

## Catalyst 3100

### Introduction

The Catalyst 3100 is a 24-port workgroup switch which provides high-end features, including multilayer capabilities at a cost-effective price. As the newest member of the Catalyst 3000 family, the Catalyst 3100 shares its award winning flexibility and functionality with the Catalyst 3000 and 3200. Like the Catalyst 3000 and 3200, the Catalyst 3100 provides Cisco Internetworking Operating System (Cisco IOS™) features such as virtual LAN (VLAN) support, Asynchronous Transfer Mode (ATM) services, and Remote Monitoring (RMON) support, functionalities not found in other workgroup Ethernet switches on the market today.

The Catalyst 3100 has 24 fixed ports and one FlexSlot. The FlexSlot can be used for the installation of an integrated WAN access module or any one of the many Catalyst 3000 family expansion modules.

**Figure 1 Catalyst 3100 Configured with Optional Cisco 3011 WAN Module**



As a wiring closet solution, the Catalyst 3100 can be configured for a variety of network applications with the installation of one of the Catalyst 3000 100BaseTX, 100BaseFX, 100VG AnyLAN TX, 100VG AnyLAN FX,

10BaseT, 10BaseFL, or ATM expansion modules. A common application would be desktop users connected via the 24 ports of switched 10BaseT with an ATM or 100Mbps uplink to the network backbone. With the capability of growing a single Catalyst 3100 to a stack of 8 Catalyst 3000s/3100s or 3200s, a variety of combinations of switched 10Mbps or 100Mbps Ethernet, ATM and WAN access can be created. This versatility is coupled with the high-end features of the Catalyst 3000 family to create a flexible product with the same capabilities found on much more sophisticated switches.

As a branch office solution, the Catalyst 3100 with the integrated Cisco 3011 WAN router module installed provides connectivity to other branch offices or headquarters. This configuration provides dedicated 10Mbps switch connections to the local devices or hubs within the branch office and WAN connectivity, in one device.

All the switched ports in a Catalyst 3100, or an entire stack (within the same VLAN segment), can access the WAN through the Cisco 3011 WAN access module allowing all users in the stack instant WAN access.

As with all members of the Catalyst 3000 family, the Catalyst 3100 is stackable, allowing networks to grow seamlessly. A stack of up to eight Catalyst 3100s or any combination of Catalyst 3000s, 3100s, and 3200s in a stack can be connected through one common Catalyst matrix, providing up to 3.84 Gbps of bandwidth between switches. The unique distributed-software architecture of the Catalyst 3000 family allows the easy addition of new switches without the inconvenience of reconfiguration or setup of a new device.

## The Catalyst 3000 Family

The Catalyst 3000 family is a flexible family of Ethernet switches that can be used individually or in combination with other members to provide a wide variety of solutions for branch offices, workgroups, or backbones.

The Catalyst 3000 family includes:

- *Catalyst 3000 switch*—features 16 fixed 10Mbps dedicated Ethernet ports plus two expansion slots for any combination of Catalyst 3000 expansion modules
- *Catalyst 3100 switch*—features 24 fixed 10Mbps dedicated Ethernet ports plus one FlexSlot for installation of one Cisco 3011 WAN access router or Catalyst 3000 expansion module
- *Catalyst 3200 switch*—a modular chassis with seven slots for Catalyst 3000 expansion modules including one FlexSlot for use with the Cisco 3011 WAN access router module or a seventh Catalyst 3000 expansion module; dual power supplies are a standard feature on the Catalyst 3200
- *Catalyst matrix*—the Catalyst matrix functions as a switch of switches; each Catalyst 3000, 3100, or 3200 is connected to the Catalyst matrix through each switch's Stackport. The Catalyst matrix provides up to 3.84 Gbps switch to switch connectivity. A redundant Catalyst matrix module can be installed to provide fault-tolerance.
- *Expansion modules*—all are interchangeable between the Catalyst 3000, 3100, and 3200. The choices include:
  - Two port 100 BaseTX with ISL
  - Two port 100 BaseFX with ISL
  - Two port 100VG UTP
  - Two port 100VG Fiber
  - One port 100 BaseTX
  - One port 100 BaseFX
  - Four port 10BaseT
  - Three port 10BaseFL
  - One port ATM (155 Mbps)
  - StackPort (280 Mbps)

Any of the above switched ports can be connected to individual devices such as servers, workstations, other switches, or routers. All the members of the Catalyst 3000 family can also be connected to shared media hubs, providing high performance but affordable backbone solutions for smaller organizations or branch offices. The Catalyst 3100 provides low-latency, cut-through switching for high-performance connectivity, which automatically switches to store-and-forward switching mode when error rates exceed user set threshold levels. This feature minimizes the number of errors and retransmittals on the network. When the error rate within the network returns to a level below the threshold, the Catalyst 3100 automatically reverts back to the low-latency, cut-through mode to provide optimum performance.

## Catalyst 3100 Highlights

- WAN/LAN connectivity—optional Cisco 3011 WAN access router module or future layer-3 switching module, provides WAN access plus an internal routing capability in one integrated device
- Complete VLAN support with:
  - ISL which provides networkwide VLAN capabilities with other Cisco devices such as the Catalyst 5000 or Cisco routers; servers or workstations can be assigned to any VLAN regardless of the device's physical connection
  - Virtual Trunking Protocol (VTP), which automatically communicates VLAN assignments throughout the network. Network administrators can configure a VLAN change to one device, which then communicates the change to the other devices within the network directing the VLAN network changes
  - ATM LAN Emulation (LANE)
  - Note: A maximum of 64 VLANs are supported per switch
- RMON support—the Catalyst 3100 as well as all members of the Catalyst 3000 family supports four critical groups of RMON (statistics, history, alarms, events)
- ATM support—Cisco IOS features such as Simple Server Redundancy Protocol (SSRP) provide the ability to have a redundant Lane Server (LES) and LANE Configuration Server (LECS/BUS) for maximum reliability; support for Cisco's VTP enables multiple Catalyst 3000 and 5000 switches within a network to share emulated LAN (ELAN) or VLAN configuration information; for example, the VTP will automatically map VLANs based on Fast Ethernet trunks (ISL) to ELANs based on ATM trunks
- Address Filtering: allows network administrators to create Layer 2 MAC-address based filters to constrain users to particular destinations, implement basic Layer 2 security, and simulate a multicast environment using static filters.
- Broad media support—through the Catalyst 3000 family's expansion modules, the Catalyst 3100's 24 ports of dedicated 10Mbps Ethernet can be used in conjunction with 10BaseFL, 10BaseT, 100BaseTX, 100BaseFX, 100VG, and ATM Catalyst 3000 expansion modules
- Stackability—Two Catalyst 3100s or any other member of the Catalyst 3000 family of switches can be stacked together by simply connecting the StackPort interface in a back-to-back configuration; three to eight Catalyst 3000s/3100s/3200s can be interconnected in a stack configuration through the 3.84 Gbps Catalyst matrix and StackPorts
- Manageability—the unique distributed switch operating system allows any member of the Catalyst 3000 family of switches to be added to a stack without requiring the administrator to take the network off line; in addition,

the distributed operating system allows switches to sense one another, automatically configuring themselves and simultaneously reporting configuration information to the network management station. The Catalyst 3000 family stack is managed as one logical entity, making it easy to administer network changes and facilitate future growth

- Performance—wire speed switching with low latency using adaptive cut-through switching as well as the ability to utilize store-and-forward switching for environments where high error rates exist
- Compatibility—the Catalyst 3100 is part of the Catalyst 3000 family of products; all the existing modules for the Catalyst 3000 and 3200 can be used with the Catalyst 3100's standard expansion slot; in addition, the Catalyst 3100 can be stacked with up to seven additional Catalyst 3000s, 3100s or 3200s by using the Catalyst 3000 matrix
- End-to-end network management offerings—includes integrated device, VLAN, and traffic management with Simple Network Management Protocol (SNMP), 802.1d spanning tree, filtering options, RMON, Switched Port Analyzer (SPAN), and Cisco management applications support locally or remotely

## Features/Benefits

### Extensive Traffic/Network Management

- Entire stack forms single logical switched system, simplifying use, minimizing reconfigurations and troubleshooting
- Supports up to 64 VLANs for easy creation and maintenance of multiple broadcast domains
- Optional RMON support (four groups) providing diagnostics, baselining and analysis of network traffic
- E-SPAN allows sniffers, Cisco SwitchProbes and other network analyzers to monitor any port or segments within the switch through the standard SPAN port
- Supports IEEE 802.1d spanning tree for network loop detection and disabling (particularly useful in larger networks) and for fault-tolerant connectivity
- Supports Telnet, remote dial-up modem and out-of-band administrative interface; new software releases can be downloaded either locally or over the network
- Cisco Discovery Protocol (CDP) support, allowing devices to discover other Cisco devices on the network; this features aids in efficient construction of VLANs across the internetwork and automatic topology mapping
- Provides CiscoView™ graphic user interface (GUI)-based comprehensive network management support, allowing easy point-and-click discovery of device status, statistics and comprehensive per-port configuration and performance information

## Specifications of Catalyst

### Hardware

- Physical Dimensions (H x W x D)
  - 3.48 in x 17 in x 16.8 in (8.9 cm x 43 cm x 42.6 cm)
  - Weight 19 lbs (8.6 kg)

### Environmental Ranges

- Operating temperature: 10 to 40 C
- Operating humidity: 8 to 80%, non condensing
- Storage temperature: -25 to 75 C
- Storage altitude: 40,000 ft
- Power: 90 to 264 VAC autosensing
- Frequency: 47 to 63 Hz
- AC current rating: 2A@120v; 1@220V

### Product Numbers and Descriptions

- WS-X3100B 8mb memory, half/full duplex, VLAN, Spanning Tree

### Buffers and Addressing

- Buffers: 192 KB per 10Mbps port; 256 KB per 100Mbps port
- Memory: 8 MB per system
- Addresses: 1700 per port, 10,000 per system
- Latency: 40 microseconds
- SNMP MIB II (RFC 1213)
- Bridging MIB (RFC 1493)
- 802.1D Spanning Tree MIB

### Network Management Support

- Telnet
- CiscoView
- Ethernet MIB

### Regulatory Approvals

- EMI
- FCC Class A (CFR 47, Part 15)
- CE mark
- EN55022 Class B
- VCCI Class 2
- Safety
- CSA-C22.2 No. 950-93
- EN60950
- UL1950

Additional information on all Catalyst 3000 media modules, the Catalyst 3011 router module, the Catalyst 3200 and the Catalyst 3000 can be found in their individual data sheets.



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