DCWS-6028(R2)

Wireless Access Controller

Product Overview

The DCWS-6028(R2) is a high-performance smart wireless access controller (AC) for medium wireless networks, which can manage up to 1024 access points (APs). It provides complete RF management and security mechanism, powerful QoS, seamless roaming and complete control of APs, can be used to construct medium-sized network for campus, hotel, enterprise office, hospital, etc.

With hardware ASIC, DCWS-6028(R2) could support line-rate forwarding of IPv4/IPv6 data packets and support dynamic routing protocols such as RIP, OSPF, BGP and PIM, as well as IPv6 RIPng, OSPFv3 and PIM6. It also integrates Ethernet switch function, and provides unified access control for wired and wireless users. It offers 16 GE combo ports, 8 fixed SFP ports, and 4* 10G SFP+ ports.

Manage 2048 APs

1+1 modular power redundancy

Concurrent users 10K

Medium sized network

Switch + access controller

AC N+M redundant

Key Features and Highlights

Wired-and-wireless Unified and High-Reliability Network

Combination of routing switch and wireless AC

The DCWS-6028(R2) can be used as a routing switch and a wireless access controller simultaneously in a trunk deployment mode, with an ASIC-based forwarding architecture and high-density access-ports, it can provide line-speed forwarding for both wired and wireless traffic.

High-reliability backup mechanism

The DCWS-6028(R2) supports the following high-reliability backup mechanisms to ensure that a wireless network runs reliably:

- N+1 backup
- N+M backup

1+1 modular redundant input power

The DCWS-6028(R2) supports two modular AC input power, which provides 1+1 input power redundancy.

Automatic emergency mechanism of APs

This mechanism enables an AP to intelligently detect a link between AC and AP. When detecting the breakdown of the link the AP quickly switches its operating mode so that it can continue to forward data and allow new users to access the network. This mechanism makes sure that the access is available for all users when the AC is down.

Intelligent Control of Wireless Network

Intelligent RF management

The DCWS-6028(R2) provides an automatic power and channel adjustment function. It employs particular RF detection and management algorithms to attain a better RF coverage effect. When the signals of an AP are interfered with by strong external signals, the AP may automatically switch to an appropriate operating channel under the control of the AC to avoid such interference. It also supports the blackhole compensation mechanism, which adjusts the AP power to cover the blind area resulted by the crashing of some APs

Intelligent control of terminals based on airtime fairness

This function makes sure that both the low-rate and the high-rate clients get relatively the same accessing time, which can avoid the low-rate clients to affect the AP overall performance by taking up too much accessing time.

Intelligent load balancing mechanism

In general, a wireless client will select an AP according to the signal strength of APs. So, it may happen that one AP connected a large number of APs while the others connected very little, causing the small bandwidth for each client. The DCN load balancing mechanism can overcome this problem by:

- Load balancing between APs based on traffic
- Load balancing between APs based on the number of users
- Load balancing between radios within the AP based on the number of users

Intelligent identification of terminals

The DCWS-6028(R2) can identify a terminal in different ways by combining with DCN smart APs and a unified authentication platform. It can identify the OS of a terminal, such as Apple iOS, Android, and windows, the size of a terminal, and the type of a terminal, such as mobile phone, laptop, and PC. Basing on these identifications, DCWS-6028(R2) can implement dynamic policies for different types of terminal and present a corresponding-sized authentication page.

PEAP user authentication

Protected Extensible Authentication Protocol (PEAP) authentication can provide a better user experience. The user needs to manually enter the username and passwords only during the first-time certification, the second time, and the subsequent certifications are performed automatically.

Secure and Controllable Wireless Network

User isolation policy

The DCWS-6028(R2) supports the isolation of wireless users. If this user isolation function is enabled, only the communication between the clients and gateway is allowed, the direct communication between clients is forbidden, which can increase the security of the wireless network.

Wireless intrusion detection and intrusion defense

The DCWS-6028(R2) supports wireless intrusion detection and intrusion defense features, such as detection of unauthorized wireless devices, intrusion detection, blacklist, and white list, as well as anti-DoS for various wireless management packets, thereby greatly improving security management of an entire wireless network.

Secure user admission

The DCWS-6028(R2) provides multiple secure access, authentication, and accounting mechanisms for various application environments. These mechanisms include:

- 802.1x authentication
- Captive portal authentication, including built-in

portal, and custom portal authentication modes
- MAC address authentication
- LDAP authentication
- WAPI encryption and authentication
- Wired/wireless integrated authentication and accounting

Easy-to-Manage Wireless Network

AP plug-and-play

When used with the DCWS-6028(R2), DCN smart APs support plug-and-play and zero configuration. DCWS-6028(R2) undertakes all the management, control, and configuration of the APS. Network administrators do not need to separately manage or maintain a huge number of wireless APs.

Remote probe analysis

The DCWS-6028(R2) supports remote probe analysis of APs. It enables the APs to captures Wi-Fi packets and mirrors them to a local analysis device in real-time to help network administrators troubleshooting or optimizing the network. The remote probe analysis function can perform analysis of a single working channel continuously or all channels in a polling mode to flexibly meet various wireless network monitoring requirements.

Product Specifications

Hardware Specifications

Item	DCWS-6028(R2)
Dimensions(L*W*H)	440mmx350mmx44mm; 19 inches, 1 U high, supporting rack installation
Switching capacity	208 Gbps
Service port	16 GE combo ports (GE/SFP)
	8 GE SFP ports
	4 10G SFP+ ports
Management port	1 console port (RJ-45), 1 out-of-band management port, 1 USB port
Power supply	2 power slots, 1+1 Modular Redundancy
Power consumption	90 W
Working/Storage temperature	0℃ to +50℃ –40℃ to +75℃
Working/Storage RH	10% to 90% (non-condensing)

Software Specifications

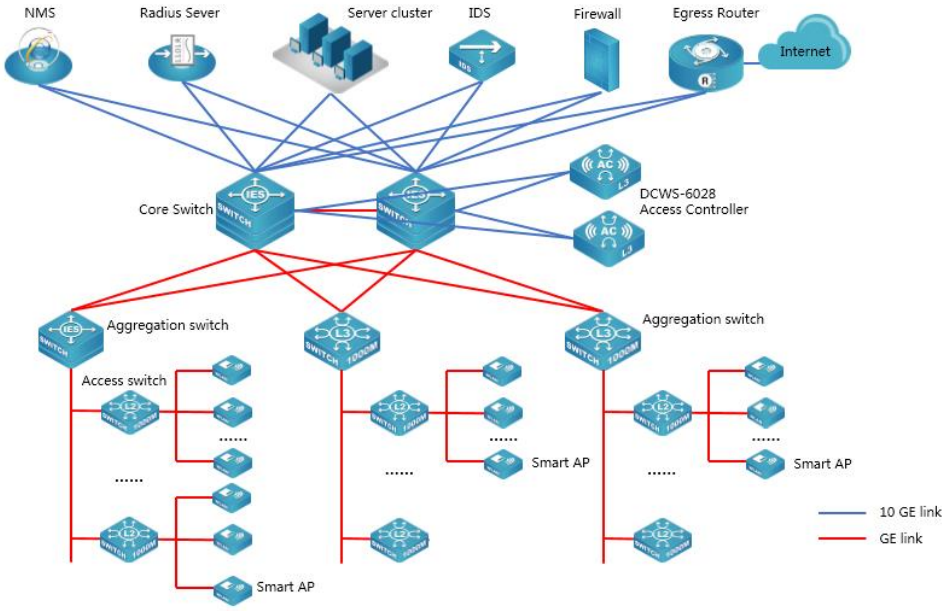
Item	DCWS-6028(R2)
Base number of manageable APs	32
Maximum number of manageable APs	2048 (bypass mode , no user authentication), 1024(bypass mode, with user authencation), 256 (trunk mode)
Number of manageable ACs in a cluster	64
AP upgrade step	16,32,128
Maximum number of concurrent wireless users	10k（no user authentication）, 2k（with user authentication）
VLANs	4K
ACL	4K
MAC address list	32K
ARP table	16K
Switching time during roaming	< 30 ms
L2 protocols and standards	IEEE802.3 (10Base-T), IEEE802.3u (100Base-TX), IEEE802.3z (1000BASE-X), IEEE802.3ab (1000Base-T), IEEE802.3ae (10GBase-T) IEEE802.3ak (10GBASE-CX4), IEEE802.1Q (VLAN) IEEEE802.1d (STP), IEEEE802.1W (RSTP), IEEEE802.1S (MSTP) IEEE802.1p (COS) IEEE802.1x (Port Control), IEEE802.3x (Flow Control)

	IEEE802.3ad (LACP), Port Mirror IGMP Snooping, MLD Snooping QinQ, GVRP, PVLAN Broadcast storm control
L3 protocols and standards	Static Routing RIPv1/v2, OSPF, BGP, VRRP, IGMP v1/v2/v3 ARP, ARP Proxy PIM-SM, PIM-DM, PIM-SSM
Wireless protocols and standards	802.11, 802.11a, 802.11b, 802.11g, 802.11n, 802.11d, 802.11h, 802.11i, 802.11e, 802.11k
CAPWAP protocol	Supports L2/L3 network topology between an AP and an AC.
	Enables an AP to automatically discover an accessible AC.
	Enables an AP to automatically upgrade its software version from an AC.
	Enables an AP to automatically download configurations from an AC.
IPv6 protocols and standards	IPv4/v6 dual-stack, manual tunnel, ISATAP, 6to4 tunnel, IPv4 over IPv6 tunnel, DHCPv6, DNSv6, ICMPv6, ACLv6, TCP/UDP for IPv6, SOCKET for IPv6, SNMP v6, Ping /Traceroute v6, RADIUS, Telnet/SSH v6, FTP/TFTP v6, NTP v6, IPv6 MIB support for SNMP, VRRP for IPv6, IPv6 QoS, static routing, OSPFv3, IPv6 SAVI
High reliability	N+1 backup
	N+N backup
RF management	Setting country codes
	Manually/automatically setting the transmit power
	Manually/automatically setting the working channel
	Automatically adjusting the transmission rate
	Blind area detection and repair
	RF environment scanning, which enables a working AP to scan the surrounding RF environment
	RF interference detection and avoidance
	11n-preferred RF policy
	SSID hiding
	20 MHz and 40 MHz channel bandwidth configuration
	Airtime protection in hybrid access of 11bg and 11n terminals
	Terminal-based airtime fairness scheduling
	Terminal locating (A terminal locating algorithm can be embedded in the AC)
	Spectral navigation (5 GHz preferred)
	11n only
	SSID-based or Radio-based limit on the number of users
	User online detection
	Automatic aging of traffic-free users
	Prohibiting the access of clients with weak signals
	Remote probe analysis
Security	64/128 WEP, dynamic WEP, TKIP, CCMP, and SMS encryption
	802.11i security authentication and two modes (Enterprise and Personal) of 802.1x and PSK
	WAPI encryption and authentication
	LDAP authentication
	MAC address authentication
	Portal authentication, including built-in portal, external portal, and custom portal authentication modes
	PEAP user authentication
	Forwarding security control, such as frame filtering, white list, static blacklist, and dynamic blacklist
	User isolation
	Periodic Radio/SSID enabling and disabling
	Access control of free resources

	Secure admission control of wireless terminals
	Access control of various data packets such as MAC, IPv4, and IPv6 packets
	Secure access control of APs, such as MAC authentication, password authentication, or digital certificate authentication between an AP and an AC
	Radius Client
	Backup authentication server
	Wireless SAVI
	User access control based on AP locations
	Wireless intrusion detection system (WIDS) and wireless intrusion prevention system (WIPS)
	Protection against flooding attacks
	Protection against spoofing attacks
Forwarding	IPv6 access and forwarding; constructing IPv6 WLAN access service on an IPv4 network; providing IPv4 WLAN access service on an IPv6 network; and constructing private IPv6 WLAN network service on an IPv6 network
	IPv4 and IPv6 multicast forwarding
	WDS AP
QoS	802.11e (WMM); and 4-level priority queues, ensuring that applications sensitive to the real-time effect, such as voice and video services, are transmitted first
	Ethernet port 802.1P identification and marking Mapping from wireless priorities to wired priorities
	Mapping of different SSIDs/VLANs to different QoS policies Mapping of data streams that match with different packet fields to different QoS policies
	Access control of MAC, IPv4, and IPv6 data packets
	Load balancing based on the number of users Load balancing based on user traffic Load balancing based on frequency bands
	Bandwidth limit based on APs Bandwidth limit based on SSIDs Bandwidth limit based on terminals Bandwidth limit based on specific data streams
	Power saving mode
	Multicast-to-unicast mechanism
	Automatic emergency mechanism of APs
	Intelligent identification of terminals
Management	Web management
	Configuration through a console port
	SNMP v1/v2c/v3
	Both local and remote maintenance
	Local logs, Syslog, and log file export
	Alarm
	Fault detection
	Statistics
	Login through Telnet
	Login through SSH
	Dual-image (dual-OS) backup
	Hardware watchdog
	AC cluster management; automatic information synchronization between ACs in a cluster, and automatic or manual push of configuration information
	SSID-based user permission management mechanism

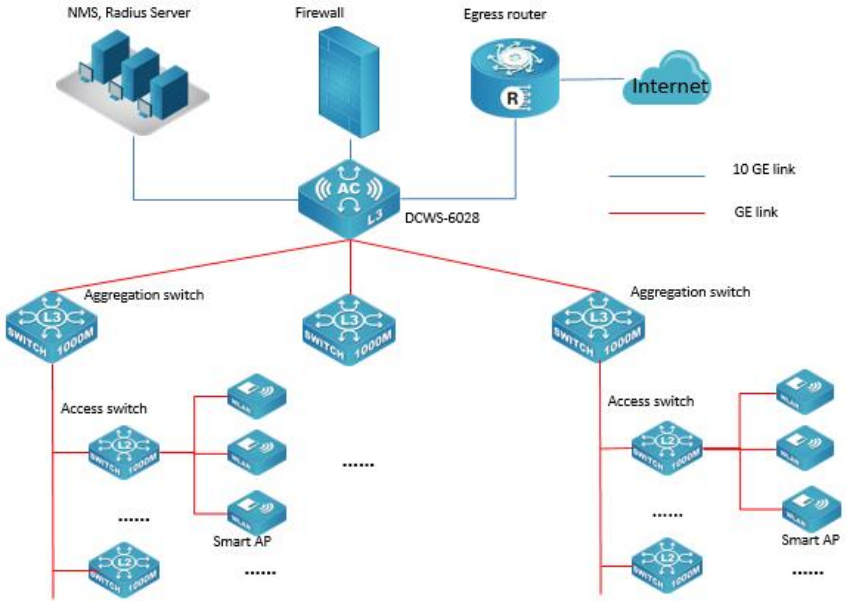
Typical Applications

Bypass Deployment Scenario



Trunk Deployment Scenario

Here the DCWS-6028 is deployed as both a core switch and access controller.



Order Information

Product Model	Description	Remarks
DCWS-6028(R2)	DCN Intelligent Access Controller (default with 32 units AP license, support controlling max. 2048 APs, support N+1, N+N redundancy)), 16*GbE Combo (SFP/RJ45) +8*1000M SFP ports+4*10GbE SFP+	Mandatory

	ports, two modular power, default with one AC power.	
DCWS-L16	Upgrade license of the DCN wired/wireless integrated smart AC (for upgrading 16 APs, a minimum number of upgrade step is 16 APs)	Optional
DCWS-L32	Upgrade license of the DCN wired/wireless integrated smart AC (for upgrading 32 APs, a minimum number of upgrade step is 32 APs)	Optional
DCWS-L128	Upgrade license of the DCN wired/wireless integrated smart AC (for upgrading 128 APs, a minimum number of upgrade step is 128 APs)	Optional
M6200-AC-A	AC Power Supply Module (150W) for DCWS-6028(R2) 100V-240V, could be purchased alone as an accessory	Optional