Overview

Models

HP MSR Open Application Platform (OAP) with VMware vSphere FIC Module	JG533A
HP MSR Open Application Platform (OAP) with VMware vSphere MIM Module	JG532A

Key features

- Industry-leading VMware® vSphere™ virtualization platform
- Integrated AllianceONE applications
- High-performance, highly scalable services architecture
- Compact form factor for variety of MSR30 and MSR50 Series models
- One Gigabit Ethernet and two USB ports

Product overview

The HP MSR Open Architecture Platform (OAP) with VMware® vSphere™ Series provides an industry leading virtualization platform that integrates third-party applications on HP MSR Series routers. This solution delivers network services including WAN routing, wireless LAN, 3G/4G, Ethernet switching, security, voice and AllianceONE applications all integrated on a single high-performance modular routing platform.

The modules in this series offer a multi-core multi-threaded processing architecture that combines storage, Gigabit Ethernet and USB network interfaces, minimizing physical footprint, power consumption, cabling and management, thereby reducing cost and complexity.

The MSR OAP Series is available in MIM and FIC module form factors for seamless deployment on the HP MSR30 Series or MSR50 Series routers respectively. vSphere clients and vCenter virtualization management tools simplify remote installation, setup and configuration so as to quickly deploy rich, virtualized applications accross branch office locations.

Features and benefits

HP AllianceONE integration

- **Virtual network infrastructure**
  delivers a flexible and open virtual network infrastructure by allowing the integration of HP AllianceONE applications

Application highlights

- **Virtualized WAN optimization**
  supports Riverbed's Virtual Steelhead application to increase the efficiency and performance of the network traffic by way of data, transport, and application streamlining

Branch office consolidation

- **Total solution in one device**
  provides routing, switching, wireless LAN, 3G/4G, security, voice and- with an MSR OAP module- virtualization services in one HP MSR router

Virtualization

Overview

- **Virtualization platform benefits**
  - supports VMware vSphere 5.0, the industry's most established, feature rich and resilient hypervisor with its full breadth of vSphere client and vCenter management applications
  - enhances the all-in-one capabilities of the MSR30 and MSR50 Series routers through use of VMware-ready applications
  - provides a router-based virtualization platform for HP branch office solutions
- **VMWare vSphere platform benefits**
  - embedded vSphere 5.0 (pre-installed on the module's internal hard drive)
  - VMware vSphere license
  - four-way VMware virtual SMP
  - centralized management through VMware vCenter Server (purchased separately)
  - VMware vSphere Update Manager
  - VMware vStorage APIs for data protection

Low TCO

- **No additional VMware license needed**
  HP MSR OAP modules come pre-loaded with fully-licensed VMware vSphere 5.0
- **One year of VMware support Included**
  HP provides one year of VMware vSphere 5.0 support to MSR OAP customers, included in the price of the OAP module
- **No need for multiple OAP modules**
  Multiple VM support on each instance of ESXi hypervisor provides the flexibilty to build on top of an existing OAP module rather than installing a second module
- **Flexible router implementation**
  various models of HP MSR30 and MSR50 Series routers chassis support the MSR OAP modules

Management

- **Command-line interface (CLI)**
  provides a secure, easy-to-use CLI for configuring the module via SSH or a switch console; provides direct real-time session visibility
- **Industry-standard CLI with a hierarchical structure**
  reduces training time and expenses, and increases productivity in multivendor installations
- **FTP, TFTP, and SFTP support**
  FTP allows bidirectional transfers over a TCP/IP network and is used for configuration updates; Trivial FTP is a simpler method using User Datagram Protocol (UDP)
- **Network Time Protocol (NTP)**
  synchronizes timekeeping among distributed time servers and clients; keeps timekeeping consistent among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time
- **Management interface control**
  each of the following interfaces can be enabled or disabled depending on security preferences: console port, telnet port, and SSH port
- **DHCP options**
  client allows automatic setting of IP address
- **USB support**
  allows users to copy switch files to and from a USB flash drive
- **Easy MSR OAP module management**
  - **IP address**
    management interface IP address is displayed when using the router CLI to access the menu-based direct console
  - **vSphere client**
    vSphere Client can also be used to manage the ESXi host

Overview

Performance

- **Gigabit Ethernet interface**
  provides a connection to the network that eliminates the network as a bottleneck
- **Intel dual-core architecture**
  Intel Core i7 dual-core processors supporting 4M cache and 4 threads each

Resiliency and high availability

- **High availability**
  two modules can work together to provide high availability and redundancy; modules in the high-availability cluster share connection state information to provide stateful failover; active-standby failover is supported
- **Hot-swappable modules**
  facilitates the replacement of hardware interface modules without impacting the traffic flow through the system

Manageability

- **Troubleshooting**
  ingress and egress port monitoring enable network problem solving
- **Console port**
  application console is available as a pass-through to the switch console function

Layer 2 switching

- **Port mirroring**
  duplicates port traffic (ingress and egress) to a local or remote monitoring port
- **1 GbE port aggregation**
  allows grouping of ports to increase overall data throughput to a remote device

Security

- **Application certification**
  AllianceONE applications undergo certification testing against negative switch effects through API calls or malicious behavior, which provides reasonable assurance that applications are well-behaved in the switch and network environment

Product architecture

- **Separated motherboard and interface card**
  interface cards are separated from motherboard to support flexible service configurations; the mortherboard supports all services, and interface cards provide various types of interfaces, allowing for flexible configurations in different network environments; multiple motherboards and multiple interface cardset meet different requirement
- **Dedicated OAM engine**
  provides link fault detection; reduces CPU loads and improves link fault detection performance and CPU security; realizes 30 ms fault location and 20 ms service switchover
- **USB interface**
  uses USB memory disk to download and upload configuration files; supports external USB 3G modem for 3G WAN uplink

Warranty and support

- **1-year warranty**
  with advance replacement and 30-calendar-day delivery (available in most countries)

Overview

- **Software releases**
  to find software for your product, refer to www.hp.com/networking/support; for details on the software releases available with your product purchase, refer to www.hp.com/networking/warrantysummary

Technical Specifications

HP MSR Open Application Platform (OAP) with VMware vSphere FIC Module (JG533A)

Connectivity	RJ-45	
Physical characteristics	**Dimensions**	13.5(w) x 9.92(d) x 0.33(h) in (34.3 x 25.2 x .85 cm) (1U height)
	Weight	3.53 lb (1.6 kg), Fully loaded
Environment	**Operating temperature**	32°F to 122°F (0°C to 50°C); Important: See note for maximum temperature constraints in unique situations.
	Operating relative humidity	15% to 90% @ 122°F (50°C), noncondensing
	Nonoperating/Storage temperature	32°F to 113°F (0°C to 45°C)
	Nonoperating/Storage relative humidity	5% to 90% @ 149°F (65°C), noncondensing
	Altitude	up to 164,041 ft (50 km)
Memory and processor	Intel Core i7-620LE @ 2000 MHz, 8 GB DDR3 SDRAM; storage: Hard disk; 500 GB SATA, 5400rpm, 512 MB flash	
Management	command-line interface; configuration menu; out-of-band management (RJ-45 Ethernet); out-of-band management	
Notes	The services module can only be used with certified AllianceONE services VMware applications. It does not support a general application environment.	

- Chassis operating temperature specifications are revised when the OAP module is installed.
- If any modules are installed on the right side of the chassis, then the temperature specification for the chassis is 45°C.
- For all MSR OAP modules, the operating temperature specification is set to 0-45°C.
- A maximum of 2 of these modules may be installed in any MSR50 Series router.
- If a module is installed in excess of these quantities, the module will not boot.
- FIC OAPV2 supports up to 8 GB memory footprint, VMware will use 1GB of that memory.
- VMware licensing via HP LAP Portal with Key Activation.

Services	Refer to the HP website at: **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Technical Specifications

HP MSR Open Application Platform (OAP) with VMware vSphere MIM Module (JG532A)

Connectivity	RJ-45	
Physical characteristics	**Dimensions**	13.5(w) x 8.5(d) x 0.8(h) in (34.29 x 21.59 x 2.03 cm) (1U height)
	Weight	2.65 lb (1.2 kg)
Environment	**Operating temperature**	32°F to 122°F (0°C to 50°C); Important: See note for maximum temperature constraints in unique situations.
	Operating relative humidity	15% to 90% @ 122°F (50°C), noncondensing
	Nonoperating/Storage temperature	32°F to 113°F (0°C to 45°C)
	Nonoperating/Storage relative humidity	5% to 90% @ 149°F (65°C), noncondensing
	Altitude	up to 164,042 ft (50 km)
Memory and processor	Intel Core i7-620UE @ 1060 MHz, 4 GB DDR SDRAM; storage: Hard disk; 500 GB SATA,5400rpm, 512 MB flash	
Management	command-line interface; configuration menu; out-of-band management (RJ-45Ethernet); out-of-band management	
Notes	The services module can only be used with certified AllianceONE services VMware applications. It does not support a general application environment.	

- Chassis operating temperature specifications are revised when the OAP module is installed.
- If any modules are installed on the right side of the chassis, then the temperature specification for the chassis is 45°C.
- For all MSR OAP modules, the operating temperature specification is set to 0-45°C.
- A maximum of 2 of these modules may be installed in any MSR30-40 or MSR30-60 router. A single OAP module can be installed on the MSR30-16 and the MSR30-20.
- If a module is installed in excess of these quantities, the module will not boot.
- MIM OAPv2 supports up to 4 GB memory footprint, VMware will use 1GB of that memory.
- VMware Licensing via HP LAP Portal with Key Activation.

Services	Refer to the HP website at: **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

To learn more, visit: www.hp.com/networking