

Le 3COM Superstack III est un commutateur Ethernet appartenant à la famille 3Com Switch 3300. L'annexe 7 en indique les caractéristiques essentielles. Aucune configuration de VLAN n'est mise en œuvre sur ces commutateurs. Dans le réseau de l'Ensil, les commutateurs Superstack III sont connectés de 2 façons possibles :

- en stacks de plusieurs commutateurs (4 commutateurs par stack au plus)
- à l'OptiSwitch par fibre optique multimode avec un débit de 1 Gbits/s

E.1 Sur quelles couches du modèle OSI peut-on modéliser le commutateur lorsqu'il effectue l'unique fonction de commutation de trames ?

E.2 La transmission des trames dans le commutateur est désignée par le mot anglais « forwarding ». Expliciter les 3 modes de transmission suivants :

E.2.1 Mode « Fast forward »

E.2.2 Mode « Store and forward »

E.2.3 Mode « Fragment free »

E.3 Quel est le mode de transmission utilisé par le commutateur Superstack III – Switch 3300 ?

E.4 Le commutateur Superstack III – Switch 3300 supporte les VLAN

Quel est le nombre maximum de VLAN que peut supporter ce commutateur ?

E.5 Le réseau PC Profs utilise deux commutateurs connectés par 2 liens physiques non redondants.

E.5.1 Quel est l'intérêt de ces deux liens ?

E.5.2 Quelle fonction supplémentaire est mise en œuvre sur chacun des commutateurs ?

E.5.3 Dans le but d'augmenter le débit, peut-on envisager d'augmenter le nombre de liens physiques ? Justifiez votre réponse.

ANNEXE 7

Extrait du « Management Guide » du Superstack 3300 – pages 19 à 22 « Software Features Explained »

1 SUPERSTACK SWITCH MANAGEMENT SOFTWARE

This chapter contains introductory information about the SuperStack® Switch management software and how it can be used in your network. It covers the following topics :

- ❖ What is Management Software?
- ❖ Summary of Software Features
- ❖ Software Features Explained
- ❖ Default Settings

What is Management Software?

Your Switch contains software that allows you to change and monitor the way it works. This *management* software is not required to get the Switch working, but if you do use it, you may improve the efficiency of the Switch and therefore improve the overall performance of your network.

Summary of Software Features

Table 3 describes the software features that are supported by units in the Switch 1100/3300 and 610/630 family.

Table 3 Software features

Feature	Switch 1100/610 Family	Switch 3300 /630 Family
No. of MAC Addresses Supported	Up to 6,000	Up to 12,000
Port RJ45 10/100baseTx	24	24
Stack Management	Supported for up to four Switch units (stackability not supported on 610/630 units)	Supported for up to four Switch units (stackability not supported on 610/630 units)
Forwarding Modes	Store and Forward, Fast Forward, Fragment Free, Intelligent	Store and forward
Duplex Modes	Half and full duplex on all ports	Half and full duplex on all ports
Flow Control	Supported on all ports	Supported on all ports
Traffic Prioritization	Supported	Supported
PACE	Supported on all ports	Supported on all ports
Security	Supported on all ports	Supported on all ports
Resilient Links	Supported	Supported
Port Trunking	Support for two Port Trunks a unit	Support for two Port Trunks a unit
Broadcast Storm Control	Supported	Supported
Virtual LANs (VLANs)	Support for up to 16 VLANs using the IEEE 802.1Q standard	Support for up to 16 VLANs using the IEEE 802.1Q standard
FastIP	Supported	Supported
Multicast Filtering	IEEE 802.1p and IGMP filtering supported	IEEE 802.1p and IGMP filtering supported
Spanning Tree Protocol	Supported	Supported
RMON	Seven groups supported : Statistics, History, Alarms, Hosts, Hosts Top N, Matrix, Events	Seven groups supported : Statistics, History, Alarms, Hosts, Hosts Top N, Matrix, Events
Roving Analysis	Supported	Supported
Management	Web interface, command line interface, and SNMP supported	Web interface, command line interface, and SNMP supported
Extension Module	1000baseFX	MTRJ connectors

Stack Management Units in the Switch 1100/3300 family can be interconnected so that they form a stack, that is, a group of devices that are managed as a single device.

Stackability is not supported by the Switch 610/630 units.

You can interconnect these Switch units together in two ways :

- The matrix port on the rear of each Switch allows you to connect two Switch units back-to-back. For this you need a Matrix Cable (part number 3C16965).
- The Expansion Module slot at the rear of each Switch allows you to install a Matrix Module (part number 3C16960). The Matrix Module provides four ports and allows you to interconnect up to four units using Matrix Cables.

For information about stacking Switch units, refer to Chapter 2 of the relevant Switch User Guide.

Forwarding Modes Units in the Switch 3300/630 family support Store and Forward packet forwarding mode. In this mode, received packets are buffered entirely before they are forwarded, which ensures that only good packets are forwarded to their destination.

Units in the Switch 1100/610 and 3300/630 family support three forwarding modes in addition to Store and Forward :

- *Fast Forward* — Packets are forwarded as soon as the destination address is received and processed. With Fast Forward, packets take less time to be forwarded, but all error packets are propagated onto the network because no time is allowed for checking.
- *Fragment Free* — Packets are forwarded when at least 512 bits of the packet is received, which ensures that collision fragments are not propagated through the network. With Fragment Free, packets take less time to be forwarded, but all error packets except fragments are propagated.
- *Intelligent* — The Switch monitors the amount of error traffic on the network and changes the forwarding mode accordingly. If the Switch detects less than 20 errors a second, the forwarding mode is set to Fast Forward. If the Switch detects 20 or more errors a second, the forwarding mode is set to Store and Forward until the number of errors a second returns to zero.

For information about setting the forwarding mode for units in the Switch 1100/610 family, see “Configuring the Advanced Stack Settings” on page 76.

Duplex Modes All the ports on your Switch can be set to one of two duplex modes :

- *Half duplex* — Allows packets to be transmitted and received, but not simultaneously. This is the default Ethernet duplex mode.
- *Full duplex* — Allows packets to be transmitted and received simultaneously and, in effect, doubles the potential throughput of a link. In addition, full duplex supports 100BASE-FX cable runs of up to 2km (6562ft).

To communicate effectively, both ends of a link must use the same duplex mode. If the link uses an auto-negotiating connection, this is done automatically. If the link uses a connection that is not auto-negotiating, both ends must be set to half duplex or full duplex manually.