ASNET

A Complete Range of
Wi-Fi Solutions

Wi-Fi Solutions

Airspan

Connecting The World

Index

Introducing AS.NET

Product Summary

FlexNET Base Station Products

- FlexNET Link Products
  Flexible high performance OFDM radio link products for Point-to-Point and Link Repeater deployments
- FlexNET Hotzone Products
  Versatile radio base stations for dual band 2.4/5 GHz license exempt frequency based 802.11 a/b/g Wi-Fi Access Services

FlexNET Base Station Products

- ControlNET Server
  Server for L3 routed IP-network providing Wi-Fi Hotzone access services with IEEE 802.11 a/b/g radios
- RoamNET
  Unique IP mobility solution for connection handover and end user mobility between Wi-Fi base stations

ViaNET Base Station Products

- ViaNET Access Points
  Ruggedised 802.11 a/b/g access points for industrial and special applications
- ViaNET Mobile Terminals
  Ruggedised 802.11 b/g station Equipment for industrial and special applications

CrossNET Server

- CrossNET server
  CrossNET server for data traffic termination and centralised control of ViaNET AP and MT units

Introducing AS.NET

The AS.NET portfolio covers three product lines: link and backhaul applications, Wi-Fi Hotzones/municipal networks and specialist applications. FlexNET link products are targeted for point to point backhaul, both single and dual radio IP backhaul at 5.4/5.8GHz, as well as for extended link repeater deployments. FlexNET links can be conveniently used as backhaul network for Wi-Fi-Hotzones, or P-MP Broadband wireless.

FlexNET Wi-Fi Hotzone products include outdoor Wi-Fi (802.11a/b/g) base stations and advanced network level features. RoamNET has unique IP mobility solution for L3 seamless handover for standard Wi-Fi clients (PDA's, Laptops, Smart Phones etc.). The RoamNET mobility solution integrates base station sites into larger wireless network infrastructures. ViaNET products offer specialised applications for urban transit systems with requirements for uninterrupted data traffic.

In summary, Airspan's AS.NET products have competitive advantages in both link and access features with Wi-Fi compatible OFDM radios.

Global Wi-Fi Market Opportunity

WLAN have made a major breakthrough as a new pervasive wireless broadband technology. New application areas such as large scale, outdoor Wi-Fi networks and municipal networks have shown valid proof-of-concept. This technology area is also developing quickly and new applications are continuously being found. The New AS.NET product family represents the state of the art in professional Wi-Fi products for both outdoor and other demanding environments.

Very few technologies enjoy such globally harmonized and standardized market environment as IEEE 802.11 does today. Airspan Networks builds on this success of standard based technologies with the AS.NET Wi-Fi product family and related product solutions. Standardisation and interoperability of the large scale networks such as Wi-Fi Hotzones are key premises of competitive public access Wi-Fi services.

The Ultimate Wi-Fi Product Family

Product Summary

- FlexNET for link applications
- FlexNET base stations with ControlNET & RoamNET for Wi-Fi Hotzone applications
- ViaNET plus CrossNET for heavy industrial specialist applications

AS.NET products-Enabling Wi-Fi access in Metrozones and urban municipal networks

Concept: The AS.NET Wi-Fi Hotzone

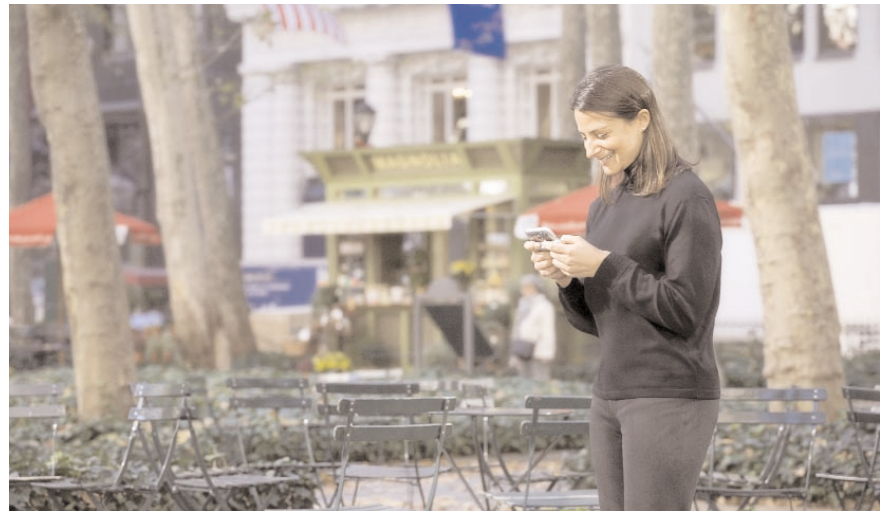
AS.NET products were developed to provide a complete product range for the deployment of large scale outdoor networks. Many product features complement each other at the system level. AS.NET products provide a consistent and unified system solution for large scale outdoor networks. AS.NET Wi-Fi Hotzone is a system solution for the building and deployment of large scale outdoor Wi-Fi network. Wi-Fi Hotzone is a public access capable wireless broadband network deployment.

Business Models and Public services

Multiple business models can be utilised within the same Wi-Fi Hotzone infrastructure. Part of the services are provided and managed by ISP operators and service providers for both enterprises and individual end users. Target customer groups for Wi-Fi Hotzone services can be quite versatile. In a smaller rural cities and villages, one single service provider can host all major services. In more dense and urban environments the value chain and Metrozone ecosystem can be divided between multiple service providers. Wireless broadband access and Wi-Fi Hotzone network coverage can also be created as a public service and community offering the people low cost access to the Internet and public administration services. City wide Wi-Fi Hotzones are today's key technologies fit for the implementation of the converging fixed/mobile Internet services.

Technology for practical use from day 1

Wi-Fi technologies have reached level of standardisation and maturity which are required for the carrier and operator business models. Deployment of the the large scale Wi-Fi networks effectively help to share and distribute new access network solutions to reach customers. Outdoor Wi-Fi networks with AS.NET products enable provisioning of alternative services and business models such as fixed wireless access, nomadic access and mobile Wi-Fi access. All these usage models are available at the same time, with the same infrastructure which prove wireless broadband networks similarly flexible and versatile for different services as wired broadband technologies.



Applications from basic access networks to urban area municipal networks

The launch of wireless broadband Internet services presents a major technological step for many regions and local operators, as well as for the end users. Versatile deployment models of Wi-Fi Hotzone technologies show the maturity of the technology. Maturity is the key to the wide scale adoption and use of new technologies. Applications for a given Wi-Fi Hotzone depend on the market and target customers. Wi-Fi Hotzones can support all major service categories ranging from Internet access service provisioning, IP telephony, multimedia applications and interactive gaming. In less developed regions and areas large scale Wi-Fi networks can provide support for local telephony when end users can access network with their Wi-Fi phones. In more developed environments Wi-Fi Hotzone services can be developed to meet such demanding applications as backhaul to other access networks, or support for mobility and roaming services. To put it simply, municipal networks and large scale outdoor.

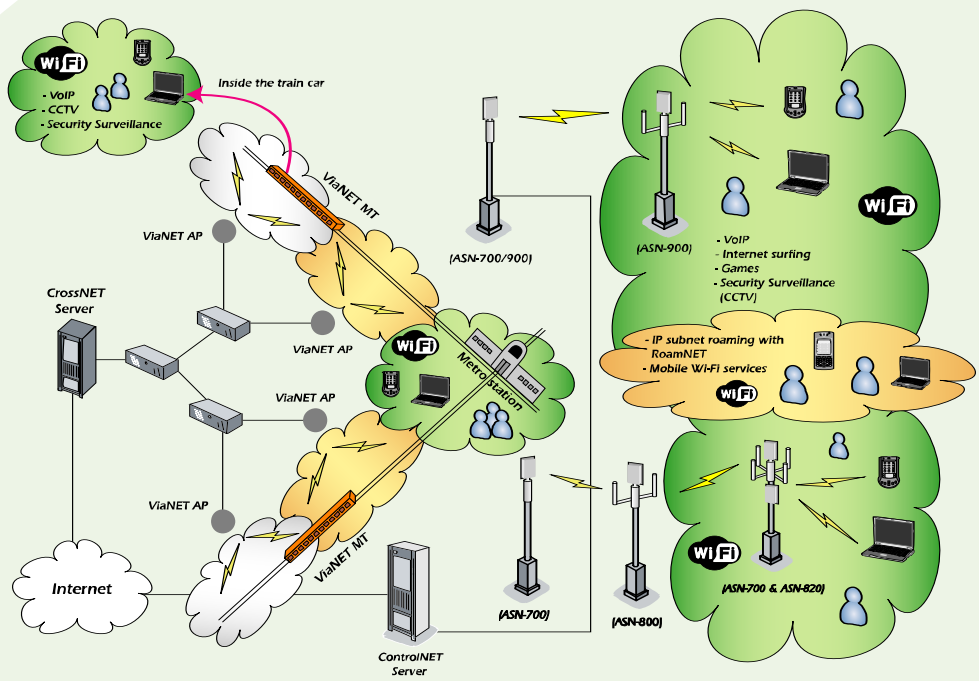
Benefits to end users- increasing motivation for operators and carrier customers

End users continue to find more devices and applications which support Wi-Fi. This means that increasingly people find more uses for Wi-Fi technology and this makes related network equipment attractive for operators and service providers. Wi-Fi equipment markets are now driven by major customer groups such as households, enterprises and increasingly by individuals. AS.NET products are primarily targeted for professional users like network operators and infrastructure owners, their markets are driven by the demand coming from the end customers.

Enabling modular and stepwise deployment models for Wi-Fi Hotzones with AS.NET products

Every new operator has to start their deployment from some application. With the AS.NET product family, the first application might be a wireless link deployment, or a small size Wi-Fi Hotspot or Hotzone. For some industrial and vertical customer groups the first application might be a new type of wireless broadband enabled radio data link connection system for moving vehicles. All these application areas have similar technology base, AS.NET Wi-Fi products are standardised and can be easily used as parts of existing network systems with Ethernet and IP (Internet Protocol) interfaces. In the long term network deployments and usage models change and evolve, so network equipment needs to be scalable and flexible.

AS.NET System Architecture



A World of Fixed, Nomadic and Portable applications

Main Features

- High throughput: over 25 Mbps data rate.
- point to point link applications up to 26 km with an integrated antenna
- Very flexible network capability
- Competitive pricing
- Advanced security: AES (Advanced Encryption Standard) encryption.
- Reliable, highly robust and ruggedised solution: FlexNET supports temperature range of -40 to +55°C and is IP65 rated to ensure efficient operation even in harsh environments.
- Support for industry-standard carrier-grade topologies: FlexNET provides IP routing and OSPFv2 options to support different topologies. It also supports load balancing and redundancy.
- Support for Dynamic Frequency Selection (DFS) and Transmit Power Control (TPC).

FlexNET Link Products

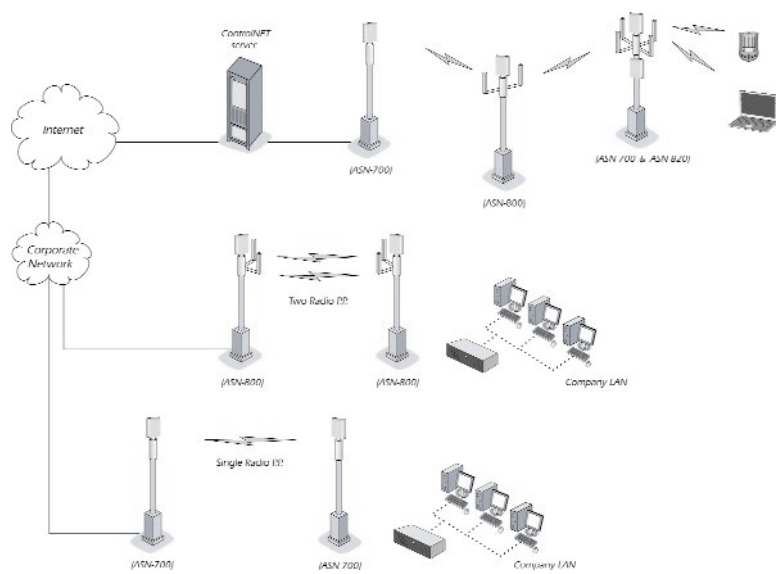
FlexNET link products the (ASN-700 and ASN-800) are designed for wireless point-to-point and repeater applications. The main purpose of the link products is to provide a secure and high capacity transmission for backhaul and transit connections. The FlexNET link products are highly integrated outdoor base stations. The products complete and no separate accessories like outdoor chassis, heater etc. are needed for an installation.

The FlexNET link products operate over long distances and deliver up to 25/30 Mbps (TCP/UDP traffic) of real effective data throughput. The FlexNET ASN-700 and ASN-800 link products are based on very sensitive radio parts that make long-range links possible with WLAN technology. Radio configuration parameters also allow technical adjustments for optimising transceiver performance for varying link connection distances. Both products support the AES (Advanced encryption standard) encryption algorithm that is the most secure data security algorithm available today.

The FlexNET link products are available with both integrated and external antennas. FlexNET single radio versions (ASN-700) include an integrated high gain antenna. FlexNET two radio version (ASN-800) does not have an integrated antenna; it is used with external, flexibly scalable antenna solutions. FlexNET link products offer very low latency radio link connection, where one direction delay between units is typically only 2-3 ms.

FlexNET link products offer versatile features for different deployment models. Link products can be configured to operate either in a routed or bridged mode. Wireless bridging mode is very important application area for these products. Routed link mode is supported in either static routing mode, or dynamic routing mode based on OSPFv2 routing protocol. OSPF (Open shortest path first) is widely used routing protocol, which allows links to be deployed to support redundant back routes, load balancing, multiple paths to end connections and automatic re-configuration in case of malfunctioning link unit with back-up route.

The FlexNET link products are based on industrial grade electronics components that offer better reliability, higher MTBF and longer equipment lifetime.



FlexNET Link Operation

In terms of performance, the FlexNET products are based on an OFDM radio that supports up to 64QAM adaptive modulation and 52 data subcarriers. FlexNET link products function on license-exempt frequency bands. Utilisation of license free frequencies enables quick and flexible deployments of wireless broadband networks. Link or backhaul connections are typically implemented using Line-Of-Sight (LOS) conditions, but NLOS is also acceptable in certain cases.

The FlexNET link products operate on unlicensed frequency bands, 5.470-5.725 and 5.725-5.850 GHz frequencies, using OFDM radios based on adaptive modulation scheme. The link products work based on dynamic fall back rates. This supports maximal data rate and throughput even in varying conditions where some interference may exist.

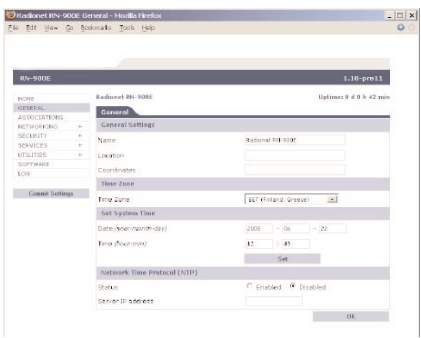
FlexNET products are fully outdoor proof and can be installed directly to the desired location. The units support temperature range of -40 to +55°C and are IP65 rated to ensure efficient operation even in harsh environments. The product is powered up by an external power supply unit, which can also be installed outdoors. The link units can be connected to the existing network infrastructure by Ethernet cabling.

The key strength of the FlexNET point-to-point link product (ASN-700) is that the radio and antenna components are integrated into the same hardware. This kind of design has superior sensitivity that leads to better range and capacity features in network deployments combined with easy installation. The link antenna is a narrow beam panel antenna that has high gain (20 dBi), making it an ideal solution for point-to-point connections. The link antenna has also extremely low side lobe level that supports accurate and scalable network topologies with link deployments.

The FlexNET link repeater (ASN-800) has two radios for more versatile link connections, supporting both point-to-point and repeater type deployments. These two radios can be used on 5 GHz frequencies with external antennas. The radio units can be configured independently. The key feature of the FlexNET link repeater is the support for scalability needs in wireless networks, where range and capacity improvements are needed. This product offers 2 x 54 Mbps capacity that can be configured for different types of repeater deployments. The FlexNET link repeater has also 2 Ethernet connections for network and capacity expansions. Main application for FlexNET link repeater is to enable building and deployment of extended link connections which allow combination of two point-to-point connections for longer range distances.

The FlexNET link repeater can also be used in areas where non-line-of-sight obstacle can be avoided by building a link connection which avoids the obstacle and round the link connection in more free space environment.

The FlexNET link products are configured via an easy-to-use web based user interface.



FlexNET GUI

External Antennas

Applications Summary

Backhaul to broadband access networks

- Wireless bridging
- High data rates, long distances

Wi-Fi Hotzone backhauls

- Wi-Fi Hotzones and large scale municipal Wi-Fi networks

Leased line replacement

- Avoid expensive leased line costs
- Backhaul for enterprise class wireless broadband access services

Wireless data backhaul solutions

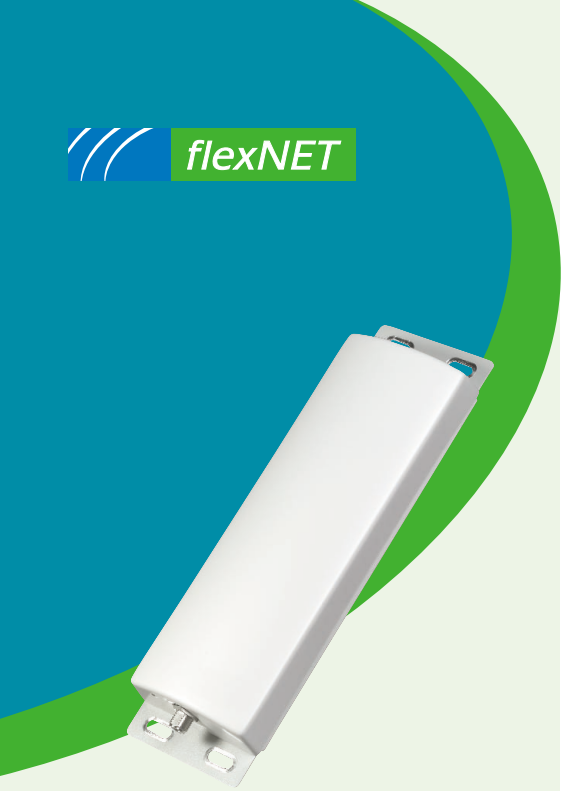
- No wired line alternative (remote or difficult to reach areas)
- Proven, outdoor design

Enterprise network and LAN extension deployments

- Enterprises (linking up own facilities)
- Industrial networks
- Indoor and outdoor coverage
- Redundancy, back-up connections

Quick deployment

- No license (cannot use 3.5GHz or other licensed bands)
- Network frequently changing, expanding (need to deploy quickly)
- Out of the box, quickly deployable solution



The Complete Wi-Fi Hotzone Solution

Main Features

- Wi-Fi Hotzone combined with WiMAX backhaul to support a combination of Wi-Fi and WiMAX Hotzones
- Network Management (ControlNET) and Roaming (RoamNET) system
- Combined Access and Link capability in single product making the initial deployment of Hotzone very cost effective while providing good coverage
- Scalable system as subscriber base grows: Software reconfigurable to dual radio access as subscriber base grows
- Ability to offer 2.4 and/or 5GHz access: Software configurable, dual radio's supporting IEEE 802.11a/b/g
- Unique, patented RoamNET mobility protocol to enable handover functions for L3 routing networks, no need for client software and scales Wi-Fi cells (hotspots) to large scale Hotzones
- ControlNET Network Management System provides:
  - Authentication via MAC address
  - Visitor & guest access control
  - IP address based service classification per user
  - Bandwidth Management on a per user basis
  - Optional High availability version (stand-by Redundancy)

FlexNET Hotzone Products

FlexNET Hotzone products (ASN-820 and ASN-900) provide last mile Wi-Fi connections to customers. These IEEE 802.11a/b/g-standard based Wi-Fi products offer several features that support deployment of wireless broadband access services. Wi-Fi compliant access services can be built with FlexNET ASN-820 and ASN-900 Hotzone products. Wireless broadband services with these products can also be deployed in enterprise and industrial networks. FlexNET Hotzone products include base stations, high-gain antennas, robust power supply and advanced network management features. End-users connect to the ASN-820 and ASN-900 base stations with standard Wi-Fi products such as PDAs, laptops and Wi-Fi client terminals including a radio unit, which comprises low cost customer premise equipment solution enabling wireless access. All FlexNET Hotzone products are designed for outdoor use.

Both products have two radio units, which can be configured independently. While the ASN-820 is used with external antennas the ASN-900 also includes an integrated narrow beam antenna for possible link connections. The ASN-900 can also be used without the integrated antenna and use both radios to provide client access. Typical installation scenario for the ASN-820 and ASN-900 is a Wi-Fi Hotzone network, which is built into sectored radio cells. Breadth of the sectors depends on the antennas used.

Backhaul of Hotzone nodes can also be be provided using an integrated AS.MAX WiMAX CPE. This can supplement FlexNET backhaul, or allow both radios to be used for Hotzone Access.

Main features of the ASN-820 and ASN-900 support network level functionalities, where standard IP protocols and IEEE 802.11a/b/g compliant radios are used. These network level features are based on deployment with the ControlNET server, which supports DHCP server and relay, centralised user management, connection handovers between subnets and bandwidth management. DHCP server and bandwidth management features support professional ISP (Internet service provider) features that can be offered with FlexNET Hotzone products. These products have been developed based on experience from several large-scale network deployments and WISP (Wireless ISP) service operating experience. Major advantage of this kind of standard-based network is that there are no requirements for proprietary software programs or vendor specific security solutions. Enterprises and operators using the ASN-820 and ASN-900 products can customise their access network services with different kinds of standardised network applications like WLAN roaming, IP based VPN, instant access etc.

While the ASN-820 is a pure Hotzone product, the ASN-900 can be used as a Hotzone and link product simultaneously. As mentioned, both radios of the ASN-900 can also be configured for client access purposes. It provides versatile possibilities for different installations. Link features of this product are typically used in point-to-point installations where two radios are connected between them to form a wireless bridge type connection. Access features of these products are used in last mile installations, where end-users can connect to the Internet using Wi-Fi Hotzone services carried out with the FlexNET Hotzone products.

FlexNET Hotzone Operation

The FlexNET ASN-820 and ASN-900 enable the use of IEEE 802.11a/b/g radios in large-scale Wi-Fi Hotzone networks, which rely on highly integrated product design. The ASN-820 and ASN-900 products include two independently configurable IEEE 802.11a/b/g radios, 2 WAN interfaces (10/100 Ethernet), 2 N connectors for external antennas and a connector for power supply with an option for RS-485 remote connection. WiMAX backhaul can also be optionally included.

The ASN-900 Wi-Fi Hotzone/link router provides a unique combination of features that have so far been available in dedicated link or access point products only. The ASN-900 comes with an integrated 20 dBi narrow beam panel antenna which is designed to be used in point-to-point connections. Other link features include robust data encryption solutions where AES (advanced encryption standard) is used to protect the link connections, and advanced tunnelling solution which enables two ASN-700/900 products to be used in wireless bridge configuration. The AES encryption protects data traffic against eavesdropping, which is particularly critical in transit and point-to-point connections where data traffic from different sources are aggregated into backhaul traffic.

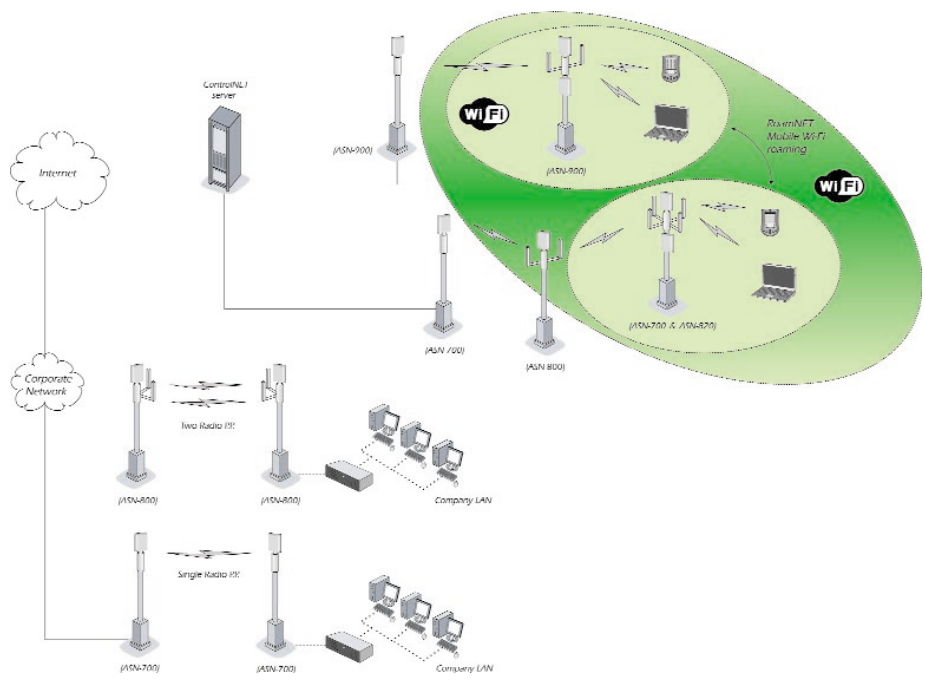
The Product chassis includes electronics and radio components for two IEEE 802.11a/b/g radios and upto one WiMAX backhaul radio. The FlexNET Hotzone products support IP routing that makes the products wireless outdoor routers. Combination of two IEEE 802.11a/b/g radios with a Hotzone router makes it possible to use both radio channels and IP addresses in the network plan and deployment. Each radio module takes care of one sector; therefore typical problems like hidden node can be avoided in the Wi-Fi Hotzone network. Versatile installation possibilities and WEB-user interface give operators flexible configuration possibilities to deploy the FlexNET Hotzone products.

An additional unique advantage of the FlexNET products is that they are designed for outdoor deployment. No special separate equipment like outdoor chassis, warmer etc. is needed for installation. Outdoor proof product saves time and money in sourcing and installations. All necessary tests and certifications for outdoor use have been done. Integrated product design also minimises radio interferences between Wi-Fi transceivers. Sufficient isolation between transceivers should be taken in account in multiple radio systems. This allows the use of smaller frequency difference, which increases the spectrum efficiency

FlexNET Hotzone features:

• Wi-Fi compliant access point with DHCP server and relay support enables granting of dynamic IP addresses for users
•Two Ethernet 10/100 Interfaces can be used to connect other FlexNET-products together, making stepwise and modular base station site deployment possible
•Bandwidth management offers flexible subscription speeds for differentiated services
• Airspan Networks RoamNET protocol supports connection handovers between subnets making uninterruptible connections possible in large scale network, RoamNET mobility management protocol is used with ControlNET server for Wi-Fi Hotzones.

Citywide Wi-Fi Hotzone networks can be built with average 200-500 m long cell ranges. Longer distances and higher signal to noise ratios are achieved with directional antennas and careful network planning. The FlexNET ASN-820 and ASN-900 products have been developed for extended, large-scale sectored Wi-Fi Hotzone networks.



viaNET

Heavy Duty Industrial Solution

Main Features

- Enable time critical applications inside vehicle while moving
- Create new class of security and surveillance systems for urban transit systems
- Zero-Delay application data stream throughput
- Highly reliable, fault tolerant hand-over
- Very rugged system (client & infrastructure), IP 66
- High data throughput, several Mbps
- L2 Bridged network architecture

ViaNET Specialist Applications Products

ViaNET heavy industry WLAN products provide a unique, specialised system with no known direct competition. This system enables high data rate radio link connection capacity and uninterruptible packet data stream from moving vehicles to network infrastructure. Communication links are created and maintained between moving vehicles such as trains, metro cars and trucks. All these vehicles share the need to be connected to wireless communication services such as data transfers of data, audio and video in real time. The ViaNET system is installed and deployed in dedicated network areas. ViaNET Access Points (AP) provide radio coverage for the Mobile Terminals (MT). The Access Points communicate with Mobile Terminals over an IEEE 802.11 b/g radio link. As the Mobile Terminals installed in vehicles or machines move throughout the network shifting from the coverage area of one Access Point to another, the connections from the Mobile Terminal roam between the Access Points. At application layer, users can experience an uninterrupted media stream e.g. video camera application. From application perspective the ViaNET system provides a zero delay handover time, which is created with the system solution.

Software and network design

ViaNET Mobile Terminals and Access Points are based on HW and SW supporting advanced 802.11 OFDM radios. Products have been designed to support zero delay handover enabling uninterrupted application data stream from/to the vehicles. ViaNET network design is based on a bridged network solution, where the wireless communication solution is a transparent part of the network. For example, end users only need to configure their camera and voice applications and its signal use to meet their needs, while the data transfer is provided with a wireless solution. The ViaNET system has been tested with different customers running CCTV (closed circuit television) and remote control applications on top of the ViaNET system.

Deployed with external antennas

ViaNET AP and MT radio units are used with external antennas. This is because of the need to support versatile installation and deployment requirements. Heavy-duty industrial antennas are available in Access Point and Mobile Terminal versions.

Network overview: ViaNET system

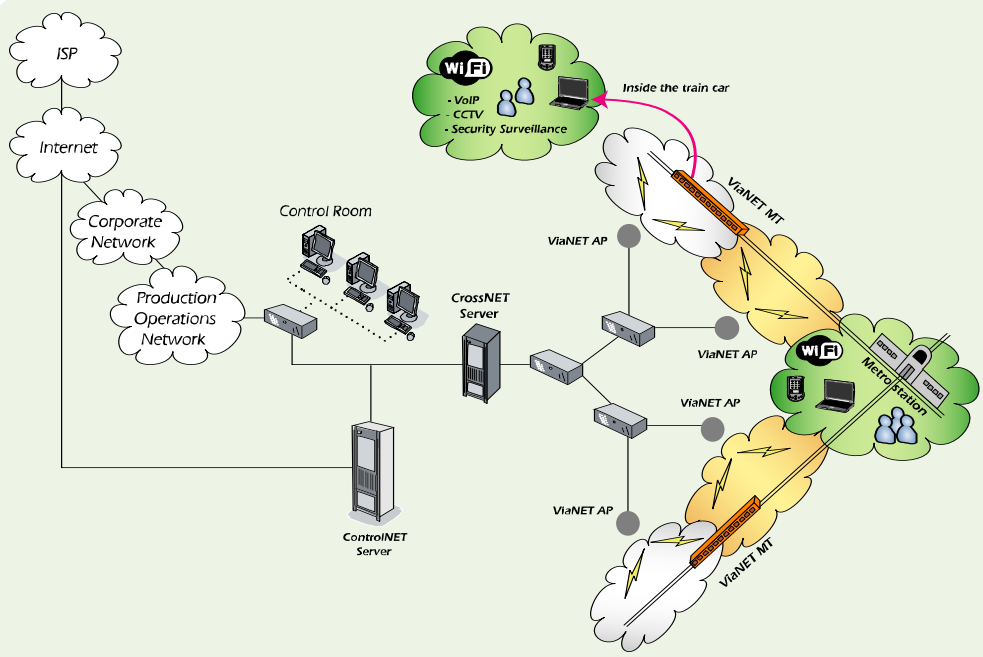
The ViaNET system is based on three different products and related accessories: ViaNET Access Point, ViaNET Mobile Terminal and CrossNET server.

The ViaNET system offers several important new networking features. It is practical to view the system as a normal Ethernet based LAN solution, which is built with wireless radio products. End users only need to know about the application level parts like the camera or phone in a moving vehicle. From application level the network is like any other LAN (Local Area Network). Users just need to define the network addresses of the equipment they are using in the LAN.

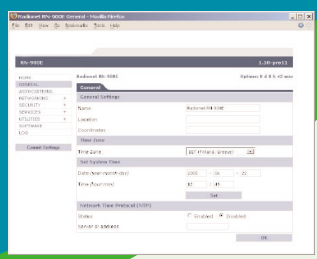
CrossNET server is a centralised management and network configuration point. The CrossNET server is also a terminating point which provides an interface between the ViaNET network and an external network. Data traffic from the ViaNET Mobile Terminals is terminated at the CrossNET, wherefrom data packets are forwarded to their destination address. Data traffic is bridged between the Mobile Terminals and CrossNET server. Key settings in the network configuration are done with the CrossNET server and Mobile Terminals. Mobile Terminal configuration covers separate roles of both radios and their settings. Access Points forward data packets between the CrossNET server and ViaNET Mobile Terminals.

The ViaNET radio units include versatile radio configuration parameters required for the adjustment and tuning of the radio link connection. The ViaNET Mobile Terminals have four external antenna connectors. These are used to support antenna diversity with two 802.11 radios. Both radios of a ViaNET MT have two antenna ports. As the system support two-antenna solution, the better signal from either antenna port 1 or 2 is then used. Antenna diversity is designed completely into this specific solution. This is an important feature, as the radio coverage and signal propagation characteristics are dynamic and varying in mobile applications. Many indoor access points support only one low gain omni antennas which offer only limited range and coverage. Better signal quality and longer range connections are supported with ViaNET's advanced radio system design. Use of IEEE 802.11g (OFDM) transceivers performs very well in an environment where the signal path changes dynamically. Mobile radio link environment creates scattering and diffractions in the wireless signals, which require the radio solution to be tolerant for multi path fading and complex radio wave propagation environment. The OFDM radios used in ViaNET units have characteristically good tolerance for these potential sources of signal strength reduction and interference.

Operation



controlNET



Centralised Network Management for Hotzones

Main Features

- DHCP services
- Authentication services
- Handover function for L3 services
- Bandwidth management in the base station on a per user basis
- Capability to assign IP address ranges, public or private and static or dynamic, on a per user basis
- Support for MAC address recognition, e.g. unknown users can be given IP addresses from a different IP range so they can be routed to a 3rd party authentication server.
- Guest access services
- Web based graphical user interface

ControlNET Server

Airspan's ControlNET server is an essential component in building large-scale AS.NET wireless networks. It features centralised management for base stations, users of the network and mobility. The main functions of the ControlNET server are subscriber management, bandwidth management and mobility support (RoamNET protocol) for end user wireless devices within the coverage area. In addition, the ControlNET can also be used by operators of large-scale wired/wireless networks to manage all subscribers on the network, both wired and wireless. The ControlNET server is available in two versions – stand alone ControlNET and high availability ControlNET version.

As a whole, ControlNET is a server platform that can be customised to support new features and services. Currently several operators of citywide networks deploy the ControlNET server as a centralised user and service management tool in their networks. Wi-Fi access for wireless networks, xDSL networks and WiMAX networks can be integrated in terms of user management and QoS (Quality of services) via the ControlNET server. In this way, different access networks can be conveniently integrated with the ControlNET supporting service provisioning and access control features. MAC addresses of different kinds of network cards and user access credentials can be used as access control information in a Wi-Fi Hotzone solution.

As mentioned, the ControlNET server is also available as a high availability version, in which a master node is secured with the use of a back up server, acting as a redundant hot stand by server. This high availability version of the ControlNET server provides protection against the network and hardware failure situations, which is demanded by many ISP's and enterprise networking applications with high availability requirements. With the high availability version of the ControlNET all user data and service provisioning related configurations set in the ControlNET are protected against failure situations.

Technical Data Sheet

		FlexNET Products		ViaNET Products
		FlexNET Link Products	**FlexNET Hotzone Products**	**ViaNET AP/AT**
	Physical Layer	OFDM	DSSS (802.11b)/OFDM (802.11a/g)	DSSS (802.11b)/OFDM (802.11a/g)
RF Interface	Frequency Bands	5.470-5.725 GHz (Europe), 5.725-5.850 GHz (UK & NA)	5.470-5.725 GHz (Europe), 5.725-5.850 GHz (UK & NA) and 2.400-2.485 GHz	2.400-2.485 GHz (MT/AP), 5.470-5.850 GHz (AP only))
	Channel Size	20MHz	20MHz (802.11a), 22MHz (802.11b/g)	20MHz (802.11a), 22MHz (802.11b/g)
	FFT	64	64	64
	Duplex Method	TDD	TDD	TDD
	Modulations Supported	64QAM, 16QAM, QPSK, BPSK	64QAM, 16QAM, QPSK, BPSK (802.11a/g); DBPSK, DQPSK, CCK (802.11b)	64QAM, 16QAM, QPSK, BPSK (802.11a/g); DBPSK, DQPSK, CCK (802.11b)
	Standards Compliance	IEEE 802.11a, IEEE 802.3	IEEE 802.11a/b/g, IEEE 802.3	IEEE 802.11a/b/g, IEEE 802.3
	Tx Power	16dBm or 26dBm	16dBm or 26dBm	16dBm or 26dBm
	Rx Sensitivity	-88 @ 5.8 GHz	-88 @ 5.8 GHz	-91 @ 2.4 GHz
	Integrated Antenna	Yes (ASN-700)	Yes (ASN-900)	N/A
	Antenna Connectors (N-Type)	2 (ASN-800)	2	4
	Radio Units	1 (ASN-700), 2 (ASN-800)	2	2
	Antenna Diversity	N/A	N/A	Yes
	Dynamic Frequency Selection (DFS) Support	Yes, N/A in North America	Yes, N/A in North America	N/A
	Transmit Power Control	Yes	Yes	Yes
	RTS Threshold Setting	Yes	Yes	Yes
	Fragmentation Threshold Setting	Yes	Yes	Yes
IP Options / Features	Bridging Mode	Yes	Yes (ASN-900 link mode)	Yes
	Static Routing	Yes	Yes	N/A
	Dynamic Routing OSPF v2	Yes	Yes (ASN-900 link mode)	N/A
	802.1Q VLAN	Passthrough	Passthrough	N/A
	MIR	Yes	Yes	N/A
	Multiple Virtual Bridges	N/A	Yes (ASN-900)	N/A
Encryption	WPA-PSK (AES, advanced encryption standard)	Yes	Yes (ASN-900 link mode)	Yes
	VPN Passthrough	Yes	Yes	N/A
	WEP	N/A	Yes (access mode)	Yes
	MAC address based authentication	Yes (ASN-700)	Yes (access mode)	N/A
Management Interfaces	Ethernet Web based (HTTP, HTTPS)	Yes	Yes	Yes
	Wireless (IEEE802.11 a/b/g) connection	Yes	Yes	Yes
	Encrypted (SSH2) command-line interface	Yes	Yes	Yes
	Multiple administrative classes	Yes	Yes	Yes
	Central Web based (HTTPS) via ControlNET/CrossNET server	Yes	Yes	Yes
	User ID/password authentication	Yes	Yes	Yes
	SNMP v2c, MIB II, Traps	Yes	Yes	Yes
	Remote Software and Settings Update	Yes	Yes	Yes
Network Interface	Network Interface	1-2 x Ethernet Interfaces 0 or 2 x Antenna connectors	2 x Ethernet Interfaces 2 x Antenna connectors	2 x Ethernet Interfaces 4 x Antenna connectors
Power	Voltage	12-30 VDC, Outdoor proof power supply included	12-30 VDC, Outdoor proof power supply included	12-30 VDC, Outdoor proof power supply included or customised power supplies
	Power Consumption	Max 33 W	Max 33 W	Max 33 W
Mechanical	Physical Dimension	258 x 426 x 131 mm	258 x 426 x 131 mm	190 x 344 x 79mm
	Weight	3kg	3kg	4kg

Glossary

Access Point	Any entity that has station functionality and provides access to the distribution services, via the wireless medium (WM) for associated stations.
Connection handover	End users connection to base station changes from one base station to another due to mobility or change in the wireless radio signal conditions. A handover between WLAN base stations is a horizontal handover between WLAN based subnets and access routers.
IEEE 802.11	An international standard family by IEEE for wireless local area networks.
IP-Access Server	A server and gateway device which provides an interconnection to Internet for end users with alternative IP-service and bandwidth configurations.
License exempt/Unlicensed frequency	Radio frequencies for generic use like industrial, scientific or medical (ISM) purposes which are not allocated to private use e.g. to operators.
Link repeater	Link repeater is multiple radio link product, which allows building and deployment of extended link connections as a combination of two point-to-point connections for longer range distances.
Metrozone	An overlay network built with several complementary network technologies such as 802.11 based Wi-Fi and 802.16 based WiMAX networks.
Mobile Terminal	Mobile Terminal is a ruggedised radio unit that is installed into vehicles as part of mobile radio link ViaNET solution.
OFDM radio	Orthogonal Frequency Division Multiplexing (OFDM) radio is a radio transmission technique with major advantages such as high spectrum efficiency and resistance for multipath interference.
Wi-Fi	An acronym of Wireless Fidelity, Wi-Fi alliance is related industry association for the standardisation of interoperability requirements for 802.11 based radio equipments.
Wi-Fi Access base station	A base station used for 802.11 access point services in Wi-Fi Hotzone networks.
Wi-Fi Hotzone	An extended area wireless broadband network such as a large scale outdoor Wi-Fi network or a municipal Wi-Fi network.
WLAN	Wireless local area networks
WiMAX	International association for Worldwide Interoperability for Microwave Access.

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