

VIRTUALIZATION | 虚拟化 用户大会
FORUM 2008 2008

DISCOVER. CONNECT. **VIRTUALIZE.**

优化网络、加速应用 为IT架构整合，服务虚拟化奠定基础

Bill Ting
Riverbed 产品市场总监
2008年11月4日

riverbed

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 **vmware**[®]

The 3 Main Technology Areas of Networking :

- Connectivity 网络联通性

- Get Data from point A to point B
- Wireline, Wireless, Remote Access
- Protocols : TCP, UDP



- Security 安全性

- Firewalls, VPNs, IDP etc → UTM
- Protocols : IPSec, SSL



- Acceleration 应用加速

- Eliminate the constraints of Distance and Bandwidth
- Make the data available and usable to anyone, anywhere

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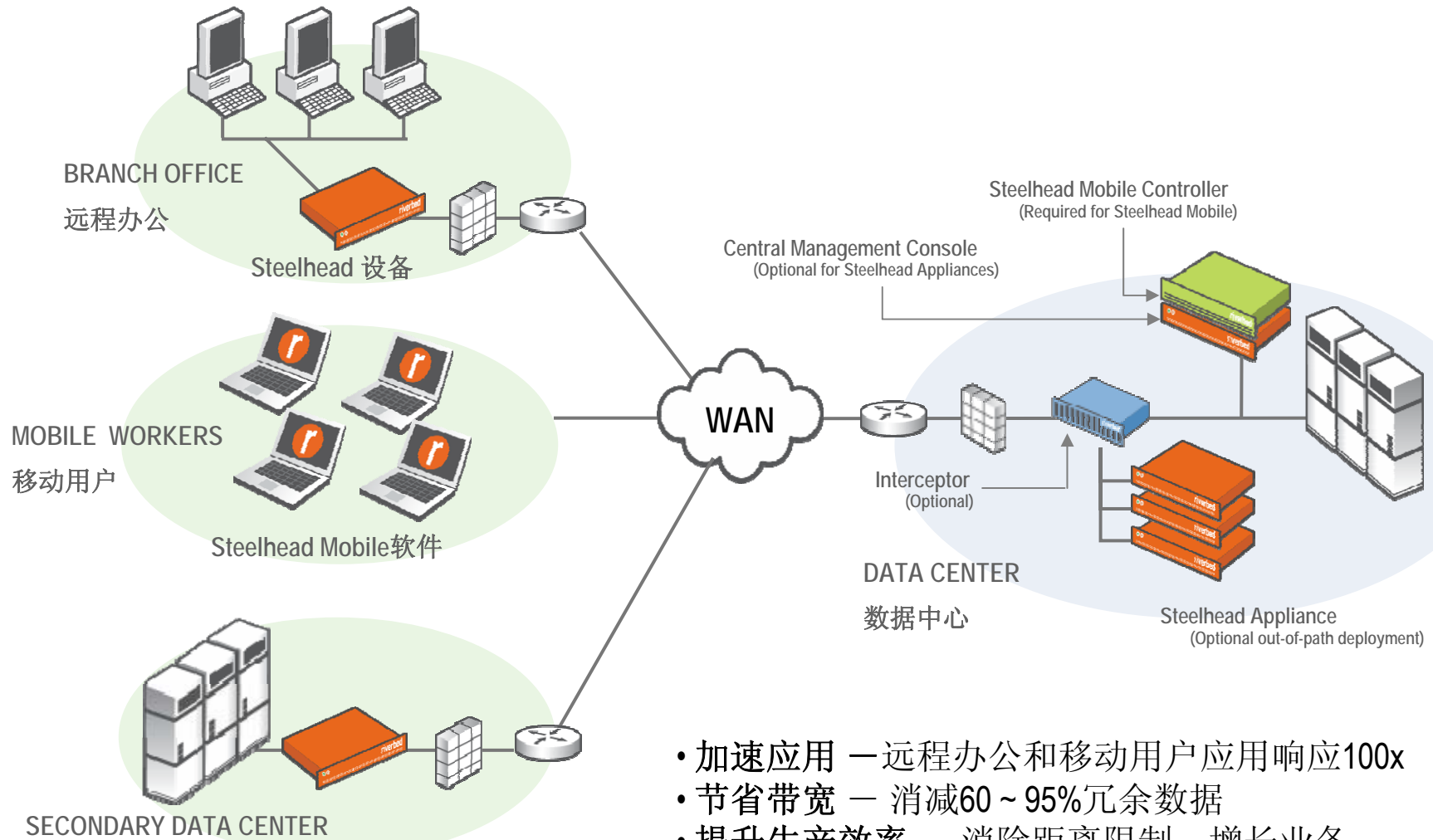


Riverbed公司简介

- A profitable public company (NASDAQ:RVBD)
 - Over \$300 million in annualized revenue 年营业额超过3亿美元
 - Global sales and support operations 全球销售与技术支持中心
 - 700+ employees 700+名员工
- A trusted IT supplier to over 5000 enterprise customers
超过5000家企业客户所信赖的IT供应商
 - Tens of thousands of appliances installed and operating around the world
有数万台Riverbed设备在全球企业核心网内运行着
 - Now shipping Version 5.0
- The market and Technology leader in Wide area Data Services (WDS)
广域网数据服务(WDS)领域市场与技术的领导者
 - Steelhead appliances offer best performance across key applications
Steelhead设备为各种关键应用提供最好的性能
 - Speed, Scalability, Simplicity 速度、可靠性、简单

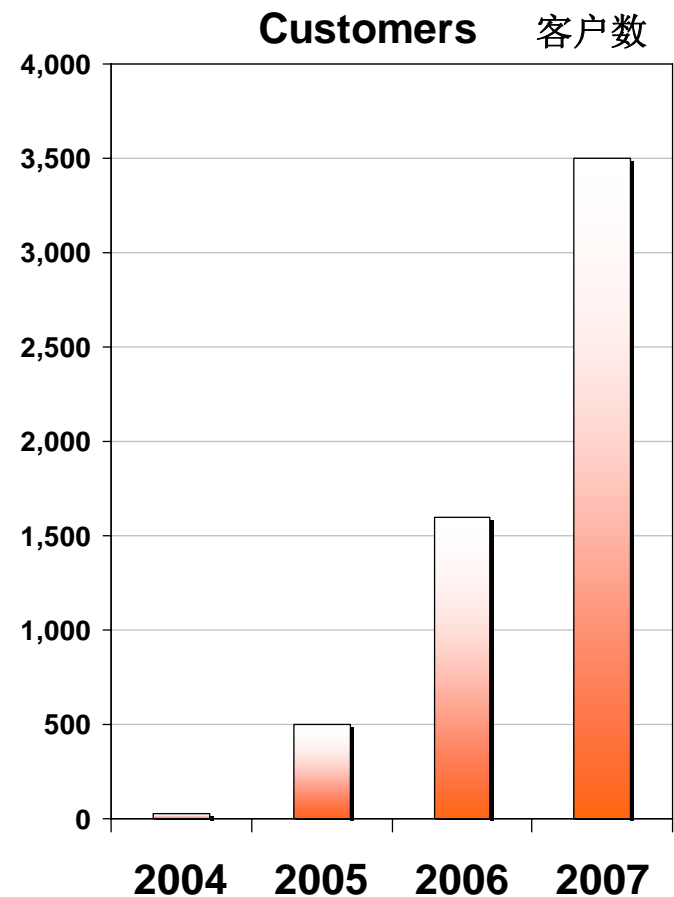
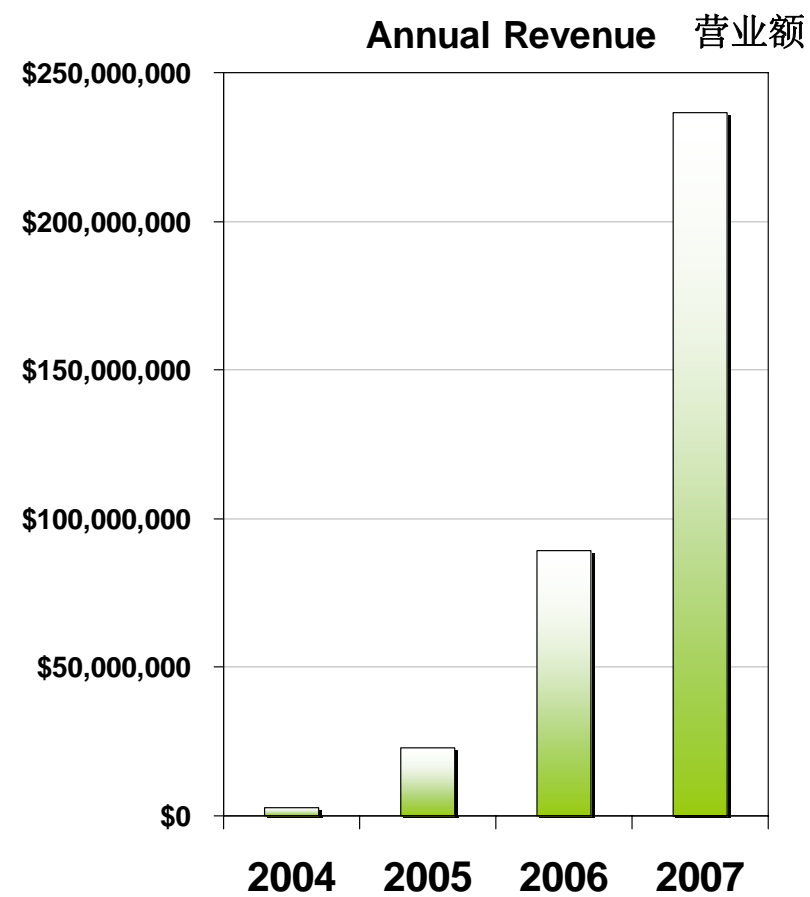


Riverbed WDS 解决方案 — “3000 公里距离仿若就像 30 米”



- 加速应用 — 远程办公和移动用户应用响应100x
- 节省带宽 — 消减60 ~ 95%冗余数据
- 提升生产效率 — 消除距离限制, 增长业务

营业额与客户数量巨大增长



Riverbed customers across all industries

Riverbed客户遍及各行各业

Financial Services	Professional Services	Manufacturing	Media/Communications	A/E/C	
Energy	Healthcare/Bio/Pharma	US and International Government	Retail/Consumer Transportation/Logistics	Tech/Software	Service Providers



Riverbed customers in APAC

Riverbed在亚太区的客户

A/E/C/ Property	Transportation	Manufacturing	Government	Finance
         	          	                         	                    	                           

Riverbed customers in APAC

Riverbed在亚太区的客户

Energy / Resources	Legal /Prof. Services	Media/ Comm/ Telco	Retail/ Consumer	Tech/ Software	Others

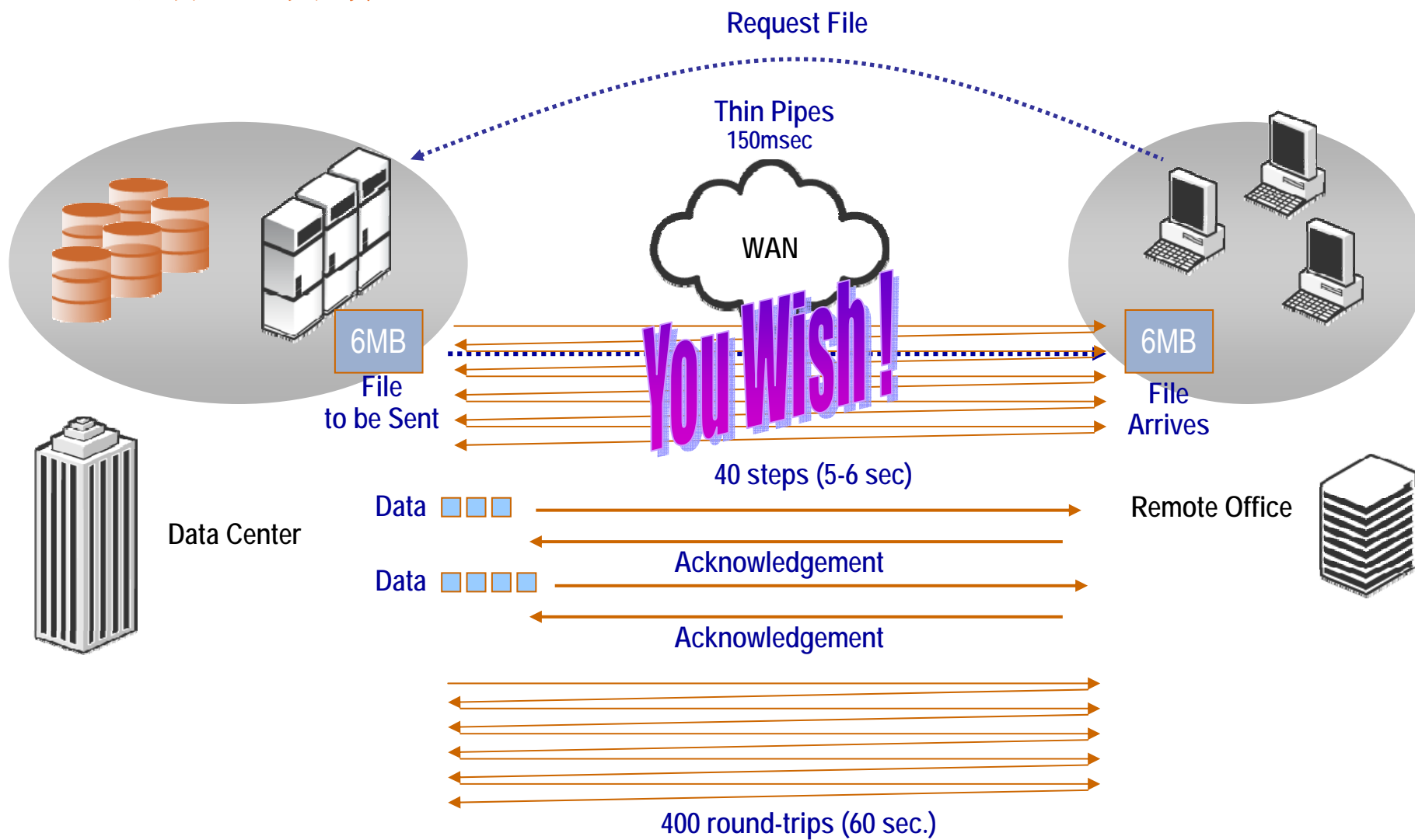
广域网上应用性能差的三大根源

1. 没有足够的带宽

延时 — 实际吞吐率的秘密杀手!

不把这三个问题都解决，用户就看不到显著性能的提升

WAN 的延时问题



WAN和LAN巨大的性能差异

Application		Typical Throughput @ 1.5 Mbps 100ms RTT	Typical LAN Throughput
File Sharing CAD/CAM, MS-Office	• Windows (CIFS)	500 to 1000 Kbps	40 Mbps
	• Unix/Linux (NFS)	500 to 1000 Kbps	86 Mbps
Email	• Exchange (MAPI)	200 to 430 Kbps	25 Mbps
	• Domino/Notes	900 to 1400 Kbps	34 Mbps
Web	• HTTP	500 to 1400 Kbps	
	• Intranet		
	• ERP		
FTP		1.2 to 1.4 Mbps	
Backup & Replication	• SnapMirror	1.2 to 1.4 Mbps	89 Mbps
	• MS Backup	600 to 950 Kbps	55 Mbps
Software Distribution	• SMS	600 to 750 Kbps	60 Mbps
Database	• MS-SQL	150 to 400 Kbps	30 Mbps
	• Oracle SQL	150 to 400 Kbps	30 Mbps

WAN throughput is <1% of the LAN



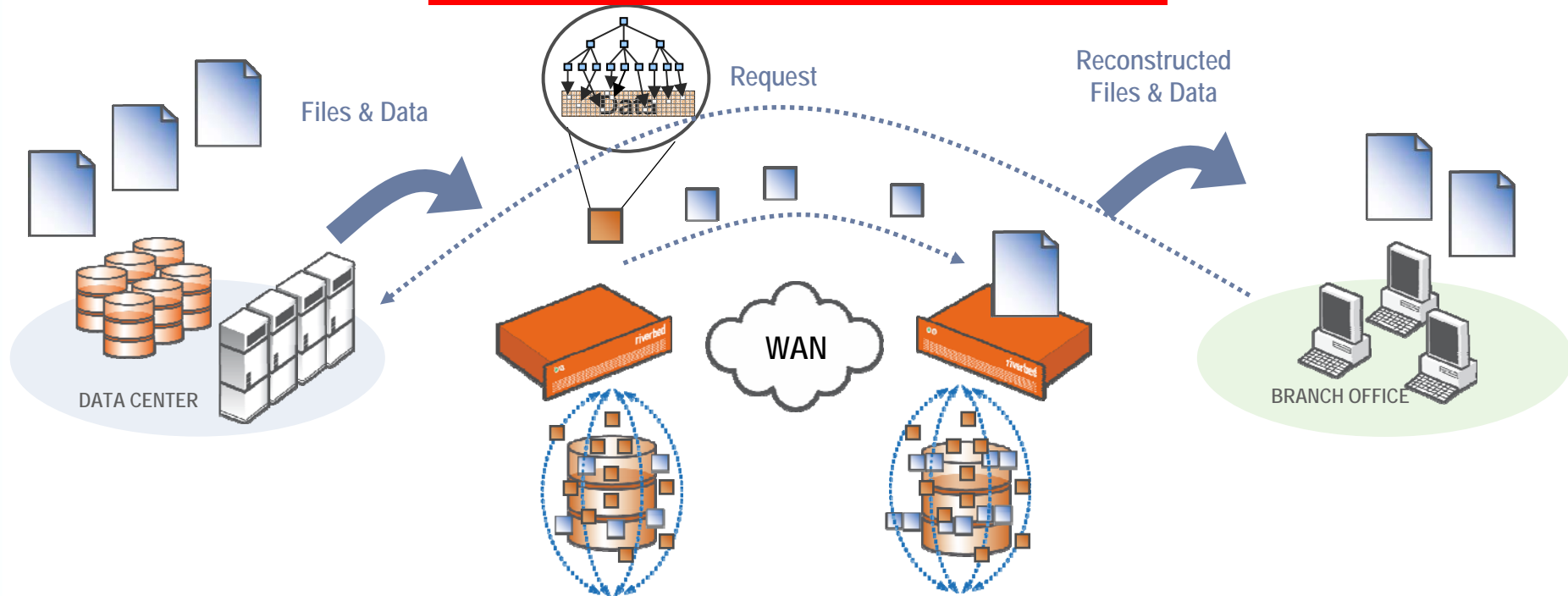
AutoCAD

ORACLE



数据优化 克服带宽限制

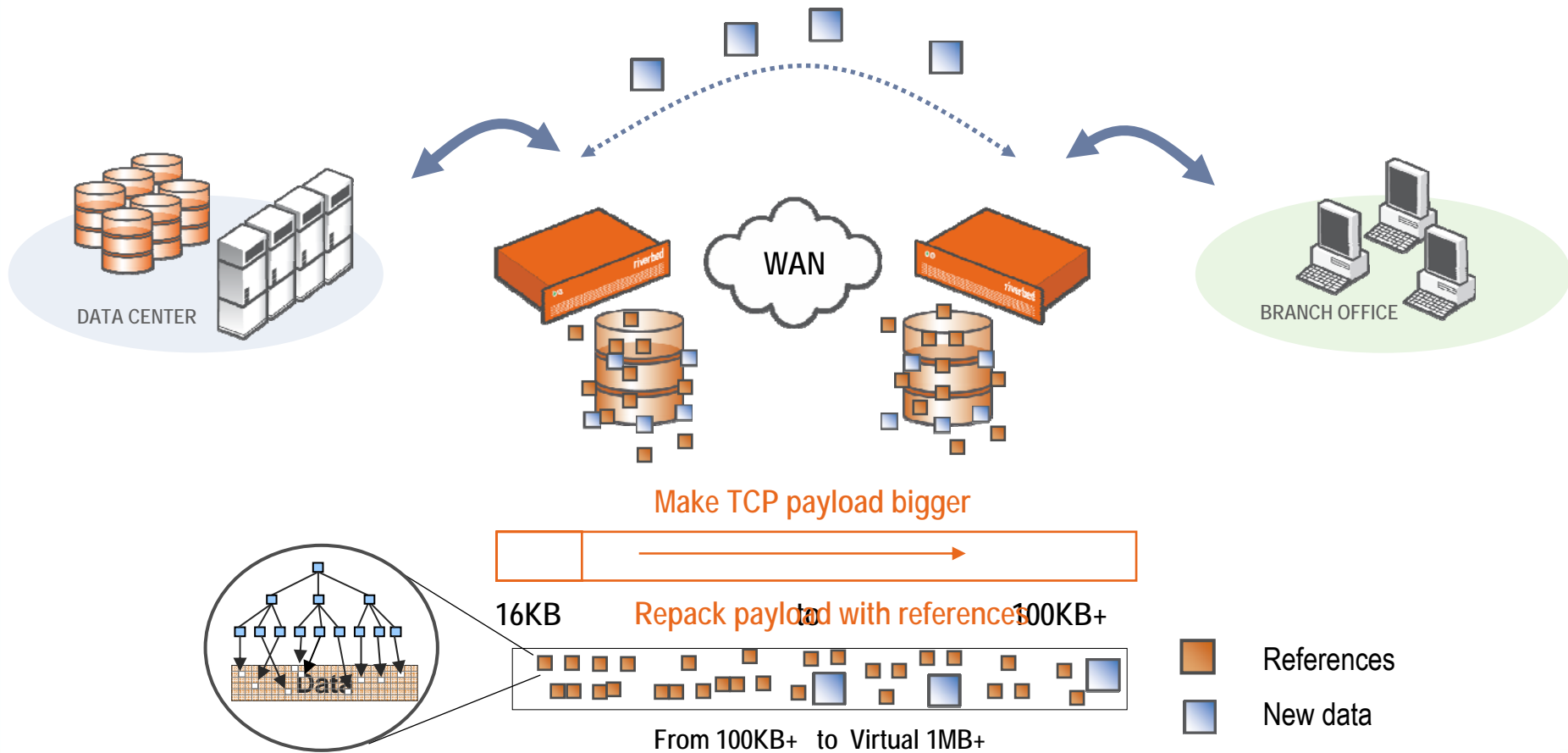
WAN使用率减少60-99%



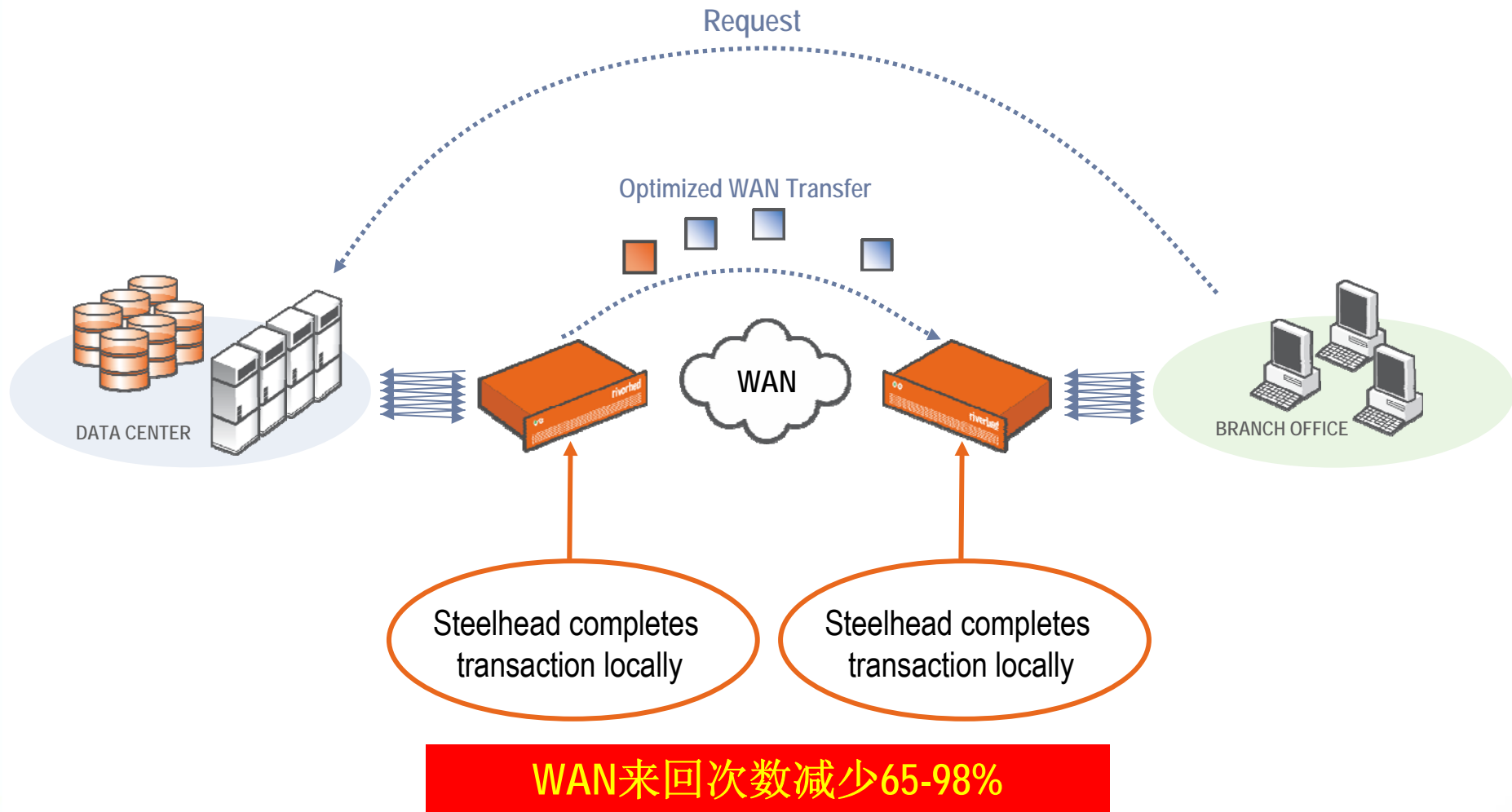
- Requests go directly from the client to the server
- Steelhead auto-intercepts response, and segments data
- Only new bytes compressed & sent over the WAN
- 16-Byte references communicate megabytes of existing data
- Remote Steelhead reconstructs data and delivers it to the client

传输层优化 克服TCP协议的局限

WAN来回次数减少60-98%



应用层优化 克服应用协议的局限



Optimizing VMware with Riverbed

Consolidation
IT 整合

- Complete site and server consolidation
- Riverbed enables consolidation to DC
- VMware consolidates servers at DC

DPR
容灾备份

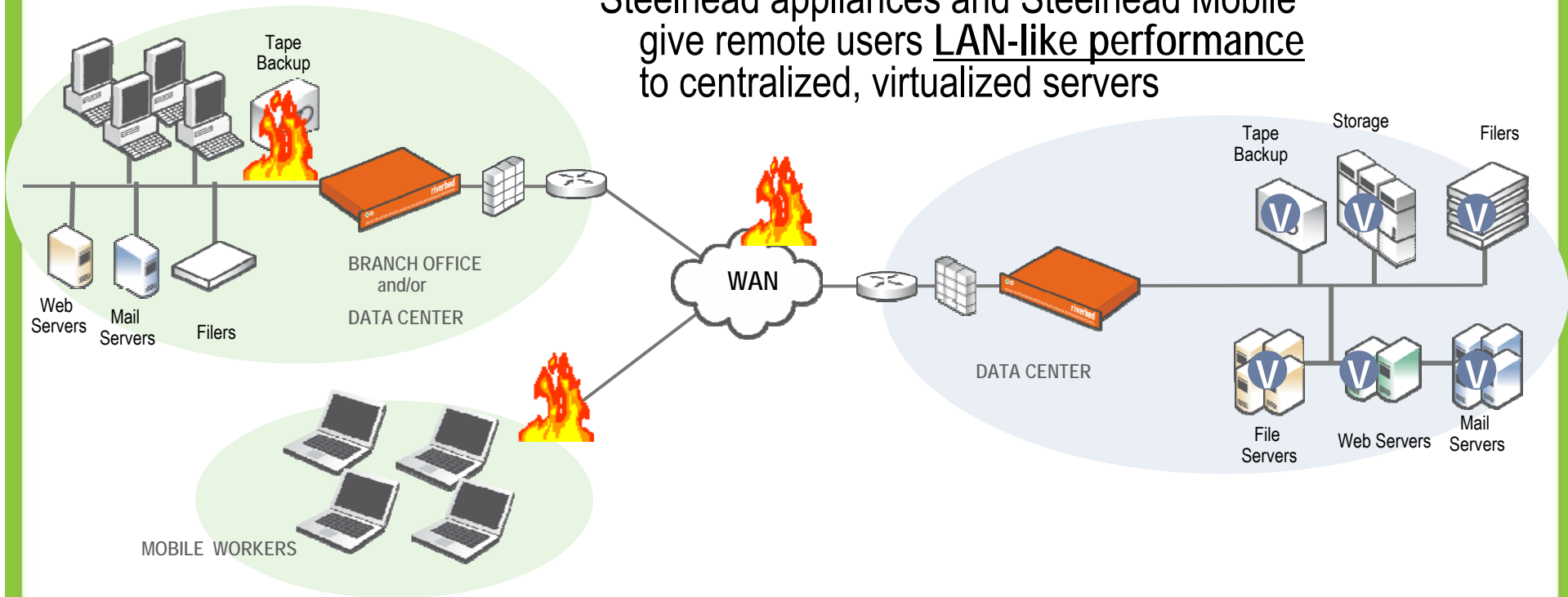
- Lessens impact to WAN and applications
- Avoid additional bandwidth costs
- Centralize data and speed up access

Desktop Virtualization
虚拟化桌面

- Download desktop package to any location
- Riverbed accelerates initial transfer
- All apps and user requests accelerated

Value #1: Performance enables successful remote server consolidation

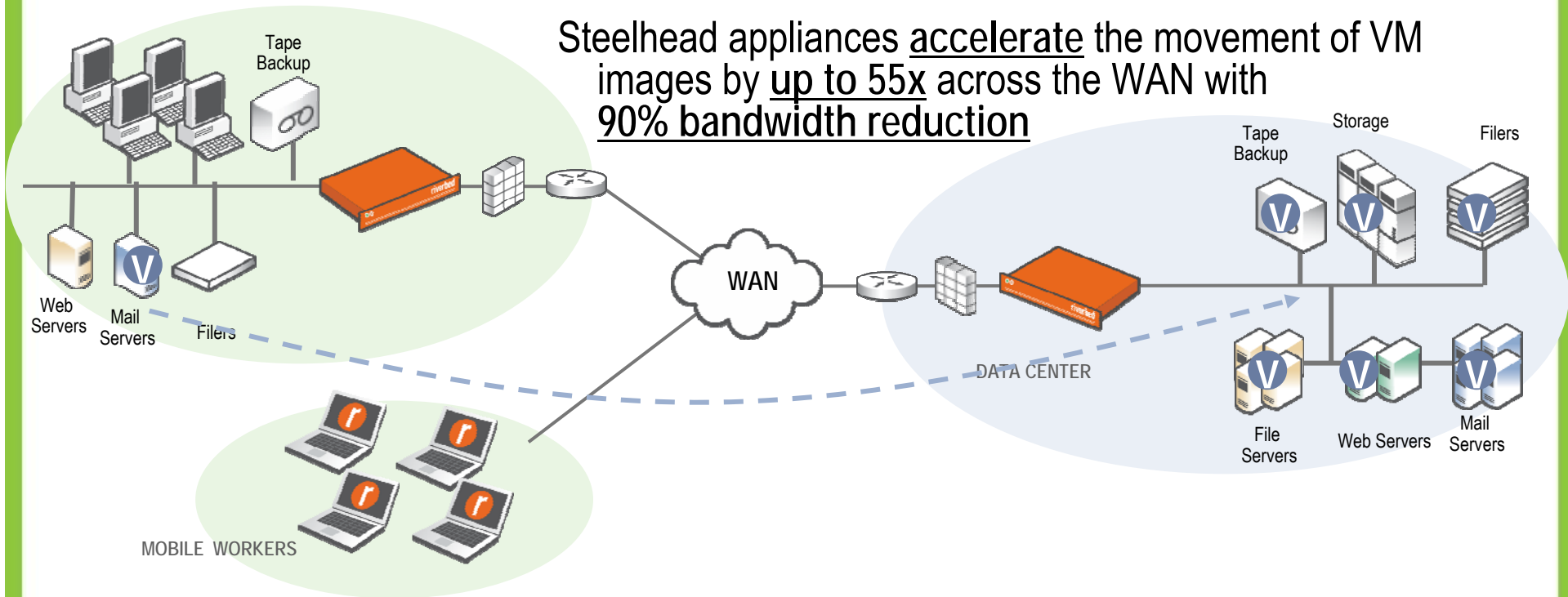
Steelhead appliances and Steelhead Mobile give remote users LAN-like performance to centralized, virtualized servers



- Remote Server Consolidation
 - Eliminate local file, email, and web servers – drive high utilization in the primary data center
- Dependence on the network creates major congestion problems and slow applications
 - Unhappy users = unsuccessful consolidation project which may be reversed

Value #2: Accelerate backup of virtualized servers

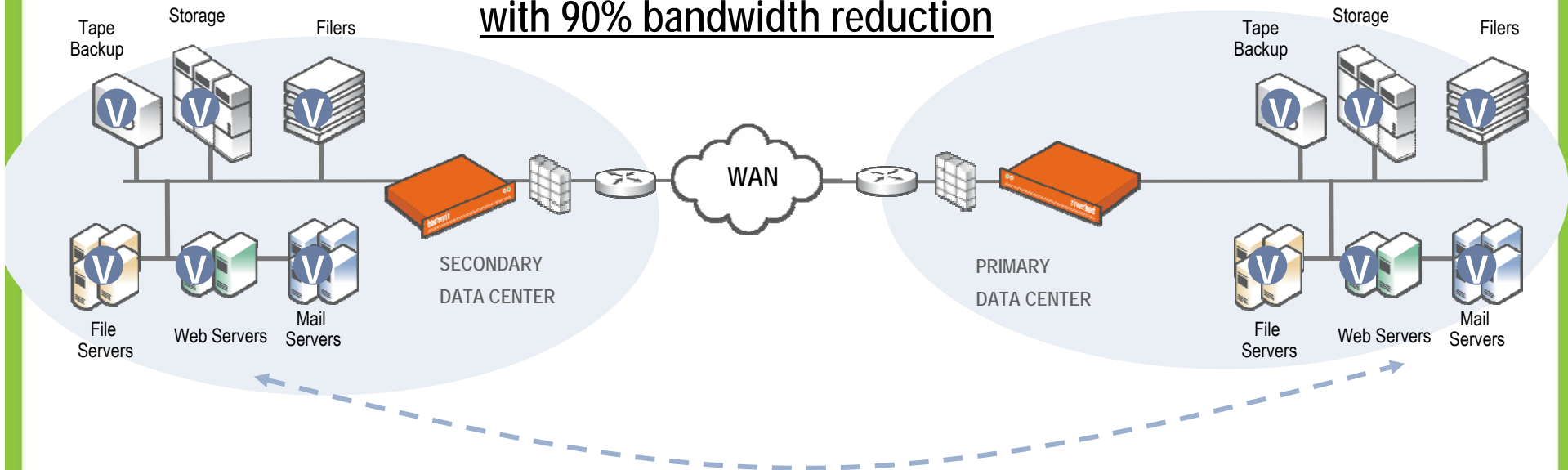
Steelhead appliances accelerate the movement of VM images by up to 55x across the WAN with 90% bandwidth reduction



- Branch Office Consolidation
 - Keep servers in the branch, but virtualize them on to fewer physical machines
 - Backup VM's over the WAN to Data Center

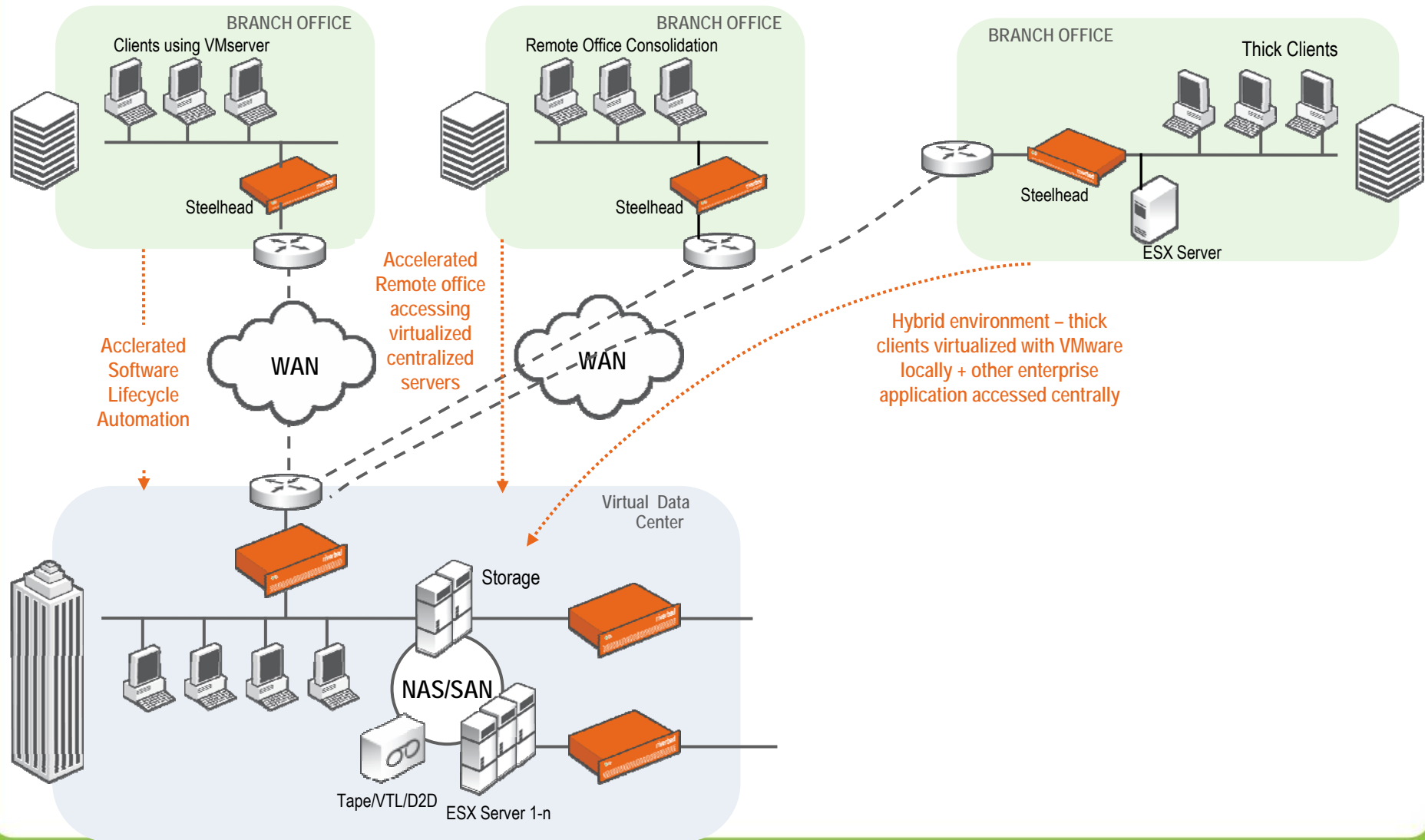
Value #3: Accelerate DR operations

Steelhead appliances accelerate the movement of VM images by up to 55x across the WAN with 90% bandwidth reduction



- Disaster Recovery Acceleration
 - Accelerate bi-directional replication of VM images
 - Accelerate the recovery of images in the event of a disaster

Remote Office / Branch Office (ROBO) with riverbed

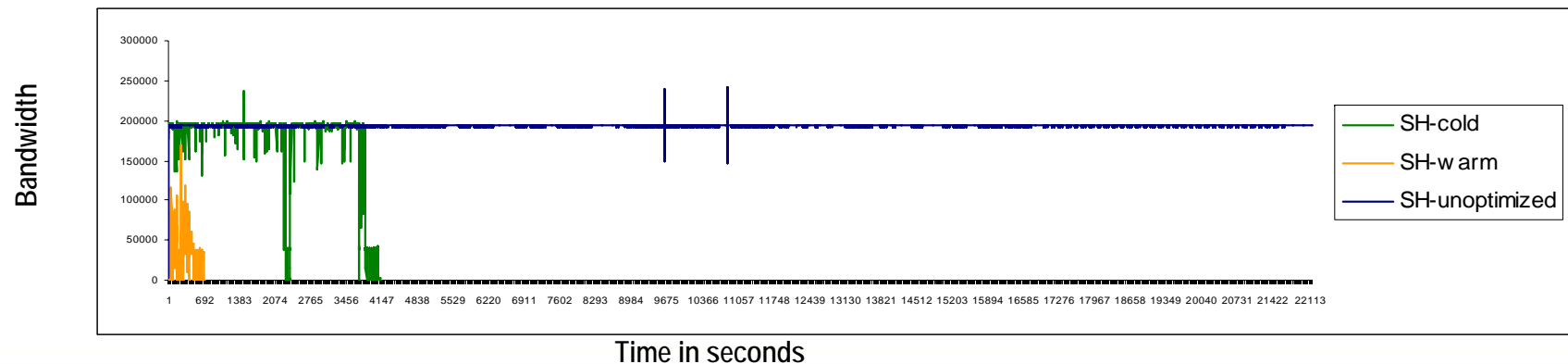


Software Lifecycle Automation Results: ~33x faster

- Central VMware image store serving multiple organizations like sales, support, QA, professional services.
- Download a virtual image form a central store for temporary usage.
- WAN Environment
 - T1 – 1500 kbit/sec
 - Latency – 100msec, no loss.
- Data sample
 - Windows XP image file ~4Gbytes

1500/100msec	w/o Steelhead Appliance	Steelhead Appliance cold run	Steelhead Appliance warm run
Completion Times	06:09:34	01:08:40	00:11:14
% reduction in WAN data	N/A	84%	99%

- Time Improvement > 32.9x
- Bandwidth Improvement > 171.93x

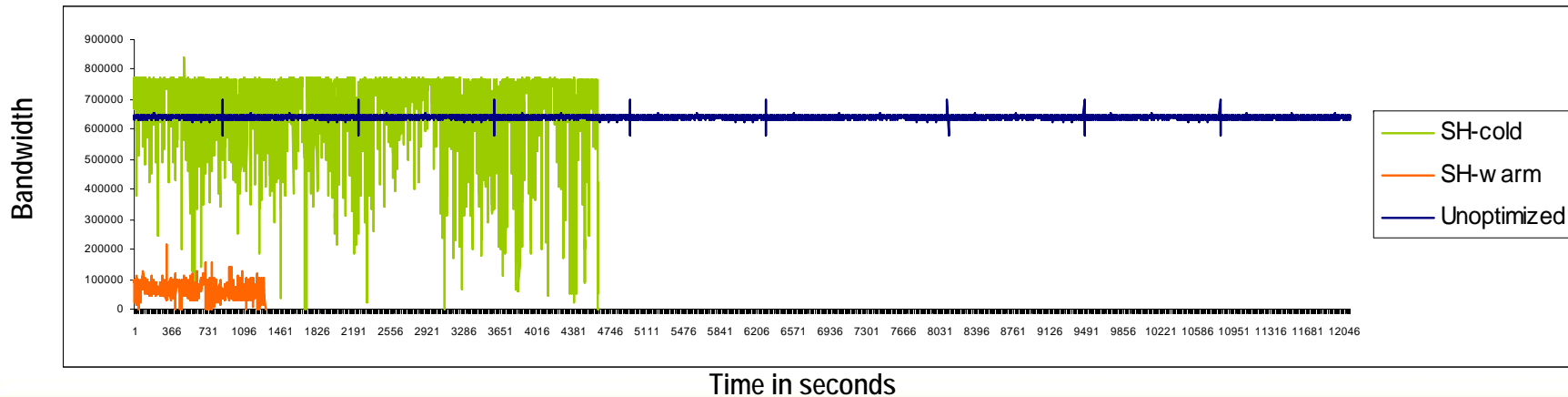


Disaster Recovery Acceleration Results: ~10x faster

- Scenario
 - Replicating p2v image using ftp
- WAN Environment
 - 6000 kbit/sec
 - Latency – 100msec, no loss.
- Data sample
 - Windows 2003 Enterprise Edition + SP1 + data
 - » 7 Gbytes in size (use virtual disk grow as required option)
 - » Image has zipped data, doc files, images, besides standard OS data.

6000Kbps/100msec	w/o Steelhead Appliance	Steelhead Appliance cold run	Steelhead Appliance warm run
Completion Times	03:22:00	01:17:40	00:21:40
% reduction in WAN data	N/A	60%	99%

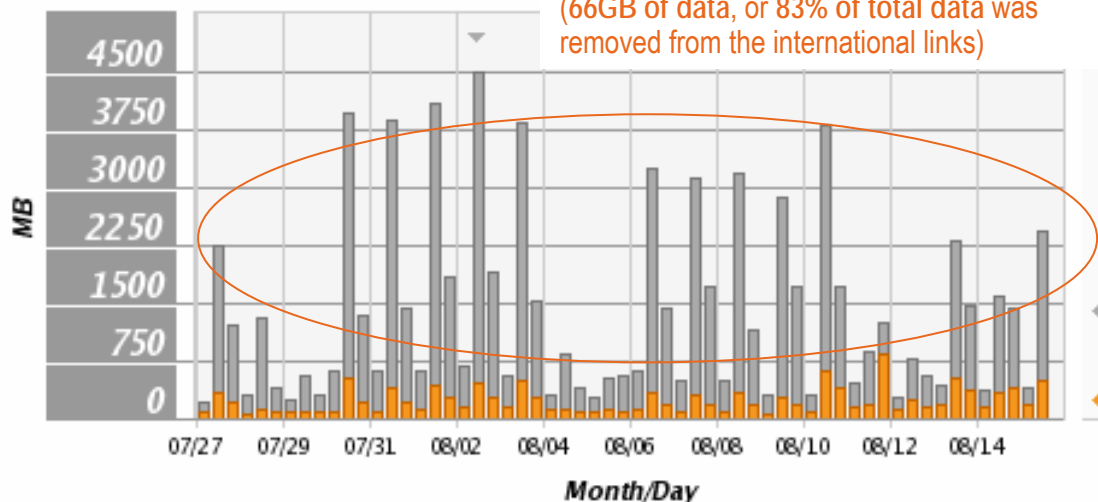
- Time Improvement > 9.3x
- Bandwidth Improvement > 90.66x



带宽优化效果

Bandwidth Optimization

“Greyed-out” data is data that didn't have to be sent over the WAN due to optimization (66GB of data, or 83% of total data was removed from the international links)



Data

WAN Data	12.8 GB
LAN Data	79.3 GB
Total Data Reduction % Over Custom Interval	83%
Peak Data Reduction % Over Custom Interval	97%
Peak Data Reduction Occurred At	2007/08/15 14:30:20
Capacity Increase	6.1X

Period

Custom Interval

Start Time: 2007/7/27 00:00:00

End Time: 2007/8/15 14:41:49

Redraw

Application

All

Traffic

Bi-Directional

Resolution

Maximum

Refresh

Off

国际广域网链路相当于扩展了6.1倍

Customer Case Study - DR Acceleration with VMware

Background

- Windows and Linux Server Environment - 90% virtualized
- Using VMware Consolidated Backup (VCB)
- 1 Mbps link to DR facility



Results:

- Replicating tens of gigabytes of VMware snapshots to DR site daily
- Up to 55x improvement in replication time for virtual server infrastructure

"The Steelhead products have given us unbelievable performance when replicating VMware.

We now see upwards of 50 to 55x improvement in data transfer for a snap of a VMware machine."

- Mike Geldart, Sr. Manager, Computer Operations

Virtualization + WDS help to build Eco-Efficient IT system

虚拟化+加速应用帮助建造具有节能省钱IT架构

Less Equipment



- Consolidation enables fewer servers, with higher utilization
- WDS helps avoid upgrades in routers, switches, and bandwidth

Less Power



- Less server and equipment will save power consumption
- Steelhead mobile saves real estate and offices.

WDS = Higher Energy with same MASS



Better efficiency with same power

Energy



- Energize your IT infrastructure with very efficient WDS solution.
- WDS - Efficient way to use your current resources, without investing in more

Riverbed 能够协助许多不同的项目获得成功

应用加速

- 移动员工加速
- Windows 文件共享
- Email
- Web
- ERP/CRM
- Lotus Notes
- NFS
- FTP
- 自开发应用

站点整合

- 文件服务器
- 邮件服务器
- 文件存储
- 远程存储
- 磁带备份设备
- Off-site 介质管理
- 在线备份
- 外包服务

带宽优化

- 减少 WAN 带宽
- 避免 WAN 升级
- 扩展窄带链路
- 用满 LFN
- 流量优先级
- 保护 VoIP

容灾备份

- 减少RTO
- 减少RPO
- 远程办公室备份
- 服务器复制
- SAN 复制
- VM 复制
- 在线备份

Riverbed Steelhead™ 设备 Steelhead Mobile™ 软件



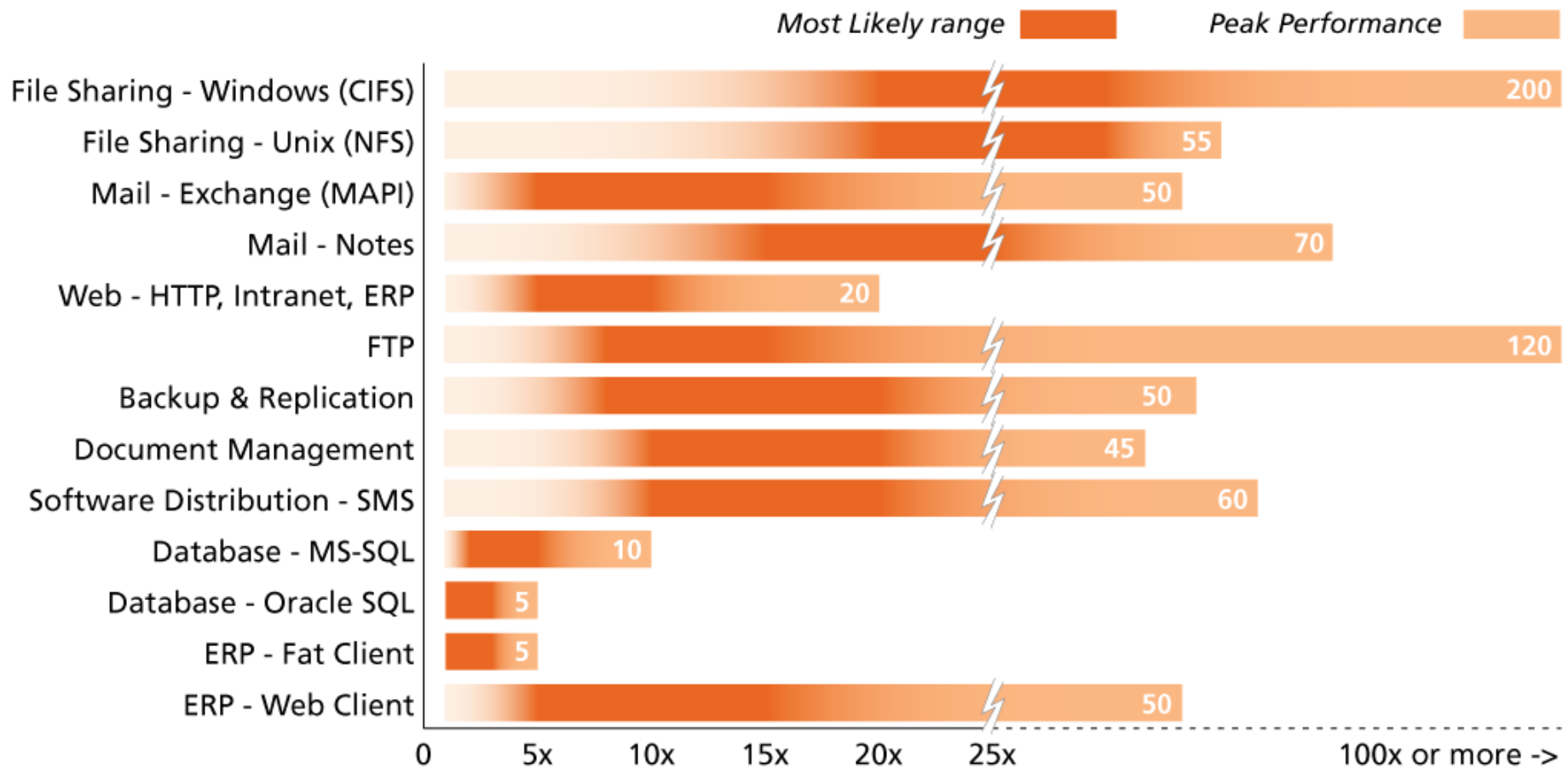
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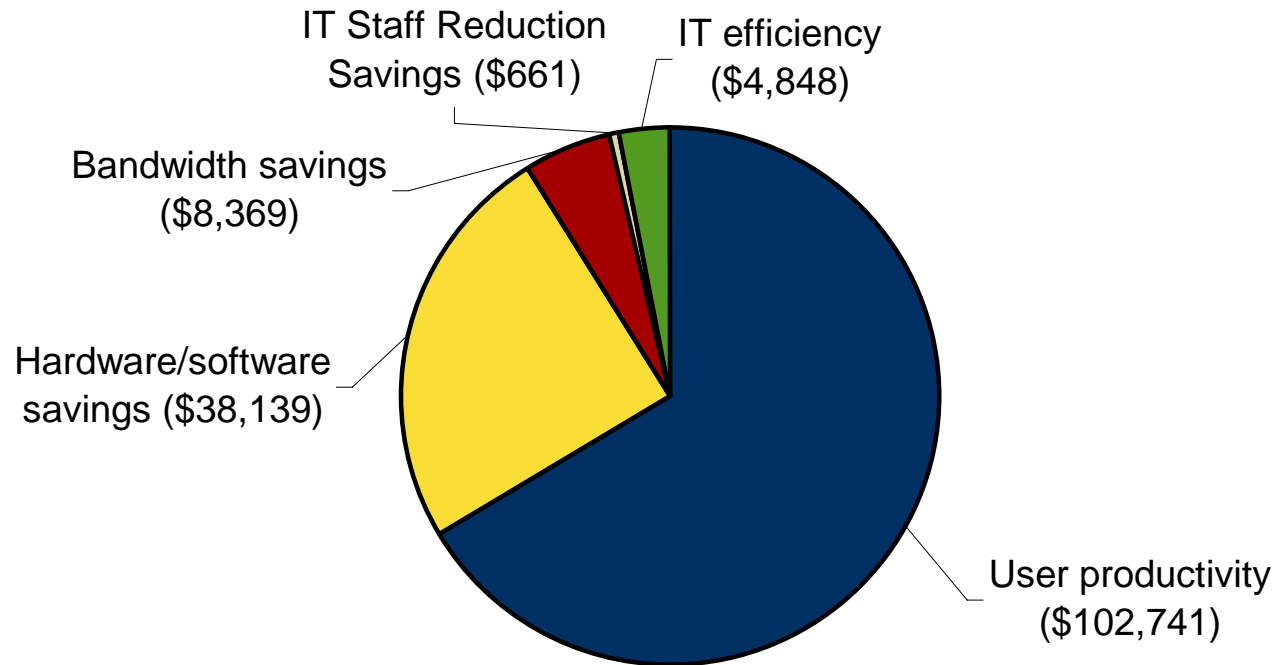
Riverbed's approach accelerates all TCP applications

Riverbed加速多种TCP的应用



Making the business case for Riverbed in your company

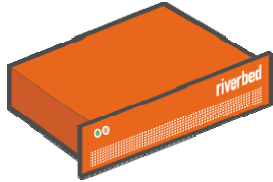
IDC 报告，采用Riverbed的投资回报周期为 7.3 个月



“Riverbed Steelhead products had wide-ranging impact on our business. We are more agile as a business, have decreased IT costs, reduced support calls, and improved data security as well.”



Riverbed为业务带来巨大的价值



Accelerates all key applications by up to 100x
over the WAN

加速广域网上的关键应用，性能提升高达
100倍



Reduces bandwidth utilization by 60% to 95%
减少带宽消耗60%至95%



Enables successful IT consolidation,
Virtualization, DR & Backup
支持成功的IT整合、虚拟化、容灾备份



Boost productivity 提高工作效率;
Achieve IT cost-savings 节省IT费用

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Thank you for your time
谢谢!

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