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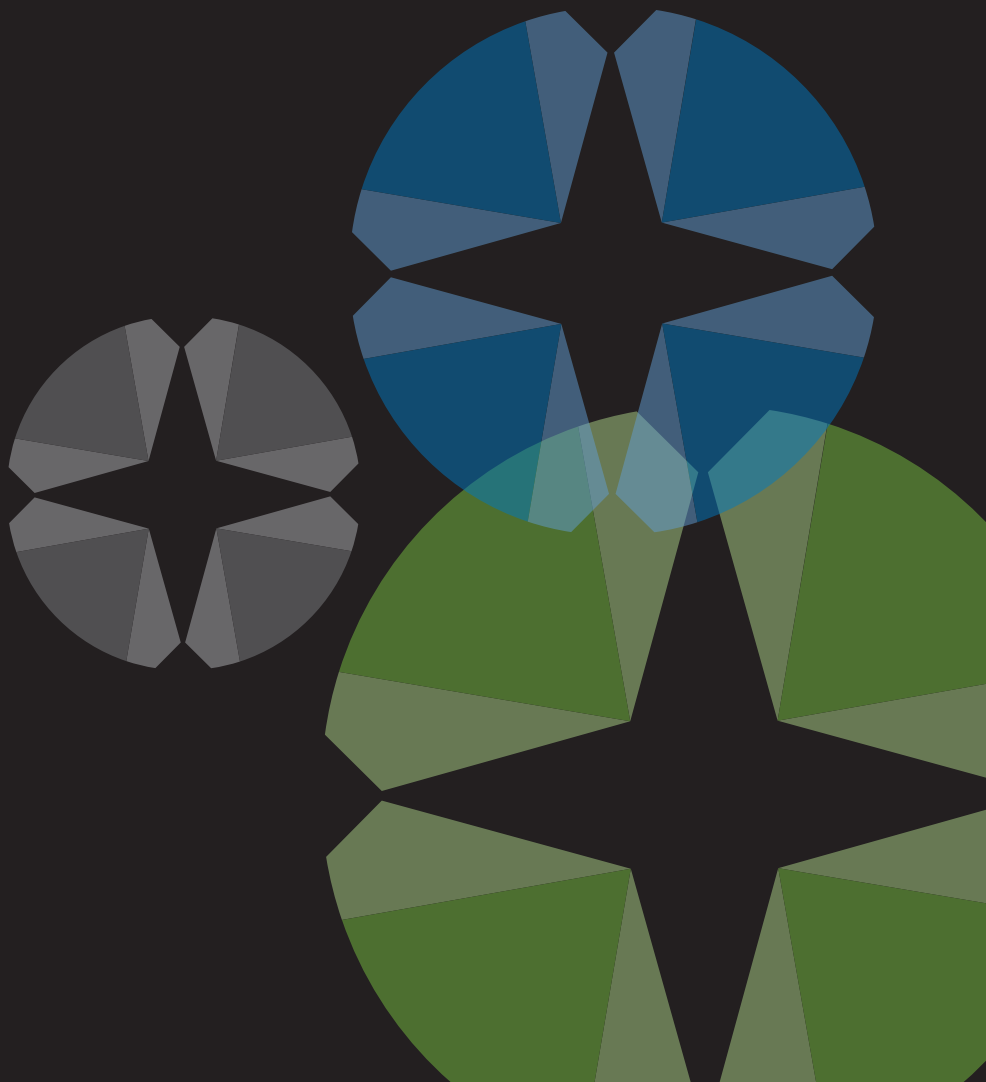
# Meeting the Needs of a Mobile Workforce

Leveraging Exinda's Mobile Client Technology



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**Common Applications**

**CIFS** – Acceleration of the CIFS/SMB protocol used by Windows Explorer for accessing files on remote servers at layer 7 eliminates the application chattiness and streamlines the data transfer in addition to the significant bandwidth savings and performance gains by caching and compression.

**HTTP** – Acceleration of HTTP transfers increases performance of bursty and chatty HTTP traffic.

**HTTPs** – HTTPs acceleration allows encrypted content to be compressions and optimized increasing performance for critical applications like Outlook Web Access (OWA) and SharePoint.

**Lotus Notes** – Through the use of Layer 4 optimization and compression Lotus Notes traffic can achieves significant performance increases.

**Outlook/Exchange** – Increase performance by accelerating email and attachments.

**SharePoint** – Achieve over 100x performance increases through technologies such as pre fetching and Layer 7 application streamlining.

**FTP Files Transfers** – Both Active and Passive Optimization of File transfer protocol (FTP) sessions.

**All TCP** – provides layer 4 transport protocol optimization as well as caching and compression for any TCP based application.

## Executive Summary

To meet the needs of an increasingly mobile workforce, companies must provide fast, secure and reliable access to the business resources and applications they need to be effective. There are several factors driving the growth of the mobile workforce around the world. These factors include increases in flexible work schedules, improvements in remote access solutions, and the increased use and acceptance of mobile devices as key business tools.

According to IDC, a leading global research firm, the mobile worker population will exceed the one billion mark in 2010 and reach nearly 1.2 billion by 2013. As this number continues to grow, it will place heavy demands on networks that do not have the tools to cope with this large amount of mobile users accessing and taxing their systems.

## WAN Optimization

Many of the business applications used by today's mobile workforce were designed to work over LANs and don't perform as well across WANs, where bandwidth is in shorter supply and latency is much greater. These applications often perform many unnecessary transactions, sending the same or similar data across the link several times, which can use up valuable bandwidth in the network.

WAN optimization is a set of techniques that improve the performance of these applications over wide area network links, while minimizing the amount of bandwidth consumed. It is used to increase the performance of layer 4 TCP over high latency links and to improve the efficiency of layer 7 applications. In addition, caching and compression technologies are applied to eliminate redundant data from being transmitted and allowing only new data to be sent across the WAN. This too reduces bandwidth consumption by these business applications. The results of these WAN Optimization technologies are higher throughput and significant improvements to the quality of the user experience.

## Background

Today's highly mobile workforce has created new challenges for IT managers. As more and more business applications are accessed by remote users, any network limitations become impediments to a worker's ability to do their job. Not only have distributed and web enabled applications increased the amount of network data; they have also increased the performance demands users place on the applications and underlying network. Users now rely on instant access to business applications such as SharePoint, Files shares, email, customer information, and more to enable them to provide real-time information to and to interact with customers and other stakeholders. This "instant access" user expectation brings an increased focus on how the applications are performing and the criticality of the role these applications play in the success, productivity, and profitability of the business.

Mobile client optimization helps deliver on these expectations by dramatically improving the performance of common applications including email, HTTP, HTTPs, customer relationship management (CRM) systems, video transfer, and many more. Through the use of layer 4 protocol optimization, WAN Optimization tools enable significant reductions in latency and increases in throughput for all TCP-based applications. In addition, layer 7 application streamlining is used to further improve application performance for applications that transmit redundant or irrelevant data across the network. The use of caching and compression further increases performance by removing this redundant data traversing the WAN network and serving data to users at LAN speeds.

**Features**

**Protocol Optimization**
- Eliminates inefficient protocol 'chatter'
- Identifies access patterns to 'pre-fetch' data
- Removes redundant communications across the WAN
- Supports all TCP protocols

**XDR**

Cross-protocol bi-directional data reduction
- Caches blocks of data, recognizes data change 'deltas'
- Only transmits those changes, taking 'bytes off the wire'
- 110x performance increase for some work loads
- Bi-directional

**Data Compression**
- Zip compression Especially effective for HTML, XML, Word documents

**CIFS Optimization**
- Write Behind & Pre-fetching algorithms
- Significantly improves Windows file copies across a WAN
- Improves Microsoft Office file copies, opens and saves across a WAN

**HTTP Optimization**
- Connection Pooling - Re-use of expensive authenticated connections
- Content De-chunking ensures maximum XDR cache efficiency

**HTTPS Optimization**
- Completely transparent to the end user
- Certificate Import & management capabilities (.pfx/pkcs-12 & .pem)
- Full decryption and re-encryption of the traffic to ensure security is maintained across the WAN
- Sensitive information (Private Key and password) never leave the Data Center

**Ease of Installation**
- User-friendly installation
- Deploy, upgrade and support centrally with little administrative overhead
- Windows MSI - Preferred option for Enterprise Deployments
- Silent client installation supported via enterprise deployment packages like Microsoft SMS
- Optional administrative template file (.adm) provides extra level of configurability
- Client defaults configurable by system admin
- Standard executable (.exe) can be adjusted to contain pre-configuration options
- 32 and 64 bit options
- Windows XP, Vista, 7

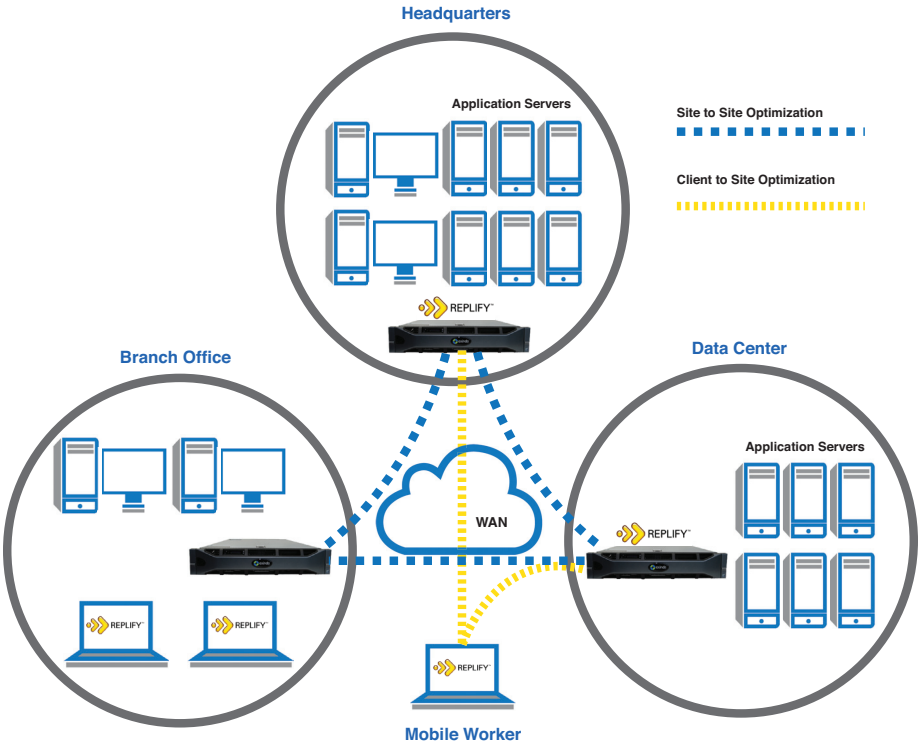
## Unique Challenges to Mobile Workers

Mobile workers will often face a different set of challenges than those working in a branch office. This also creates a slightly different set of requirements for optimization technologies. These challenges include:

- More Packet Loss: Typically a mobile worker is not accessing a business grade network. Many times a home DLS or cable network experiences more significant packet loss than a commercial grade network.
- Increased Latency: Consumer grade networks typically experience a greater degree of variance in latency than a commercial grade network. This can be even greater during peak usage hours on consumer networks.
- Different Usage Model: When performing WAN optimization between branch office and headquarters there is often common data that workers in a branch office are accessing. This can lead to a greater benefit on second pass files through the use of differencing technologies such as WAN Memory caching. For remote users first pass performance gains are very important. As such protocol optimization, application layer streamlining, and compression can have increased importance over differencing/caching capabilities.
- Lower Quality Networks: Lower bandwidth, higher latency, more packet loss. Most mobile workers are connecting over hotel networks which are notoriously congested, wireless broadband connections like 3G which can have high latency and very low band width, or from networks such as airplane wireless with very high latency and again low bandwidth.
- Ease of Use: Many remote workers are not IT savvy and it can be difficult reaching centralized IT support while traveling, or while working remotely during off business hours. Mobile client optimization needs to be plug and play simple, and offer a great degree of flexibility interacting with other installed programs on a personal computer, especially VPN software interoperability.

## Implementation

The combination of Exinda's site-to-site WAN optimization and the Replify Accelerator Suite's mobile client optimization allows network operators to ensure each user enjoys the performance benefits of optimized traffic, whether between offices, when traveling to customers' locations, using in-flight wireless internet access, or working from their home office. The WAN optimization technology client-based, which means it is installed as software on the user's laptop or other mobile device, which is used to communicate with the WAN optimization appliance located where the business application servers are installed (i.e. headquarters or data center site). The traffic is then optimized, allowing each user to experience the benefits of WAN optimization from any location.



**Business Benefits**

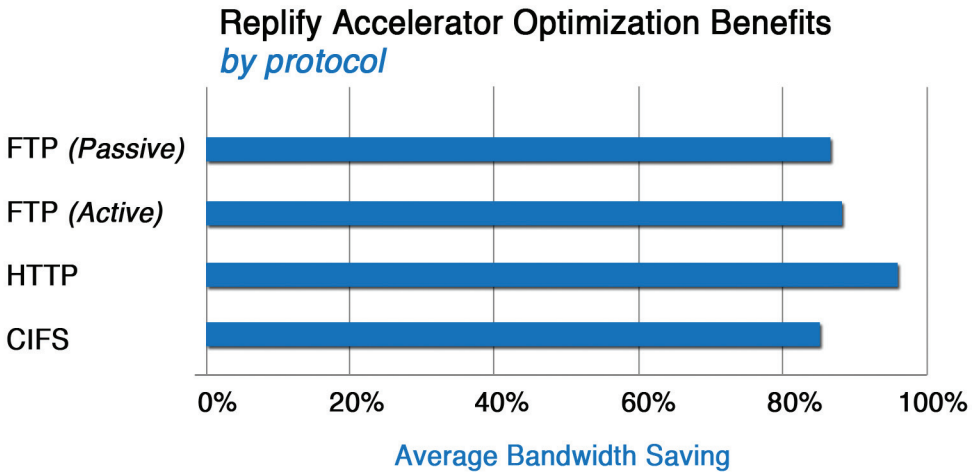
- Low TCO
- Increased workforce productivity
- Maximize sales tools and processes
- Improved communications with field staff and customers

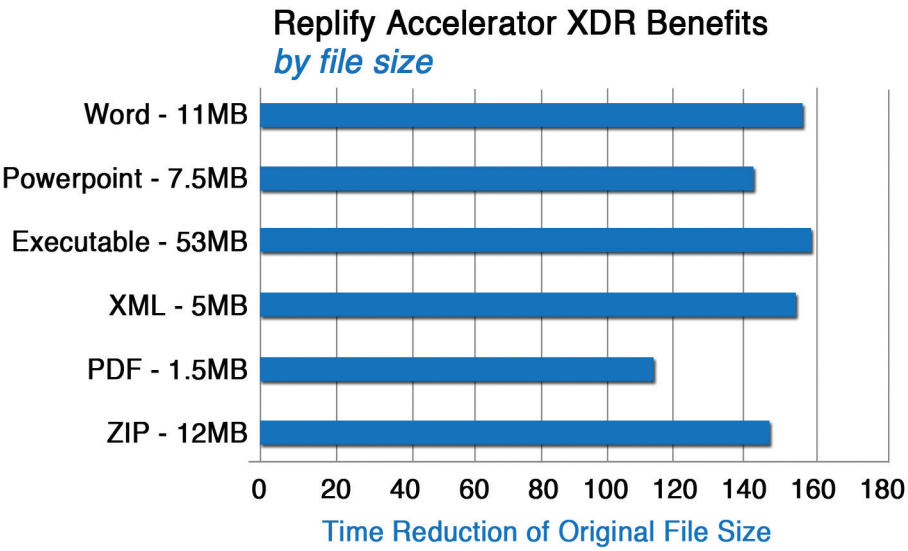
**Technical Benefits**

- Ease of installation for administrator
- Improved user experience
- Reporting capabilities
- Reduced bandwidth consumption

## Summary

The performance constraints that previously restricted mobile workers from efficiently accessing data is eliminated by delivering a software client WAN optimization solution that can allow users to experience LAN-like performance when accessing their files, email, or any application they use to do business. With the explosion in mobile workers, client-based WAN optimization is a key capability upon which organizations will increasingly rely to ensure a high quality user experience and workforce productivity.



## About Exinda

Exinda is a global provider of WAN optimization and application acceleration products. Exinda has helped over 2,000 organizations worldwide reduce network operating costs and ensure consistent application performance over the WAN. The Exinda Unified Performance Management (UPM) solution encompasses application visibility, control, optimization and intelligent acceleration – all within a single network appliance that is affordable and easy to manage.

Founded in 2002, Exinda is headquartered in Boston, Massachusetts with regional offices in Canada and the United Kingdom. Research and Development is centralized in Melbourne, Australia.

To learn more about Exinda's award-winning solutions, contact your local reseller or visit www.exinda.com.

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North America
+1 877 439 4632

EMEA
+44 808 120 1996

Asia Pacific
+61 3 9415 8332

www.exinda.com