



# Madge Visage Application Guide

**A Tool for Switched Network Configuration**

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## Introduction

It may seem like just yesterday when you redesigned the network in order to expand services and improve network performance. High-speed switching technologies were implemented to open up bottlenecks in the backbone while LAN segmentation took care of local network response-time.

However, it wasn't long before increasingly powerful workstations and bandwidth-hungry applications caused the bottlenecks to reappear - this time, at the workgroup level. As organizations plan the next step toward upgrading workgroup LANs, they must consider everything from the cable to end-user applications to how well the solution can be integrated with existing network infrastructure.

Madge Visage™ is a family of high-performance switches designed especially for the workgroup. The Visage product family is well suited to a wide range of LAN technologies and environments. Visage switches can be easily deployed in a variety of network scenarios to improve network performance, provide better manageability and more flexibility.

This application guide presents a sampling of how Visage workgroup switches can be configured to provide optimal performance in typical network installations.



## What is Visage?

Madge Visage is a family of stackable, plug-and-play workgroup switches that skillfully integrates Ethernet, Fast Ethernet and ATM technologies in a scalable, high-performance solution. Visage units function independently as standalone switches or are easily stacked and coupled to provide more ports and more bandwidth. What makes Visage a better solution than other workgroup switches on the market is its no-compromise design and unique Exoplane™ interconnection technology.

### No Compromises

In order to deliver high-speed switching at a very low cost, most workgroup switches compromise on high-end functionality. Not so with Visage. The Visage product family is expertly crafted to deliver both high-speed performance and high-end functionality - without compromises. Thus, workgroups can enjoy the benefits of features that were traditionally available only in backbone switches, such as data prioritization, congestion control and comprehensive SMON™ monitoring.

### Exoplane Scalability

Most stackable switches are connected together with a pipe of limited bandwidth (essentially a recycled server-class link). In contrast, the Exoplane interconnector operates as a transparent extension of the switch's own internal backplane. As Visage switches are stacked together, the Exoplane creates a single backplane for the entire cluster. Up to 4 Gbps of aggregate bandwidth is made available to all users in the cluster via this external, expandable backplane.

Since each Visage unit is a standalone switch in its own right, small organizations can start out with one switch, and add units as the network expands. The table below shows the Visage product family at a glance.

Model	Basic ports	High-speed ports
Visage 24T	24 Ethernet ports (10BASE-T)	
Visage 16200T	16 Ethernet ports (10BASE-T)	2 Fast Ethernet ports (copper)
Visage 16200F	16 Ethernet ports (10BASE-T)	2 Fast Ethernet ports (fiber)
Visage 800T		8 Fast Ethernet ports

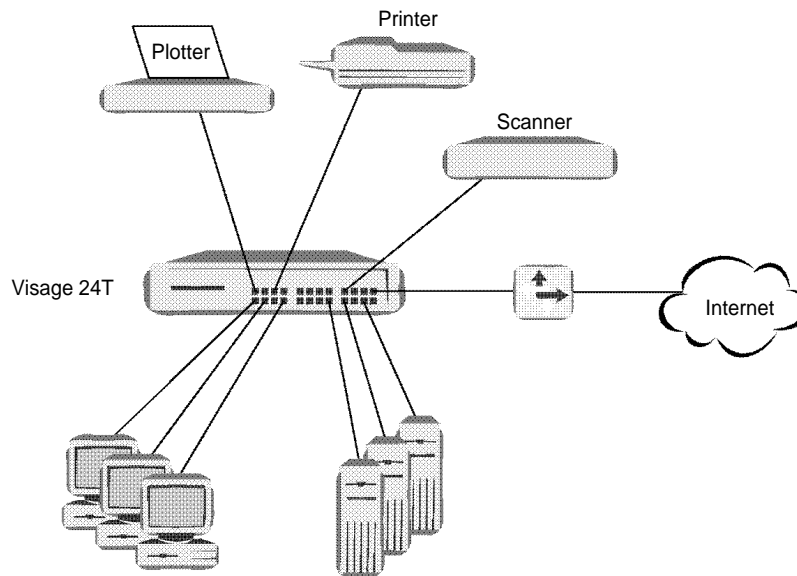
*Figure 1: Visage product family*

Any combination of up to four Visage switches can be configured in an integrated cluster. It is possible to build a 96-port Ethernet switch (with Visage 24T units), or a 32-port Fast Ethernet switch (with Visage 800T units), or mix and match Visage units in whatever way best suits the technology and network level at hand. A Visage cluster is not just a collection of four individual switches hooked together, but rather, a single logical switch, functioning as a unified entity. That is what makes Visage such a powerful solution for the workgroup.

## Scenario I: The Workgroup Solution

Consider a small CAD/CAM service provider, such as a graphic design office. Typically, the number of network users is low, however, each user has a high-powered workstation that regularly accesses common network resources such as servers, printers, scanners and plotters. This requires lots of bandwidth. Typically, these sites use a single physical network protocol. In this scenario, Visage switches provide a very simple and straightforward solution.

### Case 1: All-Ethernet Solution



*Figure 2: Visage Switched Ethernet Workgroup*

Using the Visage 24T, each user can be given his/her own private Ethernet connection. Likewise, all common resources, such as printers and servers, receive dedicated 10 Mbps links. All client/server transactions are carried out at full-rate Ethernet throughput, with absolutely no sharing of network bandwidth. The unit's 24 switched ports and high-speed backplane more than meet the requirements of most Ethernet workgroups. To further enhance performance, common network devices can be assigned a higher priority level than user workstations.

## Case 2: Adding Users and Bandwidth

When more ports are needed, you can easily add another Visage 24T unit to build a two-unit cluster. Additional units are connected using the Visage Exoplane, which creates a common, multi-gigabit switching fabric. This means that NO degradation in performance is caused as additional units are integrated into the cluster. No reconfiguration is required and new users enjoy immediate access to established servers and other common network resources.

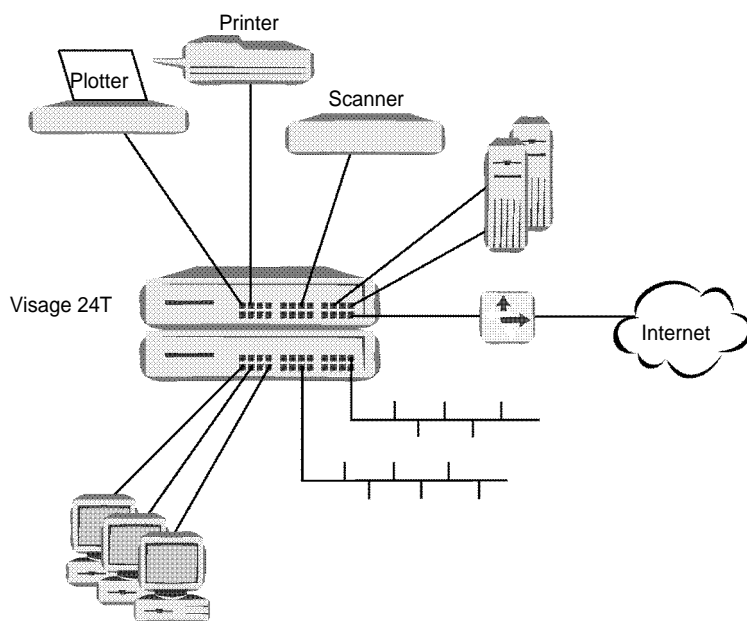
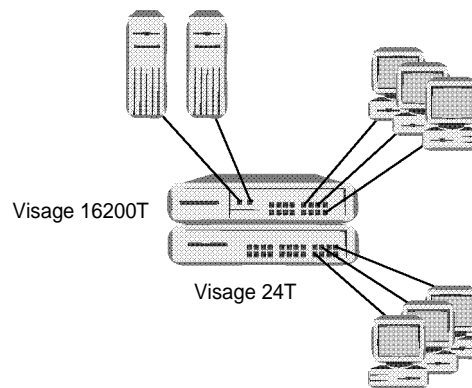


Figure 3: Two-unit cluster of Visage 24T switches

### Case 3: Client/Server LANs

For intensive client/server applications such as those typified by centralized databases, collaborative computing and Lotus Notes, having common servers on 10 Mbps connections may not be sufficient. This is especially true if several clients have their own 10 Mbps connection and are accessing the server simultaneously. Even with Visage congestion management mechanisms, the servers will be constrained in an all 10 Mbps configuration.

With Visage, the solution is simple. By adding a Visage 16200T unit to the cluster, common servers and other frequently accessed devices can be given a dedicated 100 Mbps Fast Ethernet data pipe. For an even greater performance boost, these Fast Ethernet ports can be configured with a higher priority, giving preference to all data traveling to and from the server.



*Figure 4: Visage 16200T opens up server bottlenecks*



## Scenario II - Departmental Solutions

Consider a departmental environment where many people are dealing with multiple projects. Ad hoc work teams are created and disbanded according to project life-cycles and the application mix is such that some users make only occasional use of the network, while others continuously use the network services in order to accomplish their tasks. For example, a technical support center answering customer calls typically uses a central database to track calls, look up solutions and log response time. In contrast, a marketing department probably does most of its data processing on local PCs and utilizes the network only for sporadic print jobs, e-mail, etc. Visage workgroup switches let you configure a tailor-made solution to fit these diverse networking requirements.

### Case 1: Distributed Departmental Networks

Many departments do not follow the client/server paradigm. In this environment, the network is used for e-mail, shared printers, and nightly backups to a central server. Users perform most of their computing tasks at their own workstation, and only occasionally need to download a file from the server. For example, a marketing or finance department using Microsoft Office does most of its word processing, spreadsheet computing and slide presentations locally, without network involvement. Only when a file must be printed, or forwarded via e-mail, will the network be in use.

The figure below shows a fast, simple and economical solution for the distributed department network. In this application, Visage 24T units are daisy-chained together via their switched 10BASE-T ports. Because inter-switch traffic is minimal and bursty in nature, this configuration provides plenty of bandwidth for everyone in the department.

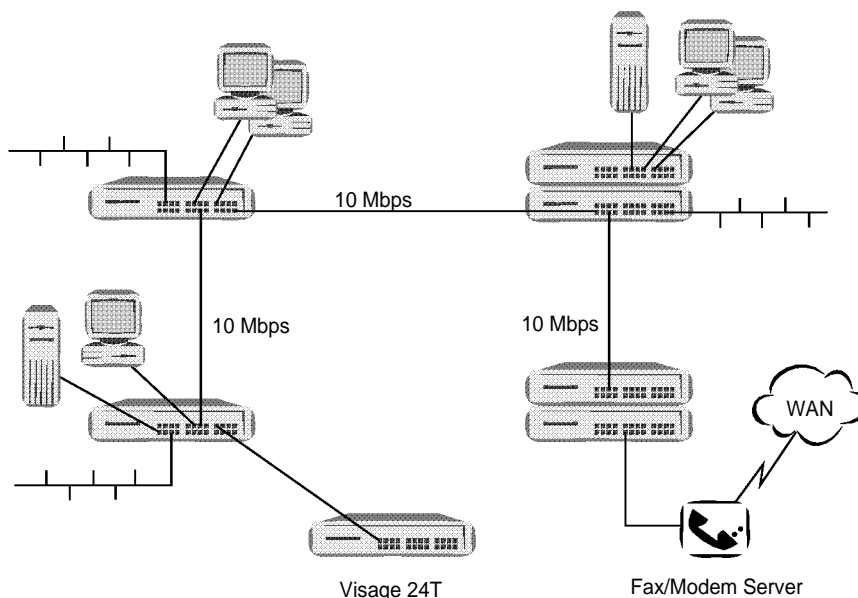


Figure 5: Visage 24T Workgroup Switches in a distributed departmental network

## Case 2: Departments based on Client/Server

When client/server applications are in widespread use throughout the department, a 10 Mbps backbone will feel the strain and may become a serious bottleneck. This scenario calls for faster backbone and server connections. Depending on the number of users and application requirements, several solutions are possible. Figure 6 depicts an all-Visage configuration, where all users benefit from wire-speed throughput. In fact, this network application provides approximately 10 Gbps of aggregate bandwidth.

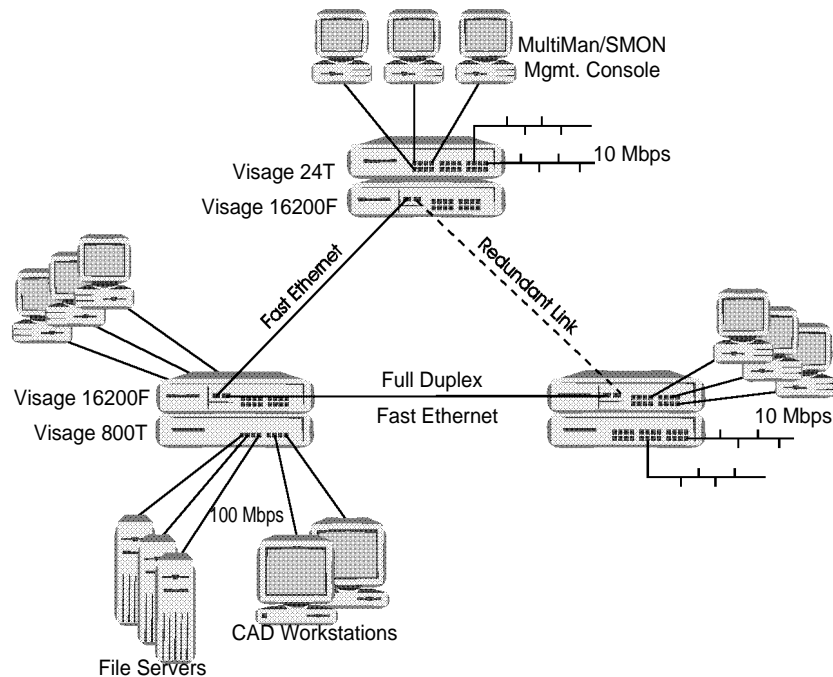


Figure 6: Full duplex backbones connect Visage clusters together

The Visage 800T gives a full-rate 100 Mbps connection to high-end servers and CAD Workstations, providing more than enough bandwidth for intensive client/server communication. Fault tolerant inter-switch links are easy to configure using the dual, fiber-optic, Fast Ethernet ports of the Visage 16200F. Reliable, fiber-optic media allows the backbone to span greater distances and guarantees interference-free signaling. In this application, full duplex has been enabled in all backbone links to boost network performance even further.

Using simple point-and-click MultiMan™ commands, the network manager can organize network users and devices into Virtual LANs that reflect the dynamic departmental work environment. At the same time, SMON keeps network managers informed about real-time network activity and traffic trends. This timely information and statistical analysis makes the network more predictable and easier to maintain.

### Case 3: Integrating Visage and LANswitch

Departments that are part of a larger organization want to be able to connect to the enterprise backbone. This backbone is frequently implemented using modular hubs and switches. For this reason, the Visage product family integrates seamlessly with Madge LANswitch™ hubs and modules, enabling organizations to design and implement a high-performance, end-to-end switched network. All the advanced features (i.e., data priority, congestion control, Virtual LANs, etc.) that helped make LANswitch the solution of choice for network integrators are also implemented in the Visage product family. Integration of these features between Visage and LANswitch is absolutely seamless.

Figure 7 illustrates how Visage switches can be used to improve performance at the workgroup level, and also provide high-speed uplinks to a LANswitch collapsed backbone in building and campus networks. LANswitch, in turn, provides access to the WAN and/or ATM network structure.

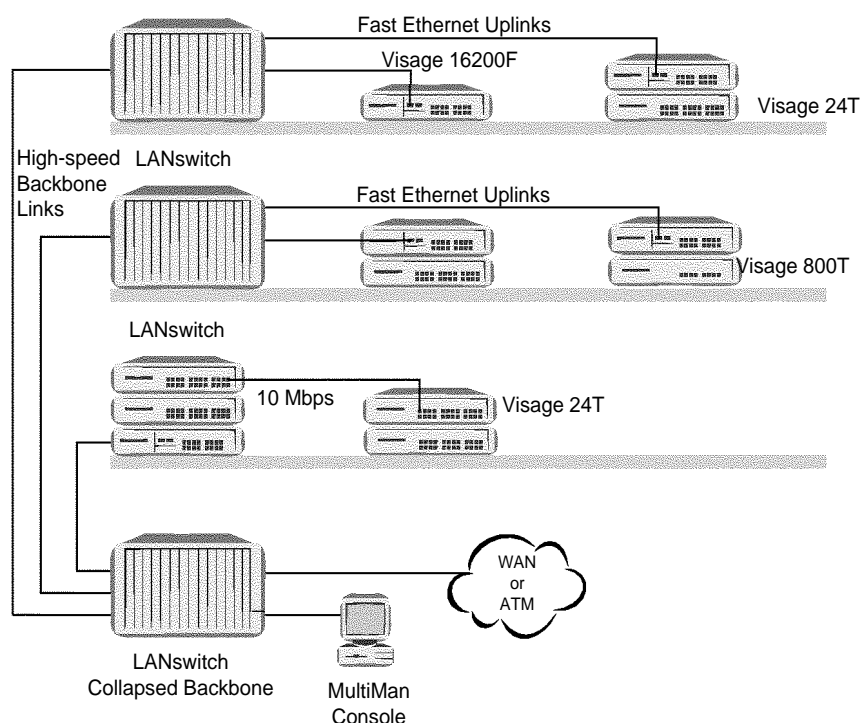


Figure 7: Visage and LANswitch create a seamless end-to-end switched network

Fast Ethernet uplinks to LANswitch hubs are provided by Visage 16200F units. These fiber-optic interconnections can operate in either half or full duplex mode, according to user requirements. Each Visage 16200F workgroup switch is connected to a LANswitch LEB-200 module in the hub. The LANswitch LEB-200 is a full duplex, Fast Ethernet backbone switch that utilizes 100BASE-FX fiber-optic media. The Visage 800T switch in this configuration can be utilized for departmental server farms, power users and other demanding applications.

However, there is more to the seamless integration of Visage and LANswitch than simple connectivity. LANswitch and Visage switches are also fully managed and monitored by the same network management applications. Comprehensive, integrated management is the key to keeping switched enterprise networks running smoothly. Madge MultiMan and SMONMaster™ work in conjunction to give network managers a complete and accurate picture of backbone, workgroup and desktop traffic from global views to port-specific perspectives.

Madge is committed to supporting large enterprises with best-of-breed switching solutions from end-to-end as they plan their migration to ATM. The Visage and LANswitch product families together with the MultiMan and SMON Network Management System exemplify that commitment.









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