



**Bravo Tecnologia**

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**riverbed<sup>®</sup>**

**Think fast.<sup>™</sup>**

# Who is Riverbed

- **Pioneer and market leader in WAN Optimization**
- **Profitable public company (RVBD)**
  - Over \$394 million revenue in 2009
  - Global sales and support operations
- **Trusted IT supplier to over 7800 enterprise customers**
  - Over 80,000 appliances shipped worldwide
  - >55% global 100 deployed Riverbed
- **Vendor with best products in market**
  - Steelhead appliances offer best performance across key applications.
  - Most scalable solutions on the market
  - Easiest to deploy and manage



2005, 2006, 2007, 2008, 2009

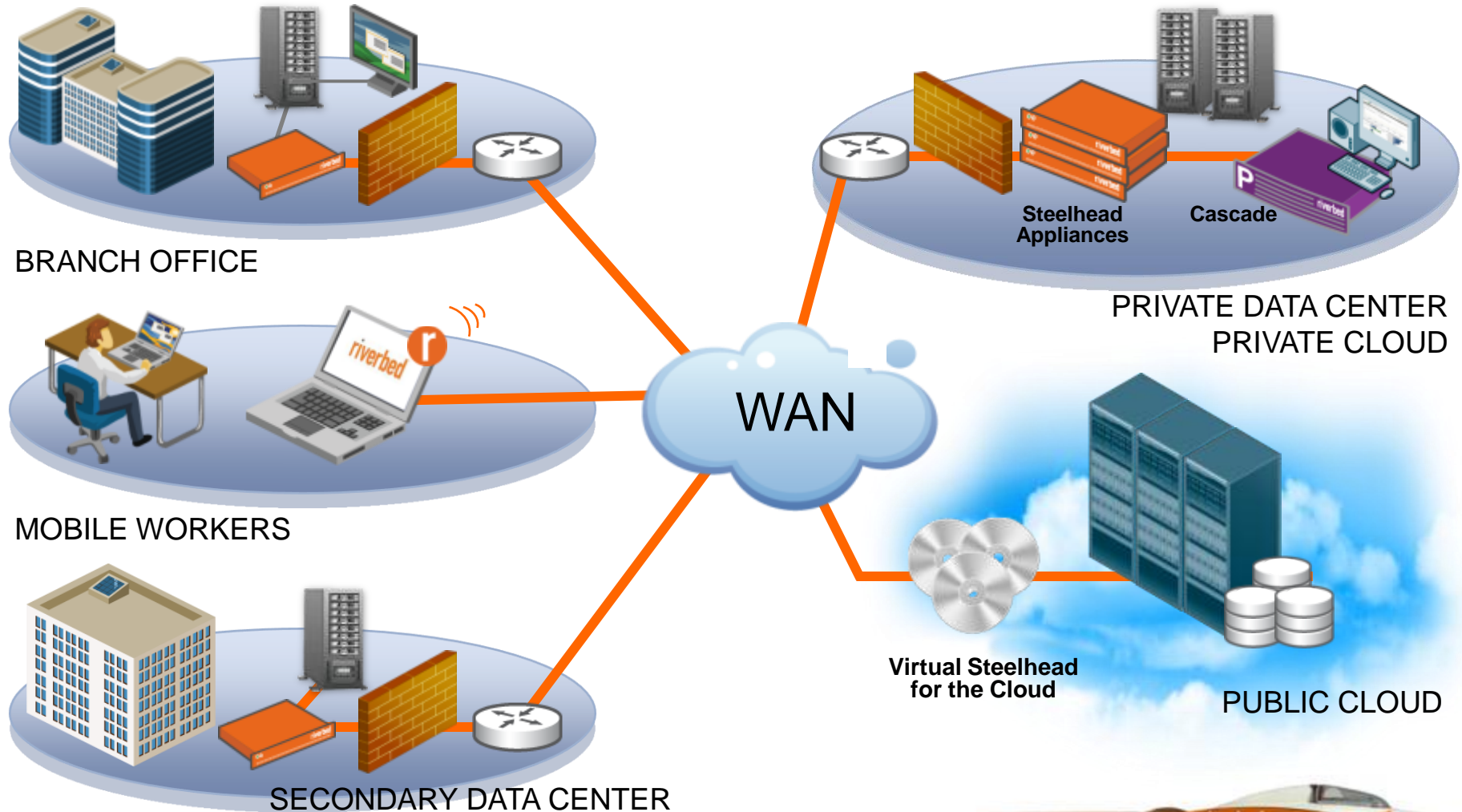


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# 3000 kilometers feels like 30 meters



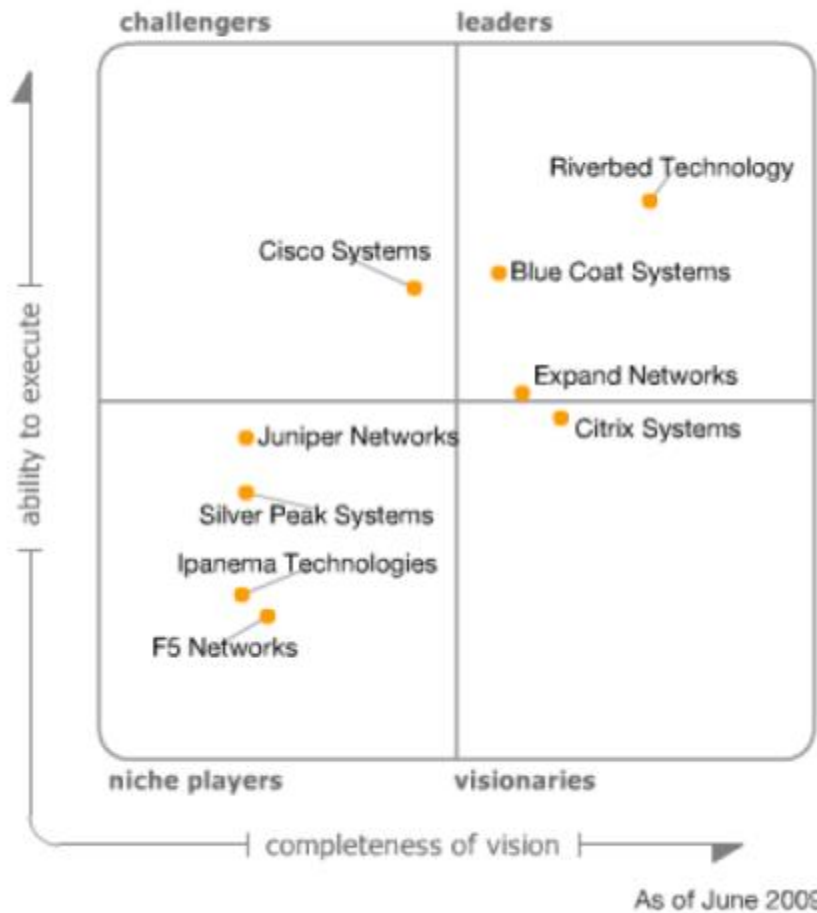
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# Magic Quadrant for WAN Optimization Controllers, 2009

Figure 1. Magic Quadrant for WAN Optimization Controllers, 2009



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Source: Gartner (June 2009) Andy Rolfe, Joe Skorupa, Severine Real

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# Understanding Riverbed's Value is as Easy as ABCD

## A

Application Acceleration

- Dramatically faster response times
- Improved user productivity
- Hundreds of apps from Citrix to SharePoint

## B

Bandwidth Optimization

- Reduce WAN traffic by 65-95%
- Defer bandwidth upgrades
- Do more with less

## C

Consolidation/Cloud

- Consolidate servers from branch to datacenter
- Consolidate servers at branch
- LAN-like performance access

## D

Disaster Recovery

- Backup (and recover) in less time
- Little impact to WAN
- Achieve RTO and RPO objectives

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A

## Application Acceleration

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# Key Applications Perform Well on LANs

Application

Typical LAN  
Throughput

*100Mbps*

MS-Office (CIFS)

40Mbps

Exchange (MAPI)

25Mbps

SharePoint (HTTP)

70Mbps

Citrix / RDP

5Mbps

Hundreds of TCP apps

~25Mbps

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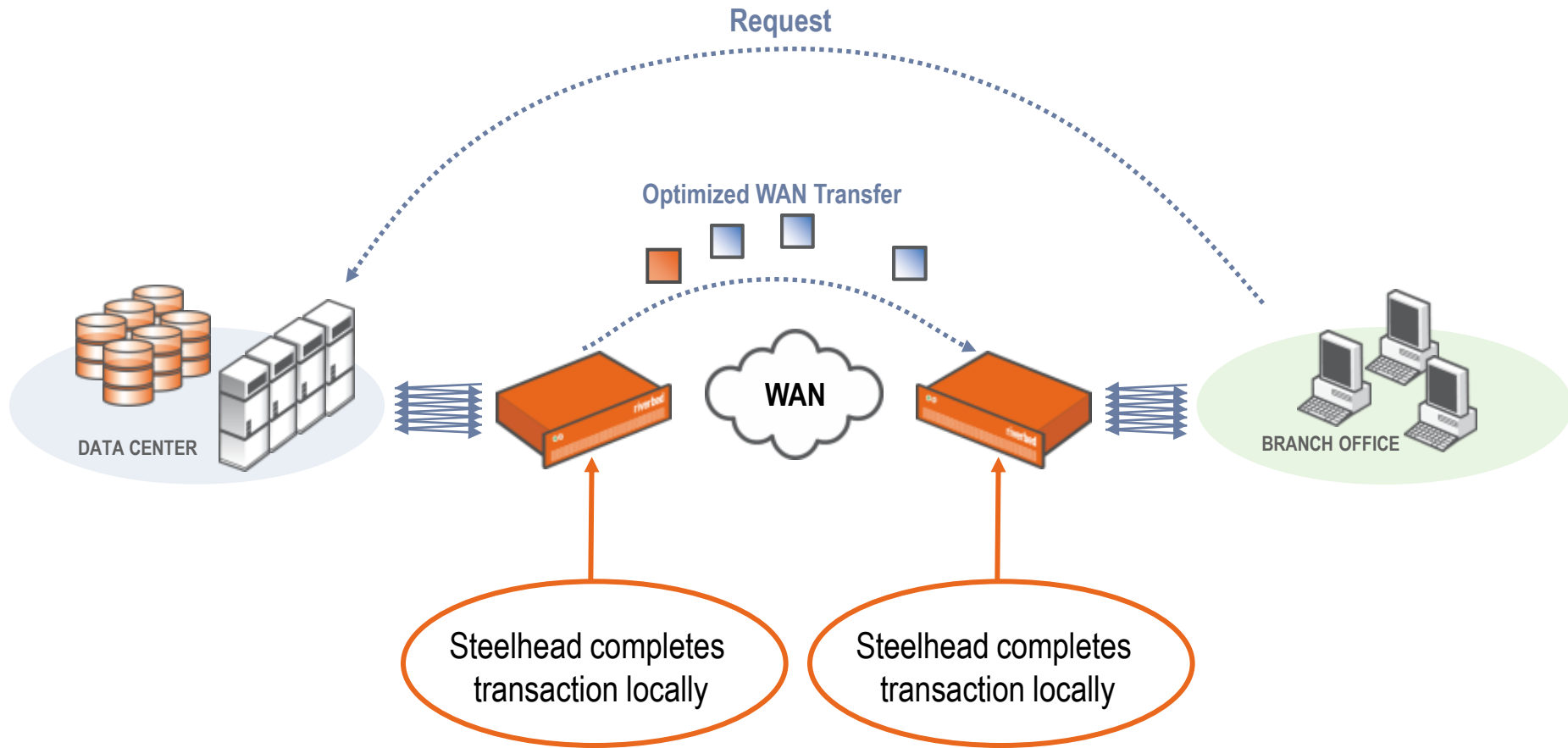


# But Perform Poorly Over WANs

Application	Typical LAN Throughput <i>100Mbps</i>	Typical WAN Throughput <i>1.5Mbps 100ms RTT</i>	
MS-Office (CIFS)	40Mbps	<b>200Kbps</b>	<b>200x slower!</b>
Exchange (MAPI)	25Mbps	<b>500Kbps</b>	<b>50x slower!</b>
SharePoint (HTTP)	70Mbps	<b>1Mbps</b>	<b>70x slower!</b>
Citrix / RDP	5Mbps	<b>100Kbps</b>	<b>50x slower!</b>
Hundreds of TCP apps	~25Mbps	<b>~1Mbps</b>	<b>25x slower!</b>



# Application Streamlining Overcomes Application Limitations



Net effect is 65-98% reduction in WAN round trips

\*Technology functions the same for Steelhead appliances and Steelhead Mobile software

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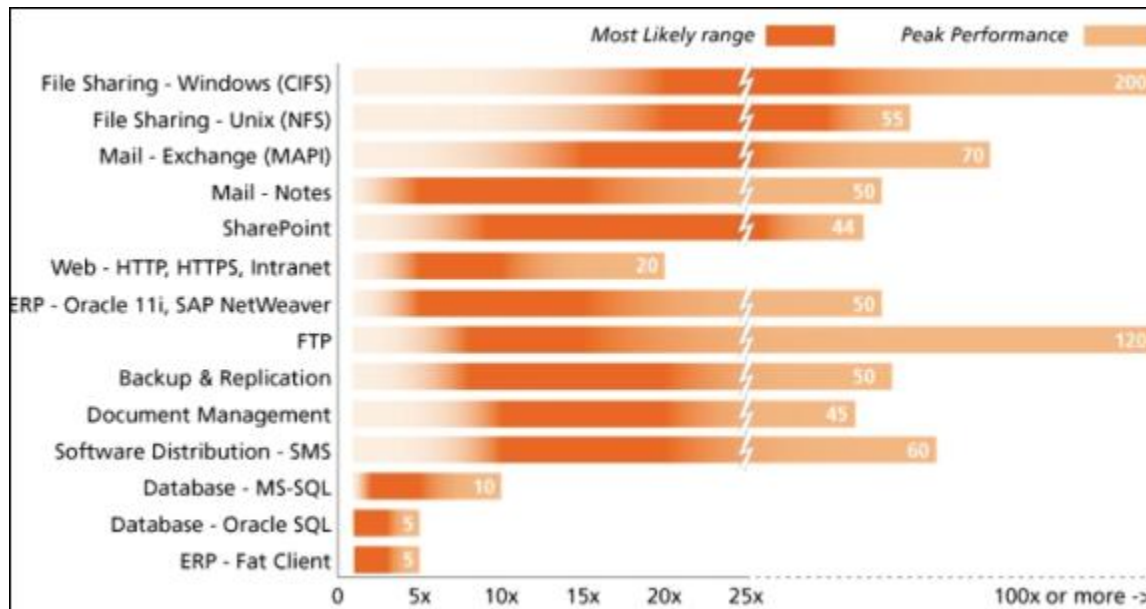


# Riverbed's Market-leading Performance

	CIFS	CIFS signed	CIFS print	Mac CIFS	MAPI	MAPI 2K3	MAPI 2K7	MAPI crypto	MAPI prepop	Lotus Notes	HTTP	SSL	Oracle Forms	ICA	NFS
Riverbed	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

*Riverbed's formula for LAN-like Performance for Key Applications*

Layer-7 protocol optimization + WAN data deduplication + TCP acceleration



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# Customer Proof Point – Application Acceleration

## Challenge:

- Poor application performance of Siebel CRM for over 5000 call center agents
- Excessive bandwidth utilization

## Solution Benefits:

- Siebel CRM delivered huge productivity gain for agents (20.5 sec per call)
- 85% Bandwidth reduction

## Bottom Line:

- ROI in 154 Days
- Expected savings of \$20.7M over 3 yrs
- Better service and shorter wait times



Echostar findings: Riverbed vs Cisco WAAS:

- Riverbed was far easier to install & manage
- Riverbed provided vastly superior bandwidth reduction and app acceleration of Siebel CRM

Solution	Cisco WAAS	Riverbed Steelhead
Installation Complexity	Hard, CCNP-Level	Easy, IT generalist
Bandwidth Reduction	50%	85%
Siebel Acceleration	None	20 seconds per call

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# B

## Bandwidth Optimization

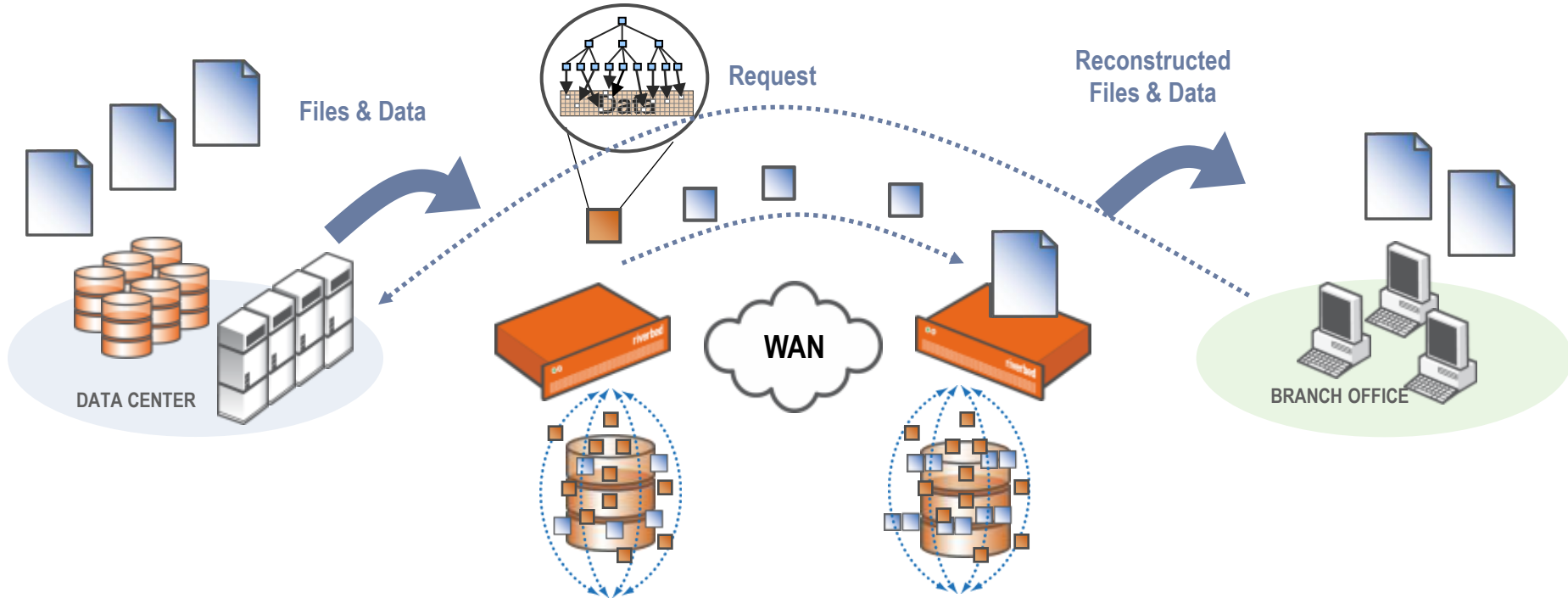
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# How Riverbed works – Data Streamlining

60-99% reduction in WAN utilization



- Requests go directly from the client to the server
- Steelhead auto-intercepts response, and segments data
- Only new bytes compressed & sent over the WAN
- 16-Byte references communicate megabytes of existing data
- Remote Steelhead reconstructs data and delivers it to the client

\*Technology functions the same for Steelhead appliances and Steelhead Mobile software

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# Customer Proof Point – Reducing Bandwidth Costs

## Challenge:

- Major bandwidth expansion budget
- Before Steelheads: 4 E1s and 5<sup>th</sup> on Order

## Solution Benefits:

- Avoided new bandwidth purchases and enabled removal of existing capacity

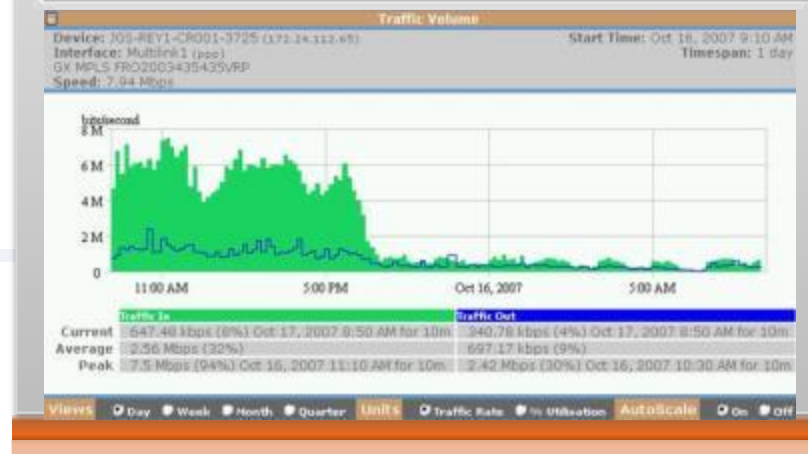
## Bottom Line:

- One Circuit Deferred: \$54K/yr
- Two Circuits Removed: \$108K/yr
- 5 Year Riverbed Investment: \$63K
- Net 5-year Savings: \$747K

# JABIL

**Jabil Findings: Riverbed drove massive performance improvement**

- Riverbed provided vastly superior bandwidth reduction against all competitive approaches



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C

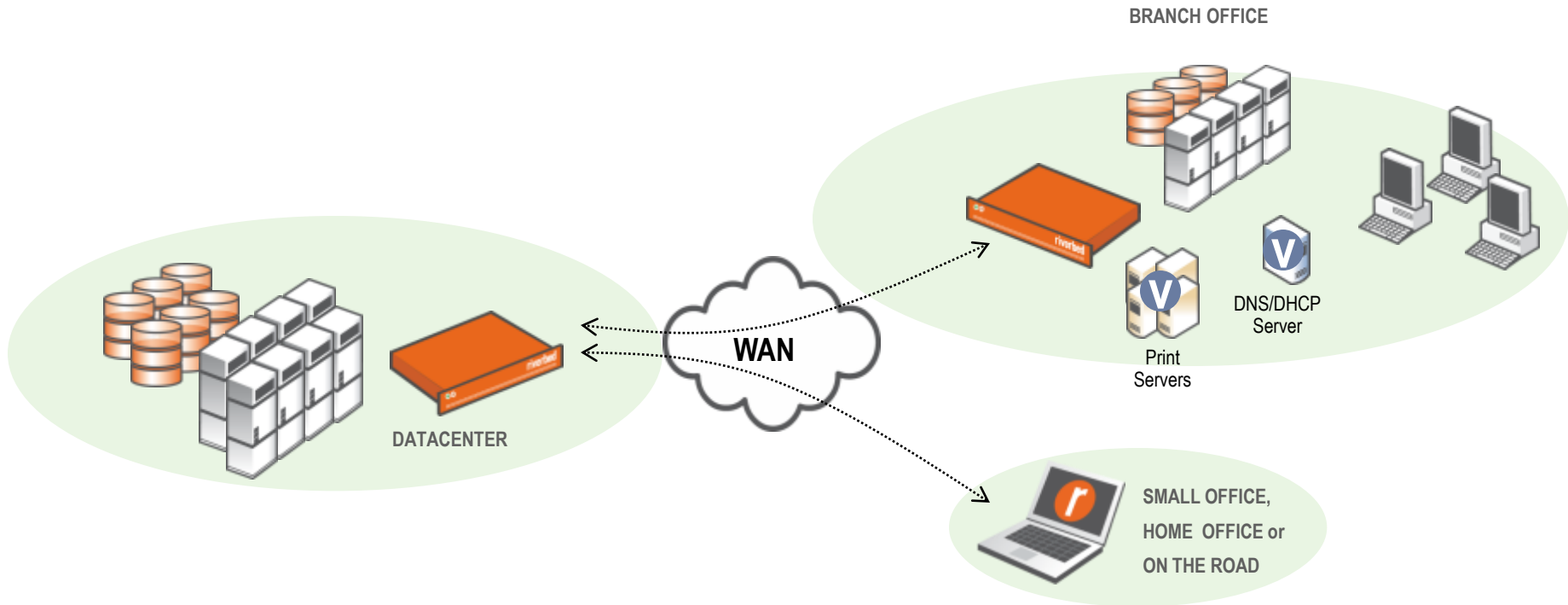
Consolidation

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# Consolidation: Then and Now



- Consolidate applications back to data center
- Virtualize local services for savings and smaller IT footprint
- Don't trade functionality for simplicity



# Riverbed Services Platform

- Virtualized Environment

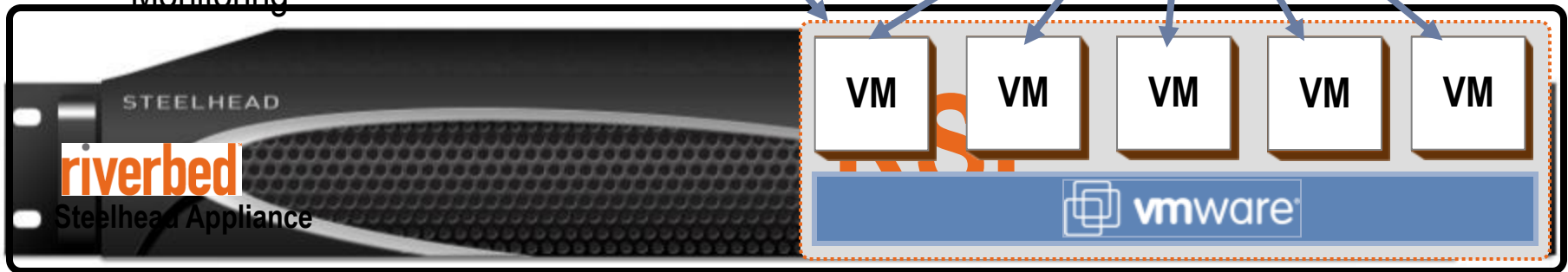
- VMware platform

- VM Server 2.0

- Windows server available

- Up to five VMs

- Windows
- Security
- Streaming
- Monitoring



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D

## Disaster Recovery

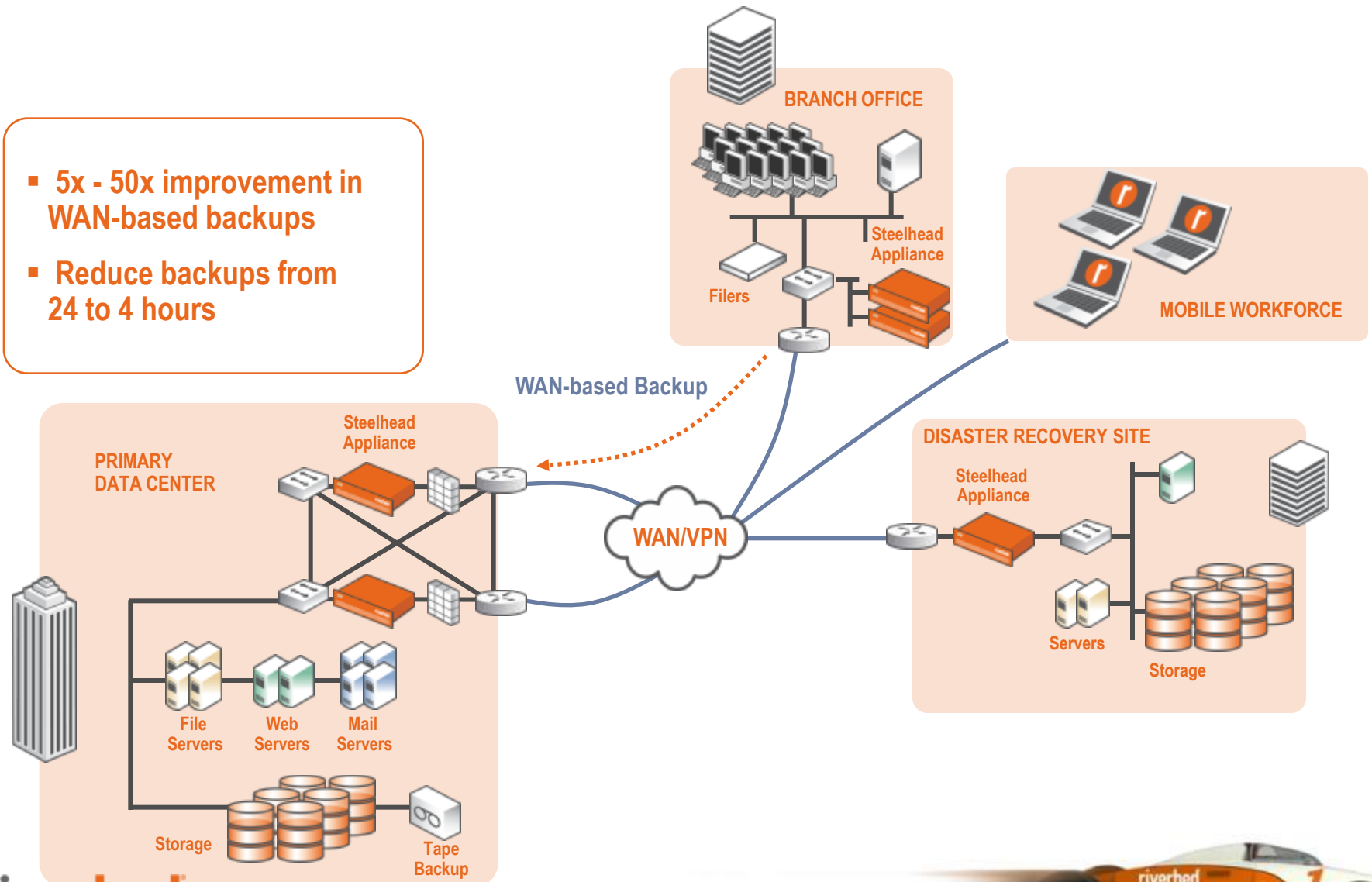
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# Backup and DR: Where Riverbed Fits

- 5x - 50x improvement in WAN-based backups
- Reduce backups from 24 to 4 hours

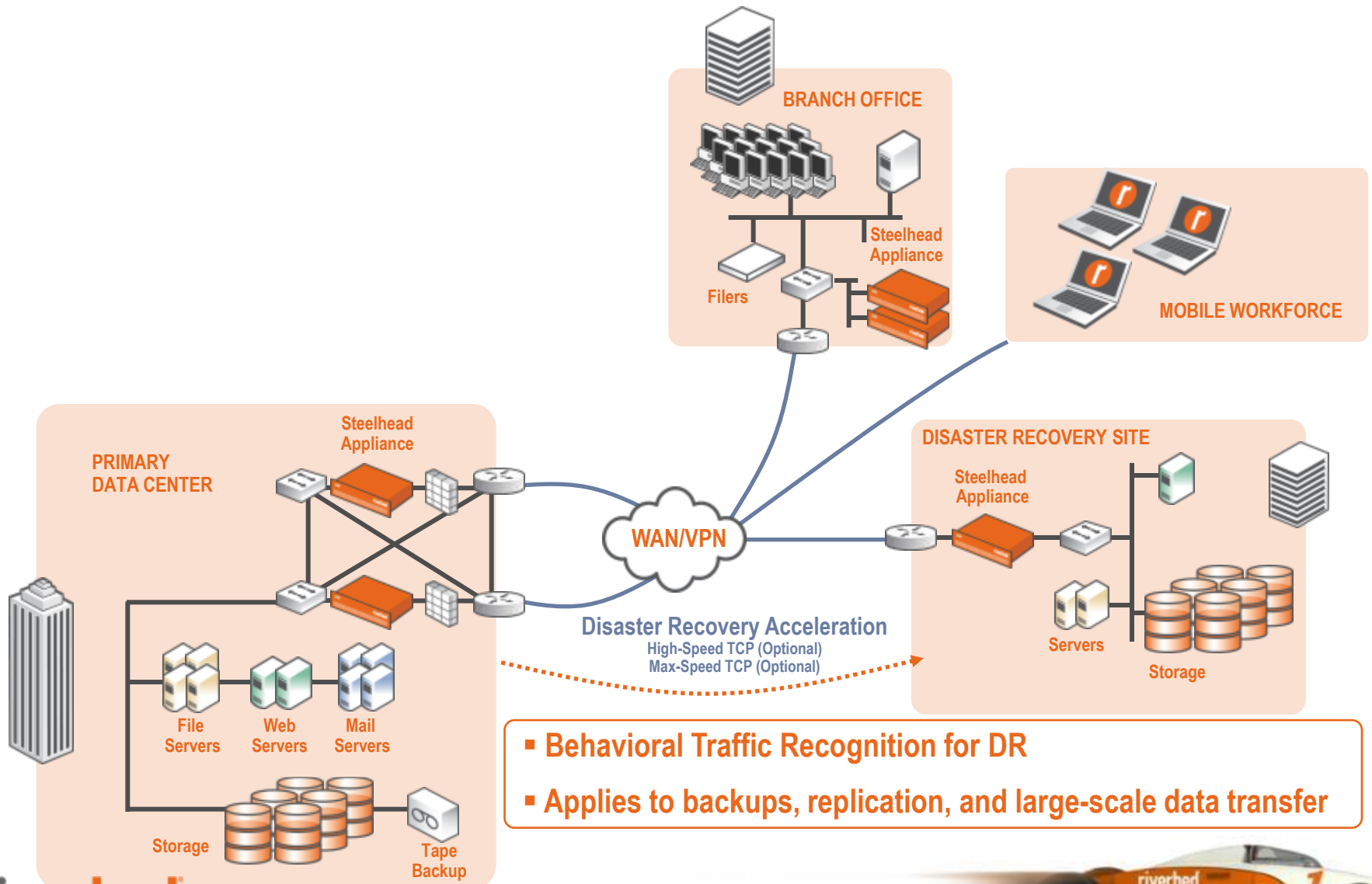


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# Backup and DR: Where Riverbed Fits

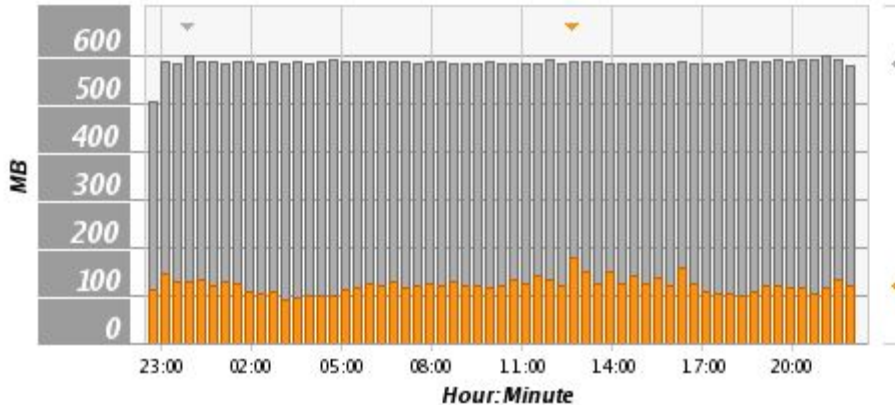


- Behavioral Traffic Recognition for DR
- Applies to backups, replication, and large-scale data transfer



# EMC SRDF/A

## Bandwidth Optimization



### Data

WAN Data	6.9 GB
LAN Data	33.5 GB
Total Data Reduction % Over Last Day	79%
Peak Data Reduction % Over Last Day	94%
Peak Data Reduction Occurred At	2008/02/12 22:27:00
Capacity Increase	4.8X

### Period

Last Day

### Application

1748: EMC-Replication

### Traffic

LAN-to-WAN

### Resolution

Maximum

### Refresh

Off

- SAN to SAN replication
- GigE Interfaces on DMX
- 79% data reduction
- Replication via lower bandwidth link

## Connections

The following is a list of connections currently handled by this appliance.

Filter:	1748	Type:	All	Filter	
T	Source:Port	Dest:Port	Reduction	KBytes LAN/WAN	Since
Q	10.30.2.40:51208	10.20.2.40:1748	(59%)	61070256 KB/24944115 KB	
Q	10.30.2.43:33847	10.20.2.43:1748	(62%)	9062748 KB/3420947 KB	

SDR Enabled Compression Enabled Protocol Error

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# Customer Proof Point – Disaster Recovery

- **Background**

- Replicate data faster and more often
- Avoid ongoing expense of WAN bandwidth upgrades

- **Results**

- Dramatically improved RPO while using existing bandwidth

- **Key benefits from deploying Riverbed**

- Reduced replication time from 48-72 hours down to 4-6 hours
- Replicated Metavante and Jack Henry files to DR site out of site
- Assured in a disaster its business can be up and running within 24 hours



"The performance of the Steelhead appliances at our DR site sold us on the solution. Riverbed being an EMC Select and EMC E-LAB-Tested Partner assured us of our decision."

Lynne Jensen, VP and IT Network Manager

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# Steelhead Appliance Series – *Flexible & Scalable*

## Branch



### 250-L

- 1 Mbps optimized throughput
- 30 optimized connections
- 120 GB HDD, 1 GB RAM

### 250-M

- 1 Mbps optimized throughput
- 125 optimized connections
- 120 GB HDD, 1 GB RAM

### 250-H

- 1 Mbps optimized throughput
- 200 optimized connections
- 120 GB HDD, 1 GB RAM

### 550-M

- 2 Mbps optimized throughput
- 300 optimized connections
- 160 GB HDD, 2 GB RAM

### 550-H

- 2 Mbps optimized throughput
- 600 optimized connections
- 160 GB HDD, 2 GB RAM



### 1050-L

- 6 Mbps optimized throughput
- 800 optimized TCP connections
- 250 GB HDD, 2 GB RAM

### 1050-M

- 6 Mbps optimized throughput
- 1300 optimized connections
- 250 GB HDD, 2 GB RAM

### 1050-H

- 10 Mbps optimized throughput
- 2300 optimized connections
- 500 GB HDD, 4 GB RAM

### 2050-M

- 20 Mbps optimized throughput
- 4000 optimized connections
- 1 TB HDD, 6 GB RAM

### 2050-H

- 45 Mbps optimized throughput
- 6000 optimized connections
- 1 TB HDD, 6 GB RAM

## Data Center



### 5050-M

- 90 Mbps optimized throughput
- 9,000 optimized connections
- 2 TB HDD, 8 GB RAM

### 5050-H

- 155 Mbps optimized throughput
- 18,000 optimized connections
- 3 TB HDD, 8 GB RAM

### 6050

- 310 Mbps optimized throughput
- 50,000 optimized connections
- 8 TB HDD, 24 GB RAM

## Mobile Worker



### Steelhead Mobile Software

- Installed on end-user machine
- Min 1.5Ghz Celeron, 512MB RAM, 1-20 GB HDD

## High-scale Deployment



### Interceptor

- 4 Gbps optimized throughput
- 1,000,000 optimized connections

## Management & Reporting



### Central Management Console

- Optional Component
- Manages and monitors hundreds of appliances at once



### Steelhead Mobile Controller

- Required for Steelhead Mobile
- Manages up to 2,000 users

# Steelhead 7050



Model	7050 Series	
Configurations	L	M
Profile	3U	
WAN Capacity	1Gbps`	1Gbps`
Optimized TCP Connections	75,000	100,000
Raw Capacity	2.8TB	5.0TB
Data Store Capacity	2.2TB	4.4TB
RSP Partition	100GB	100GB
Riverbed Services Platform (RSP)	✓	✓
Steelhead Mobile Controller Virtual Edition (SMC-VE)	N/A	N/A
Storage Fault Tolerance	RAID*	RAID*
Front Swappable Disks	16	30
RAM	32GB	48GB
Expansion Slots (PCI-e)	4	
Onboard Bypass Ports (Copper)	4	
Max. # of Bypass Ports	20	

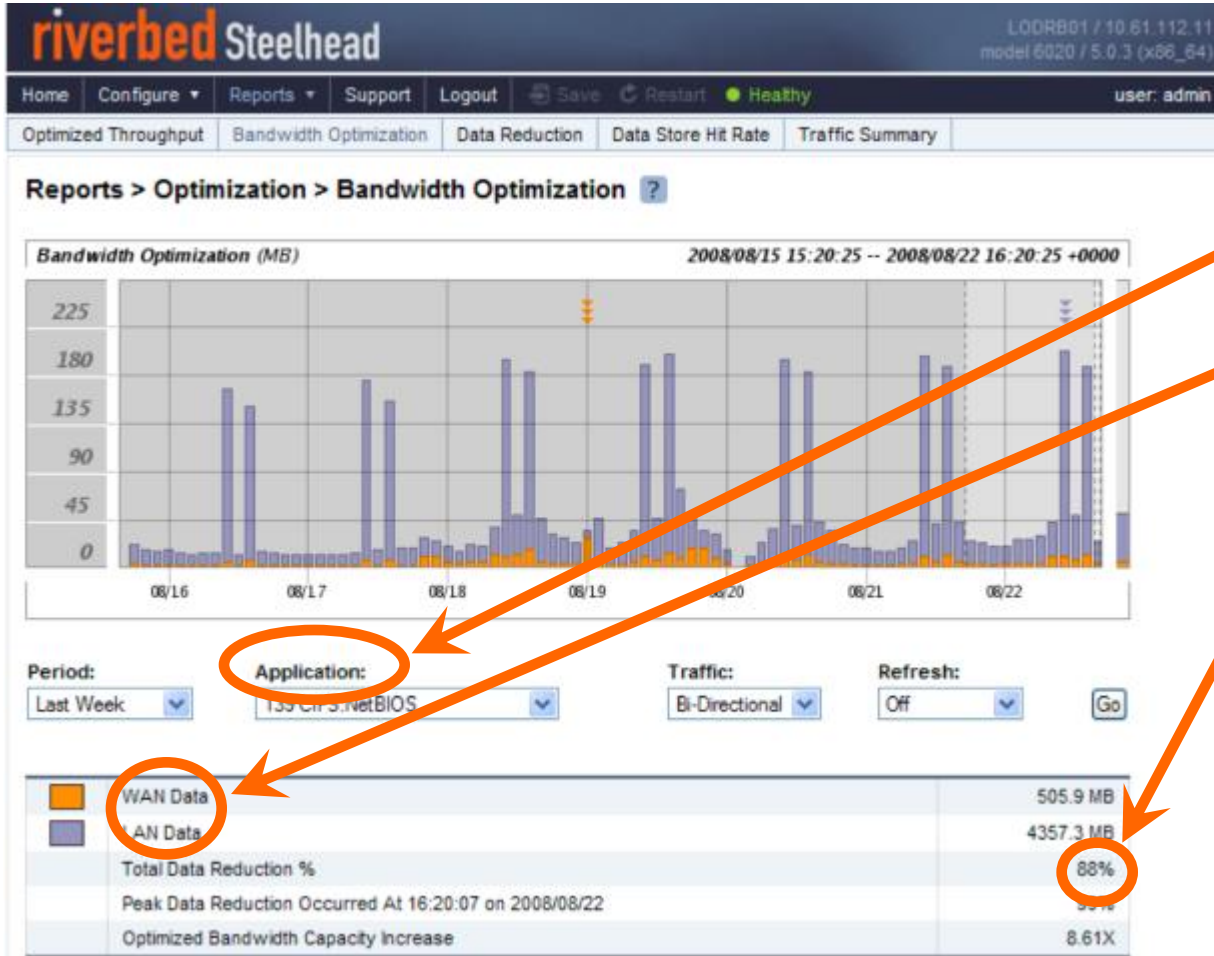
\*Data store uses fault tolerant striped configuration

`No enforced optimized WAN bandwidth limit For Data Center to Data Center workloads, WAN capacity is up to 1 Gbps. For DC to remote office workloads, recommended WAN capacity is up to 622 Mbps. Over 4Gbps of LAN performance with 2.5X data reduction when configured to use jumbo Ethernet frames.

## What's new?

- SSD based storage
- More processing power - CPUs- 2X6 core
- Will Run version 6.0.1 and above

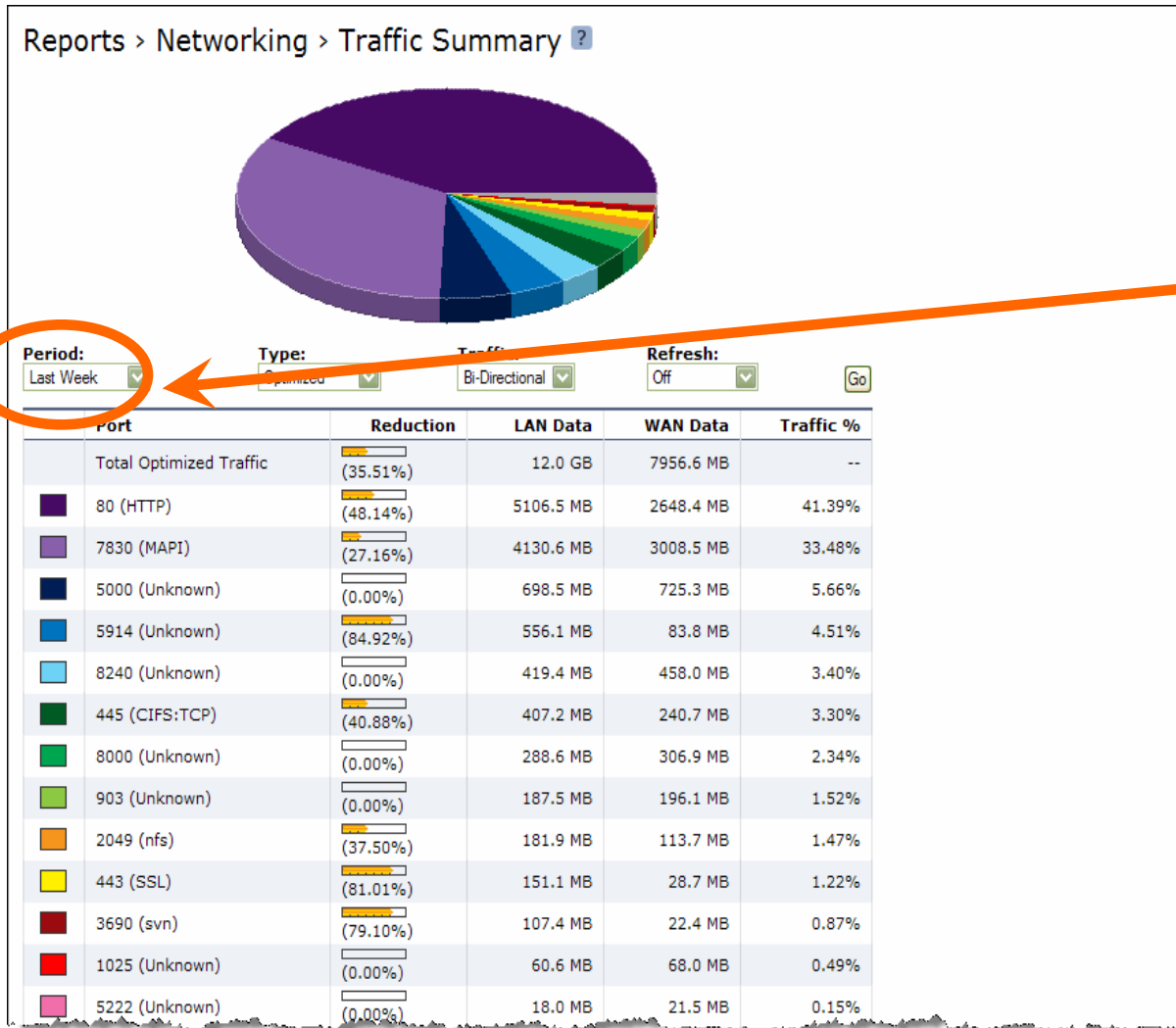
# Bandwidth Optimization Report



- Drill down by application
- Compare WAN vs LAN data
- Show Overall Data Reduction:  
**i.e. 88%!**



# Traffic Summary Report



- Show Optimization by Application
- Don't forget you can adjust Custom Time Interval!

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