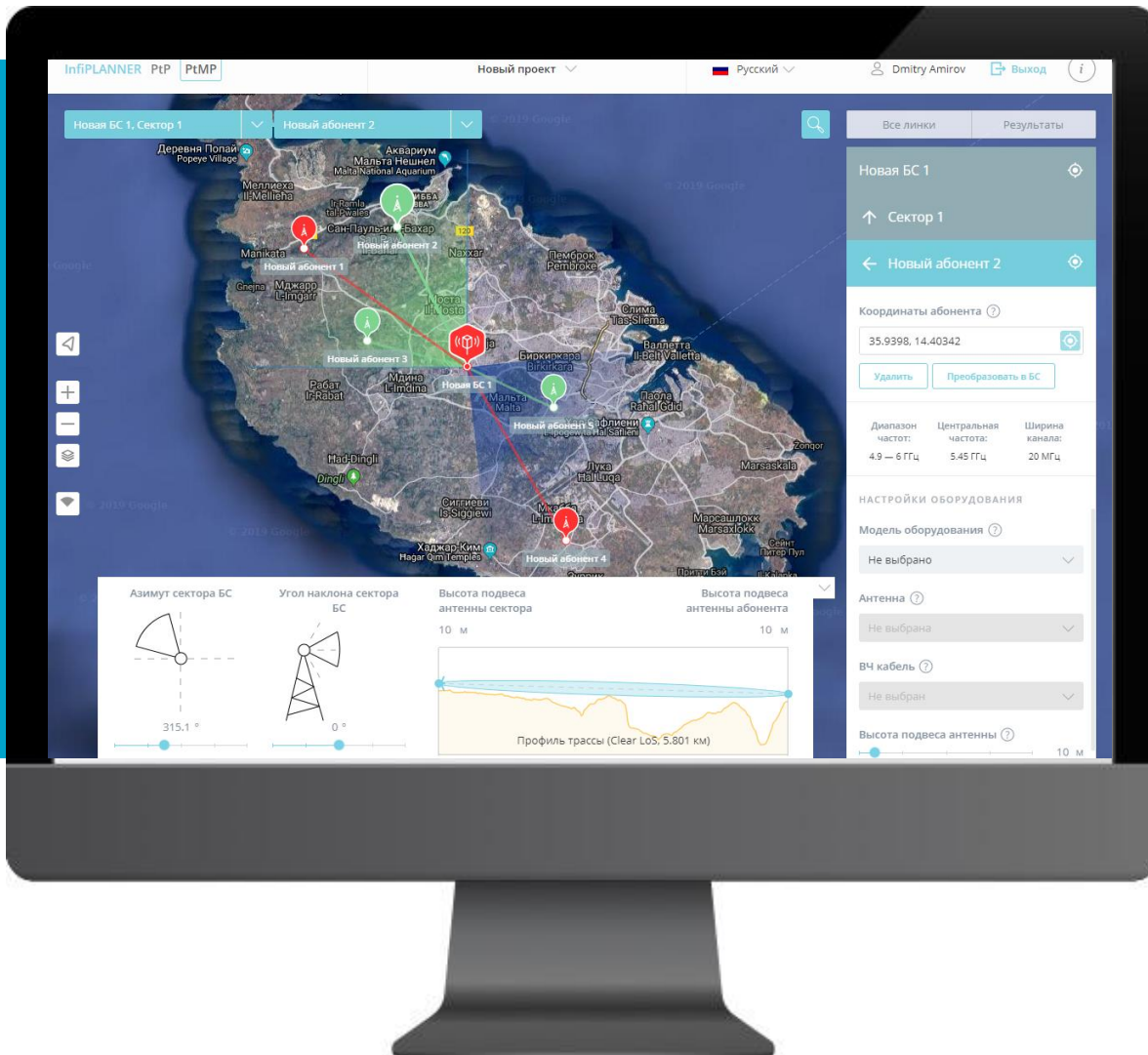
«Point-to-Multipoint»

Case Study

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MADA - № 1 WISP in Kuwait.

The company provides telecommunications services for government and business customers.

Requirements		Infinet solutions		Service types

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
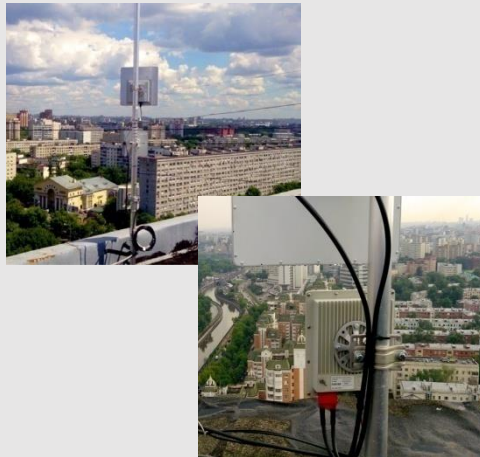
Service types

- 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

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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	Infinet solutions	Service types
• Video surveillance and data transfer (no less than 25 frames per second), database access.	• Internet access.	• InfiMAN 2x2 for last mile connectivity.
• Basic infrastructure upgrade.	• L2 VPN/Ethernet.	• BS sector R5000-Mmxbs with integrated sector antenna.
• High capacity.	• Wireless video surveillance.	• Subscriber terminals R5000-Smc and R5000-Smnc.
• Reliability of equipment and providing flexible QoS features.	• VPN connections. **Implemented more than 1300 Infinet units**	• InfiLINK 2x2 PRO for backhaul: R5000-Omxs and R5000-Mmxs.

Case Study

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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	Infinet solutions	Service types
• Obsolete infrastructure upgrade. • New solutions in 6 GHz frequency band.	• Internet access. • L2 VPN/Ethernet. • Data transfer rate 4 - 30 Mbps. **Implemented more than 12 000 Infinet units**	• Legacy-to-MIMO networks upgrade. • New Development in 6 GHz frequency band.

Case Study

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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.

МТС

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

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Beeline (VimpelCom)

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

Beeline ™
живи на яркой стороне

Requirements	Infinet solutions	Service types
• Cost-effective solutions. • Full network feature set.	• Internet access. • Fixed broadband wireless access. **800 base stations and 8 000 Infinet subscriber terminals.**	• The company has used Infinet solutions since 2011. • Solutions for femtocells for RZD.

Case Study

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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 | | Infinet solutions | | Service types |

Requirements

- Connection of remote subnets to main network.

- Minimum throughput – 200 Mbps.

- Visibility – 50% nLOS.

- Performance – 231 Mbps.
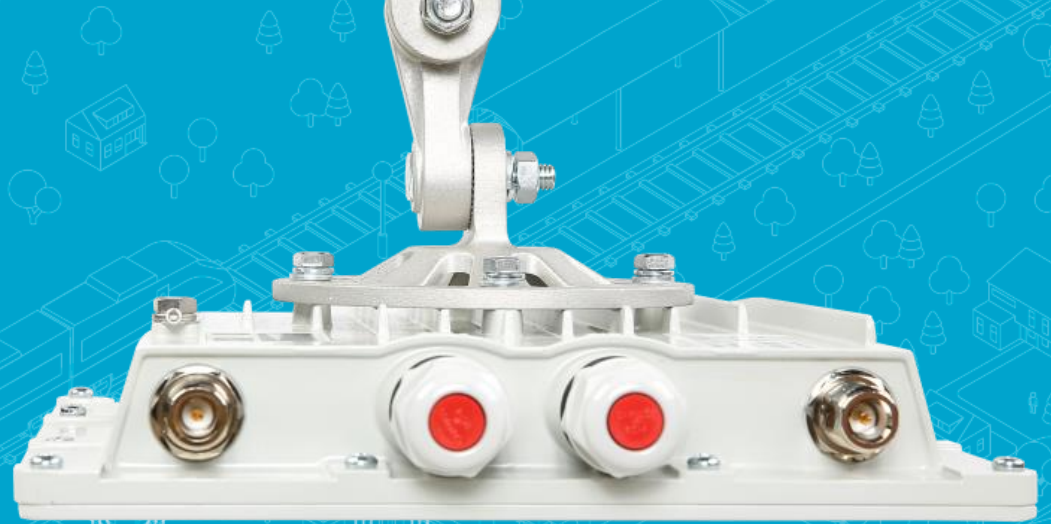
- Minimal latency.

Infinet solutions

- Internet access.

- L2 VPN/Ethernet.

Service types

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

Infinet's highlights

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The best quality 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

Thank you!

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