



Software Product Description

PRODUCT NAME: DIGITAL GIGAswitch/IP Solution for ATM, Version 1.3-D

SPD 64.78.01

DESCRIPTION

Internet Protocol (IP) switching replaces a collapsed backbone router and interacts with other routers as a peer using standard routing algorithms such as Open Shortest Path First (OSPF), Interior Gateway Routing Protocol (IGRP), and Routing Information Protocol (RIP). It also leverages control of IP routing technology and the high-performance characteristics of Asynchronous Transfer Mode (ATM) hardware to provide unprecedented IP switching performance. IP switching is a technology designed to optimize IP environments and classify IP packets as IP flows to determine whether to route or switch them. Longer-duration IP flows, such as File Transfer Protocol (FTP) and Telnet sessions, are switched using cut-through rather than routed; shorter-duration flows, such as Domain Name Service queries, are routed on a hop-by-hop, store-and-forward basis.

An IP flow is a sequence of packets that are sent from a particular source address to a particular destination address and are related in terms of their routing characteristics and their applications (FTP or Telnet sessions). They are identified in the header field of an IP packet.

The DIGITAL GIGAswitch™/IP Solution is made up of components that can be purchased in a preconfigured package or as individual line items. The solution includes the following components:

- GIGAswitch/IP system (the GIGAswitch/ATM system with IP switching and the GIGAswitch/IP Switch Controller)
- DIGITAL IP Switch Gateway
- OC-3 ATM adapters

- GIGAswitch/IP Embedded Management Agent (DIGITAL clearVISN™ IP Switch Manager)

At the core of the GIGAswitch/IP Solution is the GIGAswitch/ATM system, providing industry-leading price and performance. The GIGAswitch/ATM system runs the General Switch Management Protocol (GSMP) to allow it to communicate with the GIGAswitch/IP Switch Controller. The GIGAswitch/ATM system with IP switching software acts as a hardware accelerator to provide IP switching capacity in the millions of packets per second. The GIGAswitch/ATM system implements IP switching over its ATM interfaces, which range from T1 (1.5 megabits per second [Mb/s]) to OC-12 (622 Mb/s), providing the industry's most scalable IP switching performance. The GIGAswitch/ATM system also supports a dual-role capability that allows it to simultaneously run IP switching and ATM Forum LAN Emulation services on the same GIGAswitch/ATM system on a per-port basis. IP switching firmware runs on all GIGAswitch/ATM line cards.

The GIGAswitch/IP Switch Controller provides the intelligence to help the system decide whether to route or switch the IP frames by analyzing the initial packets of a session. It optimizes throughput of flows for longer- and shorter-duration traffic. The GIGAswitch/IP Switch Controller function also runs the GSMP protocol, enabling it to communicate with the GIGAswitch/ATM system. GSMP allows the GIGAswitch/IP Switch Controller to perform the following functions:

- Establish and release connections across the GIGAswitch/ATM system.
- Add and delete leaves on a point-to-multipoint connection.
- Manage switch ports.

- Request configuration information.
- Request statistics.

The GIGAswitch/IP Switch Controller function is implemented on a rack-mounted Pentium® Pro PC and comes configured with an OC-3 ATM adapter for connection to the GIGAswitch/ATM system.

The IP Switch Gateway is compatible with standard IP routing protocols (OSPF, IGRP, and RIP) and provides access between legacy LAN environments, such as Ethernet and FDDI, and an IP switched network. The Gateway interacts with the GIGAswitch/IP system using the Ipsilon™ Flow Management Protocol (IFMP) over a 155 Mb/s ATM link. IFMP is used to direct an upstream device (a gateway, a host, or a switch) to send subsequent frames of the IP flow on a VC other than the default VC. This process causes the IP flow to bypass the GIGAswitch/IP Switch Controller and cut through over the GIGAswitch/ATM system for unprecedented performance.

The IP Switch Gateway runs on a rack-mounted Pentium Pro PC and uses an OC-3 ATM adapter that provides connection to a GIGAswitch/ATM system in an IP switched network. The Gateway comes with one OC-3 (155 Mb/s) multimode fiber (MMF) adapter and one Ethernet adapter card. The Gateway can be configured with up to three optional LAN interfaces.

The GIGAswitch/IP Embedded Management Agent (clearVISN IP Switch Manager) provides access to the IP Switch Gateway and GIGAswitch/IP Switch Controller through Web servers that run in each of these products. The GIGAswitch/IP Switch Controller provides configuration of the GIGAswitch/ATM product through the GIGAswitch/IP Embedded Management Agent over the GSMP protocol. It is accessible by any standard Internet browser such as Netscape Navigator™. When using an Internet browser for configuration access, the clearVISN IP Switch Manager application is presented at the user interface.

An easy-to-use, forms-based user interface (clearVISN IP Switch Manager) allows the user to configure the following elements:

- Definition of port parameters
- Routing protocols
- Static and aggregate routes
- Distance Vector Multicast Routing Protocol (DVMRP) tunnels

Network monitoring is accomplished on a per-port basis for views, and on a packet and cell basis for statistics. An event log and contextual help are also supported.

The GIGAswitch/ATM IP switching firmware runs on both the 5-slot chassis and the 14-slot chassis. This firmware runs on the following GIGAswitch/ATM line cards:

- Four-port line cards (DAGGL-BA)
- One-port, 622 Mb/s line cards (DAGGL-CA and DAGGL-CB)

The firmware for the GIGAswitch/IP Switch Controller and IP Switch Gateway comes preloaded on each system.

SOFTWARE REQUIREMENTS

GIGAswitch/ATM Version 2.1.3.IP or higher is required. The software for the GIGAswitch/IP Switch Controller and IP Switch Gateway comes preloaded on each system.

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