



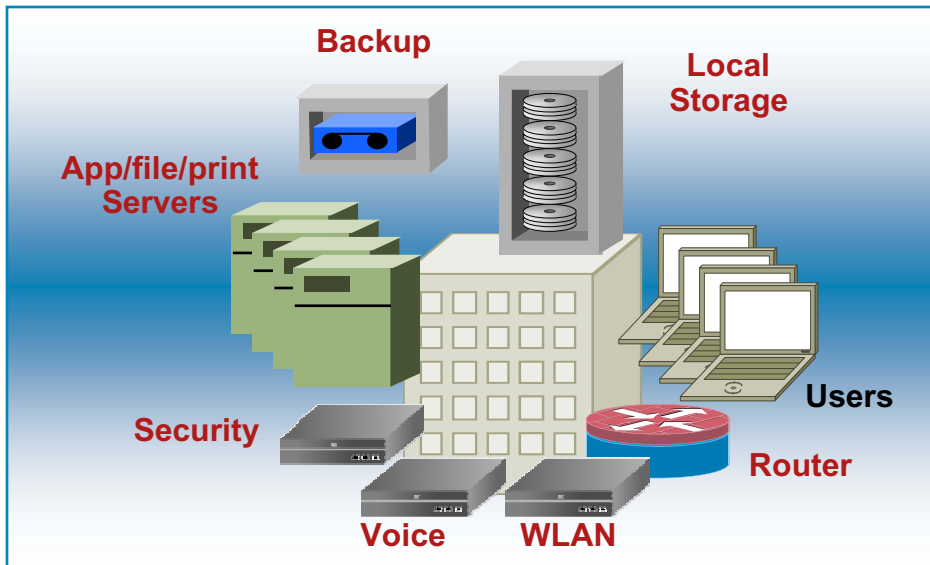
# Wide Area Application Services (WAAS)

## Solution Overview



**September 2007**

# Branch IT Infrastructure Issues



Companies spend 6 billion dollars per year on branch servers, storage, backup and management *-Source: IDC, Gartner, Cisco*

Branches consume 70- 90% of business resources. *-Source: NetworkWorld*

Most enterprises have many servers running at 15% or less utilization, but still requiring 100% administration *-Source: Gartner*

## ■ Infrastructure cost / complexity

File, print and application servers

Storage and backup

Plethora of networking equipments

## ■ Data protection worries

Failing backups / lost data

Costly off-site vaulting

Compliance

## ■ WAN limitations prevent centralization

Bandwidth & throughput limitations

Latency and packet loss

End user experience

# Rising Costs of Branch Offices

**Companies spend 6 billion dollars per year on branch servers, storage, backup and management**

*-Source: IDC, Gartner, Cisco Analysis*

**Branches consume 70- 90% of business resources**

*-Source: NetworkWorld*

**80% of enterprise workers work outside headquarters**

*-Source: Nemertes Research*

**Most enterprises have many servers running at 15% or less utilization, but still requiring 100% administration**

*-Source: Gartner*

**The average branch has 4-6 servers**

*-Source: Nemertes Research*



# Security and Compliance Worries

## Rising Incidents of Branch Data Leakage

A top financial firm lost a file server with 930,000 customers information  
-Source: CNN, March 2006

A bank lost 3.9 million customers credit information on unencrypted tapes  
-Source: Wall Street Journal, June 2005

February 2005, Bank ... lost unencrypted computer backup tapes containing information from 1.2 million federally issued credit cards



## Regulations Are Responding

**HIPAA** - Health information of patients

**GLBA** - Consumer Financial Information

**SOX** - Business Financial and Accounting Information

**CA SB 1386** - Consumer Personal Information

**PCI** - Credit Card Information

*\*As of July 18, 2006, 34 US states had passed security breach notification laws*



## Organizations Are Responding

The top emerging technology trend, regardless of site type or timeframe, is the integration of security features like firewall, VPN, IDS, etc. into routers

-Source: Infonetics



# The Root Causes of Cost and Complexity

- **WAN Limitations Prevent Centralization**

- Poor application performance
  - Low bandwidth, high latency, packet loss

- **Distributed Server Sprawl**

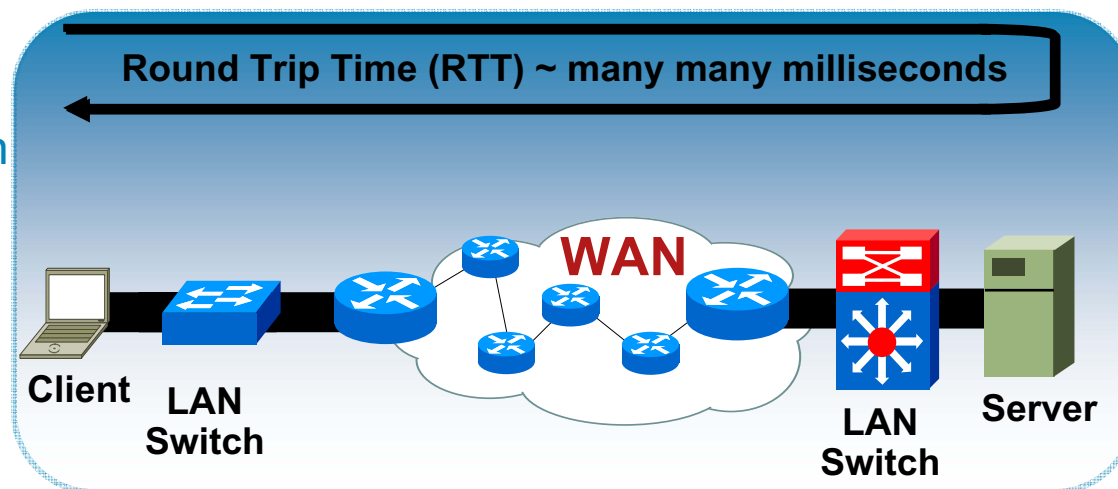
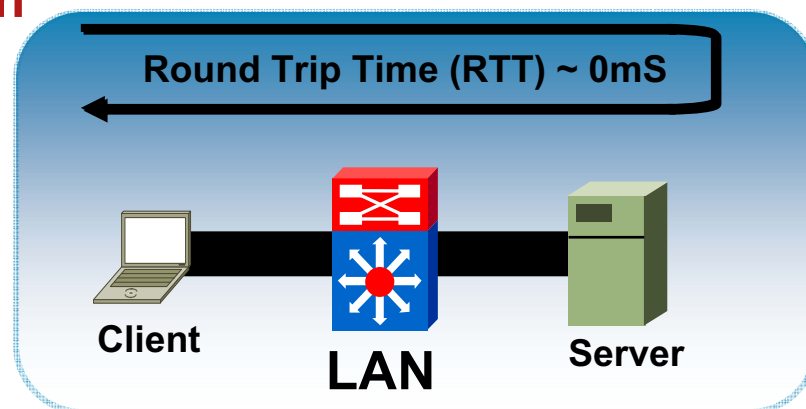
- No economies of scale
  - Low asset utilization
  - Islands of patch management

- **Storage Everywhere**

- Data sprawl
  - Remote backup and replication

- **Compliance Worries**

- Data leakage risks
  - Onsite IT staff
  - Remote data management



# Cisco WAAS Solutions and Benefits

Bridging the gap between centralized IT and distributed offices

## Application Acceleration

- Any centralized TCP application
- LAN-like speed to the branch



## Branch and Data Center Consolidation

- Server/storage/networking consolidation
- Reduced branch TCO
- Simplified management & support



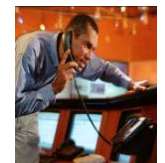
## WAN Bandwidth Optimization

- Minimized bandwidth expenses
- Improved VoIP quality
- Improved application performance management















## Improved Data Protection Compliance

- Faster remote data replication
- Centralized compliance
- Improve disaster recovery readiness



# Application Acceleration

Category	Applications	2X	5X	10X	25X	50X	100X+
File Sharing	CIFS NFS 	2-20X Avg		>100X Peak			
Email	Microsoft Exchange Lotus Notes Internet Mail 	2-5X Avg	20X Peak				
Web and Collaboration	HTTP WebDAV FTP Microsoft Sharepoint   	2-10X Avg		100X Peak			
Software Distribution	Microsoft SMS Altiris HP Radia 	2-20X Avg		>100X Peak			
Enterprise Applications	Microsoft SQL Oracle, SAP Lotus Notes    	2-5X Avg	20X Peak				
Backup Applications	Microsoft NTBackup Legato Networker Veritas Netbackup CommVault Galaxy  	2-10X Avg		50X Peak			
Data Replication	EMC SRDF/A EMC IP Replicator NetApp SnapMirror Data Domain Double-Take Veritas Vol Replicator	2-10X Avg		50X Peak			

# Application Acceleration



- Leading floor care specialist with 1,200 employees worldwide
- Centralized Product Life Cycle Management application
- Remote manufacturing sites:
  - 60 seconds for a single web page download
  - 6 hours/day for data replication
  - 500+ man hours wasted per day



Application Acceleration

- 1 second / page

Faster Data Replication

- 20 minutes/day

Deploy New Applications Quickly

- No remote users left behind
- No onsite IT support needed
- No changes to users
- No changes to applications



“Cisco WAAS clearly met our needs and is the most cost-effective solution among all alternatives that we evaluated.”

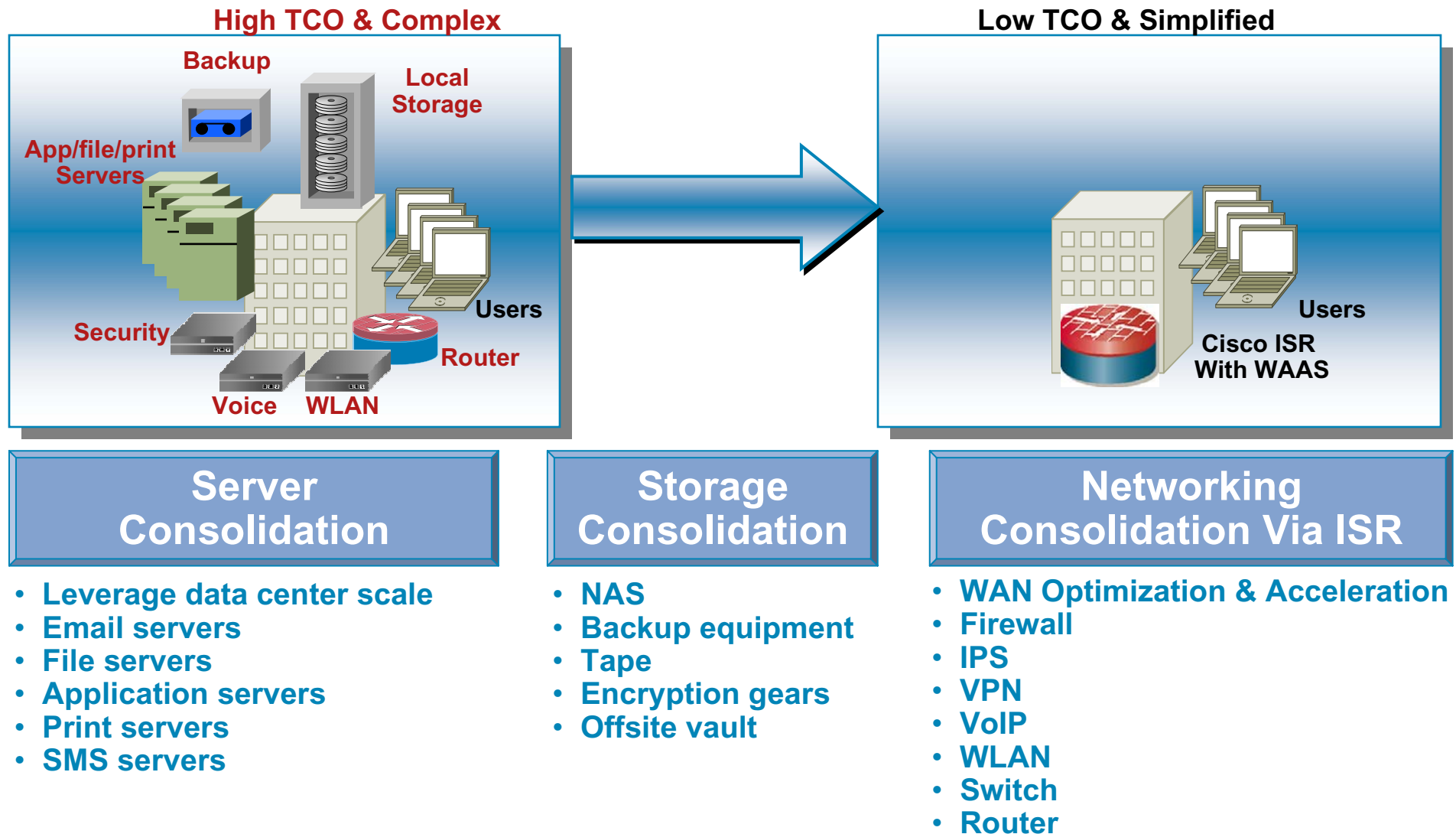
—Paul Babcock, Manager of Network and Computer Operations, BISSELL Homecare, Inc.

Detailed case study: [www.cisco.com/go/waas](http://www.cisco.com/go/waas)



**Cisco  
WAAS**

# Branch and Data Center Consolidation



# Branch and Data Center Consolidation



- A global shipping firm with 14,000 employees and 500 offices
- Toronto regional data center serving remote offices
- WAN prevented Toronto consolidation with New Jersey DC



## Server Consolidation

- Toronto + New Jersey = 1
- Centralized IBM servers
- Leverage virtualization

## Storage Consolidation

- Centralized EMC storage
- Cisco MDS storage switch

## LAN-like Speed To Remote Users

- Microsoft Exchange
- SQL, file and printing
- SAP
- Custom built freight forwarding applications

“With Cisco LAN and storage switching, and WAAS, we saved \$1 million in capital expenses from our data center consolidation, and maintained LAN-like application performance over the WAN”

— Armin Heinlein, VP of IT, North American Operations, see Enterprise Storage Forum Article:

<http://www.enterprisestorageforum.com/management/features/article.php/3689331>



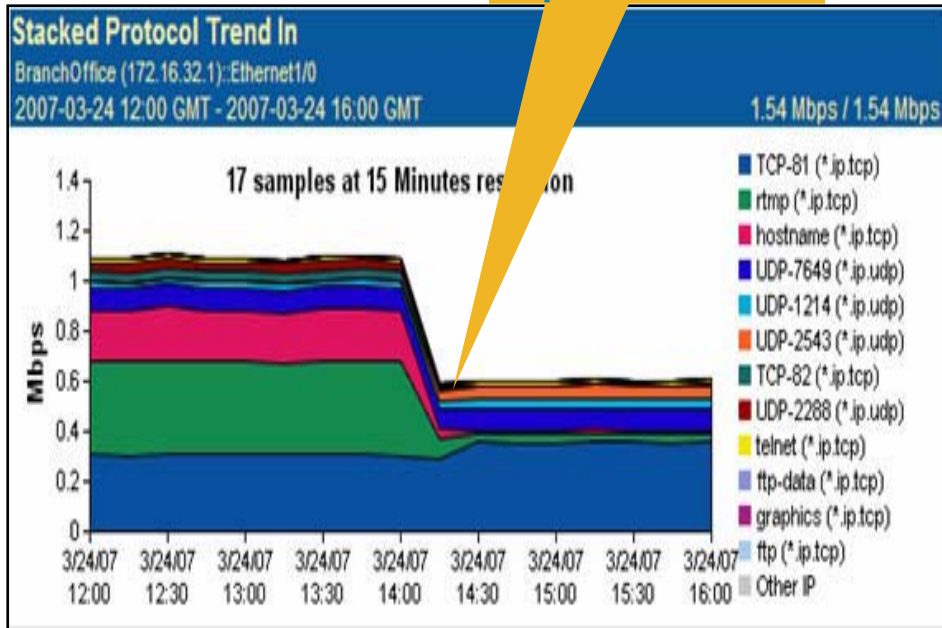
**Cisco  
MDS**



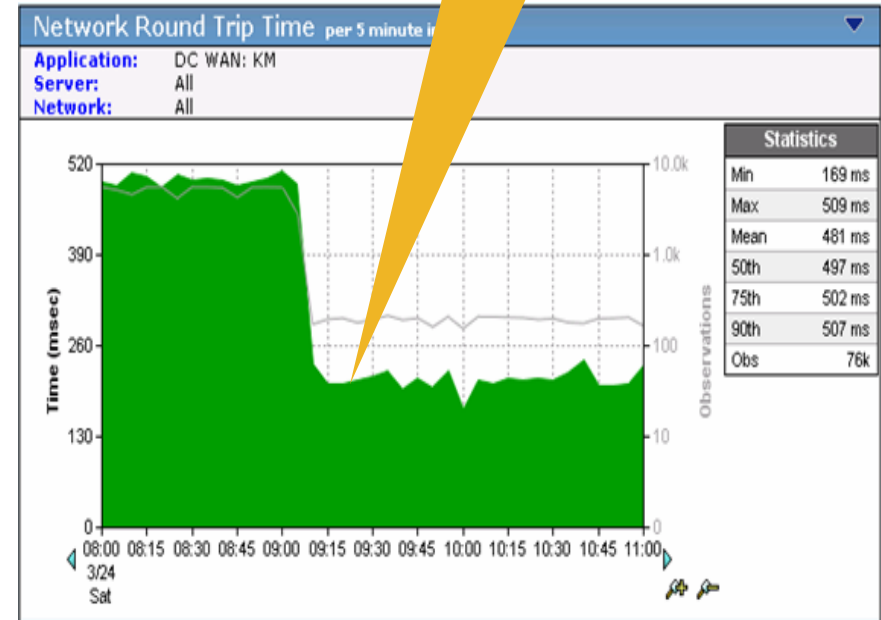
**Cisco  
WAAS**

# WAN Bandwidth Optimization

Optimization On



Optimization On



## Bandwidth Usage Reduction

- Up to 95% savings
- Avoid bandwidth upgrade
- De-commission bandwidth

## Improve VoIP Quality

- More room
- Better quality & reliability
- Use existing QoS policies

## Improved Application Perf. Management

- Report Apps SLA accurately
- Find bottlenecks quickly
- Invest confidently

# WAN Bandwidth Optimization



- One of nation's largest hospitals with 27,000 employees
- Avoided \$8,000/month WAN bandwidth upgrade
- 1.3 months ROI



**Bandwidth Usage Savings**

- Avoided \$8K/month BW
- WAN usage before: 100%
- WAN usage after: 40%

**Centralized IT Management**

- Reduced onsite IT
- Centralized IT expertise

**Improved Medical Applications SLA**

- McKesson applications suite
- Cerner suite of clinical applications
- Fuji for PACS

“We are seeing an average of 60% capacity improvement for our WAN bandwidth, which includes all applications and even the traffic that is normally impossible to optimize further. Once the Cisco appliances were configured easily, we didn't have to watch or 'baby-sit' the system.”

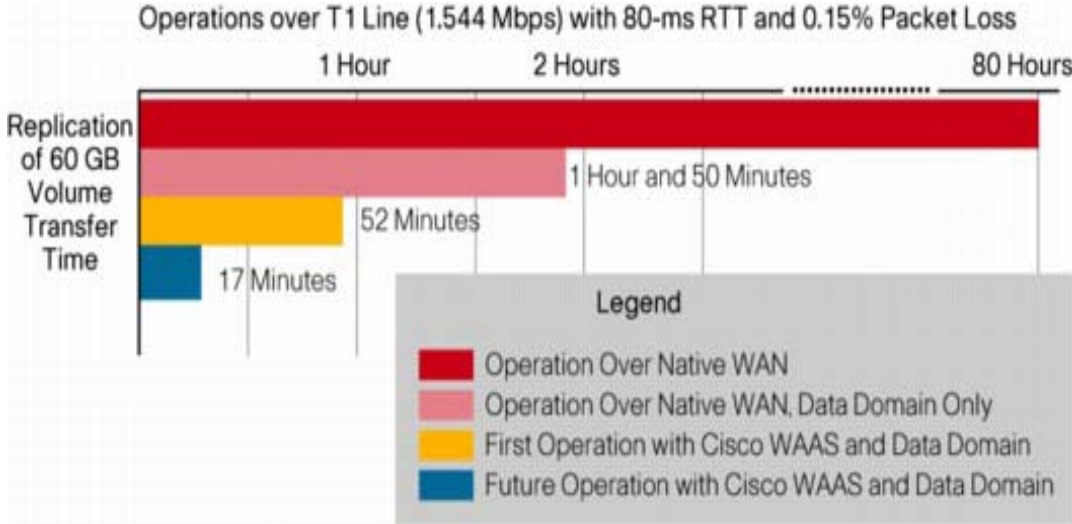
—**Steve Rains, System Director, Information Technology, Banner Health Western Region**

Detailed case study: [www.cisco.com/go/waas](http://www.cisco.com/go/waas)



**Cisco  
WAAS**

# Improved Data Protection & Compliance



## Faster and More Reliable Data Replication

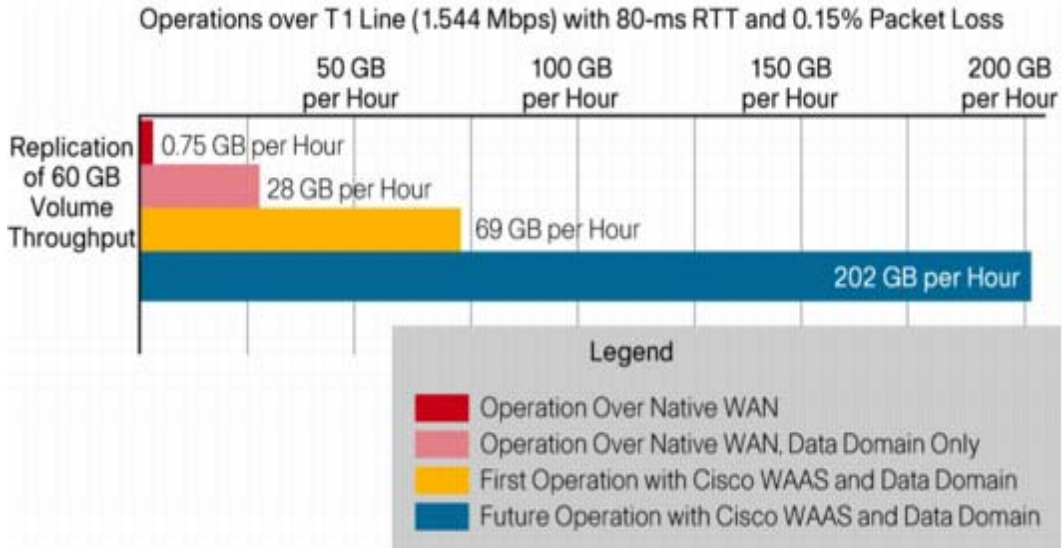
- Primary to backup data center
- Branch to data center
- Up to 95% bandwidth reduction

## Maximized Branch Security and Compliance

- Encryption for optimized data
- Stateful protection of optimized data
- Centralized policy enforcement

## Broad Compatibility

- EMC
- NetApp
- HP
- Veritas NetBackup
- CommVault Galaxy
- Data Domain
- Windows NT Backup
- More ...



# Improved Data Protection & Compliance

*Before*

- Sarbanes Oxley compliance
- Payment Card Industry (PCI) compliance
- Data life cycle management
- Disaster recovery readiness

*After*

**Faster, Reliable Data Replication**

- Zero remote backup issues
- No more swapping tapes
- No more failed tape drives
- No more backup monitoring

**Maximized Security Compliance**

- Better protection of retail data
- Centralized data life cycle management

**Faster DR Recovery**

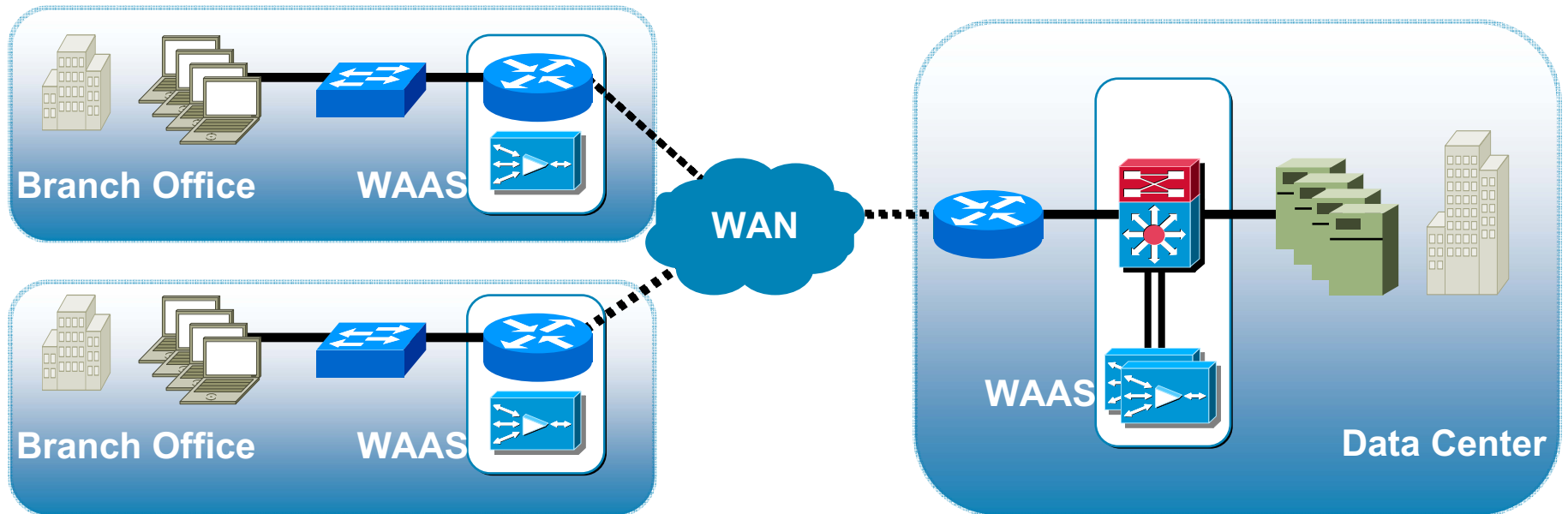
- 30x Faster EMC SRDF
- Enabled Electronic Vaulting



“The Cisco WAAS has proven to be an essential component for the success of our centralization and compliance initiative. Our operating expenses, data replication, and integrity have significantly improved.”  
 —Bill Waszak, CIO, The Scotts Miracle-Gro Company  
 Detailed case study: [www.cisco.com/go/waas](http://www.cisco.com/go/waas)



# Cisco WAAS Solution Overview



## Solutions

- Application acceleration
- Branch and data center consolidation
- WAN bandwidth optimization
- Improved data protection & compliance

## Technologies

- Compression & acceleration
- Router integration
- Security integration
- Application perf. mgmt. integration

## Products

- Software: Wide Area Application Services
- Hardware: Wide Area Application Engine
- Branch and data center deployment
- Centralized management



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# Lessons From Industry Early Adopters

## Scalability and Performance

“WAAS offered us a scalable solution, accelerating all the applications including Exchange, SQL, file and printing services, SAP, and our freight-forwarding system accessed through Citrix,”



**Bill Fraser, VP of Operations for Panalpina.**

## Secure WAN Acceleration

“Providing both acceleration and stateful protection are critical WAN optimization requirements for our loan and retail application data.”



**Barth Bailey, VP network infrastructure and security, Fulton Financial**

## Reliability and Interoperability

“Cisco WAAS accelerated Microsoft Dynamics CRM application better than our incumbent solution, while offering better performance and interoperability with VoIP infrastructure.”

**nano**metrics

**Dave Kizer, Director of IT, Nanometrics**

## Total Cost of Ownership

“Cisco WAAS has proven to be an essential component for the success of our server centralization initiative. Our OpEx and data integrity have appreciably improved.”



**Bill Waszak, CIO, Scotts Miracle-Gro Company**

# Most Recent Press and Analyst Coverage

“Companies that have already **standardized** on Cisco’s ISR for branch routing can easily add WAN optimization modules, and we recommend making this a staple of a **full-service** branch.”

The Forrester Wave: WAN Optimization Appliances, Q3 2007”, Forrester Research, Inc., June 2007

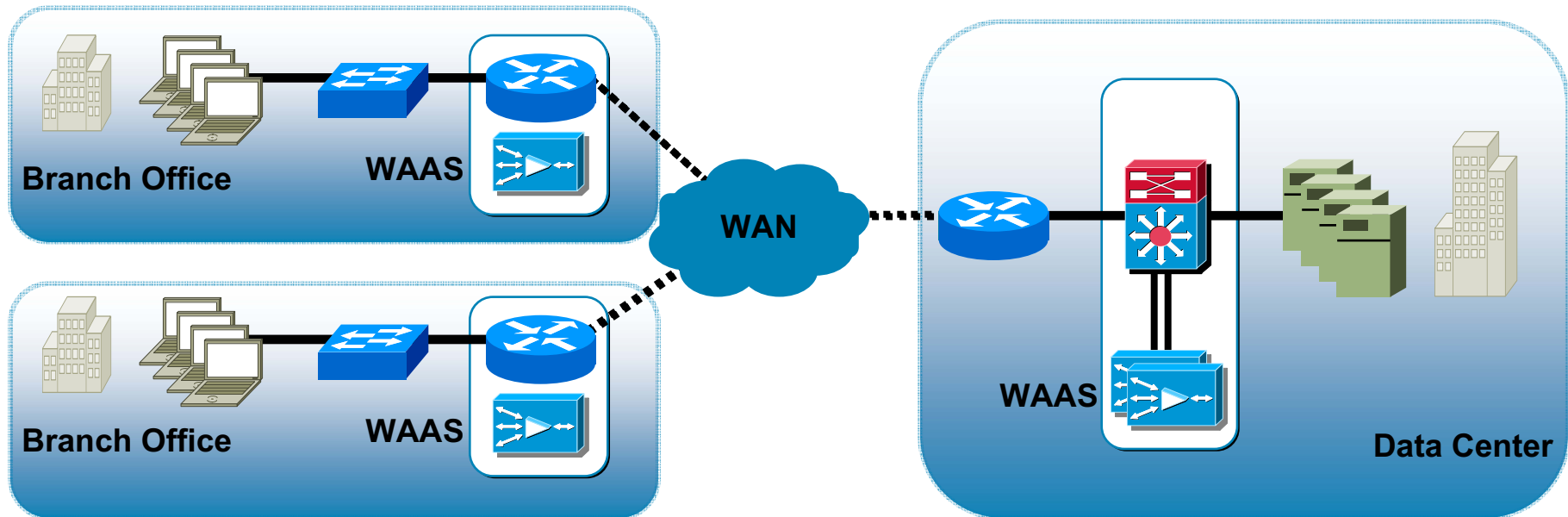
“WAAS performed well, and Cisco has packed a ton of features into its offering for a relatively low price, earning it our **Best Value** designation.”

-Mike Fratto, Network Computing, May 2007

“Wide Area Application Services from Cisco did snag the silver for our readers' favorite WAN optimization and acceleration tool...it received high praise for its **network integration and interoperability, its ability to improve total WAN throughput, and its application-specific support.**”

Searchnetworking.com, Product Leadership Awards 2007

# Cisco WAAS Summary



## Solutions and Benefits

- Application acceleration
- Branch and data center consolidation
- WAN bandwidth optimization
- Improved data protection & compliance

## Technologies

- Compression & acceleration
- Router integration
- Security integration
- Application perf. mgmt. integration

## Key Success Factors

- Most secure WAN acceleration
- Highest scalability and performance
- Best reliability and interoperability
- Lowest Total Cost of Ownership



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