BILLION®

3G/4G LTE

BiPAC 9800VNX-PD

Wireless-N VoIP Active Ethernet Point-to-Point Fiber Gateway

The BiPAC 9800VNX-PD is a point-to-point (P2P) Fiber Gateway – featuring a combo WAN, 4-port Gigabit Ethernet Switch, PoE, VPN, VoIP, USB, Wi-Fi 802.11n access point, and firewall. Combo WAN interface enable BiPAC 9800VNX-PD can be used for fiber or copper network. Fiber interface supports fiber-to-the-home (FTTH) applications and offers an optical Small Form Factor Pluggable (SFP) with 100Base and 1000Base auto-sensing function to fit the field request flexibly. Or use traditional RJ-45 interface for up-linking any other kind of broadband connectivity. Furthermore, the BiPAC 9800VNX-PD supports remote management on end-user devices, which is available upon request for Telcos/ISPs projects to tightly manage the FTTH service delivery. The router is also equipped with a built-in 4-port Gigabit Switch which enables amazingly fast LAN transmissions for bandwidth-consuming applications such as video streaming and file sharing, with a PoE PD on LAN port 4, the router can be operated from alternative power sources.

The BiPAC 9800VNX-PD also has integrated two RJ-11 FXS ports for connecting to regular telephones, allowing users to make economical VoIP calls, a USB port acts as a FTP server with attached USB stick allows local network and remote access at anywhere, anytime, and 802.11n multiple APs (Wireless Access Points) with 2x2 MIMO design provides faster wireless speed up to 300Mbps. The built in robust firewall provides protection against intrusion attacks while the Quality of Service feature allows traffic prioritization and bandwidth management for downloads and online gaming. The BiPAC 9800VNX-PD automatically adopts the optimal connection to deliver smooth and constant signal reception even if obstacles are present. Users can easily enjoy high bandwidth applications such as High Definition IPTV services without changing their home network.

FTTH Applications
The BiPAC 9800VNX-PD can be used for a point-to-point fiber access network. Since the Fiber WAN interface allows faster rates over even longer distances, it can support Telcom operators or ISPs to provide high quality and reliable Internet broadband services to either business or home users. The 4-port Gigabit Switch incorporated into the BiPAC 9800VNX-PD enables users to easily connect to multiple computers or wired-Ethernet devices and enjoy blistering LAN transfer rates for multimedia applications such as interactive gaming, IPTV video streaming and real-time audio.

3G/4G Mobility and Always-On Connectivity
With the BiPAC 9800VNX-PD you can connect a 3G/4G LTE USB modem to built-in USB ports. The auto failover feature ensures maximum connectivity and minimum interruption by quickly and smoothly connecting to a 3G/4G LTE network in the event that your fixed line fails. The BiPAC 9800VNX-PD will then automatically reconnect to the fixed line connection when it's restored, ideal for office situations where a constant and uninterrupted connection is critical.

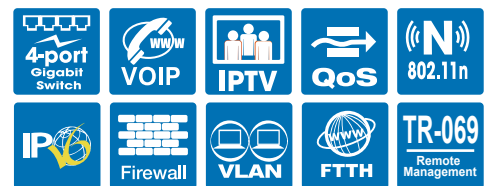### Smooth, Responsive Net Connection
The Quality of Service (QoS) feature gives user full control over outgoing data traffic. Traffic prioritization can be assigned by the router to ensure that important and specific transmissions such as gaming packets, VoIP calls or IPTV / streaming content passes through the router at lightning speed, even during heavy Internet traffic. The speed of different types of outgoing data passing through the router can also be controlled to ensure that different users do not saturate bandwidth with their browsing activities.

Simple, Hassle-Free VoIP Calls
The BiPAC 9800VNX-PD is compliant with SIP standard (RFC3261) and supports SIP registrar. This router integrates two FXS ports allowing users to set up two separate VoIP accounts to make or receive calls by connecting with two standard analog telephone sets. The router offers much more great features, Call Waiting, Conference Call, Return Call, etc. The unique Speed Dial Plan provides custom hotkeys of frequently used phone numbers. This state-of-the-art feature is ideal for SOHO users, delivering free communication between branch offices and client sites. Making VoIP calls is just as easy as dialing an extension number!

Optimal Wireless Speeds and Coverage
With an integrated 802.11n multiple Wireless Access Points, the router delivers up to 6 times the speed and 3 times the wireless coverage of an 802.11b/g network device. It supports data rates of up to 300Mbps and is also compatible with 802.11b/g equipment. The multiple-APs separates network for primary and guest networks to eliminate unknown users to access to the main network. Wireless Protected Access (WPA-PSK/WPA2-PSK) and Wireless Encryption Protocol (WEP) features enhance the level of transmission security and access control over the Wireless LAN. The router also supports the Wi-Fi Protected Setup (WPS) standard, allowing users to establish a secure wireless network by simply pushing a button. If the network requires wider coverage, the built-in Wireless Distribution System (WDS) repeater function allows users to expand the wireless network without the need for any external wires or cables.

4-port Gigabit Switch | **VOIP** | **IPTV** | **QoS** | **802.11n**
IPv6 | **Firewall** | **VLAN** | **FTTH** | **TR-069 Remote Management**

Performance
- Combo 100/1000Base SFP & RJ-45 Gigabit WAN Interfaces
- SFP supports auto-sensing for 100Base or 1000Base fiber connectivity
- 4-port Gigabit switch
- PoE-PD on Ethernet LAN 4
- 802.11n WLAN with WPS supported
- USB port supports 3G/4G LTE for broadband connectivity
- Auto failover feature to ensure an always-on connectivity

VoIP
- Compliant with SIP standard: RFC3261
- Two RJ-11 FXS interfaces
- Supports two SIP accounts for connecting to Internet Telephony Service Provider (ITSP)
- Supports G.711 A / µ law, and G.729 audio CODEC standards
- Supports FAX Transmission: T.38 fax relay, G.711 pass-through

Virtual Private Network
- Embedded 8 VPN tunnels IPSec VPN endpoint/server with powerful encryption
- Supports 4 L2TP and PPTP VPN tunnels

Firewall
- Built-in NAT firewall
- Stateful Packet Inspection (SPI)
- Prevents DoS attacks including Land Attack, Ping of Death, etc.
- VPN pass-through

QoS (Quality of Service)
- Quality of Service control for traffic prioritization and bandwidth control, VLAN tagging and IGMP proxy/snooping management
- Web-based GUI for remote and local management
- SNMP v1 and v2 support
- TR-069 remote management

Ideal for
- Home and SOHO environments
- Small offices and SMBs
- Self-Installation service offerings

Application Diagram
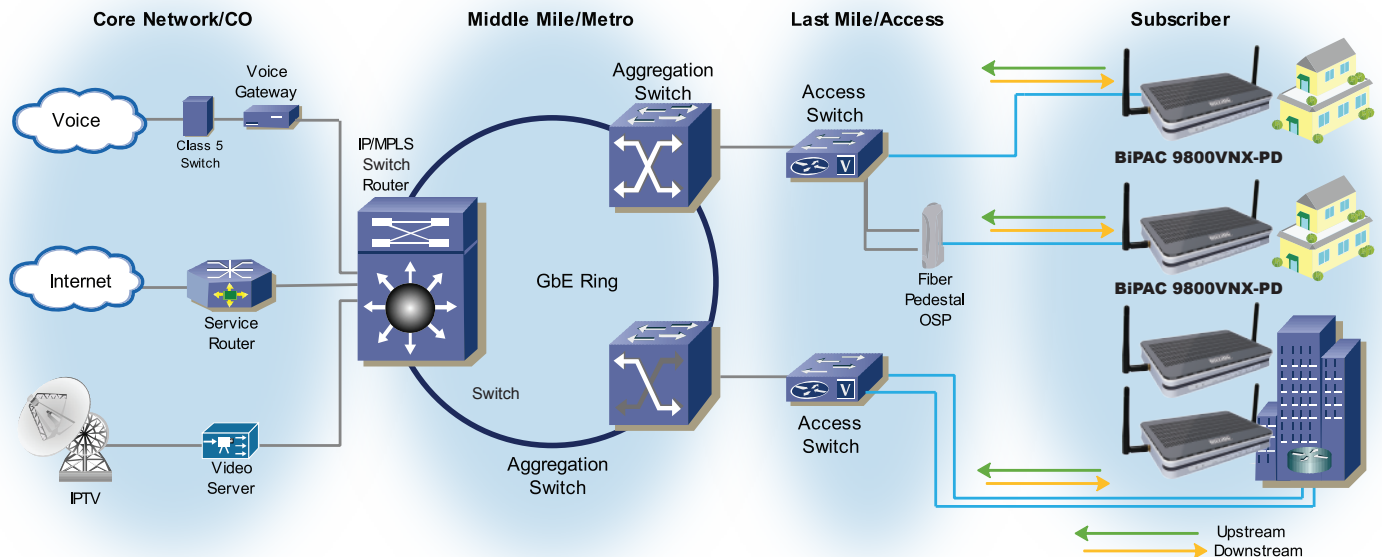
Features & Specifications

Standards
- IEEE 802.3 10Base-T
- IEEE 802.3u 100Base-TX
- IEEE 802.3ab 1000Base-T
- IEEE 802.3z 1000Base-SX / LX

Availability and Resilience
- Dual-WAN ports (SFP Cage and Ethernet WAN)
- Auto fail-over and failback

WAN Protocols
- DHCP client
- Static IP
- PPPoE

Network Protocols and Features
- Pv4, IPv6, IPv4/IPv6 dual stack
- NAT,PAT, static (v4/v6) routing and RIP-1/2
- IPv6 stateless/stateful address auto-configuration
- Pv6 router advertisement
- IPv6 over PPP
- DHCPv6
- Universal Plug and Play (UPnP) compliant
- SNTP, DNS relay, Dynamic Domain Name System (DDNS)
- Virtual server and DMZ
- IGMP proxy and IGMP snooping for video service
- MLD proxy and MLD snooping for video service
- Management based-on HTTP, port number and IP address
- Supports port-based Virtual LAN (VLAN)
- File sharing with SMB (Samba) and FTP
- Diagnostic tool

Firewall Management
- Built-in NAT firewall
- Stateful Packet Inspection (SPI)
- Prevents DoS attacks including Land Attack, Ping of Death, etc.
- IP/MAC address/URL/application filtering
- Password protection for system management
- Parental control
- VPN pass-through

Virtual Private Network (VPN models)
- 8 IPSec VPN tunnels
- 4 L2TP VPN tunnels
- 4 PPTP VPN tunnels

Quality of Service Control
- Supports the DiffServ approach
- Traffic bandwidth control, DSCP marking, and 802.1p marking based on IP protocol, port number and IP address
- Supports 802.1p/q
- Supports 802.1ad (Q-in-Q)

Wireless LAN
- Compliant with IEEE 802.11n
- Backward compatible with IEEE 802.11b and 802.11g standards
- 2.4GHz - 2.484GHz frequency range
- Up to 300Mbps wireless operation rate
- WPS (Wi-Fi Protected Setup) for easy setup
- On/Off Wireless with WPS push button
- 64/128 bits WEP supported for encryption
- Wireless security with WPA-PSK, WPA2-PSK, and Mixed WPA/WAP2-PSK
- WDS repeater function
- Multiple SSID
- Wireless MAC filtering

VoIP
- Compliant with SIP standard (RFC3261)
- Supports G.711 A/μ-Law, G.729 audio codec standards
- Supports telephony features: call waiting, caller ID (DTMF, FSK), speed dial, return call, anonymous call, Do Not Disturb, three-way conference, volume control, notify for voicemail, Call Detailed Records (CDR)
- Supports voice enhance features: Adaptive jitter buffer, Comfort Noise Generation (CNG), Silence Suppression (VDA), G.168 Echo Cancellation, Packet Loss Concealment
- DTMF Method: Inband, RFC 2833, SIP Info
- FAX Transmission: T.38, G.711 pass-through
- Voice over data, QoS control to ensure higher voice quality

USB Applications Server
- 3G/4G LTE USB modem
- Storage/NAS: FTP server, SAMBA server

Management
- Quick Setup Wizard
- Web-based for remote and local management
- Firmware upgrade and configuration data upload and download via web-based interface
- SNMP v1, v2, MIB-I and MIB-II supported
- DHCP server/client/relay
- Supports TR-069 remote management
- System log monitoring
- User Access Management Levels

Hardware Specifications:
Physical Interface
- Wireless Antenna: two (2) detachable antennas
- 1-port Gigabit EWAN (Ethernet WAN)
- 1-port 100/1000Base SFP Cage (WAN)
- 4-port Gigabit auto-crossover (MDI/MDI-X) Gigabit LAN Ethernet ports
- PoE-PD on Ethernet LAN Port 4
- VoIP: Two (2) RJ-11 FXS interface ports
- USB 2.0 for storage service
- Reset button
- Wireless On/Off / WPS push button
- Power Jack
- Power Switch
Physical Specifications
- Dimensions: 9.04" x 6.10" x 1.27" (229.5 mm x 155 mm x 32.24 mm)

Power Requirements
- Input: 12V DC, 1.5A

Operating Environment
- Operating temperature: 0°C ~ 40°C
- Storage temperature: -20°C ~ 70°C
- Humidity: 20% ~ 95% non-condensing