Software Product Information

PRODUCT NAME: clearVISN Traffic Policy Manager
Version 1.0a - Windows Suite

9033168
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Description

clearVISN Traffic Policy Manager is a network management application for balancing the traffic load across the multiple LANs on the MultiSwitch 900 backplane. This helps to ensure optimal network availability and response times for network users. clearVISN Traffic Policy Manager lets you use the bandwidth that you already purchased when buying DIGITAL's MultiSwitch 900 switching platforms with Ethernet switching and port switching modules. Traffic Policy Manager provides a simple, automatic way to balance the load across multiple segments. Instead of manually moving ports from one segment to another as traffic load patterns change, you can run Traffic Policy Manager to continuously sense and react to ever changing conditions on the LAN segments.

Traffic Policy Manager monitors the utilization of DECswitch or VNswitch ports attached to the backplane and the utilization on each port of a PORTswitch module, then moves PORTswitch ports from a heavily utilized LAN to a more lightly utilized LAN.

Traffic Policy Manager can be run in any one of three modes:

1) Monitor-only mode: Traffic Policy Manager displays all of the Ethernet backplane LANs and to which LAN each of the PORTswitch ports is connected. A bar-graph to the right of the matrix displays the utilization on each of the LANs. A vertical bar associated with each PORTswitch port represents the port utilization. As you place the pointer over a port bar graph or over a LAN segment, a pop-up message identifies the name of the port or segment.

2) Monitor and Advise mode: Traffic Policy Manager additionally displays the ports that it recommends be moved and the LAN to which they should be moved, but it waits for you to authorize the move.

3) Fully Automatic mode: Traffic Policy Manager monitors and automatically moves ports to balance the load.

Traffic Policy Manager also provides a single-step mode so that you can view the results of each change before refreshing with the next port that needs to be moved. Traffic Policy Manager displays peak segment utilization and port load. Furthermore, Traffic Policy Manager maintains a history, allowing you to review the utilization on a MultiSwitch 900, a particular LAN, or even a particular port at some instance in time. You can even export data about your network into a spreadsheet package to generate reports on your network activity.

Theory of Operation

The goal of the load balancing algorithm is to create a MultiSwitch 900 with similar utilization on all backplane Ethernet LANs. It seeks to achieve this goal - called the balanced state - by monitoring segment activity and periodically moving PORTswitch ports from the busiest segments to the least busy segments. Due to the chaotic nature of Ethernet traffic, the algorithm will rarely reach a perfectly balanced state. However, over time, Traffic Policy Manager will cause more evenly distributed utilization on the backplane Ethernet segments, and thus greater throughput and lower latency for users.

Users configure the delay between polls, and the number of polls between the time that the balancing algorithm executes. Polling more frequently causes the load balancing algorithm to be more reactive to changing traffic patterns. Executing less frequently causes the algorithm to be less reactive, but causes less disruption because ports are moved less frequently.

Balancing is not without minor costs. Moving a port from one backplane segment to another causes the port to be disconnected for about 10 milliseconds. During this time, frames may be lost. Once reconnected, the switch must relearn the stations on the port. This may cause additional frames to be lost. The delay ranges from negligible to up to a 2-second delay on a TCP transfer of a large file. As the port gets busier, the chances losing frames increases. However, the delay can be more than made up by increased bandwidth available on both the source and destination segments.

You define which ports are too busy to be moved. This policy causes the algorithm to keep heavily loaded ports where they are. You can also define when ports are too lightly loaded to move. This policy prevents the algorithm from making as many moves as it might otherwise. For example, you can configure Traffic Policy Manager to leave ports offering a load of less than 1% where they are.

Load and utilization information is read and delivered to the Load Balancing algorithm. The algorithm determines whether the network can be improved by moving repeater ports. The Load Balancing algorithm can be summarized as follows:

1) Find the most heavily utilized segment.

2) Find the least utilized segment.

3) Find a repeater port on the most heavily utilized segment meeting the following criteria:

   The port load must be between two user-definable thresholds (too heavy to move, and too light to move - according to its parameters). If the port were moved, the load on the least utilized segment cannot be greater than that of the most heavily utilized segment.

One subtle but important point - the Load Balancer uses utilization to determine which segments are heavily and lightly utilized, but Load Balancer uses load rather than utilization to determine which port to move.

Supported Devices

Traffic Policy Manager supports the following devices:

Chassis:

- DIGITAL MultiSwitch 900

Repeaters:

- DECrepeater 900TM, 900GM, 900FP
- PORTswitch 900FP, 900CP, 900TP, 900TP/12

Switches:

- PEswitch 900TX
- DECswitch 900FO, 900EE, 900EF
- DECbridge 900MX
- VNswitch 900 EE, EX, EF, EA, LL

Hardware Requirements

- Intel Pentium, 200Mhz or higher performance IBM-compatible PC
- Color monitor with 800 x 600 resolution
- Minimum 64 MB RAM
- CD-ROM drive
- Minimum 100 MB of disk space
- Mouse or other pointing device supported by Windows
- 16- or 32-bit Ethernet Network Interface Card (NIC)

The following Alpha processors running Windows NT 4.0 are supported using FX!32:

- AlphaStation 200
- AlphaStation 250
- AlphaServer 400
- AlphaServer 1000
- AlphaServer 2000
- AlphaServer 2100
- DECpc AXP 150
- DEC 2000 Server

This list comprises the requirements for running the Windows Suite family of applications standalone. The requirements may be greater if you are running the Windows Suite with other network applications. Refer to your documentation for the hardware requirements of those applications.

Software Requirements

One of the following operating systems:

- Microsoft Windows 95 or Windows NT 4.0- Intel
- Microsoft Windows NT V4.0 - Alpha (with FX!32 translator)

Consolidated Firmware

Firmware in supported devices must be at the latest revision levels. Although the Consolidated Firmware Kit for the DIGITAL devices is included on the clearVISN CD-ROM, it can also be obtained through the Cabletron Web Page at the following address:

http://www.cabletron.com/dnpg/dr/hubs/firmware/

Optional Software

Other Cabletron applications include:

- Stack Manager
- MultiChassis Manager
- VLAN Manager
- Recovery Manager

- Fault Policy Manager
- RMON Manager

Growth Considerations

The minimum hardware/software requirements for any future version of this product may be different from the requirements for the current version.

Distribution Media

CD-ROM

Ordering Information

Note: The clearVISN CD-ROM contains all the applications and documentation. You need to order only one copy of QA-5FVAB-X8. You must purchase additional QM licenses for each user of the application.

clearVISN Traffic Policy Manager license only:	QM-62KAA-BA
CD-ROM and hardcopy documentation:	QA-5FVAB-X8

Software Product Services

Provided by Compaq Computer Corporation, and available through Compaq:

New Version License Service:	QT-62KAA-TA
Media and Documentation Delivery Service:	QT-5FVAB-E8
Installation:	QT-62KAA-I9
Telephone Support:	QT-62KAA-ZA

Software Licensing

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You may print the electronic software documentation accompanying the software as reasonably necessary to exercise your license to use the software.

Year 2000 Information

For Year 2000 information, refer to the Cabletron web page:

http://www.cabletron.com/year-2000

Software Warranty

Warranty for this software product is provided by Compaq with the purchase of a license for the product as defined in the license agreement.

The previous information is valid at the time of release. Contact your local Cabletron office for the most up-to-date information.

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