

Everserve™ Technology White Paper

Assured Digital Delivery™

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Executive Summary

Everserve™ is a distribution and management software technology built on a secure, reliable, scalable, distributed server infrastructure. This infrastructure platform enables the development of a wide range of applications, such as: digital asset delivery, business-to-business over the Internet (B2Bi) applications, rapid deployment of security fixes, remote desktop management, synchronized updates to web servers, improved software license management, software subscription services, and rapid and widespread desktop and server security hardening, to name just a few.

Today's content delivery and software deployment technologies were not designed to securely and reliably send files to, or retrieve files from, large numbers of remote computers across any network. FTP, for example, or simple copy commands or even email, are not reliable or secure, especially for large files. The delivery of files to thousands of computers cannot be assured nor audited. Hardware and network-based security systems such as SSL become prohibitively expensive to authenticate large numbers of network devices due to the high cost of managing client-side certificates. Telnet or SSH can manage small numbers of networked devices, but these tools won't scale to support large numbers of devices reliably. IT organizations often write home-grown tools to deal with these software and network-level issues, but soon learn it takes considerably greater time, cost and development effort than they can maintain.

Everserve solves these problems by providing technology with which ISVs, IT solution providers or Enterprise IT can easily incorporate into their solutions the ability to create and send digital packages (containing any kind of digital content or code) to a remote computing device, or just as easily repeat that for 100,000 devices. *Everserve* provides comprehensive return receipts and audit logs that monitor the status of package deliveries in real time, and more importantly, instantly spot and diagnose problems.

Everserve provides a powerful and flexible package delivery service, but it does not determine what goes into the package. One package could, for example, deploy the latest Internet Explorer security patch to all employee desktops, while another could deliver a gigabyte of sensitive data to a business customer over the Internet.

Everserve is the ultimate secure and reliable digital transport technology for delivering any type of digital assets - content, files, data, applications, or media - over any network.

Security

Everserve uses industry standard 128-bit SSL to secure all network traffic, but it does so in a unique, patent-pending way so as to provide security benefits that can be considered too good to be true: automatic server *and* client-side certificate management to authenticate, encrypt and digitally sign all network transmissions; end-to-end security over the Internet and through firewalls and proxy servers; and, an encrypt-once-send-many security process that dramatically reduces CPU and network load for management of large numbers of computers.

Automatic certificate management. Although SSL is capable of supporting client-side certificates to provide robust client authentication, this capability is rarely utilized due to the high cost of creating and managing client-side certificates. Consequently, client-side authentication mechanisms that are significantly less robust than certificates are used, such as username/password authentication. *Everserve* solves this problem by totally automating certificate generation and management for all machines, resulting in hassle-free VPN-quality security between all computing devices.

Ultimate security for any network. Whether communicating through a corporate LAN, VPNs, leased lines, or across the Internet, *Everserve* automatically authenticates all connections using 1024-bit X.509 certificates, encrypts and digitally signs all transfers using 128-bit AES-backed SSL, and provides non-repudiation through comprehensive, digitally signed return receipts.

End-to-end security over the Internet. *Everserve* works through proxy servers and firewalls to communicate over the Internet. When two machines communicate over the Internet without a dedicated VPN, one side or the other must expose a machine to the Internet. Typically, this machine resides in the DMZ of a firewall. Because data is decrypted on machines in the DMZ, sensitive data is vulnerable in clear-text form on these machines. *Everserve* solves this problem with a layer-7 VPN server to ensure that data is only decrypted when it reaches its final end point. Unlike network-level VPNs that only prevent external attacks, *Everserve* secures data from the source to the ultimate destination, protecting that data from internal attack as well as external attack.

Encrypt-once-send-many. Whether data is sent to just one end point or a hundred thousand end points, *Everserve* only encrypts the data once. For updates to large numbers of machines, this results in a dramatic increase in CPU and network efficiency because the CPU and network are not tied up encrypting and transmitting the same thing numerous times. Delivery to many devices that would take many hours with other technologies will take just minutes with *Everserve*.

Scalability

Because even the largest servers have a limit to the number of connections they can handle, parallel distribution servers support massive scalability by processing large deliveries in parallel to an unlimited number of networked devices. Built-in load balancing optimizes server resources. Staging servers support efficient management of remote sites by storing packages locally for distribution to all the remote machines, while only requiring one network transmission to the staging server instead of many transmissions to all the remote machines.

Everserve calculates forward-deltas when updates to previously transmitted data are delivered, and always compresses all packages prior to delivery to reduce server load and optimize network throughput.

Everserve's internal architecture streams all data without creating unnecessary copies either in memory or on disk, and without re-encrypting data at intermediate relays.

Everserve's patent-pending technology allows transports other than the default TCP/IP to be plugged in, supporting other network protocols, such as multicast, which can further improve delivery times by a factor of 100.

Reliability

All packages and return receipts are digitally signed by the endpoints, providing tamper-proof transfers even through intermediate servers.

Comprehensive return receipts provide non-repudiation by verifying that data arrived and was processed successfully. If an endpoint is not able to receive a package, the return receipt will remain pending until the delivery is successful. If a delivery fails, for example due to insufficient disk space on the endpoint, a detailed error explanation is provided. The delivery monitor rolls up the status of all receipts to keep tabs on the progress of all deliveries. If there is a failure, the application or systems administrator can immediately diagnose the reason for failure, and then prepare another delivery to correct the failure.

Built-in checkpoint restart means that network disruptions or machine failures that occur mid-delivery do not require that delivery to restart at the beginning.

Deliveries are queued up until all recipients receive them. Even if some end points are off line at the time of delivery, or are intermittently connected, these endpoints will eventually receive their package.

Everserve provides built-in fail-over and load-balancing, without requiring dedicated or special purpose hardware to provide these capabilities.

Conclusion

Everserve is a secure digital delivery technology that delivers any type of digital assets – content, files, data, applications or digital media – over any network. It is highly secure, reliable and scalable for intranet, extranet, WAN and Internet environments. Using industry-standard security features, *Everserve* technology enables significant cost reduction and the development of a wide range of new revenue applications inside and outside the enterprise.

Systems incorporating *Everserve* will realize compelling business value if:

- 1) They routinely distribute private and proprietary digital assets – content, files, data, applications or media – to employees, customers or partners over the Internet, or;
- 2) Their digital distribution system needs to be totally reliable and immune from internal and external security violations, or;
- 3) They want to reduce WAN networking costs up to 25% or more, or;
- 4) They require a distribution system that is scalable to an unlimited number of network devices in any network, or;
- 5) They require a distribution system that has assured, audited, and reliable delivery of any kind of digital assets – content, files, data, applications or media.



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