BROCADE MOBILITY RFS4000 802.11n CONTROLLER

CAMPUS NETWORK

Integrated Services Controller for Remote Offices

HIGHLIGHTS

- Integrated solution unifies remote offices on a single, cost-effective mobile platform
- Advanced networking services enable higher productivity and Return On Investment (ROI)
- Always-on secure networking helps ensure remote services reliability
- Built-in intelligence eliminates the need for local IT support
- Integrated control optimizes advanced voice features
- Virtual LANs (VLANs) accelerate device and network performance
- Unified wired/wireless network management cuts complexity

Supporting today's remote office requirements calls for tight integration of wired, wireless, and networking security features. The Brocade® Mobility RFS4000 Controller integrates all three of these critical networking features into a compact and easy-to-use form factor, enabling organizations to create survivable remote office networks using a single platform.

To meet the most demanding remote office mobility coverage and performance needs, the Brocade Mobility RFS4000 is also available with an integrated dual-radio, dual-band 802.11n Access Point (AP). In addition, the Brocade Mobility RFS4000 offers built-in applications such as locationing for Wi-Fi and RFID, as well as hotspot and Voice over Wireless LAN (VoWLAN)/video services.

ADVANCED NETWORKING SERVICES IMPROVE PRODUCTIVITY AND ROI

The Brocade Mobility RFS4000 provides a number of value-added and productivity applications. An integrated customizable Secure Guest Access application with distributed or centralized authentication allows small enterprises and remote offices to provide hotspot services for guests. A real-time locationing system for Wi-Fi and RFID provides centralized asset tracking and monitoring. Storage via USB enables software image distribution, while FMC compliance supports third-party solutions and future services—including the extension of the desk phone to mobile devices over Wireless LAN (WLAN) and Wireless WAN (WWAN).

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SECURE NETWORKING IS ALWAYS ON

The Brocade Mobility RFS4000 comes with multiple features to help ensure reliability and survivability of remote networking services in virtually any situation. The controller protects against AP and mesh node failure with SMART RF, a feature that keeps users on the network with automatic optimization and healing. A clustering mechanism protects against wireless switch failure and offers Active/Active or Active/Standby controller redundancy options. In the event of a WAN outage, a redundant 3G ExpressCard helps ensure Internet services by providing WAN backhaul options.

In addition, the Brocade Mobility RFS4000 secures both wireless and wired networks with:

- Integrated stateful Layer 2-7 wired/wireless firewall
- Integrated Intrusion Detection System (IDS)/Intrusion Prevention System (IPS) engine for rogue detection and containment
- Anomaly analysis engine
- Denial of Service (DoS) attack protection
- Ad hoc network detection

NO ONSITE IT SUPPORT IS REQUIRED

The Brocade Mobility RFS4000 combines multiple features to eliminate the need for onsite IT support for deployment and day-to-day management. Plug-and-play setup features include built-in intelligence, which allows the network to identify and automatically address network issues, along with zero-touch installation. The integration of all wired and wireless networking infrastructure into a single device is easily managed back in the Network Operations Center (NOC) via auto-discovery and auto-configuration.

INTEGRATED CONTROL REDUCES VOICE COSTS

The Brocade Mobility RFS4000 provides granular control over multiple wireless networking functions to deliver high performance and persistent, clear connections with toll-quality voice and superior video service.

The solution supports VoWLAN to provide cost-effective voice services throughout the wireless enterprise, which enables push-to-talk for employees inside and outside physical locations. Wi-Fi Multimedia (WMM) Admission Control, including TSPEC, SIP Call Admission Control, and 802.11k radio resource management, provides dedicated bandwidth for voice calls, as well as better control over active voice calls for a variety of Voice over IP (VoIP) handsets.

VIRTUAL LAN BOOSTS DEVICE AND NETWORK PERFORMANCE

The Brocade Mobility RFS4000 provides a Virtual LAN (VLAN) feature via a switch/controller to accelerate device and network performance. Each AP can be virtualized into four unique VLANs, which can be customized to direct broadcast traffic to the intended recipient. These features reduce the amount of overall network traffic while improving device performance and battery life up to 25 percent—while also reducing the overall number of APs required to provide unique device services.

WIRED/WIRELESS NETWORK MANAGEMENT CUTS COMPLEXITY

Managing enterprise campus networks continues to become more complex, thanks to the growth in services that rely on wired and wireless networks. Services such as Internet, e-mail, video conferencing, real-time collaboration, and distance

learning all have specific configuration and management requirements. And at the same time, organizations face increasing demand to provide uninterrupted services for high-quality voice and Unified Communications (UC), wireless mobility, and multimedia applications.

To reduce complexity and time spent managing these environments, the easy-to-use Brocade Network Advisor discovers, manages, and deploys configurations to groups of devices. By using the Brocade Network Advisor Device Configuration Manager tool, organizations can configure VLANs within the network, manage wireless AP realms, group wireless LAN switches into domains for Layer 3 mobility support, or execute CLI commands on specific devices or groups of devices. Brocade Network Advisor centralizes management of the entire family of Brocade Mobility wireless products, including Brocade Mobility RFS4000.

MAXIMIZING INVESTMENTS

To help optimize technology investments, Brocade and its partners offer complete solutions that include education, support, and services. For more information, contact a Brocade sales partner or visit www.brocade.com.

BROCADE MOBILITY RFS4000 SPECIFICATIONS

Packet forwarding

802.1D-1999 Ethernet bridging; 802.11-802.3 bridging; 802.1Q VLAN tagging and trunking; proxy ARP; IP packet steering redirection

Wireless networking

Wireless LAN	Supports 32 WLANs; multi-ESSID/BSSID traffic segmentation; VLAN-to-ESSID mapping; auto-assignment of VLANs (on RADIUS authentication); power save protocol polling; pre-emptive roaming; VLAN pooling and dynamic VLAN adjustment; IGMP snooping
Bandwidth management	Congestion control per WLAN; per user based on user count or bandwidth utilization; dynamic load balancing of Brocade Mobility 650 APs and adaptive access points in a cluster; bandwidth provisioning via AAA server
Access points	Supports six "thin" 802.11n Brocade Mobility 650 APs for Layer 2 or 3 deployment per controller and 72 802.11n Brocade Mobility 650s per cluster; IPv6 client support
Adaptive access points	Supports adoption of six Brocade Mobility 5181 802.11a/b/g and Brocade Mobility 7131 802.11n APs in Adaptive Mode per controller and 72 per cluster; multiple country configuration support
Power over Ethernet (PoE)	Integrated; up to a maximum of 90 watts for simultaneous operation

Network security

Features	Role-based wired/wireless firewall (Layer 2-7) with stateful inspection for wired and wireless traffic; active firewall sessions—50,000 per controller and 600,000 per cluster; protects against IP spoofing and ARP cache poisoning
Access Control Lists (ACLs)	Layer 2/3/4 ACLs
Wireless IDS/IPS	Multimode rogue AP detection, rogue AP containment, 802.11n rogue detection, ad hoc network detection, Denial of Service (DoS) protection against wireless attacks, client blacklisting, excessive authentication/association; excessive probes; excessive disassociation/de-authentication; excessive decryption errors; excessive authentication failures; excessive 802.11 replay; excessive crypto IV failures (TKIP/CCMP replay); suspicious AP, authorized device in ad hoc mode, unauthorized AP using authorized SSID, EAP Flood, Fake AP Flood, ID theft, ad hoc advertising, authorized SSID
Geofencing	Add location of users as a parameter that defines access control to the network
WIPS sensor conversion	Supported on the Brocade Mobility 650 and Brocade Mobility 650 APs; supported on the Brocade Mobility 5181 and Brocade Mobility 7131 AP in Adaptive Mode
Anomaly analysis	Source Media Access Control (MAC) = Dest MAC; illegal frame sizes; source MAC is multicast; TKIP countermeasures; all zero addresses

Authentication	802.1x/EAP—Transport Layer Security (TLS), Tunneled Transport Layer Security (TTLS), Protected EAP (PEAP); Kerberos integrated AAA/RADIUS server with native support for EAP-TTLS, EAP-PEAP (includes a built-in user name/password database; supports LDAP), and EAP-SIM
Transport encryption	WEP 40/128 (RC4), KeyGuard, WPA-TKIP, WPA2-CCMP (AES), WPA2-TKIP
802.11w	Provides origin authentication, integrity, confidentiality, and replay protection of management frames for Brocade Mobility 650 AP
IPsec VPN gateway	Supports DES, 3DES, and AES-128 and AES-256 encryption, with site-to-site and client-to-site VPN capabilities
Secure guest access (hotspot provisioning)	Local Web authentication; URL redirection for user login; customizable login/welcome pages; support for external authentication/billing systems, usage-based charging
Wireless RADIUS support	User-based VLANs (standard); MAC-based authentication (standard); user-based Quality of Service (QoS); location-based authentication; allowed ESSIDs
NAC support	Integration with third-party systems from Microsoft and Symantec

Real-Time Locationing System (RTLS)

RSSI-based triangulation for Wi-Fi assets

Tags supported: Ekahau, Aeroscout, Newbury, Gen 2 tags

RFID support: Compliant with LLRP protocol
Built-in support for the following Motorola RFID readers: fixed (XR440, XR450, XR480); mobile (RD5000) and handheld (MC9090-G RFID)

Optimized wireless QoS

RF priority	802.11 traffic prioritization and precedence
Wi-Fi Multimedia (WMM) extensions	WMM-power save with TSPEC Admission Control; WMM U-APSD
IGMP snooping	Optimizes network performance by preventing flooding of the broadcast domain
SIP call admission control	Controls the number of active SIP sessions initiated by a wireless VoIP phone
802.11k	Provides radio resource management to improve client throughput (11k client required)
Classification and marking	Layer 1-4 packet classification; 802.1p VLAN priority; DiffServ/TOS

System resiliency and redundancy

Active:Standby; Active:Active and N+1 redundancy with AP and MU load balancing; critical resource monitoring

SMART RF: Network optimization to help ensure user quality of experience by dynamic adjustments to channel and power (on detection of RF interference or loss of RF coverage/neighbor recovery)

Virtual IP: Single virtual IP (per VLAN) for a switch/controller cluster to use as the default gateway by mobile devices or wired infrastructure

Dual-firmware bank supports image failover capability

System extensibility

ExpressCard Slot: Driver support for 3G wireless cards for WAN backhaul

- AT&T (NALA): Option GT Ultra Express
- Verizon (NALA): Verizon Wireless V740 Express Card
- Vodaphone (EMEA): Novatel Merlin XU870
- Vodaphone (EMEA): Vodaphone E3730 3G Expresscard
- Telstra (Australia): Telstra Turbo 7 series Expresscard (Aircard 880E)
- General Use (NALA/APAC): Novatel Merlin XU870

Management

Features	Command-line interface (serial, telnet, SSH); secure Web-based GUI (SSL) for the wireless controller and the cluster; SNMP v1/v2/v3; SNMP traps—40+ user-configurable options; Syslog; TFTP Client; Secure Network Time Protocol (SNTP); text-based controller configuration files; DHCP (client/server/relay), controller auto-configuration and firmware updates with DHCP options; multiple user roles (for controller access); MIBs (MIB-II, Etherstats, wireless controller-specific monitoring, and configuration); e-mail notifications for critical alarms; MU naming capability

Physical characteristics

Form factor	1U rack mount (optional rack mount kit RFS-4010-MTKT1U-WR sold separately)
Dimensions	1.750 in. H × 12.00 in. W × 10.00 in. D (44.45 mm H × 304.80 mm W × 254.00 mm D)
Weight	4.75 lb (2.15 kg)
Physical interfaces	One Uplink Port: 10/100/1000 Copper/Gigabit SFP interface
	Five 10/100/1000 Copper Ethernet ports, 802.3af and
	802.3at Draft
	One USB 2.0 Host
	One ExpressCard Slot
	One Serial Port (RJ45 style)
MTBF	Greater than 65,000 hours

Power requirements

AC input voltage	100 to 240 VAC 50/60 Hz
Maximum AC input current	3 A
Input frequency	47 Hz to 63 Hz

Environmental

Temperature	Operating: 32° F to 104° F (0° C to 40° C)
	Non-operating: -40° F to 158° F (-40° C to 70° C)
Humidity	Operating: 5% to 85% (without condensation)
	Non-operating: 5% to 85% (without condensation)
Heat dissipation	95 BTU per hour

Regulatory

Product safety	UL/cUL 60950-1, IEC/EN60950-1
EMC compliance	FCC (USA), Industry Canada, CE (Europe), VCCI (Japan), C-Tick (Australia/New Zealand)

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