RFS 7000
Wireless Services Controller
Enabling a secure and reliable Wireless Enterprise for campus, data center and large deployments

FEATURES

Wi-NG operating system — delivering a unified voice, data and RF management platform

High performance Wireless LAN Controller for the demanding enterprise networks

Designed for large scale, high bandwidth deployments, the RFS 7000 Wireless Services Controller provides highly scalable enterprise mobility in large enterprises, campuses and data centers. Motorola’s landmark Wireless Next Generation (Wi-NG) operating system enables a comprehensive set of services, offering unmatched security, reliability and mobility for high performance 802.11n networks. Easy to deploy and manage, the RFS 7000 provides a converged platform to deliver multimedia applications (data, voice, video), wireless networking, and value-added mobility services such as secure guest access and locationing for multi-RF networks.

Gap-free security for the Wireless Enterprise

Comprehensive network security features keep wireless transmissions secure and provide compliance for HIPAA and PCI. The RFS 7000 provides gap-free security for the WLAN network, following a tiered approach to protect and secure data at every point in the network, wired or wireless. This complete solution includes a wired/wireless firewall, a built-in Wireless Intrusion Protection System (WIPS), an integrated IPSec VPN gateway, AAA RADIUS server and secure guest access with a captive web portal, reducing the need to purchase and manage additional infrastructure. Additional security features include MAC-based authentication, 802.11w to secure management frames, NAC support, anomaly analysis and more.

Motorola also offers a Common Criteria Evaluation Assurance Level 4 (CC EAL4) and FIPS 140-2 certified version of the RFS 7000.

Enabling toll-quality voice for the Wireless Enterprise

Support for VoWLAN provides cost-effective voice services throughout the wireless enterprise, enabling push-to-talk and more for employees inside the four walls as well as in outside areas such as the yard. The rich feature set provides granular control over the many wireless networking functions required to deliver high performance persistent clear connections with toll-quality voice. Quality of service (QoS) ensures superior performance for voice and video services. WMM Admission Control and 802.11k radio resource management, including TSPEC and SIP Call
Adaptive AP: extending the enterprise
Enables centralized management of adaptive access points at remote sites including automatic firmware upgrades; provides site survivability for remote locations with 802.11a/b/g/n networks for unparalleled resiliency

Wireless Intrusion Protection System (IPS)
The built-in wireless IPS defends against over-the-air attacks by leveraging the sensing capabilities of Motorola’s AP 300, AP 650, AP5x1, or AP 7131 access points

Secure Guest Access (Hotspot)
Provides secure guest access for wired and wireless clients. Built-in captive portal, customizable login/welcome pages, URL redirection for user login, usage-based charging, dynamic VLAN assignment of clients, DNS white list, GRE tunneling of traffic to central site, API support for interoperability with custom web portals (e.g. Wandering WiFi), Amigopod, support for external authentication and billing systems

Enhanced End-to-End Quality of Service (QoS)
Enhances voice and video capabilities; prioritizes network traffic to minimize latency and provide optimal quality of experience; SIP Call Admission Control and Wi-Fi Multimedia Extensions (WMM-Power Save) with Admission Control enhances multimedia application support and improves battery life and capacity; network optimization through granular bandwidth contracts based on bandwidth utilization, network load and number of users for different applications being used, in different locations; TSPEC

RFS 7000 network architecture
The RFS 7000 offers the comprehensive functionality necessary to extend wireless voice and data access inside the largest of enterprises — as well as to remote locations inside and outside the enterprise campus walls.
Admission Control, ensure dedicated bandwidth for voice calls as well as better control over active voice calls for a variety of VoIP handsets. Layer 3 hyperfast secure roaming combines with readiness for external fixed-mobile convergence (FMC) solutions, enabling seamless voice services with true mobility across the enterprise.

Enabling value-added mobility services
The RFS 7000 supports seamless mobile access to multi-RF networks, enabling locationing and simplified real-time asset tracking throughout the network. In addition, the RFS 7000 offers unparalleled management flexibility — the user is free to choose between Motorola's AirDefense Infrastructure Management solution, a partner portal or any other enterprise application for central monitoring and visualization. Secure guest access, onboard RADIUS services, granular access, bandwidth control at the client level and automatic load balancing enable highly optimized, flexible and secure hotspot deployments managed centrally through one console.

Adaptive AP for increased network flexibility — and site survivability
The RFS 7000 simplifies and reduces the cost of extending mobility to remote and branch offices as well as telecommuters. Motorola's Independent Mesh Access Points (AP 51X1 a/b/g and AP 7131 a/b/g/n) can be deployed at remote locations yet centrally managed in the Network Operations Center (NOC) through the RFS 7000 (single controller or a cluster for scalability). An IPSec VPN tunnel secures all traffic between the access points and the wireless controller. Remote Site Survivability (RSS) mesh access points deliver secure uninterrupted wireless service — providing unparalleled resiliency that survives a WAN link outage.

Put your RF on autopilot
The Wi-NG operating system delivers SMART RF Management, which provides the dynamic RF tuning required for optimal network performance. This feature takes self-healing to the next level, dramatically reducing network monitoring IT costs by enabling the WLAN to intelligently adapt to the ever-changing RF environment. The ability to dynamically adjust the power and channels on any access port automatically eliminates the gaps in coverage that occur when an AP fails or there is a change in your environment — for example, the introduction of an increased volume of liquid or metal — all without any physical intervention. The elegant feature protects against under- or over-powering — scenarios that could reduce performance and network availability. And adjustments are completely transparent — there is no impact on voice calls and data sessions in progress — protecting the quality of service and the user experience to ensure user productivity.

Maximize benefits — and minimize costs
All the enterprise class services such as security, voice, performance and resiliency are built into the Wi-NG operating system — the innovative and modular operating system (OS) for the RFS 7000. These comprehensive services come at no additional cost and are packaged together to make mobility work — even better.

End-to-end support
As an industry leader in mobility, Motorola offers the experience gained from deploying mobility solutions all over the globe in many of the world’s largest enterprises. Leverage this expertise through Motorola Enterprise Mobility Services, which provides the comprehensive support programs you need to deploy and maintain your RFS 7000 at peak performance. Motorola recommends protecting your investment with Service from the Start Advance Exchange Support, a multi-year program that provides the next-business-day device replacement, technical software support and software downloads you need to keep your business running smoothly and productively. This service also includes Comprehensive Coverage, which covers normal wear and tear, as well as internal and external components damaged through accidental breakage — significantly reducing your unforeseen repair expenses.

For more information, visit us on the web at www.motorola.com/rfs7000 or access our global contact directory at www.motorola.com/enterprisemobility/contactus

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 256 VLANs; multi-ESS/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 thin and Adaptive APs in a cluster. Bandwidth provisioning via AAA server

Access points: Supports 256 802.11 a/b/g AP 300s or 802.11a/b/g/n AP 650 thin access points for L2 or L3 deployment per switch and 3,072 AP 300s or AP 650s per cluster; Legacy support: AP100 for L2 deployments only
Adaptive AP: Supports adoption of 1,024 adaptive AP 51X1 802.11 a/b/g and AP 7131 802.11a/b/g/n access points in Adaptive Mode per switch/controller and 12,288 per cluster; multiple country configuration support; Legacy support: AP 4131 per port conversion for L2 deployments only
Layer 2 or Layer 3 deployment of thin access points and adaptive AP AP 51X1 802.11a/b/g and AP 7131 802.11a/b/g/n access points
IPv6 client support

RFS 7000 Specifications

Admission Control ensures ample bandwidth and a superior user experience for VoIP calls

Real Time Locationing System (RTLS)
Provides rich locationing services to enable real-time enterprise asset tracking through support for 802.11, RFID and third party locationing solutions — including industry leaders AeroScout, Ekahau, and Newbury Networks. Standards-based support for: EPC Global ALE interface for processing and filtering data from all active and passive tags; and EPC Global LLRP interface for passive RFID tag support

Clustering and failover features
Supports multiple levels of redundancy and failover capabilities to ensure high availability networks; provides a single virtual IP (per VLAN) for the cluster to use as a default gateway by mobile devices/wired infrastructure, on-board DHCP/AAA server synchronized failover; multi-platform license sharing enables deployment of cost-effective networks

True mobility
Virtual AP provides better control of broadcast traffic and enables multiple mobile and wireless applications with quality of service when network is congested; Pre-emptive Roaming ensures Motorola mobile devices roam before signal quality degrades; Power Save Protocol optimizes battery life
Layer 3 Mobility (Inter-Subnet Roaming)

Radio frequency automatic channel select (ACS); Transmit power control management (TPC); Country code-based RF configuration; 802.11b, 802.11g, 802.11a, and 802.11n

Network Security

Role-based wired/wireless firewall (L2/L7) with stateful inspection for wired and wireless traffic; Active firewall sessions — 200,000 per controller and 2,480,000 per cluster; protects against IP Spoofing and ARP Cache Poisoning

Access Control Lists (ACLs): L2/L3/L4 ACLs

Wireless IDS/IPS:

Multi-mode rogue AP detection, Rogue AP Containment, 802.11n Rogue Detection, Ad-Hoc Network Detection, Denial of Service protection against wireless attacks, client blacklisting, excessive authentication/association; excessive probes; excessive disassociation/deauthentication; excessive decryption errors; excessive authentication failures; excessive 802.11i replay, excessive crypto IV failures (TKIP/CCMP replay); Suspicious AP, device in ad-hoc mode, unauthorized AP using authorized SSID, EAP flood, fake AP flood, ID theft, ad-hoc advertising unauthorized SSID

Geofencing:

Add location of users as a parameter that defines access control to the network

WPS sensor conversion:

Supported on the AP 300, AP 600, and the adaptive AP 5131 and AP 7131

Anomaly Analysis:

Source Media Access Control (MAC) = Dest MAC; Illegal frame sizes; Source MAC is multicast; TKIP countermeasures; all zero addresses

Authentication:

Access Control Lists (ACLs); pre-shared keys (PSK); 802.1x/EAP—transport layer security (TLS), tunnelled 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-CCMP

802.11w:

Provides origin authentication, integrity, confidentiality and replay protection of management frames for AP 300

IPSec VPN gateway:

Supports DES, 3DES and AES-128 and AES-256 encryption, with site-to-site and client-to-site VPN capabilities; supports 2,048 concurrent IPSec tunnels per switch/controller — 24,576 per cluster

Secure guest access

(Hotspot provisioning)

Provides secure guest access for wired and wireless clients: built-in captive portal, customizable login/welcome pages, URL redirection for user login, usage-based charging, dynamic VLAN assignment of clients, DNS white list, GRE tunneling of traffic to central site, API support for interconnectability with custom web portals (e.g. Wandering WiFi), Amigopod, support for external authentication and billing systems

Wireless RADIUS Support (Standard and Motorola Vendor Specific Attributes):

User Based VLLNAs (Standard)

MAC Based Authentication (Standard)

User Based QoS (Motorola VSA)

Location Based Authentication (Motorola VSA) Allowed ESSIDs (Motorola VSA)

NAC support with third party systems from Microsoft, Symantec and Bradford

Optimized Wireless GoS

RF priority: 802.11 traffic prioritization and precedence

Wi-Fi Multimedia extensions: WMMP-power save with TSPEC Admission Control

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-Standy, Active/Active and N+1 redundancy with access port and MU load balancing, Critical resource monitoring

Virtual IP: Single virtual IP (per VLAN) for a switch cluster for use as a default gateway for mobile devices or by wired infrastructure. Seamless fail-over of associated services e.g. DHCP Server

SMART RF: Network optimization to ensure user quality of experience at all times by dynamic adjustments to channel and power (on detection of RF interference or loss of RF coverage/neighbor recovery). Available for both thin APs and Adaptive APs

Dual Firmware bank supports Image Failover capability

Management

Command line interface (serial, telnet, SSH); secure Web-based GUI (SSL) for the wireless controller and the cluster; SNMP v1/v2/v3; SNMP traps—60+ user configurable options; Syslog, Firmware, Config upgrade via TFTP, FTP & SFTP (clients), simple network time protocol (SNTP), text-based switch/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, Ethertags, wireless controller specific monitoring and configuration); Email notifications for critical alarms; MU naming capability

Physical Characteristics

Form factor: 1U Rack Mount

Dimensions: 1.75 in. H x 17.32 in. W x 15.39 in. D

Weight: 13.5 lbs./6.12 kg

Physical interfaces: 4 10/100/1000 Cu/Sp Ethernet interfaces, 1 10/100 OOB port, 1 CF card slot, 2 USB slots, 1 serial port (RS485 style)

MTBF: ≥50,000 Hours

Power Requirements

AC input voltage: 90 – 264 VAC 50/60Hz

Max Power Consumption: 100W

User Environment

Operating temperature: 32°F to 104°F / 0°C to 40°C

Storage temperature: -40°F to 158°F /-40°C to 70°C

Operating humidity: 5% to 95% (w/o condensation)

Storage humidity: 5% to 95% (w/o condensation)

Max Operating Altitude: 3000m

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)
## About BarcodesInc

### Who We Are

BarcodesInc is North America's leading provider of specialized digital data hardware and software solutions. Our products include barcode scanners, mobile computing devices, identification card equipment, point-of-sale systems, barcode label and receipt printers, and consumables, all of which help customers improve productivity and profitability. Our product and solution experts have been serving both small businesses and large enterprises since 1994.

### We Owe Our Success To You

It’s true that data tracking is our expertise - but customer satisfaction is our true passion. We have one overriding objective: focus on you, the customer. We understand that each customer’s need is unique. That’s why we listen carefully and tailor our solutions to meet your needs. We appreciate the opportunity to serve you and strive to exceed your expectations!

## Why Choose BarcodesInc?

### Dedicated Account Manager

Our Account Managers will not compromise when it comes to providing you top-notch service. Your Account Manager is the primary point of contact for your business and makes it a priority to get to know you, your company and all your needs.

### Highly-Trained Technical Support

Our technical staff has the broadest knowledge and every significant certification in the industry. One of our friendly experts is always available to suggest products and solutions for any situation.

### Incredible Value

Our purchasing power means big savings for you. Whatever your project, our team will work hard to deliver a solution that fits your budget.

### Largest Inventory in the Industry and Same-Day Shipping

Whatever your barcoding, mobile computing, or printing needs, we will fill your order and ship it the same day.

### Premier Access to Top Manufacturers

BarcodesInc maintains strong strategic partnerships with the leading manufacturers in barcoding, mobile computing, printing and RFID.

### Responsive Customer Service

Every phone call and email is responded to promptly, completely and accurately by our customer service team.

### Easy Returns

Damaged, defective or incorrectly ordered goods may be returned without hassle.