

Acceleration

- Reduces application response times over the WAN by more than 95%

Virtualization

- Enables flexible, easy download and deployment of applications
- Optimizes the use of server resources through platform sharing between acceleration and other applications
- Saves IT organizations over 60% in operations TCO

Management

- Enables easier management of virtual appliances with global policy configuration and deployment, transparent addressing, statistical performance dashboard, and auto discovery
- Provides centralized provisioning and management through integration with virtualization management systems

Scalability

- Allows IT to provision systems for varying user workloads
- Supports single instance (de-duplicating) history store for maintaining larger histories

Virtual Appliance

- aCelera Virtual Appliance can be purchased as ready-to-load software for any industry-standard server

Supported Virtual Machine Operating Systems

- Microsoft Windows Server 2008® Hyper-V™
- VMware® ESX or ESXi

Mix and Match

- aCelera appliances can be used for the application acceleration of both virtualized and non-virtualized environments

Acceleration in a Virtual Appliance: More Applications to More Users for Less Cost

Today's enterprises are implementing consolidation initiatives to reduce the amount of hardware which is consuming ever-increasing amounts of space, energy and IT dollars. Even in small to medium sized companies, IT managers have multiple systems and proprietary appliances, including application acceleration appliances, collocated in data centers and branch offices, requiring separate and costly maintenance and management. This proprietary, single-purpose hardware approach to supporting applications is inefficient, hard to manage, and expensive. aCelera saves IT organizations more than 60% in operations TCO over 3 years when compared to proprietary hardware appliances.

To maintain the flexibility of the modern virtualized enterprise and still gain the remote access performance benefits of application acceleration, IT managers must consider a solution that leverages a virtualized infrastructure and integrates application acceleration into that environment. Now with aCelera, application acceleration can be delivered in software and deployed as a virtual appliance. aCelera provides a more scalable, flexible, cost-effective, and manageable solution for IT managers and their remote users than traditional proprietary application acceleration or WAN optimization approaches.

aCelera Virtual Appliance for Application Acceleration

Certeon's aCelera is the first and only application acceleration VA to run natively within a VM operating system and provide true application acceleration across the wide area network (WAN). aCelera software delivers the same reduction in application response time as its proprietary hardware appliance counterparts do, with the added benefit of eliminating the hardware footprint and high cost of separately managed, single-purpose boxes.

Supported on industry-standard server hardware and virtual machine operating systems such as Microsoft Hyper-V and VMware ESX or ESXi, aCelera delivers a more than 95% reduction in application response time to remote branch office users.

aCelera Virtual Appliance Benefits

Provisioning aCelera as a VA inside a virtual operating system allows other virtualized applications to benefit from aCelera's performance enhancements. aCelera also enables IT managers to, on demand, allocate application performance and system resources where they are needed most. aCelera appliances can be provisioned from a VM management system such as Microsoft System Center Virtual Machine Manager or VMware VirtualCenter — the same central systems that monitor and control all virtual operating systems and virtualized applications.

Finally, the cost and performance benefits of aCelera application acceleration enable IT managers to deploy virtualized applications to remote branch offices faster and more easily, bringing greater productivity to all users.



Certeon will load aCelera software onto PC servers from Dell, IBM, Intel, and Hewlett-Packard as a complete solution. Contact a Certeon Sales Director for more information at sales@certeon.com.

www.certeon.com

Performance

aCelera VA software delivers a more than 95% reduction in application response time when accessing applications over the WAN (see diagram, right). aCelera's optimal performance is delivered with minimal server overhead.

Why Distributed Enterprises Need WAN Optimization

Enterprise users who are local to corporate data centers typically experience great performance when accessing applications and services over a LAN. However, their counterparts in remote offices experience very different results when accessing those same resources over the WAN. Accessing applications across a WAN introduces network congestion, latency, and packet loss that can dramatically slow remote end user response time. Many IT organizations increase their spending by adding more network bandwidth to address these issues, only to find that poor application response time over the WAN has not changed.

With the addition of virtualization, many enterprises are consolidating servers into corporate data centers. But the consolidation of applications out of the branches and into the data center puts even more strain on the corporate WAN. In some cases, this degrades end user response time even further.

To correct these problems, IT managers use WAN or network optimization appliances. These proprietary appliances sit at both ends of the network and attempt to mitigate the network impact on performance. These devices use techniques such as data packet compression, caching, and protocol optimization to reduce end user response time.

Application Acceleration vs. Network Optimization

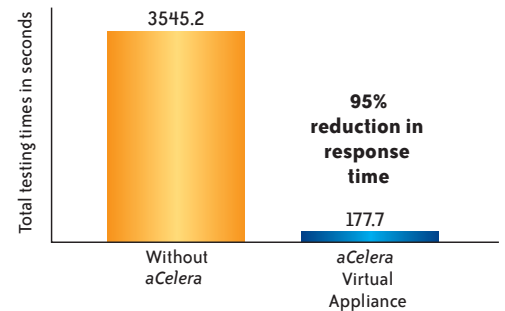
Application acceleration is all about reducing application response time. Application acceleration is different from what is typically referred to as appliance-based WAN optimization in that it not only performs data packet compression, caching, and protocol optimization, but also knows enough about an application's semantics to effectively reduce the amount of application traffic being transmitted over the WAN. Effective application acceleration techniques, such as Certeon's unique Stream Based Differencing, can identify and reduce application traffic to only the essential data objects (i.e., changes). By reducing the amount of data traffic sent over the WAN, application response time can be dramatically improved.

aCelera Virtual Appliance Acceleration

aCelera Virtual Appliance software is a full-featured application acceleration solution but without the proprietary hardware. aCelera can be downloaded onto a remote server and lives inside a VM system infrastructure. It can be deployed wherever it is needed, and it can be dynamically provisioned for whatever the user workload is in that location. As just another virtual application on a VM, aCelera can be managed and controlled by the central management tools provided by the VM operating environment. aCelera runs on any standard server hardware. aCelera has been tested and certified on Microsoft's Hyper-V and VMware ESX and ESXi systems.

In addition, aCelera is based on Certeon's patent-pending Application Intelligent Networking techniques. These techniques include Stream Based Differencing which enables aCelera to difference more volumes of data faster and Application Acceleration Blueprints. Application Acceleration Blueprints teach the acceleration software VA the language of the specific application making acceleration, even faster. Blueprints ensure that no unchanged data need be transmitted more than once.

CIFS, HTTP, and HTTPS uploads and downloads
(Latency: 200ms, Bandwidth: 1 Mb/s)



Acceleration Techniques

Certeon's unique Stream Based Differencing and Application Acceleration Blueprints accelerate all WAN traffic and maximize mission critical applications. In addition to these techniques, Certeon also provides a wide range of WAN optimization techniques. These include but are not limited to:

- **Web Application Optimization** — Optimizes and accelerates all HTTP, HTTPS, WebDAV, and underlying TCP connections
- **Generic Traffic Acceleration** — Accelerates any TCP/IP, CIFS and MAPI traffic
- **Network Optimization** — Window resizing, persistent connections, and small packet aggregation maximize throughput across the network and optimize current bandwidth to support more users/applications
- **Business Traffic Prioritization** — Application-level QoS combined with standards-based packet marking ensures that business traffic is prioritized while ensuring VoIP and video interoperability
- **Secure Acceleration Technology** — Secures and accelerates all encrypted (SSL) and non-encrypted HTTP traffic from the desktop to the data center

Application Acceleration Blueprints

Along with aCelera's wide range of WAN optimization and acceleration techniques to speed all WAN traffic, aCelera specifically optimizes mission-critical applications through its embedded Application Acceleration Blueprints. These Blueprints turbo-charge the acceleration of your most important applications.

IBM® Rational® ClearCase®

IBM® Rational® ClearCase® is the industry-leading software configuration management (SCM) solution that provides sophisticated version control, workspace management, parallel development support and build auditing to improve productivity. ClearCase allows remote developers to perform all SCM related operations; however, network latency can slow application response time when performing operations that modify and transfer files across the WAN. Certeon's Application Acceleration Blueprint for IBM Rational ClearCase significantly reduces application response time, enabling a more reliable, real-time, and high-performance remote development capability.

Microsoft Office SharePoint® Server (MOSS), Office® and Exchange

Certeon aCelera accelerates the document flow between centralized MOSS environments and Office applications such as Word®, Excel®, PowerPoint®, InfoPath®, and Publisher® by minimizing network traffic and reducing application chattiness. aCelera accelerates the full range of protocols employed by Microsoft Office, Exchange and SharePoint, including MAPI, FrontPage® Remote Procedure Calls (RPC) and Web Distributed Authoring and Versioning (WebDAV) as well as their underlying TCP connections. The result is a significant reduction in the data transmitted and breakthrough performance levels. aCelera also speeds access to file services over the WAN by accelerating the Common Internet File System (CIFS) protocol.

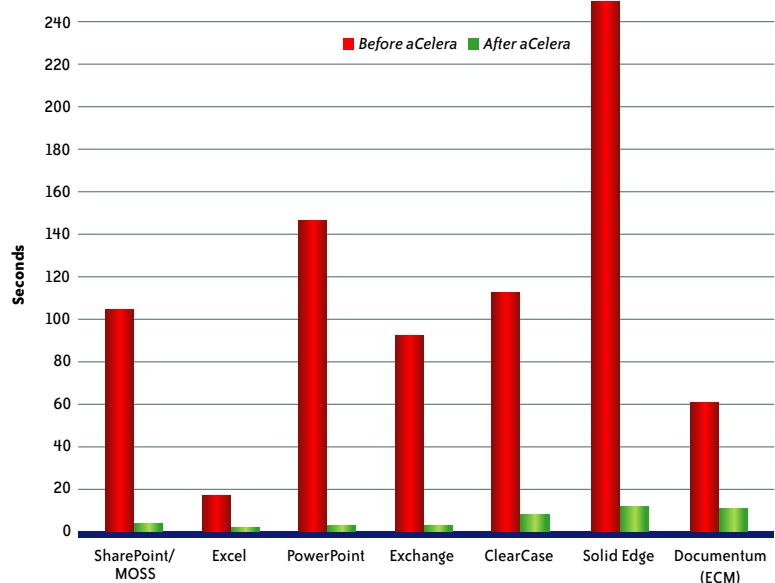
Siemens Teamcenter/Solid Edge Insight

Many enterprises deploying the high-performance Teamcenter and Solid Edge Insight applications find that their network infrastructure cannot keep up with the delivery of large CAD files; this negatively impacts their ability to share these files among all their remote facilities. The Certeon aCelera software, with an embedded Application Acceleration Blueprint for Solid Edge Insight, can greatly reduce the amount of data going over the WAN by sending only file differences across the network. The aCelera Application Acceleration Blueprint for Solid Edge significantly reduces the application response times to remote sites.

EMC Documentum/eRoom

aCelera accelerates the full range of document formats employed by Documentum Content Server and eRoom without modification to client, server, or application software. aCelera securely accelerates file downloads and Web page renderings over the WAN to enable outstanding performance — an improvement of more than 95%.

Certeon's aCelera reduces application response times by more than 95%



Flexible

- Enables organizations to dynamically and easily deploy application acceleration to remote offices from a central location

Scalability

- Grows as your needs grow by simply allowing for the provisioning of more server resources when acceleration is needed for more users

Lower Cost

- Combines virtualization with application acceleration to save IT organizations over 60% in operations TCO

aCelera Virtual Appliance — System Requirements

aCelera Virtual Appliance software can be loaded on any standard hardware. The minimum system requirements are:

• Server Hardware

- Certified on VMware® Hardware Compatibility List to run ESX or ESXi, or
- Hyper-V™ Certified for Windows® Server 2008

• 64-bit CPU Support

- Intel CPUs with VT (virtualization technology), or
- AMD CPUs with AMD-V support

• Ethernet Network Interface Card

- One available interface for out-of-line deployments, or
- Two available interfaces for inline deployments

• 2 GB RAM

• 20 GB Free Disk Space

aCelera in the Distributed Enterprise

aCelera is software that can be easily deployed by installing it onto any industry-standard server running a VM operating system. aCelera can be deployed in a remote location by loading it onto a stand-alone server or treated as just one more virtualized application in a larger distributed enterprise. If virtualization does not exist in your remote location, Certeon can deliver a prepackaged hardware and software physical appliance to your remote location. This physical appliance is an open server with Microsoft Hyper-V or VMware ESXi and the aCelera software. As an open server, the aCelera physical appliance can also support additional applications.

In the data center, aCelera can be stored on the disks in a SAN and automatically deployed on one or multiple VM systems. aCelera images can be cloned and moved as needed and can take advantage of other management features within a VM operating system, such as high availability and security. The figure below shows how easy it is to deploy aCelera in a variety of environments.

Application Acceleration in a Virtualized Infrastructure

