

DPX8000 Deep Service Switching Gateway



Overview

The wide application of cloud computing and Web 2.0 technology drives the exponential growth in the transmission capacity of network data. The Gilder's Law suggests that bandwidth will double every six months in the next 25 years. A surge in data services will not only add complexity to the existing network architecture, but also bring about a great number of challenges in network security, application experience, and business availability. As in a traditional solution, firewalls, IPS, access control, application delivery and other deep service processing devices are used in addition to a large-capacity switch. Though flexible at the initial stage, such architecture with separated network layer and the business layer can only be applied in small networks due to the following factors:

- Continuous stacking of devices increases the complexity of the current network, causing a large number of single points of failure
- Multiple and repeated analysis and processing of packets results in degraded performance and increased delays
- Poor compatibility among vendors and devices, especially failure in on-demand scalability in performance, function and interface due to continuous improvement made to network size and networking modes
- Difficulties in network and security technology compatibility, such as MPLS VPN, IPv6, virtualization
- Unified management cannot be achieved due to physically and logically separated devices

It is apparent that simple stacking, though seemingly reasonable, fails to catch up with the growth rate of user service demands. It consumes a large amount of materials and manpower, wastes resources, and adds complexity to the current network, which will in turn bring about new issues such as reliability, performance, scalability, compatibility, and management.

People can't help but asking: how to address the above problems and ensure that the network and business are still safe, fast and available in face of large-capacity wire-speed forwarding? In the context of increasing standardization, virtualization and intelligence of networks, the only way to simplify network architecture, improve network efficiency, and protect existing resources is to promote deep integration of switching, application and business as well as seamless fusion of the network layer and the business layer. Against this backdrop, DPX8000 Series Deep Service Switching Gateway from DPtech is launched, including DPX8000-A3, DPX8000-A5, and DPX8000-A12.

Based on DPtech's core technologies including APP-X hardware architecture, ConPlat operating system and APP-ID application and threat signature database, the DPX8000 Series

offers an integration of switching, network security, and application delivery. DPX8000 Series is designed to meet the needs of high performance deep service processing from operators, data centers, and large enterprises. In addition to IPv4/IPv6, MPLS VPN, loopfree and other network features, its deep service wire-speed processing capabilities include iNAC, application delivery, application firewall, IoT application security control, IPS, Unified Audit Gateway (UAG), anti-DDoS system, WAF, and vulnerability scanning.

Product Features

■ **Security Network Core**

DPX8000 Series is compatible with 40GE and 100GE Ethernet standards. With high performance service boards, the entire unit supports a maximum of 12 expansion slots, providing comprehensive integration capabilities.

DPX8000 Series makes an innovative progress from network security to security network. Moreover, the traditional blacklist mechanism has evolved to the whitelist concept centered on management and control.

■ **L2~7 Virtualization**

Relying on VSM and OVC technologies independently developed by DPtech, the DPX8000 Series converts multiple similar service modules into a flexible scheduling resource pool, thus enabling a granular management of business platform resources and improving the utilization of resources. In conjunction with UMC management platform, it provides users with automatic management and operation and maintenance solutions.

■ **Full Service Integration Capabilities**

Combing switching&routing, network security and application delivery, the DPX8000 Series becomes the first to realize the deep integration of layers 2 ~ 7. All service modules in a single device can be managed based on a single IP, making it simple to establish complex networking.

With a series of rich business scalability capabilities, the DPX8000 Series provides more than 10 service slots including iNAC, application delivery, application firewall, IPS, traffic control, anti-DDoS system, WAF, vulnerability scanning, and wireless controller.

The hot elastic service expansion technology can made dynamic adjustments to service modules without restarting the device, enabling plug-and-play on-demand deployment of services.

With strong network adaptability, it offers full support of QoS, IPv4/IPv6 routing, MPLS VPN and other network services.

■ **Innovative service chain Technology**

Based on the innovative “service chain” concept, the DPX8000 Series is able to provide refined definition to data streams according to portfolio policies, customize data flow directions among various service modules, remove limitations of traffic scheduling between

different service modules, and realize flexible scheduling at the business layer.

- **carrier-grade High Reliability**

DPX8000 Series is provided with master redundancy, N+1 power, uninterrupted restart, hot fixes, separated data/control/monitoring planes and other technologies, ensuring 99.999% carrier-grade reliability. It supports BFD, OAM and other fast fault detection technologies, and provides a series of device-level and network-level fault detection methods.

- **Green and energy efficiency**

DPX8000 Series is equipped with multiple innovative cooling technologies such as a dual air duct design, increasing heat radiation efficiency by 30%. It is capable of performing temperature detection on key components such as service boards and switching boards. Based on the temperature and configuration of each component, it can realize intelligent fan speed regulation, reduce power consumption and environmental noise, and guarantee energy efficiency.

Product Series



DPX8000-A3



DPX8000-A5



DPX8000-A12

Function Descriptions

Product Model	PX8000-A3	DPX8000-A5	DPX8000-A12
Switching capacity	20.6Tbps/50.8Tbps	27.6Tbps/104.8Tbps	59.35Tbps/236.33Tbps
Packet forwarding rate	3840Mpps/24400Mpps	4800Mpps/30000Mpps	11520Mpps/72000Mpps
Business processing capabilities	80 Gbps	160 Gbps	400 Gbps

Master control slot	2	2	2
Number of service slots	2	4	10
Power supply	Redundant AC/DC Power Supply	Redundant AC/DC Power Supply	Redundant AC/DC Power Supply
Number of switching boards	1-2		
Type of port	Support 24-port GE interfaces, 48-port GE optical interfaces, 48-port GE electrical interfaces, 4-port 10GE interfaces, 8-port 10GE interfaces, 32-port 10GE interfaces, 2-port 40GE interfaces, etc.		
Type of service board	iNAC, application delivery, application firewall, IoT application security control system, IPS, Unified Audit Gateway (UAG) and traffic control, anti-DDoS system, WAF, vulnerability scanning, and wireless controller.		
Layer-2 Features	VLAN, STP, RSTP, MSTP, QinQ, flexible QinQ, VLAN Mapping, full duplex traffic control, back pressure traffic control, link aggregation (support 128 aggregation groups, with each group consisting of 8 members), cross-board link aggregation, cross-board port/flow mirroring, port broadcast/multicast/unknown unicast forwarding storm suppression, Jumbo Frame, VLAN division based on port/protocol/subnet and MAC, PVLAN, GVRP, CoS priority, etc.		
Layer-3 Features	IPv4: Static routing, RIP v1/2, OSPF, BGP, policy-go-together, etc IPv6: IPv6 static routing, RIPng, OSPFv3, BGP4+, transition tunnel technology from IPv4 to IPv6, etc.		
Virtualization features	Support VSM (Virtual Switching Matrix) N:1 virtualization technology, which performs virtualization of multiple L2 ~ 7 physical devices into a single L2 ~ 7 logical device Support OVC (OS-Level Virtual Context) 1:M virtualization technology, which performs virtualization of a single L2 ~ 7 physical/logical device into multiple L2 ~ 7 logical devices Support service chain technology, which defines business streams based on L2-7 protocol features, and allows on-demand assignment of physical/logical service modules for traffic passage Support IP-based unified management between the host and service modules and unified configuration interface		
SDN and Data Center Features	Support 802.1Qbg and DCB Support mainstream Overlay standards such as VXLAN Support Openflow1.3 protocol		
MPLS/VPLS	Support L3 MPLS VPN, VPLS, VLL, hierarchical VPLS, QinQ+VPLS access, P/PE, LDP, MPLS OAM, etc.		
Multicast features	Support IGMPv1/v2/v3, IGMPv1/v2/v3 Snooping, PIM-SM/PIM-DM/PIM-SSM		
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Multicast features	Support IGMPv1/v2/v3, IGMPv1/v2/v3 Snooping, PIM-SM/PIM-DM/PIM-SSM		

Other network layer features	Support ACL rules including source IP, source port, destination IP, destination port, protocol number, physical port Support Ingress/Egress CAR, 802.1P/DSCP priority Mark/Remark Support permit, deny, redirect, VLAN modification, mirroring and other actions
Service features of iNAC	Support Portal, 802.1x, IP/MAC, SMS access Support non-sensing roaming to enhance users' access experience Support policy follow-up to granular access control for users Support personnel traceability, ensuring accountability Support unified management of users
Service features of application delivery	Support link load balancing, server load balancing, application acceleration to ensure fast and available of applications
Service features of application firewall	Support security domain division, access isolation, attack prevention, NAT, IPSec/SSL/L2TP VPN, etc.
Service features of IPS	It provides seven layers of security defense with active prevention against vulnerability exploit/exploitation, web page tampering, and SQL injection; IPS also has a built-in professional virus library that can block various worms and viruses in real time
Service features of UAG	Traffic control: seven layers of detection, classification and control enables immediate visualization of network traffic and applications; traffic control over non-critical services such as P2P and games helps ensure bandwidth for critical services and convenient management of network bandwidth Unified auditing: through a detailed review of access histories and permission management of Web access, online games, stock trading, online film and television and other online behaviors, it helps ensure they meet relevant requirements and laws and regulations; with a signature library consisting of more than 5,000 network layer and application layer protocols, as well as a URL address library consisting of ten million entries, it allows refined UAG for users
Service features of Anti-DDoS system	Combining detection and cleaning to effectively protect metropolitan area networks and IDCs from a huge amount of DDoS attacks
Service features of WAF	It supports Web application security protection, offering vulnerability protection, Web policy optimization, HTTP protocol reinforcement and other functions to ensure the availability and reliability of Web applications
Services features of wireless controllers	802.11 a/b/g AP and 802.11n AP Management, wireless user access control and security protection Support 802.1x, MAC address and Portal authentication; support centralized/distributed forwarding
Management features	Support FTP, TFTP, Xmodem Support Web management port, SNMP v1/v2/v3 Support RMON, NTP clock, intelligent power management
Reliability	Support master control board 1+1 redundancy Support power N+1 redundancy Passive backplane design; all boards support hot-plug Support online status monitoring protocol to perform detection of key

	components including master control engine, backplane, chip and storage		
Power supply capacity as a whole unit	2400W	2400W	4800W
Weight	27kg	45kg	95kg
Dimension (width x height x depth) (in mm)	436 x 178 x 480	436 x 283 x 480	436 x 666 x 480

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