



Application Delivery Services for Networks

Dynamic Control for Bandwidth Management, Policy Enforcement and Real-Time User Support

Take Control of Your Applications—with Centerwise™

- **Optimize** bandwidth utilization and application delivery across your network from end-to-end.
- **Ensure** delivery of mission-critical applications to the users who need them.
- **Reduce** overhead with super-easy installation, dynamic bandwidth allocation and automatic policy enforcement.
- **Realize** improvements in application performance within minutes of installation.
- **Assure** the best performance for priority users and customers with a straightforward, policy-based management system.
- **Control** the applications you already own, without changing network hardware.
- **Empower** users with the information they need, when they need it the most.
- **Maximize** the return on your investment with a compatible and scalable solution that will grow with your application delivery environment.

Success in today's fast-paced economy requires technology-enabled business relationships that rely heavily on network applications. Leveraging these relationships means delivering business-critical applications to users, customers, and partners over frequently unreliable and unpredictable private and public networks. How do you ensure Application Service Quality (ASQ) on today's complex business networks? How do you provide speedy and reliable access to the applications and resources that keep your business competitive?

Take Control. Deliver Results.

The Centerwise™ patent-pending software system goes beyond traditional network management and QoS solutions that simply mitigate network congestion. By taking into account your applications and users as well as your network, Centerwise prevents congestion and ensures top priority performance for mission-critical traffic.

Centerwise lets you establish priorities for both users *and* critical business applications, resulting in policies meaningful for your environment. You can avoid bandwidth waste and underutilization with its dynamic bandwidth allocation, ensuring smoother and more predictable application performance. You can reduce unnecessary help desk calls and minimize costly downtime with the customizable Virtual Help Desk. And, you can easily install and configure Centerwise for an immediately effective solution that allows rapid expansion without a lot of overhead.

With Centerwise, you can now effectively manage your application delivery environment without any changes to existing hardware or software, and help ensure the success of your business as you move to the future.

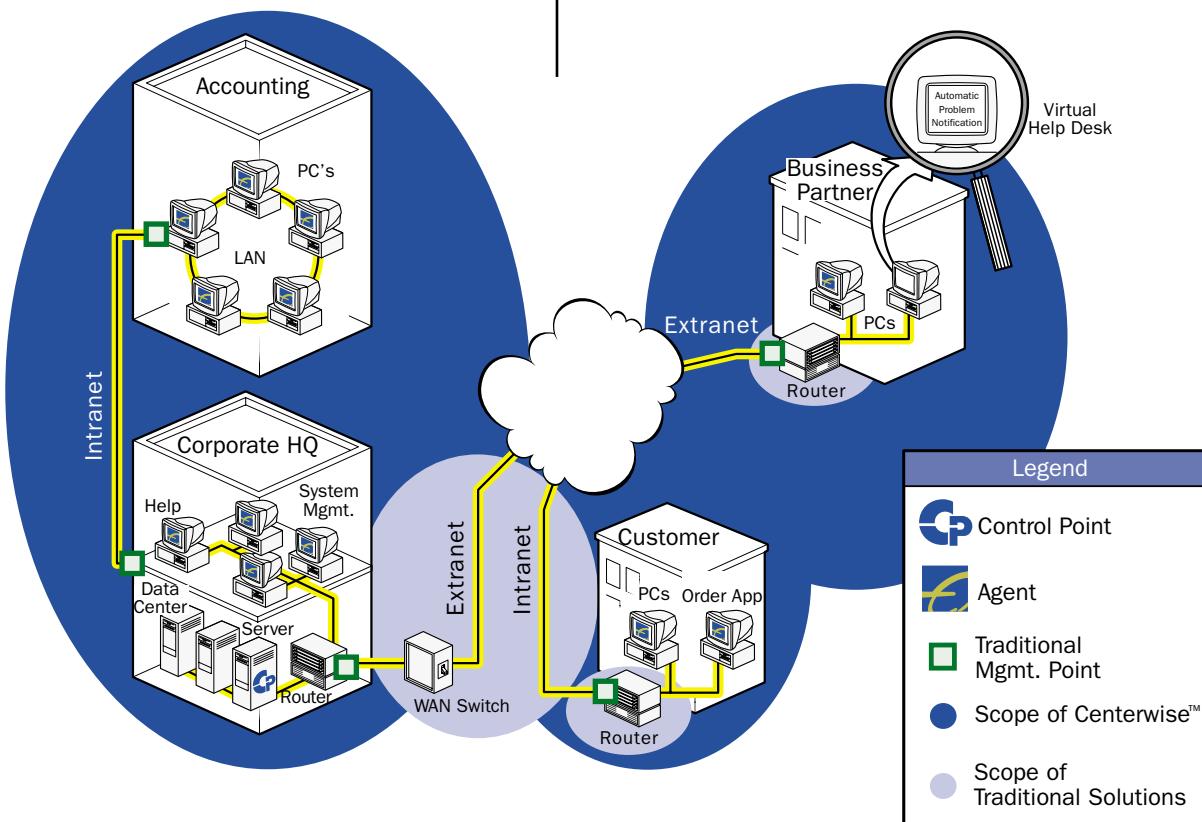
Policy-based Bandwidth Management—Where You Need it

Until now, the only options for bandwidth management have been products that manage congestion already present on the network. But while these solutions can provide some relief for network congestion, they don't prevent it. They miss a crucial point: **Traffic present on the network is already chewing up valuable bandwidth**, even when that

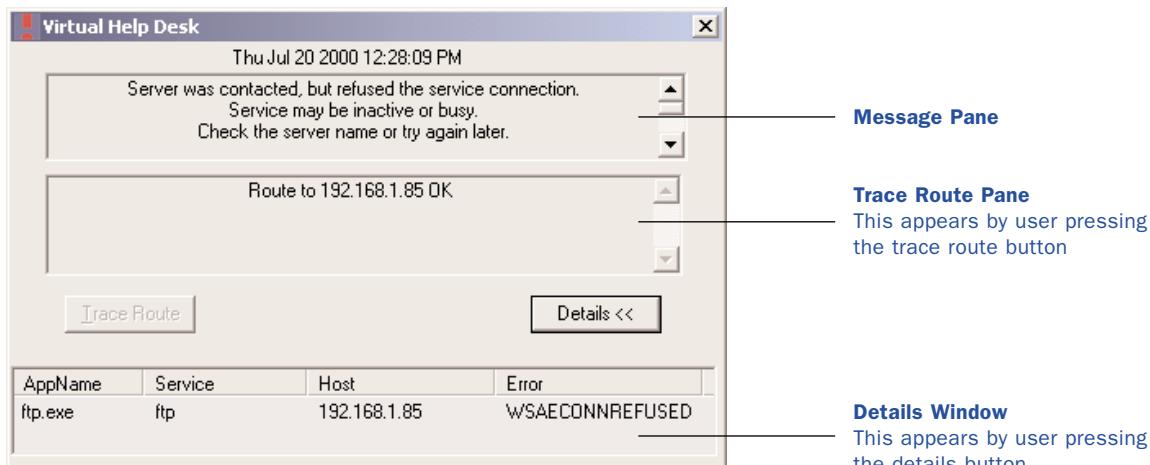
**CENTERWISE™ AVOIDS
NETWORK CONGESTION
AND BANDWIDTH
WASTE BY ADDRESSING
THESE PROBLEMS AT
THEIR SOURCE**

traffic isn't business-critical. Critical applications must compete for bandwidth with less important Web, e-mail, and file download traffic, as the network continues to suffer from congestion. Such congestion causes even more bandwidth consumption, as jammed and undeliverable traffic must be discarded and retransmitted. This vicious cycle greatly increases business costs because of poor application performance and increased user frustration.

Centerwise avoids both wasteful bandwidth consumption and unnecessary network congestion by addressing these problems directly at their source. Instead of regulating traffic already on the network, Centerwise arbitrates among your applications and users **before** they place traffic on the wire. By controlling the rate at which both applications and users interact with the network, Centerwise puts your network's most business-critical traffic ahead of, not in competition with, less essential traffic. Centerwise also increases your effective network capacity, by reallocating idle bandwidth to busy workstations. Users get their jobs done much more quickly and reliably, and you increase your business's overall profitability.



Centerwise™ increases the scope of network control to include not just the network, but users and applications as well.



Message customization lets you offer users an alternative in response to specific situations.

The Virtual Help Desk—Keep Users “in the Loop”

A key feature of the Centerwise solution is the Virtual Help Desk. The Virtual Help Desk detects changes in the application delivery environment that affect the availability of resources, and provides users and customers with useful, easy-to-understand information about these changes. The Virtual Help Desk identifies both local and remote network failures automatically, determining if a network link is broken, a server is down, or a particular application is unavailable—even if the problem is on the other side of the WAN.

Proactive Messaging

When a problem is detected, the Virtual Help Desk sends a screen message to affected users. These messages assist users in identifying the cause of a problem before they place a support call. This foreknowledge gives added confidence to users who might otherwise feel too intimidated to call the help desk, and prevents potentially expensive problems from lingering. Other users can comfortably resolve many common problems without the need for a call, by simply using the information provided by the message. This reduces help desk overhead and frees your support team for more complex problems.

Message Customization

The Virtual Help Desk includes a set of ready-to-use messages in plain language to provide basic information about application delivery errors. You can also modify these messages to provide even more user assistance. For example, if your online ordering

system goes down, you can provide customers with a fax number for temporary order submission, rather than have them try to interpret a cryptic message like ‘general application error.’ Message customization lets you offer alternative courses of action for specific situations, to minimize the impact of these problems on your profitability.

The Centerwise System

The Centerwise system works via a cooperative combination of centralized management and distributed policy enforcement, and consists of two main components. System administrators define the priority of users, groups and applications in a central location on the network using the **Control Point**. These policies are communicated regularly across the network to cooperating software agents residing on each client. Each **Agent** then interprets and applies the policies and priorities locally.

The Centerwise Agent

The Centerwise Agent is a small footprint, lightweight software component deployed on client workstations to implement and enforce policies dynamically. The Agent receives policies and priorities from a centralized control point, and then applies these rules at the client. The Agent also monitors, records, and analyzes application and network activity on a continuing basis. When bandwidth utilization crosses pre-determined threshold levels, the agent notifies the control point. Depending on the client’s current level of activity, the agent can either request additional, or return excess, bandwidth.

**WITH THE CENTERWISE™
CONTROL POINT, YOU HAVE
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YOUR ENVIRONMENT.**

Agents also deliver relevant information directly to end users and customers in real-time, using the Virtual Help Desk. When applications become unavailable or when a network connection has failed, the Virtual Help Desk notifies users and can offer alternatives to ensure continued productivity.

Centerwise agents are available today for Microsoft Windows* 95/98, Windows NT, and Windows 2000 operating systems. Centricity is also developing agents for additional platforms and devices. The Windows-based agents work with all standard applications that communicate via the WinSock API; no changes to existing applications are ever required.

The Centerwise Control Point

The Control Point (CP) provides centralized setup, administration, and distribution of all policies and priorities. The system administrator uses the CP to specify the amount of bandwidth to manage and to define the policies to be enforced at the client. The CP then automatically distributes these policies to all agents. When changes to policies are needed, the CP distributes the new parameters automatically, so you only need to specify these changes once. Automated discovery of participating workstations and users by the CP greatly reduces setup time.

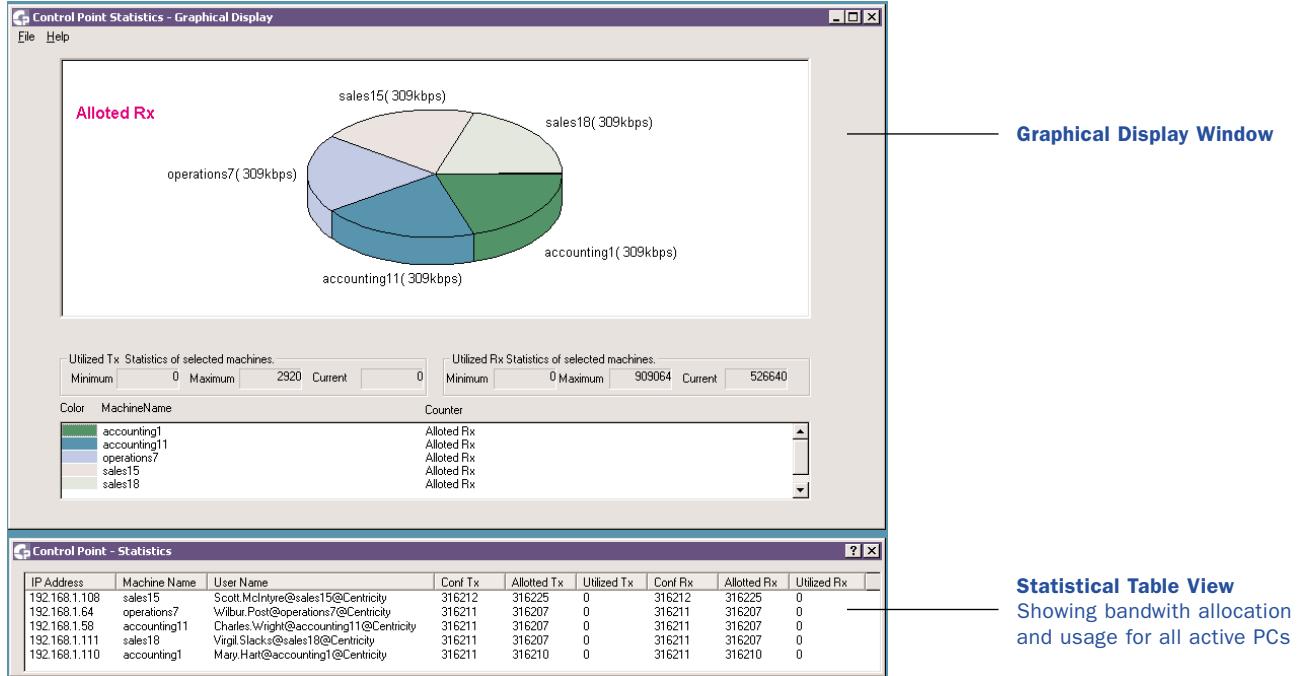
With the Control Point, you have the flexibility to create the types of policies best suited to your environment. You can create user-specific policies that affect a single user. You can also build group policies that apply to a logical group of users. And you can build policies for a particular application. The CP lets you mix and match these policy types in any combination.

The Control Point not only manages these policies, but also fine-tunes the network automatically. The CP systematically compares data from the agents with the system administrator's initial bandwidth allocations. The CP adjusts these allocations as conditions change, moving bandwidth from idle to busy workstations dynamically in real-time. And, the CP can be installed on most Windows platforms, including Windows 98, Windows NT, and Windows 2000. Future implementations will support other platforms and devices.

Benefits of the Centerwise Approach

Flexibility to Support any Application on any Network

Centerwise gives you the flexibility to implement control in any kind of network environment. Because agents operate locally at the client, Centerwise avoids having to enforce policies across a



With the Centerwise Control Point, organizations can view and control bandwidth usage to increase Application Service Quality (ASQ).

gauntlet of dissimilar switches, routers, and bridges. This makes the system applicable to a wide variety of networks, including LANs, intranets, extranets, the Internet, and secure VPNs (Virtual Private Networks), without having to worry about network topology issues. And, Centerwise requires no configuration changes to your network infrastructure.

Centerwise gives you the flexibility to implement control for virtually any IP network application. Other management solutions require applications specifically modified for QoS awareness. Since most applications are not QoS aware, the effectiveness of these other solutions is severely limited. Centerwise agents don't require specially modified applications. Instead, they utilize the WinSock API, a standard interface supported by virtually all IP applications, in monitoring and controlling application traffic. By using this widely accepted standard, Centerwise provides a higher level of Application Service Quality (ASQ) for standard, off-the-shelf applications, including those already running on your network.

Scalable and Precise

The Centerwise system can be easily scaled to meet both your immediate and long-term needs. You can start by controlling your most demanding users or applications. Later, you can add control for large user groups, or for additional applications, by

simply installing the agent on new workstations. The agent will receive its policy configuration automatically from the central control point, without any additional effort on your part. And the installation only takes a few minutes, so you can quickly and easily extend your implementation at any time.

The ability to aim policies at specific users, groups, or applications gives you a great deal of precision in establishing priorities. For example, you can give your CFO top-level priority, and give the rest of the accounting staff medium priority. You can also ensure bandwidth for a mission-critical application system-wide by creating an application-specific policy.

Intelligent and Dynamic Network Adaptation

Centerwise includes the intelligence to adjust to changing network conditions by regularly monitoring network usage. For example, imagine that a system administrator initially allocates 40% of the total bandwidth to his order entry application and 40% to his accounts receivable (A/R) application. Now, assume that the order entry system is used most heavily in the morning, and the A/R application is used most heavily in the afternoon. If during the morning, the A/R application is only using half of its allocated bandwidth, Centerwise will dynamically reallocate the unused bandwidth to the order entry system. Then in the afternoon, as

Take Control Today

order entry slows down and A/R activity ramps up, Centerwise will again redistribute bandwidth. This time, Centerwise will increase the allocation for the A/R application, and reduce the allocation to the order entry system. Valuable bandwidth never sits idle, and responses to network change take place in real-time, without requiring your intervention.

Value-added Compatibility

Many network devices now implement management standards such as DiffServ (Differentiated Services) and RSVP (Resource Reservation Protocol), but these solutions have limitations that Centerwise can address.

RSVP can provide some measure of QoS within a LAN if implemented correctly, but generally cannot provide end-to-end QoS across network boundaries. RSVP requires network devices (such as routers) that maintain link state information to reserve bandwidth and guarantee packet delivery. However, the majority of network devices do not support RSVP, or have enabled support inconsistently. And even when RSVP is properly implemented, maintaining link state information on a public network is virtually impossible. Public networks (such as the Internet) are designed for individual packet delivery, but not for maintaining link state.

DiffServ is a flow control mechanism that provides priority differentiation between applications. However, its priority mechanism offers only a limited set of forwarding behaviors. And, when implemented on routers, DiffServ only prioritizes traffic after congestion is detected, so low priority traffic can be delayed or even dropped.

Encrypted network and VPN (Virtual Private Networks) traffic also presents service delivery challenges. To guarantee data security, encryption technologies encode application-specific packet data. Neither RSVP nor DiffServ enabled devices can effectively prioritize encrypted traffic by application, because the necessary packet information is no longer visible.

Centerwise is compatible with RSVP and DiffServ, but works at a system level to provide control even in hybrid private/public networks and with encrypted traffic. And through its use of the WinSock API, Centerwise works with virtually any IP network application, even those without QoS support.

Take Control Today

Superior Application Delivery

- Prioritizing users, groups, and applications guarantees resources for business-critical needs.
- Dynamic bandwidth allocation automatically adapts to changing user behaviors and network conditions.
- More efficient use of existing network capacity prevents bandwidth waste and underutilization.

- Seamless integration with VPN and IPSec environments provides application-based control without having to give up encryption and security.
- Support for both QoS-enabled and non-QoS applications adds value to existing management solutions.

Reduced Help Desk Costs and Increased User Productivity

- Built-in Virtual Help Desk turns users into partners in the troubleshooting and reporting process.
- Ready-made messages reduce help desk calls and user frustration immediately.
- Customizable messaging lets you tailor support content for your audience and for future applications.

Room for Expansion, Enhancements and Customization

- Easy scalability from dozens to thousands of users reduces planning overhead.
- Cooperative architecture offers limitless configuration possibilities; manage a few users, a particular workgroup, a specific application, or an entire network.
- Easy installation requires no changes to the network and allows simple addition of new users and applications as the network grows.

Enhanced Compatibility

- Patent-pending design supports any standard application running over IP and ensures compatibility with both existing and new applications.

Rapid Return on Investment

- More efficient use of the network increases the return on your bandwidth investments.
- The Virtual Help Desk shrinks overall support costs.
- Quick and easy installation reduces deployment and planning costs.

System Requirements

Centerwise Agent

Operating System

Requires one of the following:

Windows* 95
Windows 98
Windows NT 4.0 Workstation or Server (SP3 or higher recommended)
Windows 2000 Professional
Windows 2000 Server or Advanced Server

Processor

A Pentium* processor or higher is recommended.

RAM

32MB or higher recommended.

Disk Space

Requires 10 MB free space to install. After installation, uses about 1 MB.

Centerwise Control Point

Operating System

Requires one of the following:

Windows 98
Windows NT 4.0 Workstation or Server (SP5 or higher recommended)
Windows 2000 Professional
Windows 2000 Server or Advanced Server
A dedicated machine is recommended, but not required.

Processor

A Pentium* processor running at 233 MHz or higher is recommended.

RAM

64MB or higher recommended.

Disk Space

Requires 100 MB free space to install. After installation, uses less than 30 MB disk space.

Centricity, Inc.

Centricity, based in Portland, Oregon, is developing and bringing to market software solutions to more effectively deliver and differentiate applications and services for corporations, B2B enterprises, and service providers. With the unique ability to control and resolve application and network issues based on business policy, paid level of service, or group and individual priority, Centricity's solutions put the customer first by providing users with the most effective personal application service available.

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