5G NR Cellular + Wi-Fi 6 AX 1800 Dual Band + 1-Port 1000X SFP VPN Security Router

Powerful 5G NR and Wi-Fi 6 Enterprise Network Solution

The innovation of the Internet has created tremendous worldwide opportunities for e-business and information sharing. It has become essential for businesses to focus more on network security issues. The demand for information security and wireless connetion has become the primary concern for the enterprises. To fulfill this demand, PLANET has launched the all-in-one VR-300FW-NR 5G NR Cellular + Wi-Fi 6 VPN Security Router. It is able to provide ultra-fast broadband access with 5G cellular network. The VR-300FW-NR also features five Ethernet ports (4 LANs and 1 LAN/WAN), one **Fiber** port (LAN/WAN), **IEEE 11ax Wi-Fi** capability, and VPN technology bundled in a compact yet rugged metal case. It establishes a fast cellular connection between the Ethernet equipped devices. The VR-300FW-NR is an integrated 5G NR and Wi-Fi 6 solution for System Integrators, ISPs and Enterprises.

The VR-300FW-NR also carries several main categories across your network security deployments: **Copper/fiber WAN interface, cybersecurity, SPI firewall security protection, policy auditing (content filtering, VPN tunnel and MAC/IP filtering), AP controller, captive portal, RADIUS** and **easy management (Setup Wizard, DHCP Server** and **Dashboard)**. Furthermore, its Dual-WAN Failover, Outbound Load Balance and High-Availability features can improve the network efficiency while the web-based interface provides friendly and consistent user experience.

Highlights

- Global 5G NR (NSA/SA)/4G LTE network with SIM design for cellular network redundancy
- Automatic failover between 5G NR and Gigabit WAN
- Complies with IEEE 802.11ax and IEEE 802.11a/b/g/n/ac standards
- Dual-WAN failover and dual-WAN load balancing
- One 1000BASE-X SFP slot for WAN interface
- SSL VPN and robust hybrid VPN (IPSec/PPTP/L2TP over IPSec)
- Stateful Packet Inspection (SPI) firewall and content filtering
- Blocks DoS/DDOS attack, port range forwarding
- • High Availability, AP Controller, Captive Portal and RADIUS
- IPv6, SNMP, PLANET DDNS and Universal Network Management System
- Planet NMS controller system and CloudViewer app supported

Hardware

- 1 1000BASE-X SFP slot
- 5 10/100/1000BASE-T RJ45 ports, 1 undefined Ethernet port (LAN/WAN) for dual-WAN function
- 1 x SIM card slot
- 1 USB port for system configuration backup and restoration
- Reset button and fanless design
- Desktop installation or rack mounting

Cellular Interface

- Supports multi-band connectivity with 5G NR (NSA/SA), LTE-FDD, LTE-TDD, and WCDMA
- Built-in SIM and broadband backup for network redundancy
- Four detachable antennas for 5G NR connection
- LED indicators for signal strength and connection status
- Global Navigation Satellite System (GNSS)

RF Interface Characteristics

- Features 2.4GHz (802.11b/g/n/ax) and 5GHz (802.11a/n/ac/ax) dual band for carrying high load traffic
- 2T2R MIMO technology for enhanced throughput and coverage
- Provides multiple adjustable transmit power control
- High speed up to 1.8Gbps (600Mbps for 2.4GHz or 1200Mbps for 5GHz) wireless data rate

Automatic Failover between 5G NR and Dual WAN

Designed with 5G NR, dual WAN interfaces (fiber and copper), 1000X SFP and Gigabyte Ethernet, the VR-300FW-NR ensures Internet connectivity by featuring failover functionality between 5G NR and dual WAN. It provides flexibilty to set priority for 5G NR or dual WAN connection. When the main WAN interface fails, the secondary WAN interface will automatically back up the connection to ensure always-on connectivity.

Automatic Failover

5G NR

Cable

Failover

Internet

5G NR Cellular Router
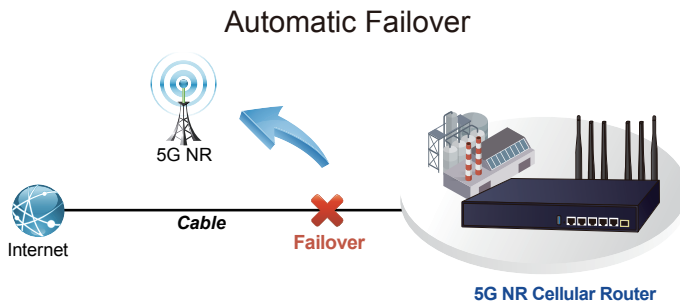
Ultra-Fast Speed 4G/5G Network*

The VR-300FW-NR supports 5G NR DL (downlink) speeds higher than 2.4 Gbps and 4G LTE DL speeds of up to 1 Gbps. The wide spectrum bandwidth accelerates internet speeds and reduces network latency for premium and time-sensitive connectivity services. It also supports multi-band connectivity including LTE FDD/TDD, WCDMA and GSM for a wide range of applications.

The real 5G NR/4G LTE data rate is dependent on local service provider.

Download speed up to **2.4 Gbps**

5G NR

10x faster than 4G LTE
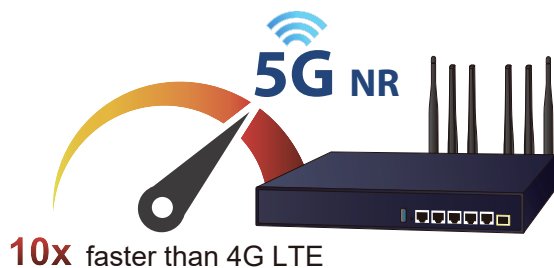
GPS Included

The VR-300FW-NR is equipped with (global positioning system) feature. It adapts 5G-NR technology to incorporate multiple global navigation systems (GPS/GLONASS/BeiDou/Galileo/QZSS). It helps to position location of cellular gateway based on a network of satellites that continuously transmits necessary data. More signals transmitted from more satellites can triangulate its location on the ground, meaning any location can be easily tracked.

GNSS Positioning

GPS Status

Attribute	Value
Latitude	24.982556
Longitude	121.537012
Horizontal	0.9
Altitude	74.1
Date	2021/08/17
Time	07:25:56
Satellite	4

Location:
(24.982556,121.537012)

Google Maps

IP Routing Feature

- Static Route
- Dynamic Route
- OSPF

Firewall Security

- Cybersecurity
- Stateful Packet Inspection (SPI) firewall
- Blocks DoS/DDoS attack
- Content Filtering
- MAC Filtering and IP Filtering
- NAT ALGs (Application Layer Gateway)
- Blocks SYN/ICMP Flooding

VPN Features

- IPSec/Remote Server (Net-to-Net, Host-to-Net), GRE, PPTP Server, L2TP Server, SSL Server/Client (Open VPN)
- Max. Connection Tunnel Entries: 60 VPN tunnels,
- Encryption methods: DES, 3DES, AES, AES-128/192/256
- Authentication methods: MD5, SHA-1, SHA-256, SHA-384, SHA-512

Networking

- Outbound load balancing
- Failover for dual-WAN
- High Availability
- Captive Portal
- RADIUS Server/Client
- Static IP/PPPoE/DHCP client for WAN
- DHCP server/NTP client for LAN
- Protocols: TCP/IP, UDP, ARP, IPv4, IPv6
- Port forwarding, QoS, DMZ, IGMP, UPnP, SNMPv1,v2c, v3
- MAC address clone
- DDNS: PLANET DDNS, Easy DDNS, DynDNS and No-IP

Others

- Setup wizard
- Dashboard for real-time system overview
- SFP-DDM (Digital Diagnostic Monitor)
- Supported access by HTTP or HTTPS
- Auto reboot
- PLANET NMS System and Smart Discovery Utility for deployment management
- PLANET CloudViewer app for real-time monitoring

Flexible WAN interface Enables Extension of Network Deployment

The VR-300FW-NR provides both copper and fiber connectors for WAN interface. With one SFP slot, it supports fiber extension for FTTX application. It allows the administrator to flexibly choose the suitable SFP transceiver according to the transmission distance required to extend the network efficiently. The distance can be extended from 550 meters to 2 kilometers (multi-mode fiber) and 10/20/30/40/50/60/70/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications to uplink to backbone switch and monitoring center in long distance.

Wireless 11ax Brings Excellent Data Link Speed

The VR-300FW-NR is designed with high power amplifier and 2 highly-sensitive antennas which provide stronger signal and excellent coverage even in the wide-ranging or bad environment. With adjustable transmit power option, the administrator can flexibly reduce or increase the output power for various environments, thus reducing interference to achieve maximum performance. Equipped with the next-generation Wi-Fi 6 (802.11ax) wireless network standard, the total bandwidth reaches **1800Mbps**, and the 2-stream transmission technology improves the transmission efficiency of multiple devices, making AR/VR/ IoT applications smoother. The IEEE 802.11ax also optimizes MU-MIMO (Multi-User MIMO) mechanism to serve multiple devices simultaneously.

Wi-Fi Deployments and Authentication with Simplified Management

The VR-300FW-NR provides a built-in AP Controller, Captive Portal, RADIUS and a DHCP server to facilitate small and medium businesses to deploy secure employee and guest access services without any additional server. The VR-300FW-NR can offer a secure Wi-Fi network with easy installation for your business.

Captive Portal

Centralized Remote Control of Managed APs*

The VR-300FW-NR provides centralized management of PLANET Smart AP series via a user-friendly Web GUI. It's easy to configure AP for the wireless SSID, radio band and security settings. With a four-step configuration process, different purposes of wireless profiles can be simultaneously delivered to multiple APs or AP groups to minimize deployment time, effort and cost.


Central wireless controller

3
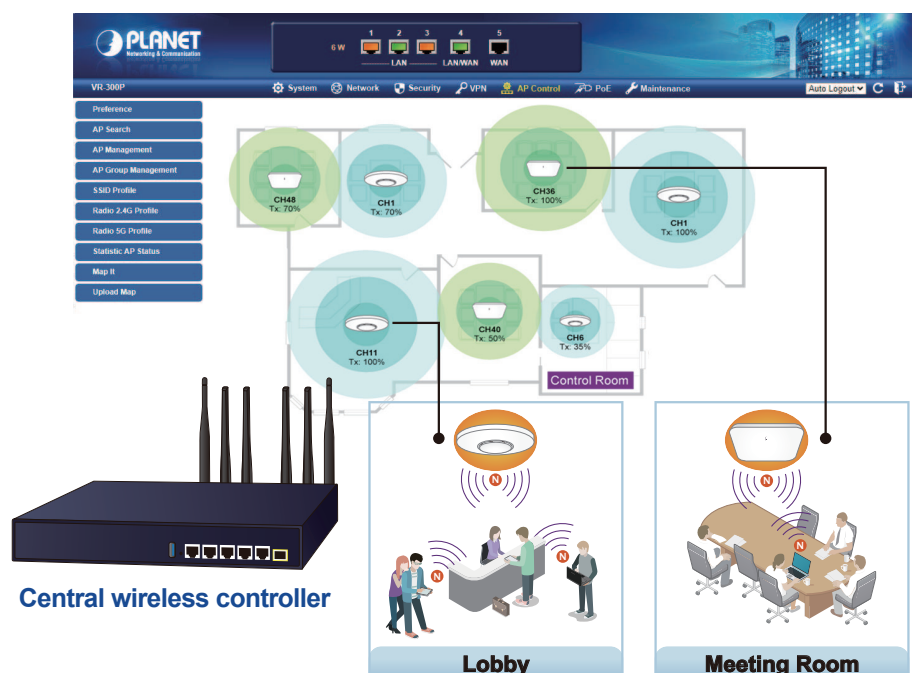
For example, to configure multiple Smart APs of the same model, the VR-300FW-NR allows clustering them to a managed group for unified management. According to requirements, wireless APs can be flexibly expanded or removed from a wireless AP group at any time. The AP cluster benefits bulk provision and bulk firmware upgrade through single entry point instead of having to configure settings in each of them separately.

Simplified Cluster Management with 4 Steps

| Step 1	Step 2	Step 3	Step 4
Search	Add Profile	Batch Provisioning	Map It
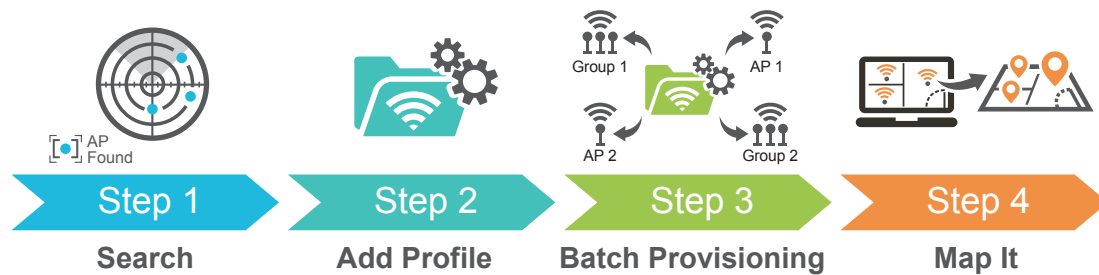
Ideal High-Availability VPN Security Router Solution for SMBs

The VR-300FW-NR provides complete data security and privacy for accessing and exchanging the most sensitive data, built-in IPSec VPN function with DES/3DES/AES encryption and MD5/SHA-1/SHA-256/SHA-384/SHA-512 authentication, and GRE, SSL, PPTP and L2TP server mechanism. The full VPN capability in the VR-300FW-NR makes the connection secure, more flexible, and more capable.
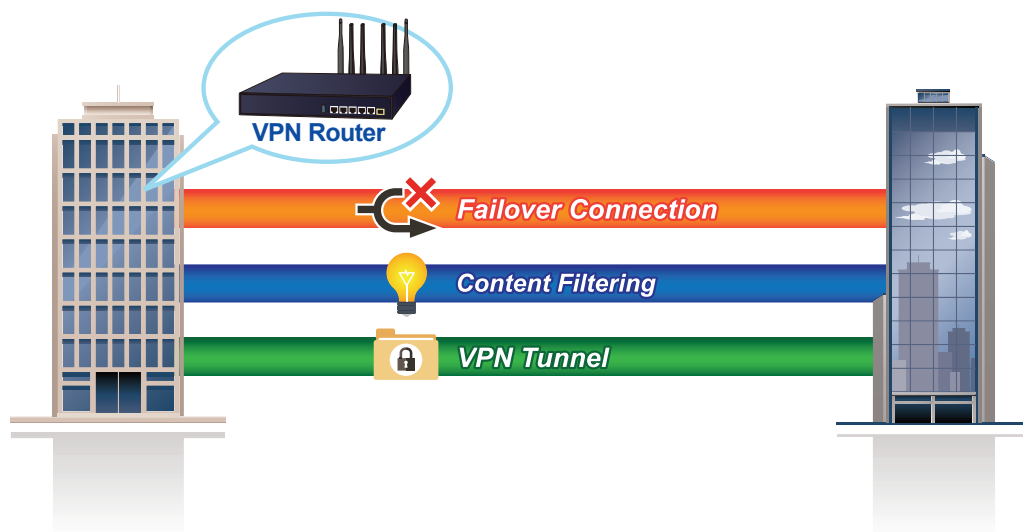
Excellent Ability in Threat Defense

The VR-300FW-NR with built-in SPI (stateful packet inspection) firewall and DoS/DDoS attack mitigation functions provides high efficiency and extensive protection for your network. Thus, virtual server and DMZ functions can let you set up servers in the Intranet and still provide services to the Internet users.
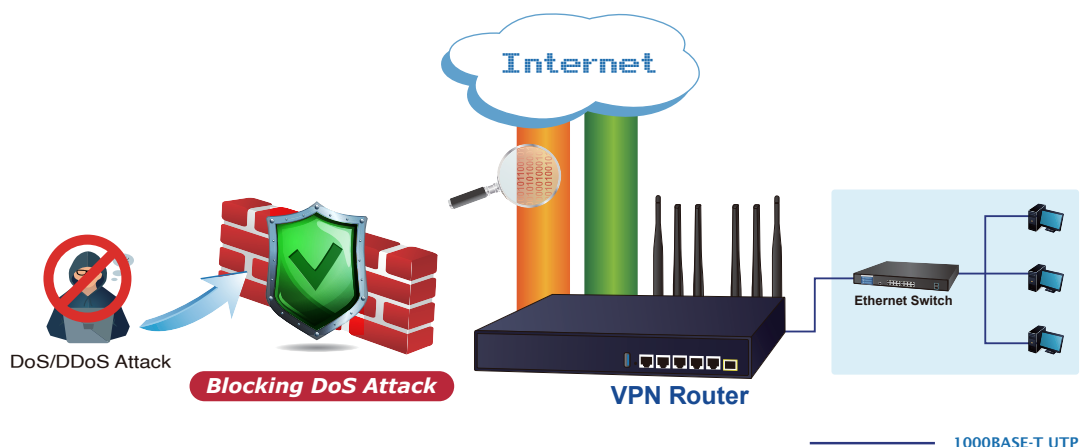
### Cybersecurity Network Solution to Minimize Security Risks

The cybersecurity feature included to protect the switch management in a mission-critical network virtually needs no effort and cost to install. For efficient management, the VR-300FW-NR is equipped with HTTPS web and SNMP management interfaces. With the built-in web-based management interface, the VR-300FW-NR offers an easy-to-use, platform independent management and configuration facility. The VR-300FW-NR supports SNMP and it can be managed via any management software based on the standard SNMP protocol.

Maximizing Work Efficiency with PLANET SD-WAN Gateway

PLANET VR-300FW-NR incorporated in SD-WAN (software-defined wide area network) function can greatly increase WAN optimization for multiple WAN links to be managed. With SD-WAN, users can connect any application across all available network connections at every site. It improves application performance and provides a high-quality user experience for increasing business productivity and reducing IT costs.
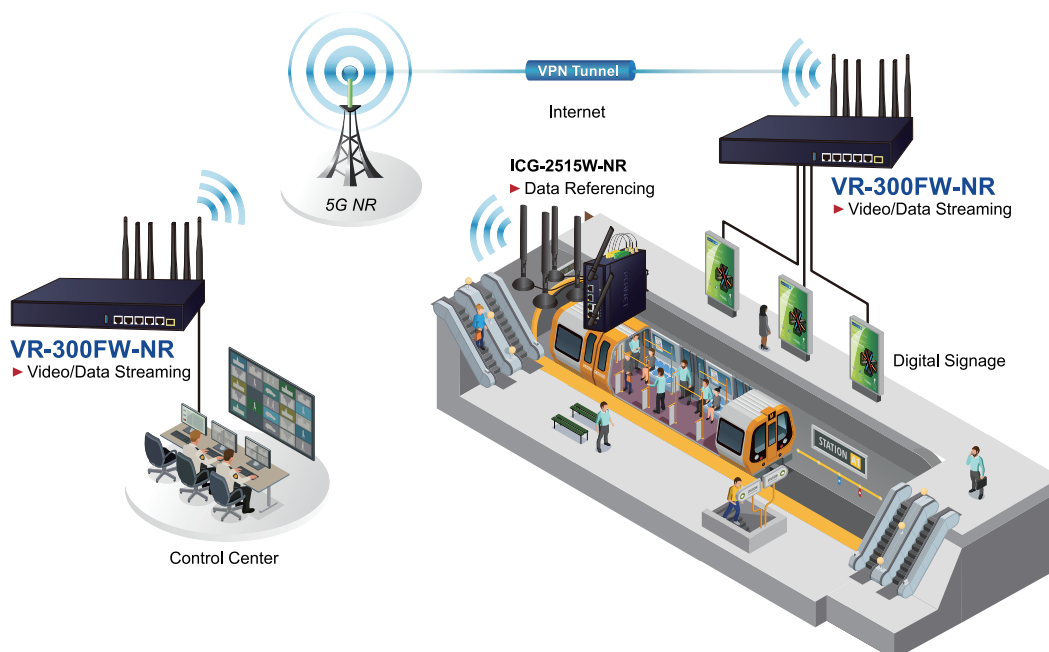
Intelligent SFP Diagnosis Mechanism

The VR-300FW-NR supports SFP-DDM (digital diagnostic monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

SFP DDM (Digital Diagnostic Monitor)

Voltage   Ammeter   Temperature   Power Transceiver   Power Receiver
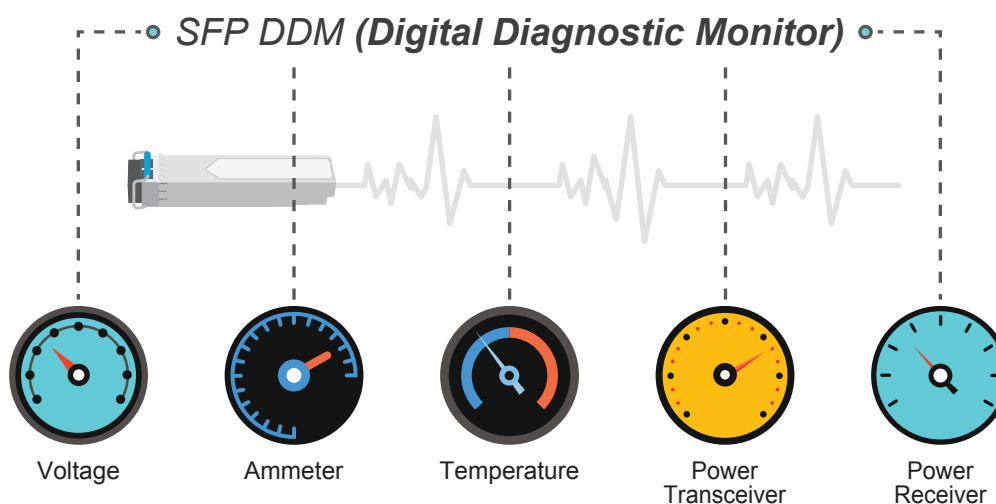
Applications

5G NR Cellular Communication Solution

PLANET VR-300FW-NR adopts 5G NR cellular technology and thus breaks the 100m limitation of RJ45 transmission. To avoid data loss affected by an unexpected breakdown connection on the part of ISP, the VR-300FW-NR provides failover functions and advanced features like VLAN, VPN, Modbus, and network management to cover more applications.

VPN Tunnel

Internet

ICG-2515W-NR
► Data Referencing

5G NR

VR-300FW-NR
► Video/Data Streaming

VR-300FW-NR
► Video/Data Streaming

Digital Signage

Control Center

Improving Network Efficiency

The VR-300FW-NR with five Gigabit ports (WAN/LAN) is applicable to the small number of users ranging from 60 to 100, using a 13-inch desktop design. It provides higher performance with all Gigabit Ethernet interfaces which offer faster speeds for your network applications. The Gigabit user-defined interfaces flexibly fulfill the network requirements, and the High-Availability and Dual-WAN interfaces enable the VR-300FW-NR to support outbound load balancing and WAN fail-over features.
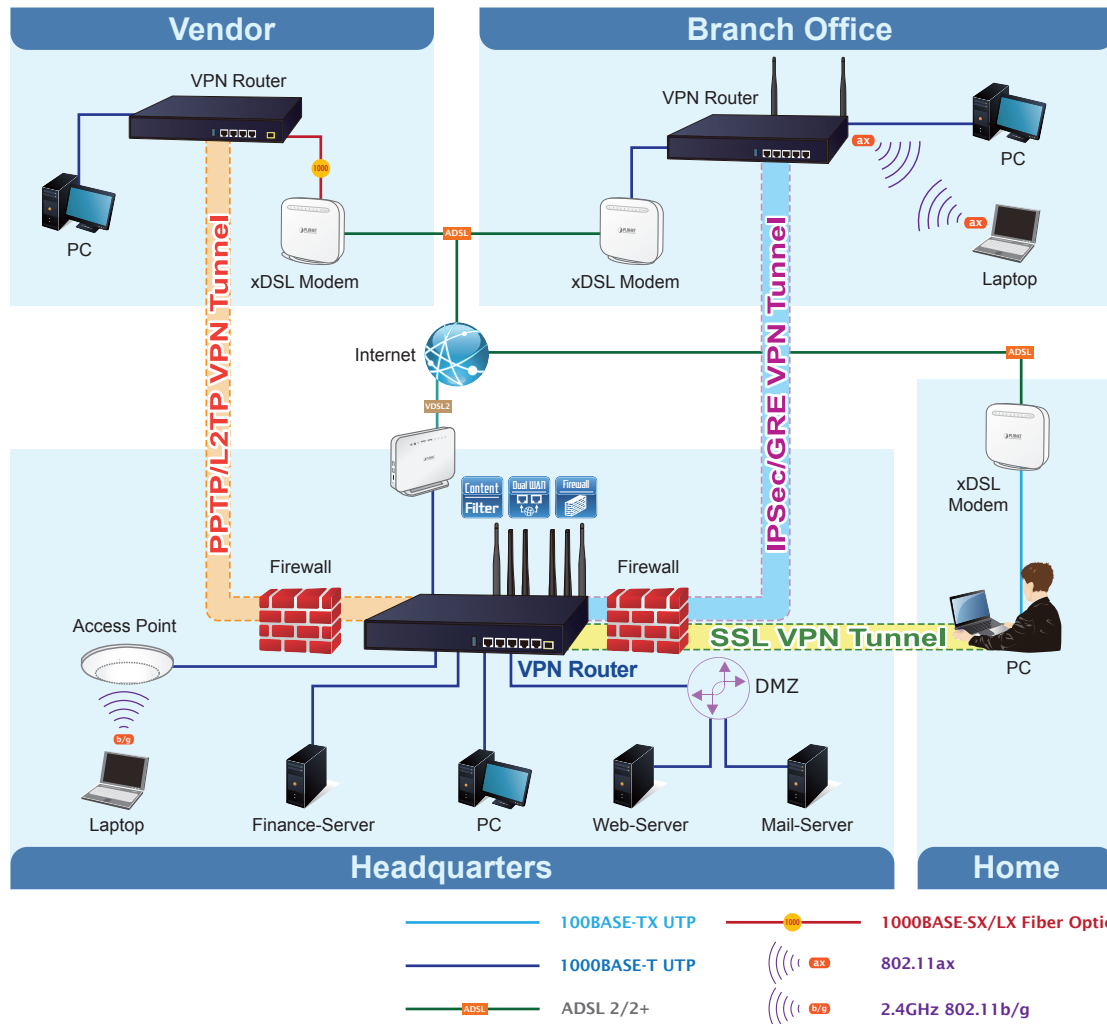
High Availability
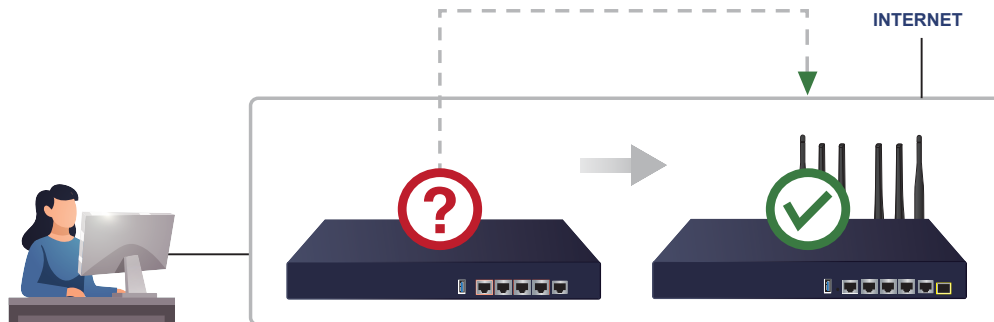
Furthermore, the VR-300FW-NR can connect dual IPv4/v6 WANs with up to two different ISPs and supports many popular security features including Content Filtering to block specific URL feature that can automatically resolve the IP address corresponding to all. Users' network can be easily managed by just typing the URL of the websites like Facebook, YouTube and Yahoo.
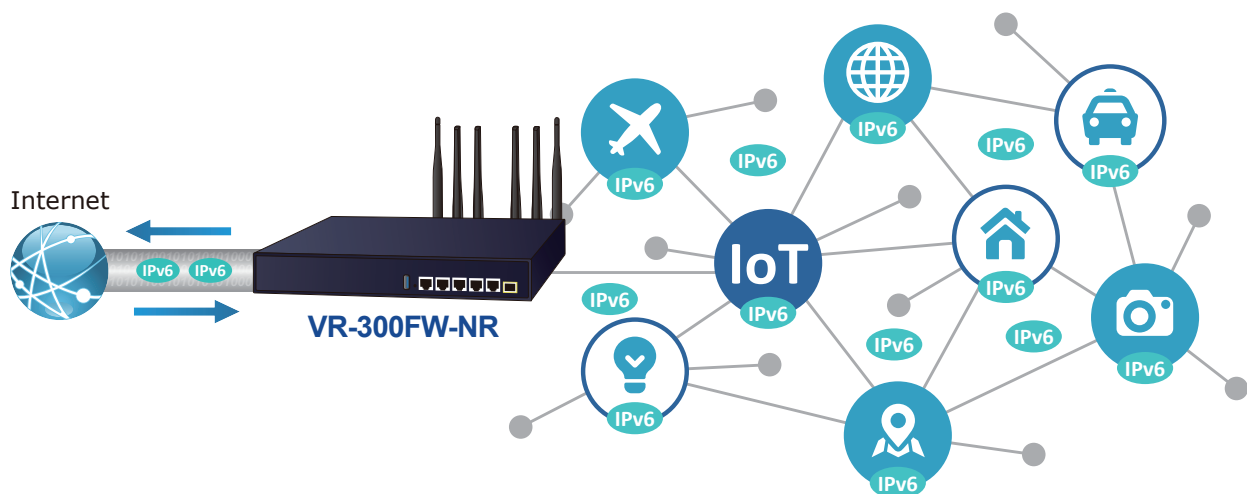
The VR-300FW-NR has link redundancy, MAC/IP filtering, outbound load balancing, QoS and many more functions to make the entire network system better. It creates a stable and qualified VPN security connection for many important applications such as VoIP, video conferencing and data transmission. The VR-300FW-NR's economical price with complete network security management features makes it an inevitable choice for the next-generation office network load balancer.

Specifications

Product	VR-300FW-NR
Hardware Specifications	
Ethernet	5 10/100/1000BASE-T RJ45 Ethernet ports ■ 4 LAN ports (Ports 1 to 4) ■ 1 WAN/LAN port (Port 5)
Fiber	One 1000BASE-X SFP Gigabit Ethernet port (Port 6) Supports WAN port mode or LAN port mode over software configuration
USB Port	1 USB 2.0 port for system configuration backup and restoratione
Reset Button	Reset to factory default
LED Indicators	System: PWR, Internet, SIM, 5G, 2.4G (Green) Ethernet Interfaces (Port 1-5): 10/100/1000 LNK/ACT (Green) Fiber Interfaces (Port 6): 1000 LNK/ACT (Green)
Installation	Desktop installation or rack mounting
Power Requirements	100~240V AC, 50/60Hz, auto-sensing
Power Consumption / Dissipation	Max. 6.4 watts/21.82 BTU (No Loading) Max. 9.5 watts/32.39 BTU (Full loading)
Weight	1508g
Dimensions (W x D x H)	330 x 155 x 44 mm, 1U height
Enclosure	Metal
Multi Band Supports	

5G SUB6 BANDS	NSA	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n28/n29/n30/n38/n40/n41/n48/ n66/n70/n71/n75/n76/n77/n78/n79
	SA	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n28/n29/n30/n38/n40/n41/n48/ n66/n70/n71/n75/n76/n77/n78/n79
LTE BANDS	FDD	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/ B30/B32/B66/B71
	TDD	B34/B38/B39/B40/B41/B42/B43/B48
	LAA	B46
UMTS BANDS	FDD	B1/B2/B8/B4/B5/B19 MAX DL SPEED: DL3.4Gbps; UL 550 Mbps GNSS: GPS/ GLONASS/ BDS/ Galileo/ QZSS
	TDD	MAX DL SPEED DL 2.4 Gbps; UL 900 Mbps
WCDMA		B1/B2/B3/B4/B5/B8
GNSS		GPS L1+L5 dual bands/GLONASS/BeiDou/Galileo/QZSS
Data Transmission Throughput		2.4Gbps (DL)/500Mbps (UL) for NR 1Gbps (DL)/200Mbps (UL) for LTE 42Mbps (DL)/5.76Mbps (UL) for HSPA+

Wireless		
Standard		IEEE 802.11a/n/ac/ax 5GHz IEEE 802.11g/b/n/ax 2.4GHz
Band Mode		2.4G & 5G concurrent mode
Frequency Range	2.4GHz	America FCC: 2.412~2.462GHz Europe ETSI: 2.412GHz~2.472GHz
	5GHz	5.15GHz ~5.875GHz
Operating Channels	2.4GHz	America FCC: 1~11 Europe ETSI: 1~13
	5GHz	America FCC: Non-DFS: 36, 40, 44, 48, 149,153,157,161,165 DFS: 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140 Europe ETSI: Non-DFS: 36, 40, 44, 48, 149,153,157,161,165 DFS: 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140 5GHz channel list will vary in different countries according to their regulations.
Channel Width		20MHz, 40MHz, 80MHz

Data Transmission Rates	Transmit: 600 Mbps* for 2.4 GHz and 1200 Mbps* for 5 GHz
	Receive: 600 Mbps* for 2.4 GHz and 1200 Mbps* for 5 GHz
	*The estimated transmission distance is based on the theory. The actual distance will vary in different environments.
Transmission Power	11b: 23dbm+/- 1.5dbm @11Mbps
	11g: 20dbm+/- 1.5dbm @54Mbps
	11g/n: 20dBm +/- 1.5dbm @MCS7, HT20
	17dBm@MCS7,HT40
	11a: 19.5dBm +/- 1.5dbm @54Mbps
	11a/n: 19.5dBm+/- 1.5dbm @MCS7, HT20
	17dBm@MCS7, HT40
	11ac HT20: 20+/-1.5dBm @MCS8
	11ac HT40: 17+/-1.5dBm @MCS9
	11ac HT80: 14.5+/-1.5dBm @MCS9
	11ax HT20: 20+/-1.5dBm @MCS9
	11ax HT40: 17 +/- 1.5dBm @MCS9
	11ax HT80: 14.5 +/- 1.5dBm @MCS11
Encryption Security	WEP (64/128-bit) encryption security
	WPA / WPA2 (TKIP/AES)
	WPA-PSK / WPA2-PSK (TKIP/AES) / WPA3-PSK (TKIP/AES)
	802.1x Authenticator
Wireless Advanced	Wi-Fi Multimedia (WMM)
	Auto channel selection
	Wireless output power management
	MAC address filtering

Security Service	
Firewall Security	Cybersecurity
	Stateful Packet Inspection (SPI)
	Blocks DoS/DDoS attack
ALG (Application Layer Gateway)	SIP, RTSP, FTP, H.323, TFTP
NAT	Port forwarding
	DMZ Host
	UPnP
Content Filtering	MAC filtering
	IP filtering
	Web filtering
Bandwidth Management	Outbound load balancing
	Failover for dual-WAN
	QoS (Quality of Service)

Networking	
Operation Mode	Routing mode
Routing Protocol	Static Route, Dynamic Route (RIP), OSPF
VLAN	802.1q Tag-based, Port-based, Multi-VLAN
Multicast	IGMP Proxy
NAT Throughput	Max. 900Mbps
Outbound Load Balancing	Supported algorithms: Weight
Protocol	IPv4, IPv6, TCP/IP, UDP, ARP, HTTP, HTTPS, NTP, DNS, PLANET DDNS, PLANET Easy DDNS, DHCP, PPPoE, SNMPv1/v2c/v3,
Key Features	HA (High Availability)
	Captive Portal
	RADIUS Server/Client
	AP Control

VPN	
VPN Function	IPSec/Remote Server (Net-to-Net, Host-to-Net)
	GRE
	PPTP Server
	L2TP Server
	SSL Server/Client (Open VPN)
VPN Tunnels	Max. 60
VPN Throughput	Max. 108Mbps
Encryption Methods	DES, 3DES, AES or AES-128/192/256 encrypting
Authentication Methods	MD5/SHA-1/SHA-256/SHA-384/SHA-512 authentication algorithm

Management	
Basic Management Interfaces	Web browser SNMP v1, v2c PLANET Smart Discovery utility/UNI-NMS supported
Secure Management Interfaces	SSHv2, TLSv1.2, SNMP v3
System Log	System Event Log
Others	Setup wizard Dashboard System status/service Statistics Connection status Auto reboot Diagnostics
Standards Conformance	
Regulatory Compliance	CE, FCC
Environment Specifications	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -10 ~ 60 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

Dimensions

VR-300FW-NR
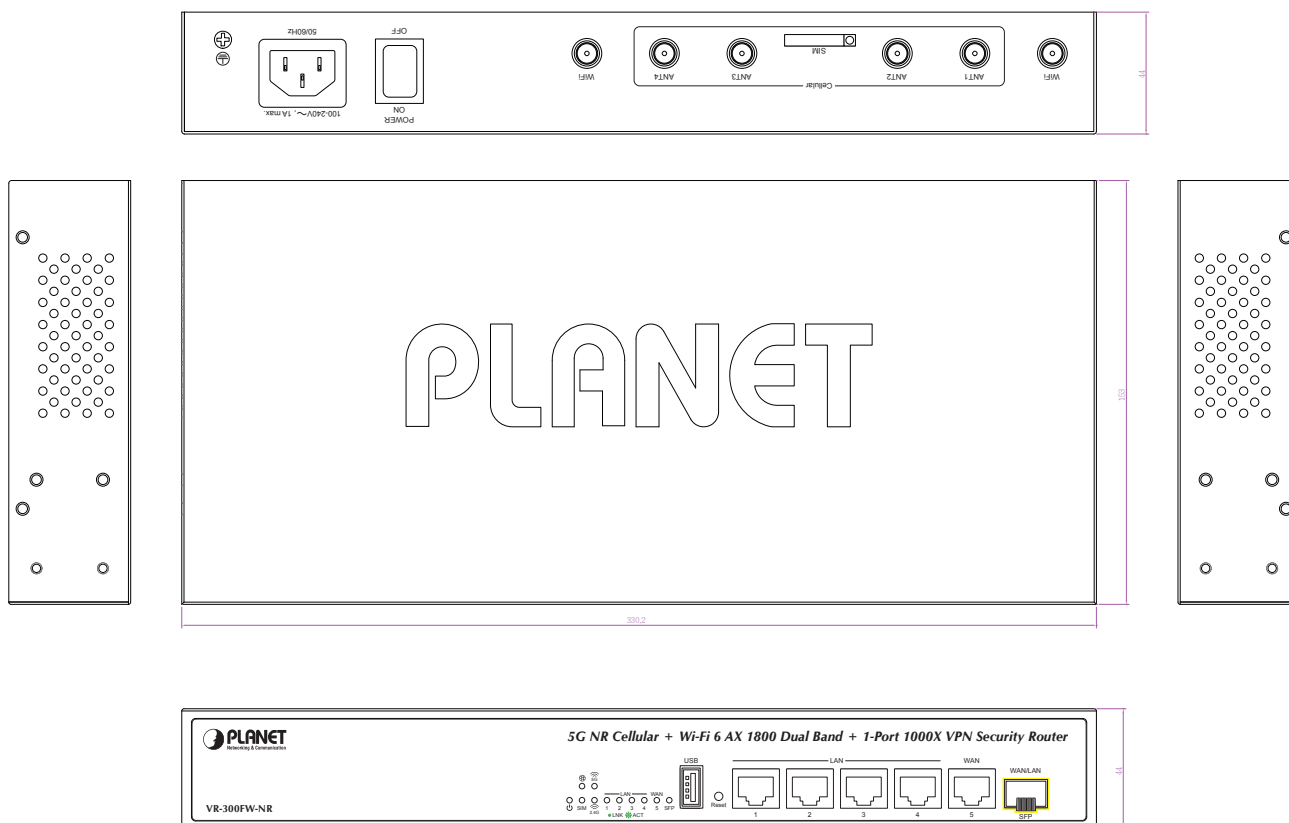
Unit: mm

Ordering Information

VR-300FW-NR	5G NR Cellular + Wi-Fi 6 AX 1800 Dual Band + 1-Port 1000X SFP VPN Security Router

Related Products

VR-300	Enterprise 5-Port 10/100/1000T VPN Security Router
VR-300P	Enterprise 4-Port 10/100/1000T 802.3at PoE + 1-Port 10/100/1000T VPN Security Router
VR-300F	Enterprise 4-Port 10/100/1000T + 1-Port 1000X SFP VPN Security Router
VR-300FP	Enterprise 4-Port 10/100/1000T 802.3at PoE + 1-Port 1000X SFP VPN Security Router
VR-300W5	Wi-Fi 5 AC1200 Dual Band VPN Security Router
VR-300PW5	Wi-Fi 5 AC1200 Dual Band VPN Security Router with 4-Port 802.3at PoE+
VR-300W6	Wi-Fi 6 AC1800 Dual Band VPN Security Router
VR-300PW6	Wi-Fi 6 AX1800 Dual Band VPN Security Router with 4-Port 802.3at PoE+
VR-300W6A	Wi-Fi 6 AX2400 2.4GHz/5GHz VPN Security Router
VR-300PW6A	Wi-Fi 6 AX2400 2.4GHz/5GHz VPN Security Router with 4-Port 802.3at PoE+
VR-100	5-Port 10/100/1000T VPN Security Router
IVR-100	Industrial 5-Port 10/100/1000T VPN Security Gateway
ICG-2515-NR	Industrial 5G NR Cellular Gateway with 5-Port 10/100/1000T
ICG-2515W-NR	Industrial 5G NR Cellular Wireless Gateway with 5-Port 10/100/1000T
ICG-2510W-LTE	Industrial 4G LTE Cellular Wireless Gateway with 5-Port 10/100/1000T
ICG-2510WG-LTE	Industrial 4G LTE Cellular Wireless Gateway with 5-Port 10/100/1000T
VCG-1500WG-LTE	Vehicle 4G LTE Cellular Wireless Gateway with 5-Port 10/100TX

VR-300FW-NR