D-link DRO-3044 Reliable Multi-Service Router Datasheet

V2.0

Contents

1 Product Diagram

Figure1-1 The front view of DRO-3044

Figure1-2 The rear view of DRO-3044

2 Overview

DRO-3044 router is a brand-new generation network product developed by D-link for industry branch offices, medium- and large-sized enterprises. With the advanced software structure and hardware platform, DRO-3044 provides an integrated solution for the enterprise edge network with minimum investment. It fully satisfies the diversified application demands in the future service expansion and adapts to the current situation and trends of IT construction.

Integrated with rich network applications, such as routing, switching, voice, security, transmission, and video, DRO-3044 router is capable of customized requirements of different application environments. The colorful software features support VoIP, VPN, IPv6, MVRF, MPLS, and multicast technologies, as well as various backup solutions and QoS features, applying to the solutions of data, video, and voice access to services.

Designed with a modular structure, the DRO-3044 is a new-generation high-performance router that features high performance, modular design, high security, ease of use, and close to services. Its built-in hardware encryption engine can provide the function of high-speed and secure data encryption.

DRO-3044 adopts the network processor with high performance. And it is equipped with high-speed IP address forwarding, multi-service processing and high-performance data encryption.

DRO-3044 can serve as the core router of small- and medium-sized enterprise networks as well as the edge or convergence access equipment of large finance and government portrait networks.

3 Product Features

3.1 Multi-Service Integration

Routing and Switching Integrated

- DRO-3044 provides rich switching modules and can provide 48 L2 switching interfaces to effectively combine the L2 switch and the router so that it completes the functions of a router while satisfying the users' requirements for LAN construction with routers to complete L2 data switching.

- The router and the switch are integrated in the same physical device, which reduces the number of equipment nodes, improves reliability and reduces the physical space taken up by two pieces of equipment.

- The Ethernet switching module provides perfect features of the L2 Ethernet switch and supports relevant protocols, such as VLAN, MAC address management, spanning tree protocol, port convergence, 802.1X, QOS and ACL.

Integrated Voice Function

- DRO-3044 provides rich voice interface modules: FXS and FXO voice module.

- DRO-3044 provides rich voice features, supports standard SIP and H.323 protocol stack, and supports voice protocol and applications of GK function.

Integrated a Full Array of Security Functions

- With the built-in encryption engine for CPU, the encryption/decryption can be directly performed. This feature of DRO-3044 greatly improves the encryption/decryption performance and meets the encryption needs for large volume of data such as multimedia, to ensure the high performance in forwarding and encryption synchronization while saving the interface slots and decreasing the purchasing cost of users.

- DRO-3044 provides a full array of security functions, including Firewall, IPSec VPN, Secure Shell (SSH) protocol, protection of intrusion, DDoS and anti-Attack.

- DRO-3044 supports the Authentication, Authorization and Accounting (AAA) and supports the Radius, TACACS+ authentication protocol;

Integrated VPN Function

- DRO-3044 supports the VPN functions such as IPSec, GRE and L2TP/PPTP etc.;

- DRO-3044 supports MPLS VPN and Multi-VRF functions;

■ DRO-3044 supports the NAT Aware VRF function for the NAT application.

3.2 Complete Separation of Management and Data Forwarding

■ DRO operation system adopts the advanced V-CPU design idea. The CPU resources are divided into management resources and data forwarding resources. The CPU resources can be automatically allocated between the two resources according to the busy condition, so that the management applications like CLI, SNMP, TELNET, and routing protocols are not affected during the packet attacks and data forwarding of any densities.

3.3 Multi-service Line Rate Concurrence

■ Using the traffic table technology. When the QOS, ACL, NAT, and PBR services are enabled, the packets are matched from the first packet. The subsequent packets of the same flow are matched by the traffic table without querying one by one. Based on the flow processing, the performance for processing 100 ACL and PBR packets is the same as that for processing 1000 packets. Enabling the ACL, QoS, PBR, and NAT services has little impact on the overall performance of the router.

■ Organically integrated the new hardware architecture and structured software system, this function provides the services integrated with data, security, voice, video and various upper-layer applications, to meet the current and future networking applications without affecting the originally existing data transmission of the router.

■ Designed with the high-performance network processor, meeting the efficient data processing, supporting the high-density ports application, to ensure the network applications in high-speed environments.

3.4 Perfect QoS Policies

■ With high bandwidth control accuracy of the QOS, the error is less than 1%.

■ Supporting the congestion management and queuing policies such as PQ, FIFO, WFQ, CBWFQ, LLQ, and RTPQ.

■ Supporting the congestion avoidance policies such as RED.

■ Supporting the GTS traffic shaping policies.

■ Supporting the CAR traffic monitoring policies.

■ Supporting link efficiency QoS policies of CTCP and CRTP;

■ Supporting the setting of the priority of the voice packets, and providing small and medium-sized enterprises with high performance-cost-ratio multi-functional service platforms.

3.5 Rich Software Features

Unified DRO Network Platform

- All the DRO series routers are operated with the advanced operating system, which provides rich and complete function to meet different applications.

Perfect IPv6 Protocol Solution

- The DRO series routers fully support the IPv4 and IPv6 dual protocol stacks, and support the protocols such as common IPv4 routing protocol, IPv6 routing protocol, multicast routing protocol, and static routing.

- The DRO series routers provide the rich migration solutions from IPv4 to IPv6 , including the dual-stack technologies and tunneling technologies.

Creative Virtual Router Function(VRF)

- VRF can divide a router to multiple virtual routers logically. With the separate routing table and the corresponding interface participating in the data forwarding, each virtual router works like an independent router and the services of different virtual routers are isolated. This solves the problem to be isolated when multiple-type services are coexistence in a same physical device, further saves the investment on devices and telecommunication resources for the user.

Supporting MPLS

- The MPLS combines the L2 switching and L3 routing technologies. The MPLS VPN is increasingly popular for enterprise interconnection and provision of various new services, becoming an important means for IP network operators to provide value-added services.

- The DRO series routers support following functions: MPLS functions, LDP protocol (RFC3036), MPLS forwarding function, and MPLS L3 VPN (RFC 2547 and 4364) etc.

3.6 Fully Modular Design, Easy and Flexible

- The 2GE (Optical/electrical multiplexed) fast Ethernet L3 routing service interface is fixed on the DRO-3044.

- DRO-3044 provides 4 NMX module slots and 4 SIC module slots.

- DRO-3044 supports a broad range of high-density network/voice modules that deliver varied functions to implement more combination applications.

3.7 Easy for Using and Managing

- Using standard CLI for easier operation, to lower the cost for learning, using and maintenance;

- Supporting the SNMP protocol and the TFTP upload/download of the configuration files, for easier network management;

- Supporting the Telnet/Console to implement the remote management and control conveniently.

- Diversified on-line upgrade for future functionality expansion;

- Providing two USB2.0 interfaces, for conveniently configuring the files on the device, file backup of the operation system and copy operation.

4 Technical Specifications

Technical Specification	Description	
Model	**DRO-3044**	
Fixed port	2 Ports 10/100/1000BASE-T(RJ45), 2 Combo Ports 1000BASE-X(SFP,LC) One Console port, One AUX port	
SIC slot	Four	
NMX slot	Four	
USB2.0 Interface	Two	
Flash	512 MB	
Memory	512 MB	
Packet forwarding capacity	2 Mpps	
LAN Interconnection	Ethernet, 802.1Q, LACP(802.3ad), RSTP(802.1w), ARP	
WAN Interconnection	HDLC, PPP, PPPOE Client, MP, X.25, frame relay, LAPB, SLIP	
Routing protocol	static routing	
	Dynamic routing	RIPv1/v2, OSPF, BGP4
	Multicast	IGMP v1/v2/v3, PIM-SM, PIM-DM, PIM-SSM
	PBR	
IPv6	Basic IPv6 functions	IPv6 Forwarding, ND, IPv6 PMTU, IPv6 FIB, IPv6 ACL, IPv6 Ping, IPv6 Tracert
	IPv6 transition technology	Manual tunnel, Auto tunnel, GRE tunnel, 6to4 tunnel, ISATAP tunnel
	Dynamic routing protocol	RIPng, OSPFv3, BGP4+
MPLS	LDP, MPLS FW, MPLS/BGP VPN(L3 VPN)	
IP application	Ping, Trace, Telnet/Reverse Telnet, DNS Client, DDNS, NTP server/client, SNTP, DHCP Server/DHCP Relay/DHCP client, uRPF, UDP helper	
QoS	Flow classifying	standard ACL, extended ACL, DSCP, IP Precedence
	Congestion	FIFO, PQ, WFQ, CBWFQ, LLQ, RTPQ, MQC

Technical Specification	Description	
Model	**DRO-3044**	
	management	
	Congestion avoidance	RED
	Flow supervision	CAR, LCAR
	Flow shaping	GTS
	Link efficiency	CTCP, CRTP
	Others	VLAN sub-interface QoS, channelized interface, MP QoS
Network security	AAA	Local User, Radius, TACACS＋, IP Account
	SSH	SSH v1.5, SSH v2.0
	Firewall	dynamic packet filter, state detection, attack defense, URL filtering
	VPDN	L2TP, PPTP
	ACL	standard ACL, extended ACL
	NAT	NAT, NAPT
	GRE IPIP IPSEC	
Voice	Signal interface	FXS, FXO
	IPPBX	basic function, Dial Policy
	H.323 GK Client SIP	
High availability	VRRP DLDP BFD	
Management	SNMP v1/v2/v3, MIB, SYSLOG, Console login, Telnet (VTY) remote, SSH management	
Output Power (Maximum)	150W	
Power module number	2	

| Technical Specification	Description
Model	**DRO-3044**
Power redundancy	1+1
Dimensions (L x W x H)	440mm X 412mm X 161.4mm
Weight	23 kg
Power supply	110 VAC to 240 VAC, 47 Hz to 63 Hz
Temperature	Working temperature: 0°C to 40°C Storage temperature: -40°C to 55°C
Humidity	Working humidity: 10% to 90% RH Storage humidity: 5% to 90% RH

5 Typical Application

Networking with the Convergence Routers for the Private Network of Financial Institutions and Government Agencies
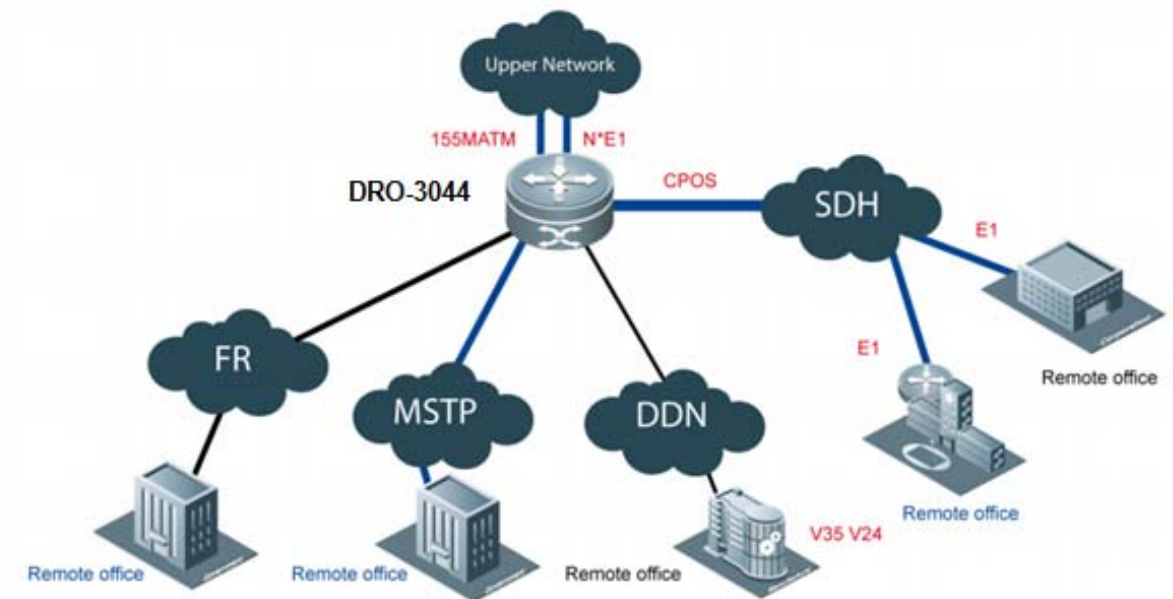
Application characteristics:

- The center adopts the convergence router DRO-3044 provided by D-link, the access unit uses the DRO20 series routers.

- It supports multiple-type access methods like CPOS /POS /ATM/GE /FE/E1 /V35 /V24/ISDN/ etc.

- It supports a full range of link protocols like ATM/FR/PPP/ ATM/ HDLC/X25/LAPB.

- It supports the networking in several ways such as ATM, SDH, MSTP, DDN, frame relay, X.25, ADSL and ISDN etc.

Encrypted Secure Networking of the Center and Branches
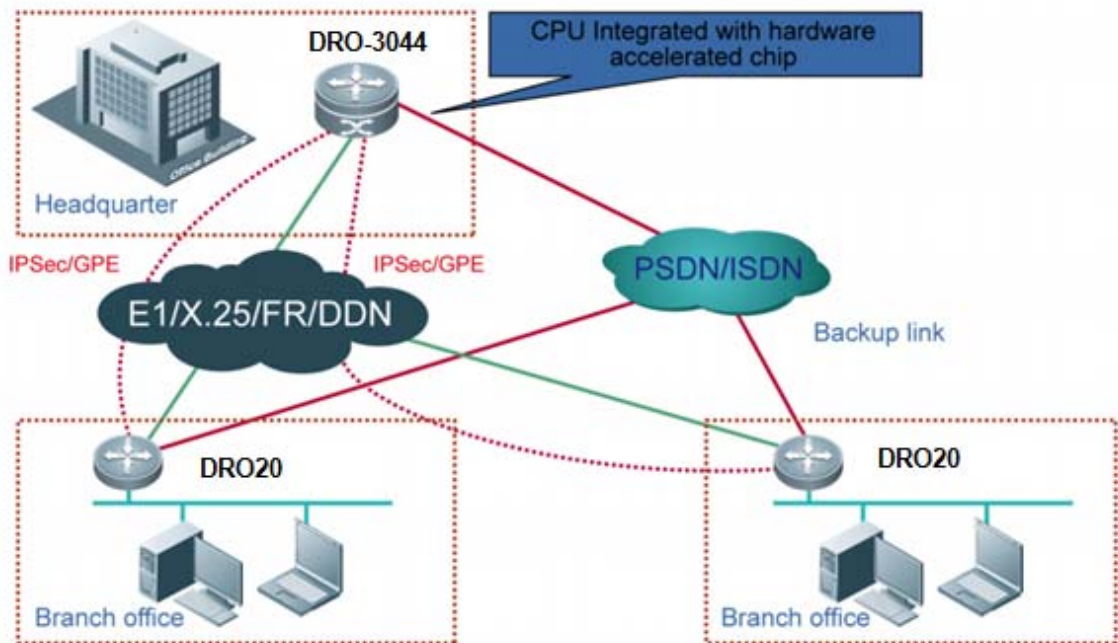
Application characteristics:

- The center uses the convergence routers DRO-3044. The branches can use DRO10 and DRO20 series routers.

- The built-in hardware encryption engine of the CPU on DRO-3044, can provide high-performance encryption/decryption requirements for the packets.

- DRO-3044 supports multiple-type access methods such as 155MPOS/CPOS, 155M ATM, MSTP, FR, X.25, E1, DDN, async dial-up and ISDN etc.

6 Order Information

Basic components for DRO-3044 router	
DRO-3044	Chassis configuration of DRO-3044: (One slot for main control board module, four slots for NMX user module), the main control board, power supply and fan should be purchased with additional fee, hot plugging/unplugging is supported.
DRO30-RCM44-512M-2GE	Main control module configuration of DRO-3044, two fixed optical/electrical multiplexing GE ports, four SIC slots, two USB interfaces, one Console port, one AUX port, 512M Memory, 512M FLASH with operating system.
DROXX40-FAN	DRO-3044 fan module
PA240R	DRO-3044 power module
DRO-3044 router interface modules	
SIC-4ESW	4-port 100Base-T fast-Ethernet switching interface card
SIC-1CE1	1-port channelized E1 interface card
SIC-1E1-F	1-port non-channelized E1 interface card
SIC-1HS	1-port high-speed synchronous serial port interface card
SIC-1B-U	1-port ISDN basic-rate U interface card
SIC-1B-S/T	1-port ISDN basic-rate S/T interface card
SIC-2FXS	2-port FXS voice interface card
SIC-2FXO	2-port FXO voice interface card
NMX-24ESW	24-port enhanced L2 switch module
NMX-4E1H/CE1H	4-port E1/CE1 module
NMX-8E1H/CE1H	8-port E1/CE1 module
NMX-2GEH	2-port optical/electrical multiplexing GE module
NMX-1CPOSH	1-port 155M CPOS E1-mode interface board - (SFP), hot plugging/unplugging is supported, and the SFP module should be purchased with additional fee.
DRO-3044 router interface accessories	
Adapter/RJ45F-DB9F	RJ45-DB9 Female Converter

Adapter/RJ45F-DB25M	RJ45-DB25 Male Converter
Adapter/RJ45F-DB25F	RJ45-DB25 Female Converter
Adapter/BNCF-BNCF/75 ohm	BNCF-BNCF Straight Converter
CAB-V.35DTE/POS26-34PM/3m	V.35DTE Cable/POS26-V.35
CAB-V.35DCE/POS26-34PF/3m	V.35DCE Cable/POS26-V.35
CAB-V.24DTE/POS26-DB25M/3m	232DTE Cable/POS26-DB25
CAB-V.24DCE/POS26-DB25F/3m	232DCE Cable/POS26-DB25
CAB-E1 balanced/DB9M-RJ45F/120 ohm/3m	E1 balanced Cable/RJ45 Female-120Ω-3meter, DB9M Cable Connect RJ45 female
CAB-E1 unbalanced/DB9M-2*BNC/75 ohm/3m	E1 Cable-3m, DB9 Male Connect BNC*2 (75ohm)
CAB-E1 balanced/DB9M-RJ45M/120 ohm/3m	E1 Cable-3m, DB9 Male Connect RJ45 (120ohm)
CAB-E1 unbalanced/DB25M-8*BNC/75 ohm/3m	E1 Cable-3m, DB25 Male Connect BNC*8 (75ohm)
CAB-E1 balanced/DB25M-4*RJ45M/120 ohm/3m	E1 Cable-3m, DB25 Male Connect RJ45 *4 (120ohm)
Mini-GBIC-SX	1000BASE-SX SFP Transceiver MM (850nm, 550m, LC)
Mini-GBIC-LX	1000BASE-LX SFP Transceiver SM (1310nm, 10km, LC)
Mini-GBIC-LH	1000BASE-LH SFP Transceiver SM (1310nm, 40km, LC)
Mini-GBIC-ZX50	1000BASE-ZX SFP Transceiver SM (1550nm, 50km, LC)
Mini-GBIC-ZX80	1000BASE-ZX SFP Transceiver, SM (1550nm, 80km, LC)
SDH155-SFP-SX-MM850	155M CPOS SFP Transceiver, MM(850nm, 1km, LC)
SDH155-SFP-SX-MM1310	155M CPOS SFP Transceiver, MM(1310nm, 2km, LC)
SDH155-SFP-LH15-SM1310	155M CPOS SFP Transceiver, MM(1310nm, 15km, LC)
SDH155-SFP-LH40-SM1310	155M CPOS SFP Transceiver, MM(1310nm, 40km, LC)
SDH155-SFP-LH80-SM1550	155M CPOS SFP Transceiver, MM(1550nm, 80km, LC)