4 The OmniSwitch Chassis

The OmniSwitch® is an advanced networking product that serves as a platform for a broad range of network interfaces. It supports Ethernet, Fast Ethernet (100 Mbps), Token Ring, FDDI, CDDI, ATM and WAN interfaces on a variety of copper and fiber optic cables. It automatically translates between any of these MAC-layer and media types.

The OmniSwitch includes support for IP and IPX Routing, AutoTracker policy-based Virtual LANs (VLANs), ATM LAN Emulation, Group multiplexing over LANs and WANs, any-to-any switching, port mirroring, RMON, and SNMP trap support.

The OmniSwitch architecture is based on a store-and-forward technology. This technology allows the OmniSwitch to filter out run packets, packets that exceed the maximum length allowed, CRC-flawed packets, misaligned packets, and other packets with errors. The switching process combines hardware-based switching with software-based management, resulting in a design where hardware can quickly perform rote switching tasks while allowing software to individually examine frames.

OmniSwitch Components

The OmniSwitch is composed of the following:

- Chassis and backplane
- Power supplies: one or two.
- Management Processor Modules (MPMs): one or two.
- Switching Modules (two to eight) that support the various network interface types.

The OmniSwitch chassis, and backplane are described in this chapter. The MPM Module provides some of the core routing, VLAN MAC learning, SNMP, and file management functions for the entire OmniSwitch. Only one MPM is required per OmniSwitch, but you can add another for redundancy. The MPM is described in detail in Chapter 6, “The Management Processor Module (MPM).” OmniSwitch power supplies are described in Chapter 5, “OmniSwitch Power Supplies.”

The OmniSwitch deploys a distributed architecture in which many of the processing functions are handled by individual Switching Modules. Each Switching Module adds additional memory and processing power to the entire OmniSwitch. Switching modules perform software filtering, translations between dissimilar network interfaces, and hardware-based switching. Each Switching Module supports multiple MAC addresses per port such that both individual devices and networks can be connected to a single switch port. All Switching Modules are described in detail in Chapter 7, “OmniSwitch Switching Modules.”

OmniSwitch Frame and Management Buses

The OmniSwitch frame bus operates at 640 or 960 Mbps depending on the MPM used and the switching modules’ revision levels. The MPM 1G supports a frame bus capacity of 960 Mbps while the original MPM and the MPM II support 640 Mbps. The Frame Bus supports high-performance switching while maintaining separation between up to 96 Groups, or broadcast domains, in any one switch or up to 65K Groups in an entire network. Switching traffic on and off the frame bus is hardware-controlled; an entire block of data is shifted on each transfer. Pipelining keeps data moving through the OmniSwitch with very low latency. Management of switching modules is provided via a separate management bus which operates at 120 Mbps.

ATM Cell Switching Matrix

An enhanced version of the OmniSwitch backplane provides an ATM cell matrix in addition to the frame and management bus. This ATM cell matrix operates at up to 13.2 Gbps. The ATM cell switching fabric is fully distributed with no central switch component and therefore no single point of failure. The cell switching functionality operates in the Omni-3wx, Omni-5x, Omni-5wx, Omni-9x, and Omni-9wx chassis types. OmniSwitch cell switching is described in more detail in Chapter 41, "Cell Switching Modules (CSMs)."

OmniSwitch Chassis Types

There are ten (10) different versions of the OmniSwitch chassis—one chassis type has three module slots, four chassis types have five module slots, and five chassis have nine module slots. The following table summarizes the features of each of the ten chassis types. Each chassis type is described in more detail on the pages that follow:

Chassis Name	Module Slots	MPMs Supported	Cell Switching Supported?	Power Supply Type
Omni-3wx	3 wide	MPM 1GW, MPM-C	Yes	Built-in (150W) Can Use BPS (250W)
Omni-5	5	MPM, MPM II, MPM 1G	No	PS5 (150W) PS5-DC48 (-48VDC,150W)
Omni-9	9	MPM, MPM II, MPM 1G	No	PS9 (350W)
Omni-5e	5	MPM, MPM II, MPM 1G	No	PS5-250 (250W) PS5-DC250 (-48VDC,250W)
Omni-9e	9	MPM, MPM II MPM 1G	No	PS9-500 (500W) PS9-350 (350W) PS9-DC500 (-48VDC,500W)
Omni-5x	5	MPM II, MPM 1G	Yes	PS5-250 (250W) PS5-DC250 (-48VDC,250W)
Omni-9x	9	MPM II, MPM 1G	Yes	PS9-500 (500W) PS9-DC500 (-48VDC,500W)
Omni-5wx	5 wide	MPM 1GW, MPM-C	Yes	PS5-250 (250W) PS5-DC250 (-48VDC,250W)
Omni-9wx	9 wide	MPM 1GW, MPM-C	Yes	PS9-500 (500W) PS9-DC500 (-48VDC,500W)
Omni-9wx-PLUS	9 wide	MPM 1GW, MPM-C	Yes	PS9-650 (650W)

OmniSwitch Failure-Resistant Features

The OmniSwitch has several features that provide redundancy and reliability. The switch backplane actually contains no active components. Every module contains its own processors and redundancy can be added to all critical components.

- Redundant Management Processor Module (MPM). When two MPMs are installed, one serves as the primary MPM and the other serves as the secondary. In the event of a failure of the primary MPM, the secondary automatically takes over the management role for the OmniSwitch.
- Redundant power supplies. The OmniSwitch's power supplies can support a fully configured unit. See Chapter 5, "OmniSwitch Power Supplies," for more information.
- Hot-replaceable modules. All modules, including redundant MPMs, can be removed and reinserted while the unit is operational.
- Temperature alarm. Special hardware in the switch detects over-temperature conditions and immediately notifies the network manager.
- Flash memory. All operating software and configuration information are stored in non-volatile flash memory. You can download new software revisions while the OmniSwitch is operational. No mechanical disk drive is used for storage.
- Extensive LED indicators. Each OmniSwitch module contains an extensive array of LED indicators that allow you to get a quick glance at the board's health, port states, port activity, collisions, beacons, and many other status indicators.

Omni-3wx

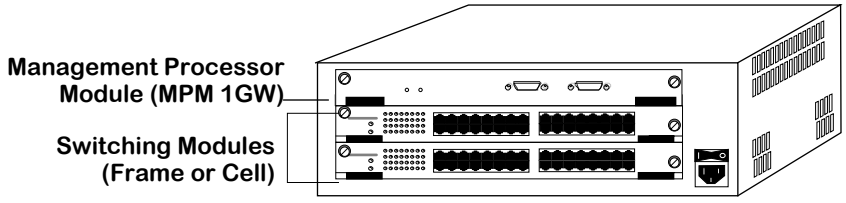
The Omni-3wx chassis supports new high-density wide switching modules in addition to thin versions. It contains three slots for MPM, FCSM, and switching modules. Slots are numbered from 1 to 3 starting with the topmost slot. A built-in power supply is located on the right side of the chassis, and a fan cooling system is located on the left side of the chassis.

The entire chassis can be rack-mounted. You can view all cabling, power supplies, module interfaces, and LEDs at the front of the chassis.

Wide modules are standard for high-density Ethernet and ATM modules. Wide versions of previously thin modules are available for all switching modules. If thin versions of the modules are installed, a spacer panel must be used to fill the extra space between modules.

The MPM 1GW is used in the Omni-3wx chassis. The MPM 1GW must be installed in either Slot 1 or 2. If the MPM 1GW is installed in Slot 2, you can install a switching module in Slot 1. If it is installed in Slot 1, a Switching Module can be installed in Slot 2.

The Omni-3wx backplane supports the ATM cell switching matrix, the 640/960 Mbps frame-switching bus, and the 120 Mbps management bus. The chassis may be configured as a pure LAN switch (only frame switching modules) or as a pure ATM switch (only cell switching modules).



The Omni-3wx

Power Supply

The Omni-3wx uses a built-in AC or DC power supply that has a capacity of 25 Amps at 5 volts and 2 amps at 12 volts for 150 Watts of output power. (The DC version of the Omni-3wx is known as the Omni-3wx-48V.) The Omni-3wx may also be connected to a Backup Power Supply (BPS) to provide power redundancy. A power connector is provided on the back of the Omni-3wx that connects to a BPS. See Chapter 5, “OmniSwitch Power Supplies,” for more information on the Omni-3wx power supply and the BPS.

Omni-3wx Technical Specifications	
Total Module Slots	3
Total Slots for Switching Modules	2
Physical Dimensions	5.25" (13.34 cm) high, 17.13" (43.51 cm) wide, 13.00" (33.02 cm) deep
Weight	18 lb. (8.18 kg), fully populated with modules and power supplies.
Switching Backplane	ATM Cell Bus Up to 5.2 Gbps 640 or 960 Mbps Frame Bus (dependent on MPM type) 120 Mbps Control Bus
Temperature Operating Range	0 to 40 degrees Celsius 32 to 104 degrees Fahrenheit
Humidity	Relative humidity operating range from 0 to 95 percent non-condensing.
Altitude	Sea level to 10,000 feet (3 km)
Agency Listings	UL 1950 CSA-C22.2 EN60950 FCC Part 15, Subpart B (Class A) EN55022, 1987/EN50081 FCC Class B C.I.S.P.R. 22: 1985 EN50082-1, 1992 IEC 801-2, 1991 IEC 801-3, 1984 IEC 801-4, 1988 VCCI V-3/94.04 (Class 1)

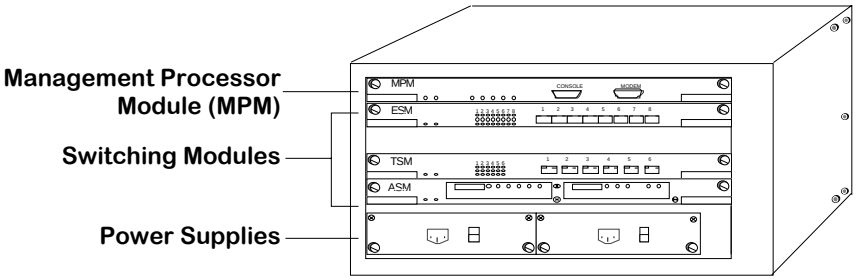
Omni-5 (Discontinued)

The Omni-5 contains five slots for MPM and Switching Modules. The slots are numbered 1 to 5 starting from the topmost slot. The MPM module must be installed in either Slot 1 or 2. If the MPM is installed in Slot 2, you can install a Switching Module in Slot 1. If it is installed in Slot 1, a Switching Module can be installed in Slot 2. When dual-redundant MPMs are installed, one MPM must be installed in Slot 1 and the other in Slot 2. Slots for two power supplies are located at the bottom of the chassis enclosure.

The enclosure is a front-access chassis which can be wall-mounted or rack-mounted. You can view all cabling, power supplies, module interfaces, indicators, and displays at the front of the enclosure. Cable organizers are available as are blanking panels for unpopulated slots.

Note

The Omni-5 chassis is supported, but it has been discontinued. This chassis has been replaced by an enhanced version called the Omni-5e. The Omni-5e is described in *Omni-5e* on page 4-10.



The Omni-5

Power Supplies

The Omni-5 provides bays for two power supplies. The power supplies are self-enclosed to allow safe hot-insertion and hot-removal. When two power supplies are installed, they share the electrical load. If one should fail, the remaining power supply automatically takes up the load without any disruption to the operation. See Chapter 5, “OmniSwitch Power Supplies,” for more information on the Omni-5 power supplies.

Omni-5 Technical Specifications	
Total Module Slots	5
Total Slots for Switching Modules	4
Physical Dimensions	8.75" (22.23 cm) high, 17" (43.18 cm) wide, 13" (33.02 cm) deep
Weight	30 lb. (13.64 kg), fully populated with modules and power supplies.
Switching Backplane	640 Mbps Frame Bus; 120 Mbps Control Bus.
Temperature Operating Range	0 to 45 degrees Celsius 32 to 113 degrees Fahrenheit
Humidity	Relative humidity operating range from 0 to 95 percent non-condensing.
Altitude	Sea level to 10,000 feet (3 km)
Agency Listings	UL 1950 CSA-C22.2 EN60950 FCC Part 15, Subpart B–Class A EN55022, 1987/EN50081 C.I.S.P.R. 22: 1985 EN50082-1, 1992 IEC 801-2, 1991 IEC 801-3, 1984 IEC 801-4, 1988 VCCI V-3/94.04–Class 1

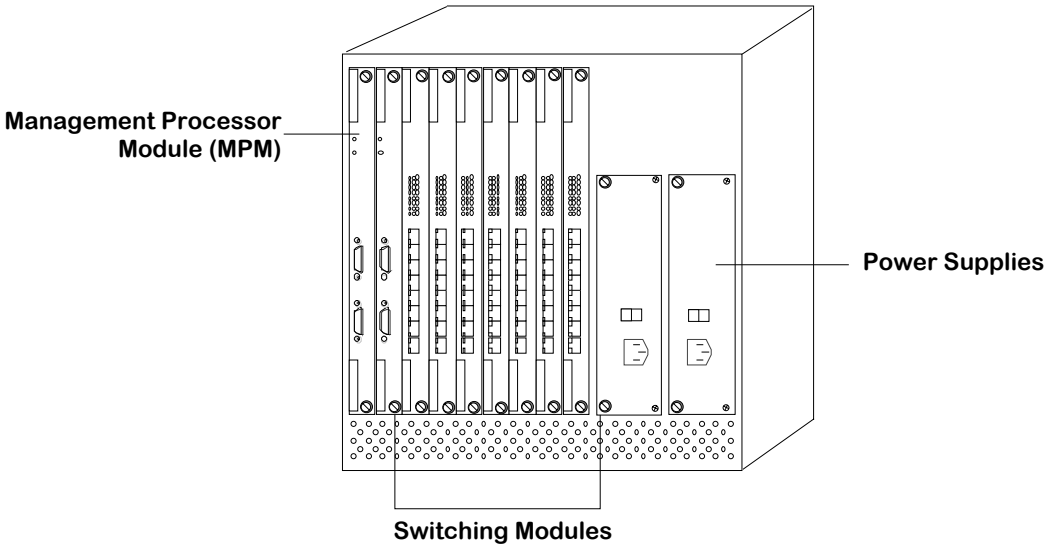
Omni-9 (Discontinued)

The Omni-9 contains nine slots for MPM and Switching Modules. The slots are numbered 1 to 9 starting from the leftmost slot. The MPM module must be installed in either Slot 1 or 2. If the MPM is installed in Slot 2, you can install a Switching Module in Slot 1. If it is installed in Slot 1, a Switching Module can be installed in Slot 2. When dual-redundant MPMs are installed, one MPM must be installed in Slot 1 and the other in Slot 2. Slots for two power supplies are located on the right side of the chassis enclosure.

The enclosure is a front-access chassis which can be wall-mounted or rack-mounted. You can view all cabling, power supplies, module interfaces, indicators, and displays at the front of the enclosure. Cable organizers are available as are blanking panels for unpopulated slots.

Note

The Omni-9 chassis is supported, but it has been discontinued. This chassis has been replaced by an enhanced version called the Omni-9e. The Omni-9e is described in *Omni-9e* on page 4-12.



The Omni-9

Power Supplies

The Omni-9 provides bays for two power supplies. The power supplies are self-enclosed to allow safe hot-insertion and hot-removal. When two power supplies are installed, they share the electrical load. If one should fail, the remaining power supply automatically takes up the load without any disruption to the operation. See Chapter 5, “OmniSwitch Power Supplies,” for more information on the Omni-9 power supplies.

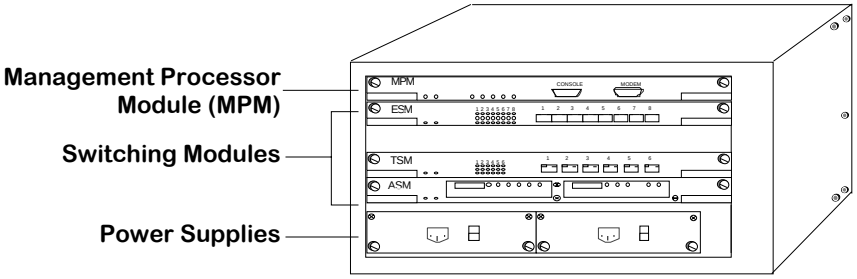
Omni-9 Technical Specifications	
Total Module Slots	9
Total Slots for Switching Modules	8
Physical Dimensions	17.0" (43.18 cm) high, 17" (43.18 cm) wide, 15.5" (39.37 cm) deep
Weight	55 lb., fully populated with modules and power supplies.
Switching Backplane	640 Mbps Frame Bus; 120 Mbps Control Bus.
Temperature Operating Range	0 to 45 degrees Celsius 32 to 113 degrees Fahrenheit
Humidity	Relative humidity operating range from 0 to 95 percent non-condensing.
Altitude	Sea level to 10,000 feet (3 km)
Agency Listings	UL 1950 CSA-C22.2 EN60950 FCC Part 15, Subpart B–Class A EN55022, 1987/EN50081 C.I.S.P.R. 22: 1985 EN50082-1, 1992 IEC 801-2, 1991 IEC 801-3, 1984 IEC 801-4, 1988 VCCI V-3/94.04–Class 1

Omni-5e

The Omni-5e is an enhanced version of the Omni-5 chassis. The Omni-5e chassis is designed to improve cooling and emissions compliance while continuing to support all existing frame switching modules. The Omni-5e provides the same functionality as the Omni-5 chassis while incorporating a new fan structure for improved cooling and a more powerful (250-watt versus 150-watt) power supply. This improved power supply allows the Omni-5e chassis to support any mix of switching modules with a single power supply.

The Omni-5e contains five slots for MPM and Switching Modules. The slots are numbered 1 to 5 starting from the topmost slot. The MPM module must be installed in either Slot 1 or 2. If the MPM is installed in Slot 2, you can install a Switching Module in Slot 1. If it is installed in Slot 1, a Switching Module can be installed in Slot 2. When dual-redundant MPMs are installed, one MPM must be installed in Slot 1 and the other in Slot 2. Slots for two power supplies are located at the bottom of the chassis enclosure.

The enclosure is a front-access chassis which can be wall-mounted or rack-mounted. You can view all cabling, power supplies, module interfaces, indicators, and displays at the front of the enclosure. Cable organizers are available as are blanking panels for unpopulated slots.



The Omni-5e

Power Supplies

The Omni-5e provides bays for two power supplies. The power supplies are self-enclosed to allow safe hot-insertion and hot-removal. When two power supplies are installed, they share the electrical load. If one should fail, the remaining power supply automatically takes up the load without any disruption to the operation. See Chapter 5, “OmniSwitch Power Supplies,” for more information on the Omni-5e power supplies.

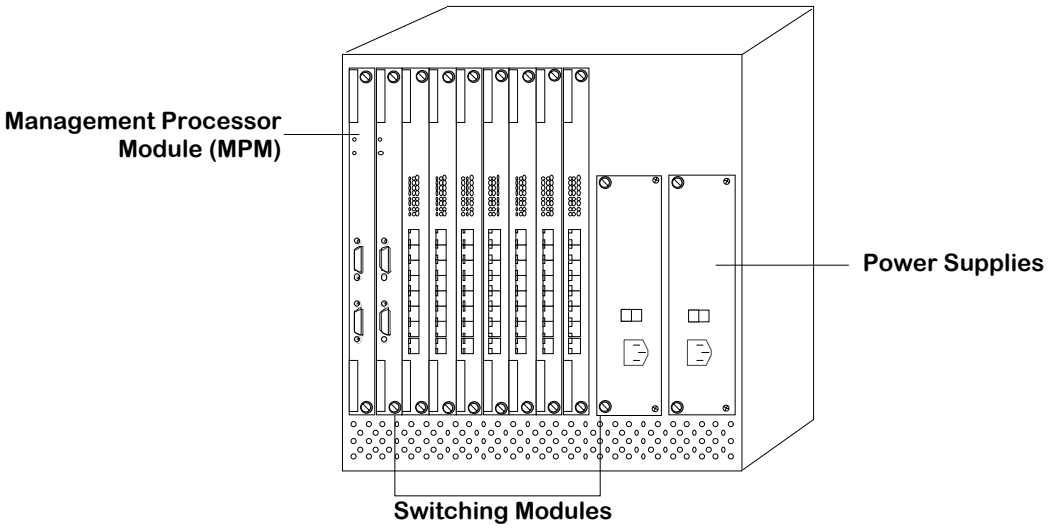
Omni-5e Technical Specifications	
Total Module Slots	5
Total Slots for Switching Modules	4
Physical Dimensions	8.75" (22.23 cm) high, 17" (43.18 cm) wide, 13" (33.02 cm) deep
Weight	30 lb., fully populated with modules and power supplies.
Switching Backplane	640/960 Mbps Frame Bus; 120 Mbps Control Bus.
Temperature Operating Range	0 to 45 degrees Celsius 32 to 113 degrees Fahrenheit
Humidity	Relative humidity operating range from 0 to 95 percent non-condensing.
Altitude	Sea level to 10,000 feet (3 km)
Agency Listings	UL 1950 CSA-C22.2 EN60950 FCC Part 15, Subpart B–Class A EN55022, 1987/EN50081 FCC Class B C.I.S.P.R. 22: 1985 EN50082-1, 1992 IEC 801-2, 1991 IEC 801-3, 1984 IEC 801-4, 1988 VCCI V-3/94.04–Class 1

Omni-9e

The Omni-9e is an enhanced version of the Omni-9 chassis. The Omni-9e chassis is designed to improve cooling and emissions compliance while continuing to support all existing frame switching modules. The Omni-9e provides the same functionality as the Omni-9 chassis while incorporating a new fan structure for improved cooling and a more powerful power supply. These improvements allow the Omni-9e chassis to support any mix of switching modules with a single power supply.

The Omni-9e contains nine slots for MPM and Switching Modules. The slots are numbered 1 to 9 starting from the leftmost slot. The MPM module must be installed in either Slot 1 or 2. If the MPM is installed in Slot 2, you can install a Switching Module in Slot 1. If it is installed in Slot 1, a Switching Module can be installed in Slot 2. When dual-redundant MPMs are installed, one MPM must be installed in Slot 1 and the other in Slot 2. Slots for two power supplies are located on the right side of the chassis enclosure.

The enclosure is a front-access chassis which can be wall-mounted or rack-mounted. You can view all cabling, power supplies, module interfaces, indicators, and displays at the front of the enclosure. Cable organizers are available as are blanking panels for unpopulated slots.



The Omni-9e

Power Supplies

The Omni-9e provides bays for two power supplies. The power supplies are self-enclosed to allow safe hot-insertion and hot-removal. When two power supplies are installed, they share the electrical load. If one should fail, the remaining power supply automatically takes up the load without any disruption to the operation. See Chapter 5, “OmniSwitch Power Supplies,” for more information on the Omni-9e power supplies.

Omni-9e Technical Specifications	
Total Module Slots	9
Total Slots for Switching Modules	8
Physical Dimensions	17.0" (43.18 cm) high, 17.0" (43.18 cm) wide, 15.5" (39.37 cm) deep
Weight	55 lb. (25 kg), fully populated with modules and power supplies.
Switching Backplane	640/960 Mbps Frame Bus; 120 Mbps Control Bus.
Temperature Operating Range	0 to 45 degrees Celsius 32 to 113 degrees Fahrenheit
Humidity	Relative humidity operating range from 0 to 95 percent non-condensing.
Altitude	Sea level to 10,000 feet (3 km)
Agency Listings	UL 1950 CSA-C22.2 EN60950 FCC Part 15, Subpart B–Class A EN55022, 1987/EN50081 FCC Class B C.I.S.P.R. 22: 1985 EN50082-1, 1992 IEC 801-2, 1991 IEC 801-3, 1984 IEC 801-4, 1988 VCCI V-3/94.04–Class 1

Omni-5x

The Omni-5x is physically the same as an Omni-5e. Module slots and power supplies are located in the same places and the same power supplies are used in both chassis. The primary difference between the two chassis is that the Omni-5x supports the ATM cell switching matrix in addition to the 640/960 Mbps frame-switching bus and the 120 Mbps management bus.

The Omni-5x chassis requires the use of an MPM-II or MPM 1G module.

Frame and cell switching are integrated in the Omni-5x. All existing frame switching modules are supported in the Omni-5x. In fact, pure frame switching applications can be handled without converting frames to cells and back from cells to frames. The chassis may be configured as a pure LAN switch (only frame switching modules), a pure ATM switch (only cell switching modules), or as a hybrid LAN/ATM switch (mix of frame and cell switching modules).

The Omni-5x provides native ATM switching, both for backbone and workstation access. The ATM switching backplane allows the Omni-5x to support Cell Switching Modules (CSMs). CSMs support ATM25, ATM OC-3c/STM-1, and OC-12c/STM-4c interfaces. CSMs are described more thoroughly in Chapter 41, "Cell Switching Modules (CSMs)."

The ATM cell switching fabric is fully distributed with the aggregate 6.8 Gbps distributed across all Cell Switching Modules. There is no central switch component and therefore no single point of failure. In addition, the cell backplane employs an advanced dynamic input buffered/output controlled queuing scheme which provides non-blocking performance and scales buffer requirements as the system grows.

Power Supplies

The Omni-5x provides bays for two power supplies. The power supplies are self-enclosed to allow safe hot-insertion and hot-removal. When two power supplies are installed, they share the electrical load. If one should fail, the remaining power supply automatically takes up the load without any disruption to operation. See Chapter 5, "OmniSwitch Power Supplies," for more information on the Omni-5x power supplies.

Omni-5x Technical Specifications	
Total Module Slots	5
Total Slots for Switching Modules	4
Physical Dimensions	8.75" (22.23 cm) high, 17" (43.18 cm) wide, 13" (33.02 cm) deep
Weight	30 lb. (13.64 kg), fully populated with modules and power supplies.
Switching Backplane	Cell Switching Matrix 640 or 960 Mbps Frame Bus (dependent on MPM type) 120 Mbps Control Bus
Temperature Operating Range	0 to 45 degrees Celsius 32 to 113 degrees Fahrenheit
Humidity	Relative humidity operating range from 0 to 95 percent non-condensing.
Altitude	Sea level to 10,000 feet (3 km)
Agency Listings	UL 1950 CSA-C22.2 EN60950 FCC Part 15, Subpart B (Class A) EN55022, 1987/EN50081 FCC Class B C.I.S.P.R. 22: 1985 EN50082-1, 1992 IEC 801-2, 1991 IEC 801-3, 1984 IEC 801-4, 1988 VCCI V-3/94.04 (Class 1).

Omni-9x

The Omni-9x is physically the same as an Omni-9e. Module slots and power supplies are located in the same places and the same power supplies are used in both chassis. The primary difference between the two chassis is that the Omni-9x supports a 13.2 Gbps cell switching matrix in addition to the 640/960 Mbps frame-switching bus and the 120 Mbps management bus.The Omni-9x backplane requires the use of an MPM-II or MPM 1G module.

Frame and cell switching are integrated in the Omni-9x. All existing frame switching modules are supported in the Omni-9x. In fact, pure frame switching applications are handled without converting frames to cells and cells to frames. The chassis may be configured as a pure LAN switch (only frame switching modules), a pure ATM switch (only cell switching modules), or as a hybrid LAN/ATM switch (mixture of frame and cell switching modules).

The Omni-9x provides native ATM switching, both for backbone and workstation access. The ATM switching backplane allows the Omni-9x to support Cell Switching Modules (CSMs). CSMs support ATM25, ATM OC-3c/STM-1, and OC-12c/STM-4c interfaces. CSMs are described more thoroughly in Chapter 41, “Cell Switching Modules (CSMs).”

The ATM cell switching fabric is fully distributed with the aggregate 13.2 Gbps distributed across all Cell Switching Modules. There is no central switch component and therefore no single point of failure. In addition, the cell backplane employs an advanced dynamic input buffered/output controlled queuing scheme which provides non-blocking performance and scales buffer requirements as the system grows.

Power Supplies

The Omni-9x provides bays for two power supplies. The power supplies are self-enclosed to allow safe hot-insertion and hot-removal. When two power supplies are installed, they share the electrical load. If one should fail, the remaining power supply automatically takes up the load without any disruption to operation. See Chapter 5, “OmniSwitch Power Supplies,” for more information on the Omni-9x power supplies.

Omni-9x Technical Specifications	
Total Module Slots	9
Total Slots for Switching Modules	8
Physical Dimensions	17.0" (43.18 cm) high, 17.0" (43.18 cm) wide, 15.5" (39.37 cm) deep
Weight	55 lb. (25 kg), fully populated with modules and power supplies.
Switching Backplane	13.2 Gbps Cell Bus 640 or 960 Mbps Frame Bus (dependent on MPM type) 120 Mbps Control Bus.
Temperature Operating Range	0 to 45 degrees Celsius 32 to 113 degrees Fahrenheit
Humidity	Relative humidity operating range from 0 to 95 percent non-condensing.
Altitude	Sea level to 10,000 feet (3 km)
Agency Listings	UL 1950 CSA-C22.2 EN60950 FCC Part 15, Subpart B (Class A) EN55022, 1987/EN50081 FCC Class B C.I.S.P.R. 22: 1985 EN50082-1, 1992 IEC 801-2, 1991 IEC 801-3, 1984 IEC 801-4, 1988 VCCI V-3/94.04 (Class 1).

Omni-5wx

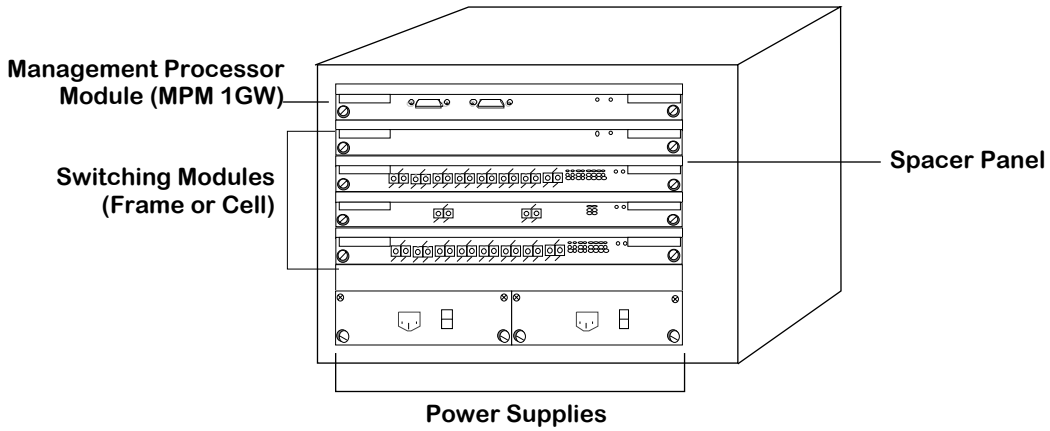
The Omni-5wx chassis supports the new high-density wide switching modules in addition to thin versions of switching modules. It contains five slots for MPM, FCSM, and switching modules. Slots are numbered from 1 to 5 starting with the topmost slot. Slots for two power supplies are located at the bottom of the chassis.

The entire chassis can wall-mounted or rack-mounted. You can view all cabling, power supplies, module interfaces, and LEDs at the front of the chassis.

Wide modules are standard for high-density Ethernet and ATM modules. Wide versions of previously thin modules will be available for all switching modules. If thin versions of the modules are installed, a spacer panel must be used to fill the extra space between modules.

The Omni-5wx uses the MPM 1GW. The MPM 1GW must be installed in either Slot 1 or 2. If the MPM 1GW is installed in Slot 2, you can install a switching module in Slot 1. If it is installed in Slot 1, a Switching Module can be installed in Slot 2. When dual-redundant MPM 1GWs are installed, one of them must be installed in Slot 1 and the other in Slot 2.

The Omni-5wx backplane is functionally the same as the Omni-5x backplane, but it has been modified to fit the larger chassis unit. It supports the ATM cell switching matrix, the 640/960 Mbps frame-switching bus, and the 120 Mbps management bus. The chassis may be configured as a pure LAN switch (only frame switching modules), a pure ATM switch (only cell switching modules), or as a hybrid LAN/ATM switch (mixture of frame and cell switching modules).



The Omni-5wx

Power Supplies

The Omni-5wx provides bays for two power supplies. The power supplies are self-enclosed to allow safe hot-insertion and hot-removal. When two power supplies are installed, they share the electrical load. If one should fail, the remaining power supply automatically takes up the load without any disruption to the operation. See Chapter 5, “OmniSwitch Power Supplies,” for more information on the Omni-5wx power supplies.

Omni-5wx Technical Specifications	
Total Module Slots	5
Total Slots for Switching Modules	4
Physical Dimensions	12.25" (31.12 cm) high, 17.14" (43.54 cm) wide, 13" (33.02 cm) deep
Weight	53 lb. (24.09 kg), fully populated with modules and power supplies.
Switching Backplane	Cell Switching Matrix 640/960 Mbps Frame Bus 120 Mbps Control Bus
Temperature Operating Range	0 to 45 degrees Celsius 32 to 113 degrees Fahrenheit
Humidity	Relative humidity operating range from 0 to 95 percent non-condensing.
Altitude	Sea level to 10,000 feet (3 km)
Agency Listings	UL 1950 CSA-C22.2 EN60950 FCC Part 15, Subpart B (Class A) EN55022, 1987/EN50081 FCC Class B C.I.S.P.R. 22: 1985 EN50082-1, 1992 IEC 801-2, 1991 IEC 801-3, 1984 IEC 801-4, 1988 VCCI V-3/94.04 (Class 1)

Omni-9wx

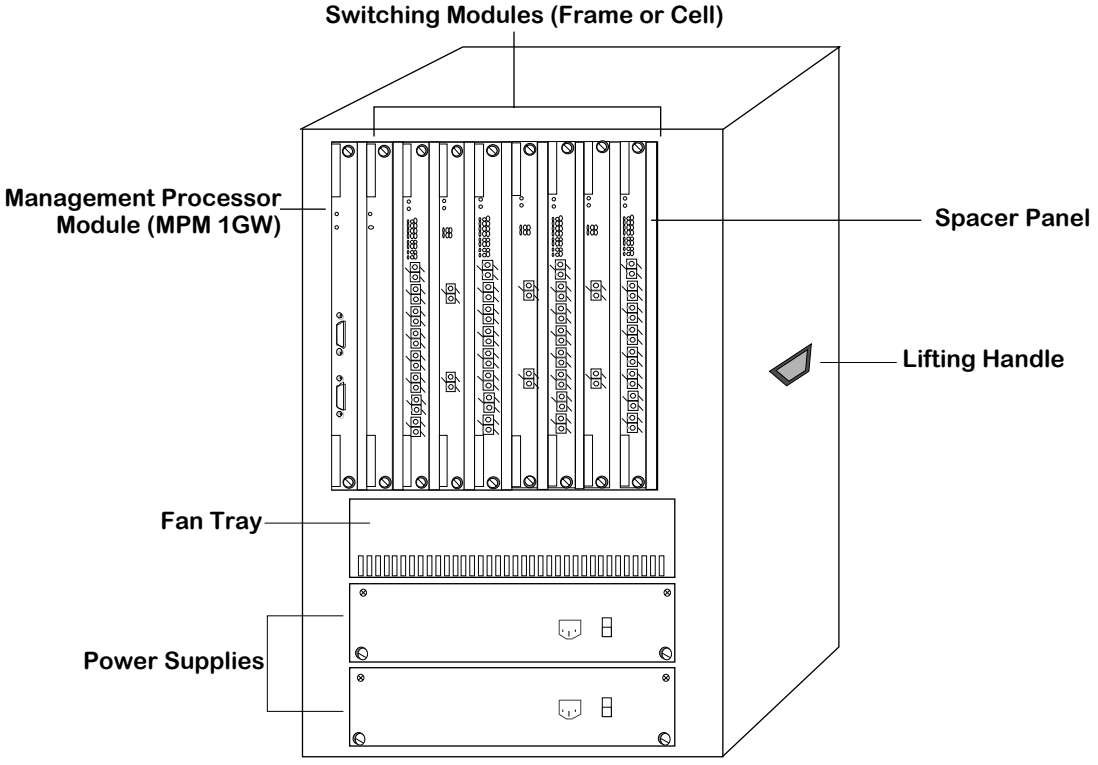
The Omni-9wx chassis supports the new high-density wide switching modules in addition to thin versions of switching modules. It contains nine slots for MPM, FCSM, and switching modules. Slots are numbered from 1 to 9 starting with the leftmost slot. Slots for two power supplies are located at the bottom of the chassis. A separate, removable fan tray containing four fans is located above the power supply module bays.

A fully loaded Omni-9wx weighs nearly 100 lbs. Therefore, it is recommended that if you are rack-mounting the chassis that you use a rack mount shelf instead of just brackets. Using a shelf will ensure that the weight of the chassis can be supported. In addition, the Omni-9wx contains side handles to make lifting and installation easier.

Wide modules are standard for high-density Ethernet and ATM modules. Wide versions of previously thin modules are available for all switching modules. If thin versions of the modules are installed, a spacer panel must be used to fill the extra space between modules.

The Omni-9wx chassis uses the MPM 1GW. The MPM 1GW must be installed in either Slot 1 or 2. If the MPM 1GW is installed in Slot 2, you can install a Switching Module in Slot 1. If it is installed in Slot 1, a Switching Module can be installed in Slot 2. When dual-redundant MPM 1GWs are installed, one of them must be installed in Slot 1 and the other in Slot 2.

The Omni-9wx backplane is functionally the same as the Omni-9x backplane, but it has been modified to fit the larger chassis unit. It supports the 13.2 Gbps ATM cell switching matrix, the 640/960 Mbps frame-switching bus, and the 120 Mbps management bus. The chassis may be configured as a pure LAN switch (only frame switching modules), a pure ATM switch (only cell switching modules), or as a hybrid LAN/ATM switch (mixture of frame and cell switching modules).



The Omni-9wx

Power Supplies

The Omni-9wx provides bays for two power supplies. The power supplies are self-enclosed to allow safe hot-insertion and hot-removal. When two power supplies are installed, they share the electrical load. If one should fail, the remaining power supply automatically takes up the load without any disruption to the operation. See Chapter 5, "OmniSwitch Power Supplies," for more information on the Omni-9wx power supplies.

A "high current" version of the Omni-9wx chassis is called the Omni-9wx-PLUS. This chassis uses the Omni-PS9-650P power supply, which provides 650 Watts of power at 5 Volts.

Omni-9wx and Omni-9wx-PLUS Technical Specifications	
Total Module Slots	9
Total Slots for Switching Modules	8
Physical Dimensions	24.50"(62.23 cm) high, 16.60" (42.16 cm) wide, 13.25" (36.66 cm) deep
Weight	96 lb. (43.55 kg), fully populated with modules and power supplies.
Switching Backplane	13.2 Gbps Cell Bus 640/960 Mbps Frame Bus 120 Mbps Control Bus.
Temperature Operating Range	0 to 45 degrees Celsius 32 to 113 degrees Fahrenheit
Humidity	Relative humidity operating range from 0 to 95 percent non-condensing.
Altitude	Sea level to 10,000 feet (3 km)
Agency Listings	UL 1950; CSA-C22.2; EN60950; EN55022, 1987/EN50081; C.I.S.P.R. 22: 1985; EN50082-1, 1992; IEC 801-2, 1991; IEC 801-3, 1984; IEC 801-4, 1988; VCCI V-3/94.04 (Class 1); FCC Part 15, Subpart B (Class A); FCC Class B