



Wide Area Application Services (WAAS)

Storage Network World – Europe
September 05, 2006

**“Changing the way enterprises will design
and consolidate branch offices”**

Speakers

Patrick Schmidt, Regional Sales Manager, Germany

Cisco Systems

George Kurian, Vice President, Application Delivery Business Unit

Cisco Systems

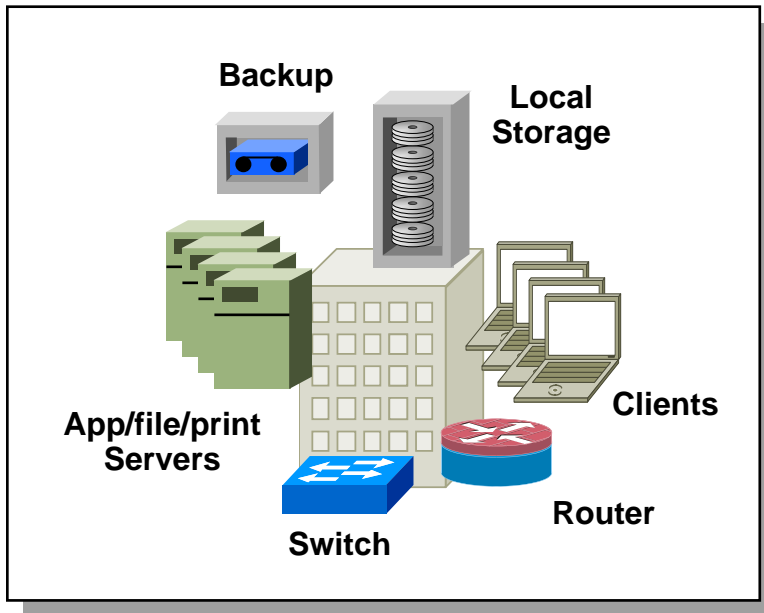
Malte Rademacher, Regional Marketing Director, Germany/AMESA

EMC

Bert Lankester, ICT advisor, LAN/WAN connections

Dutch Ministry of Agriculture, Nature and Food Quality

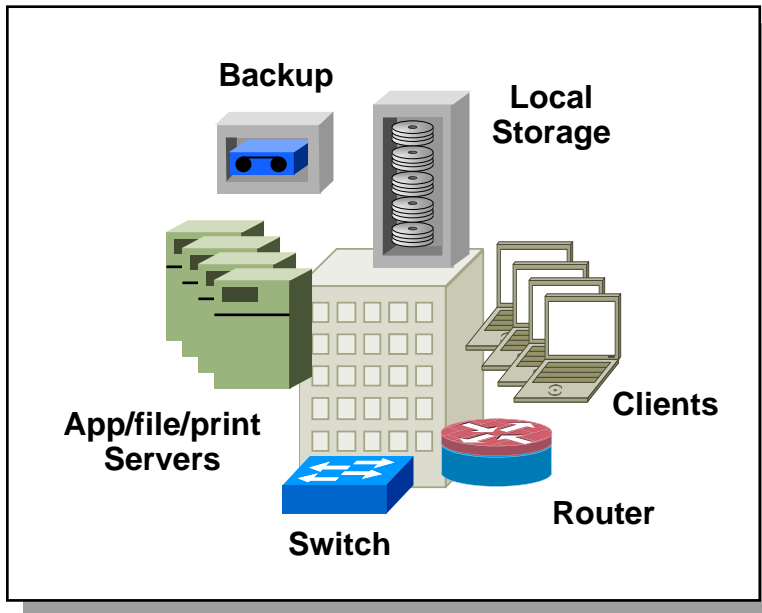
Today: Branch Office IT Issues



- **Application performance**
 - Bandwidth limitations
 - Latency / jitter / chattiness
 - User productivity & experience
- **Infrastructure cost / complexity**
 - File, print and email servers
 - Storage and backup
 - WAN bandwidth
- **Data protection**
 - Failing backups / lost data
 - Costly off-site vaulting
 - Compliance

Cisco Vision: The Consolidated Branch

Consolidated Branch

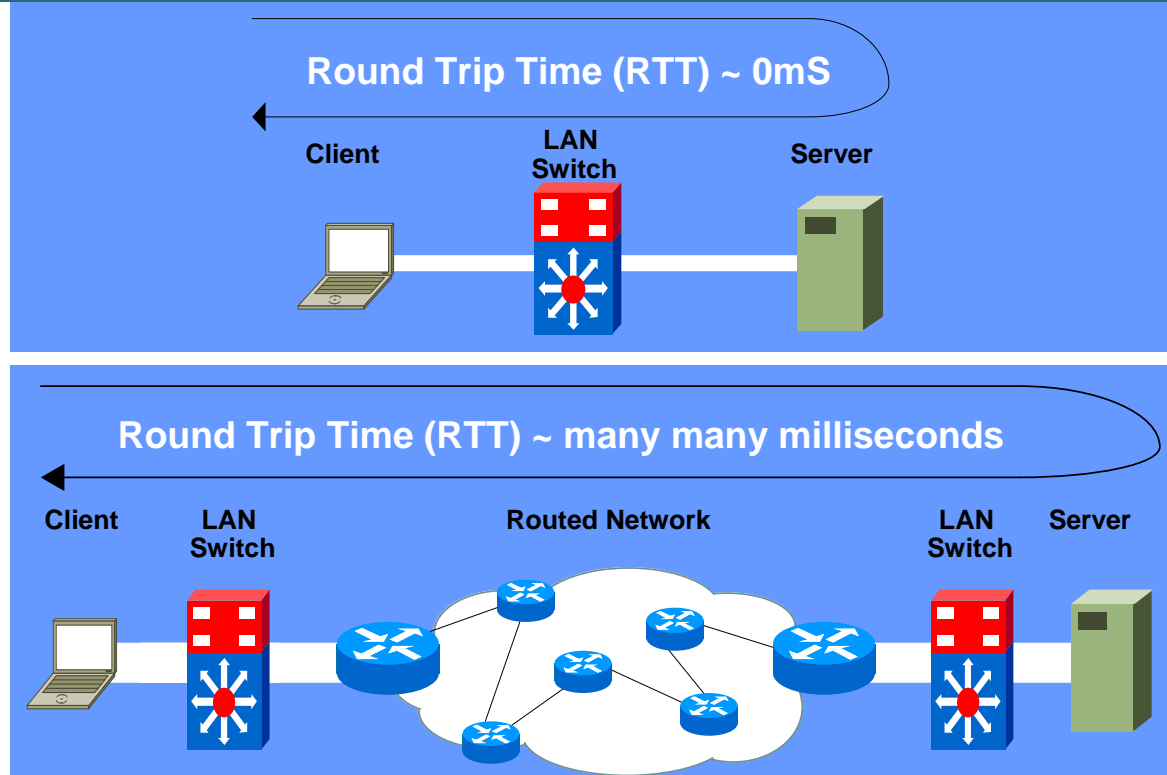


Design Goals:

- Fewer local servers / centralized storage + backup
- Continued LAN-level application performance
- Rapidly deploy new applications to complete enterprise
- Preserve services of existing network

The WAN is the Barrier to Branch Consolidation

- Applications are designed for LAN's
 - High bandwidth
 - Low latency
 - Reliability
- WANs have opposite characteristics
 - Low bandwidth
 - High latency
 - Packet Loss

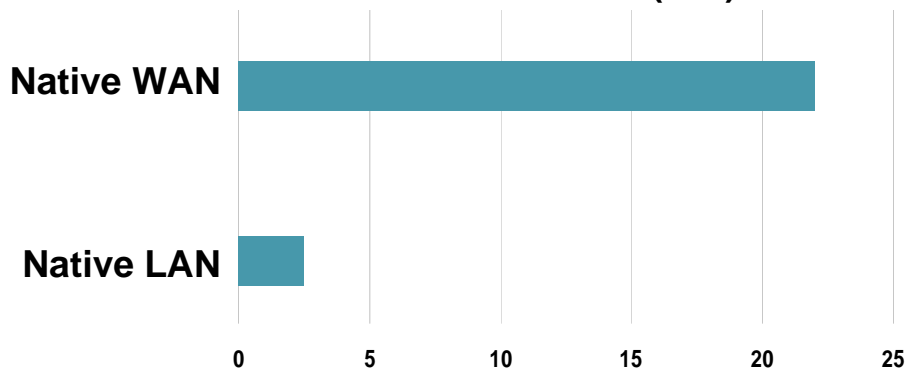


**WAN Packet Loss and Latency =
Very slow Application Performance =
Manage servers, storage, backup in branch offices**

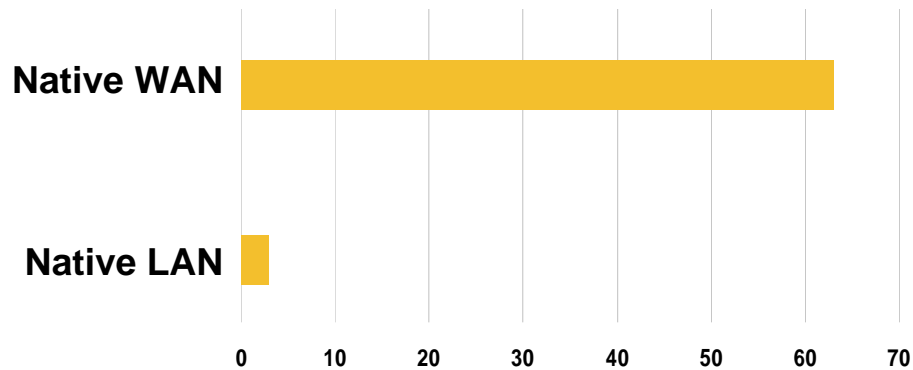
Example: Branch Application Performance

LAN vs. WAN Comparison

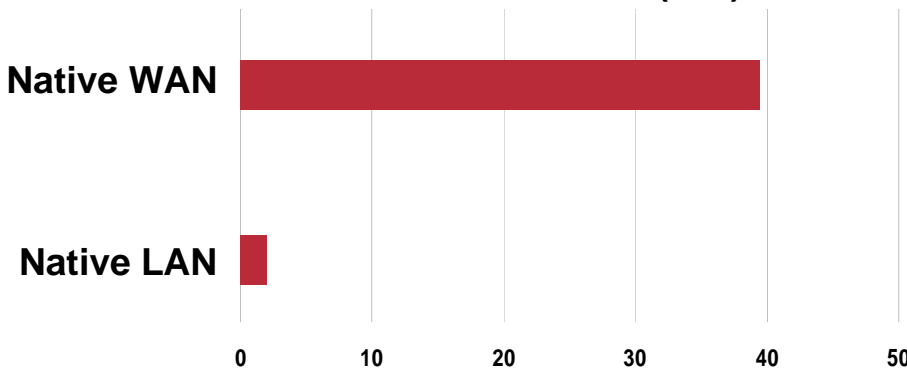
Word—Time to Open
1MB Word File (sec)



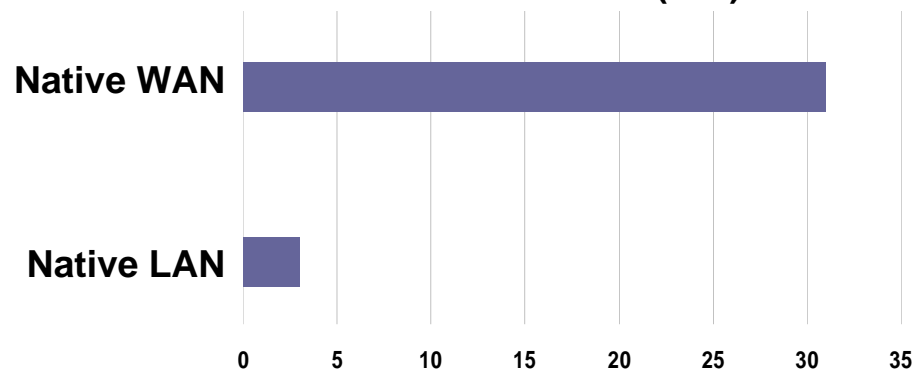
Word—Time to Save



Excel—Time to Open
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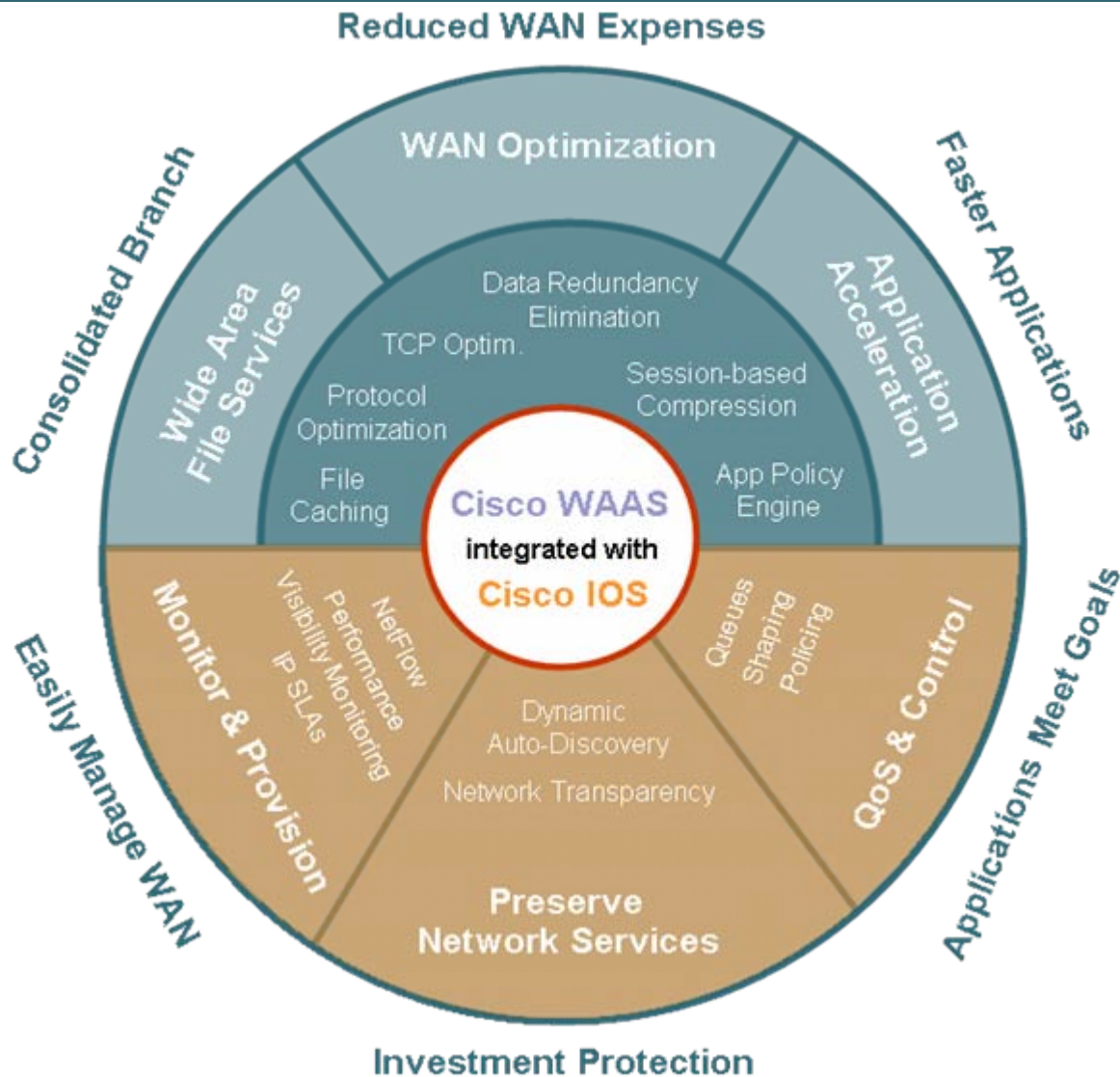
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Network Link—T1, 80ms Latency

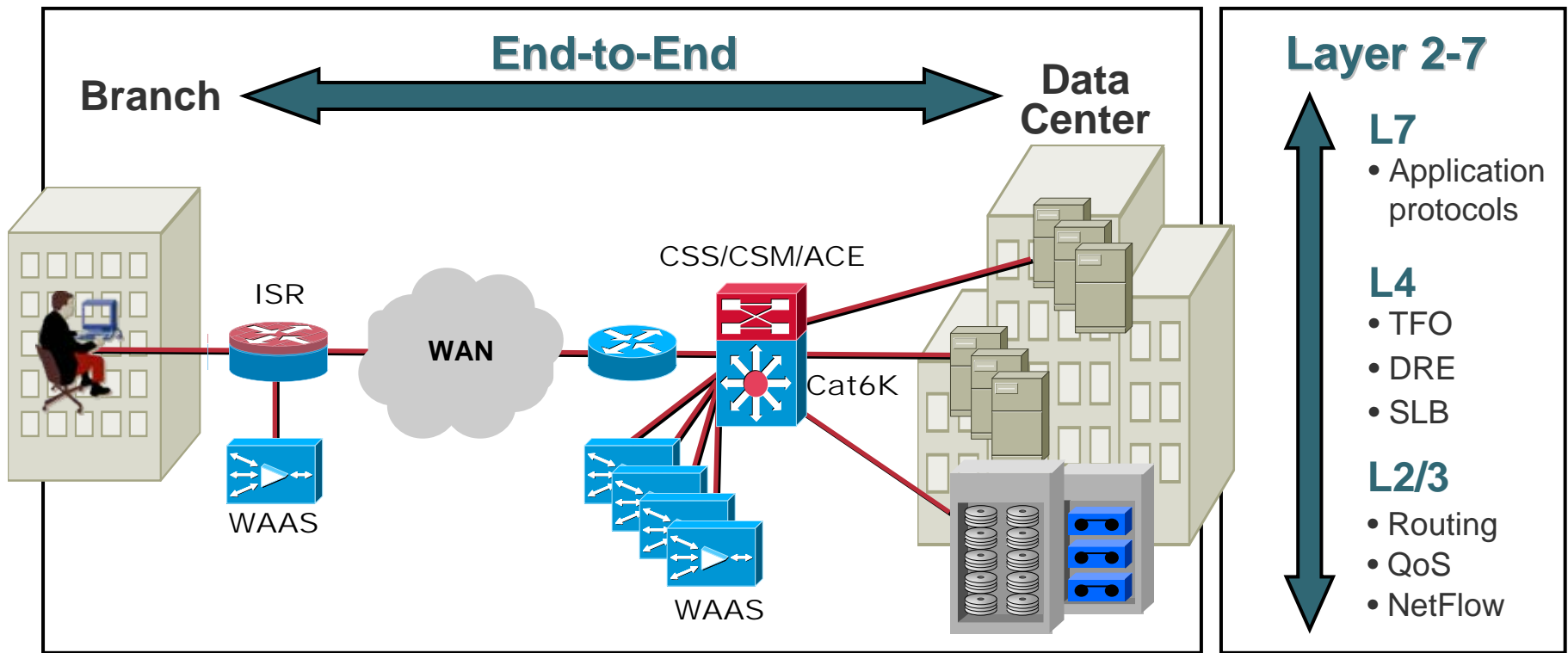
Cisco Wide Area Application Services (WAAS)

Complete WAN Optimization Solution



WAAS: Complete End-to-End Solution

From Data Center to Branch and L2 to L7

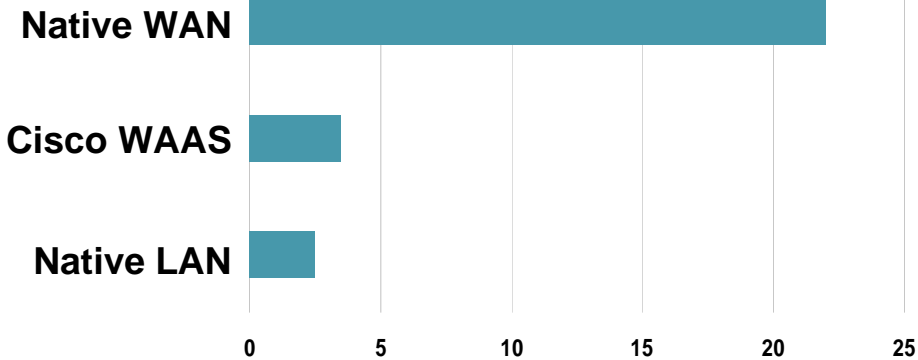


Deployments: 1 million+ ISRs, 10,000s of WAE's, 10 years of load balancers

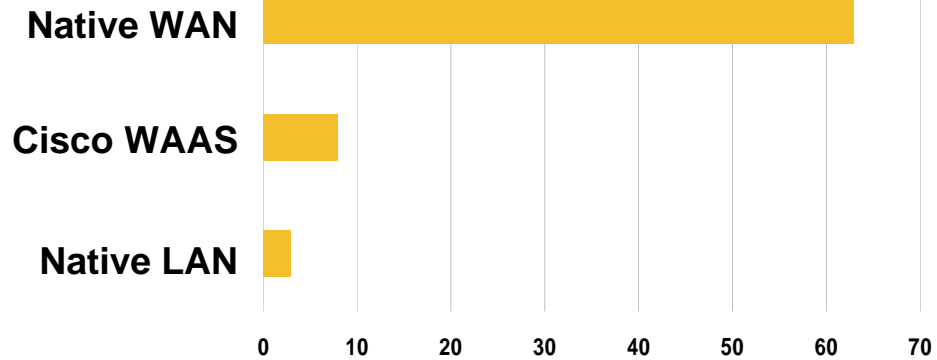
Example: Branch Application Performance

LAN vs. WAN vs. WAAS Accelerated WAN

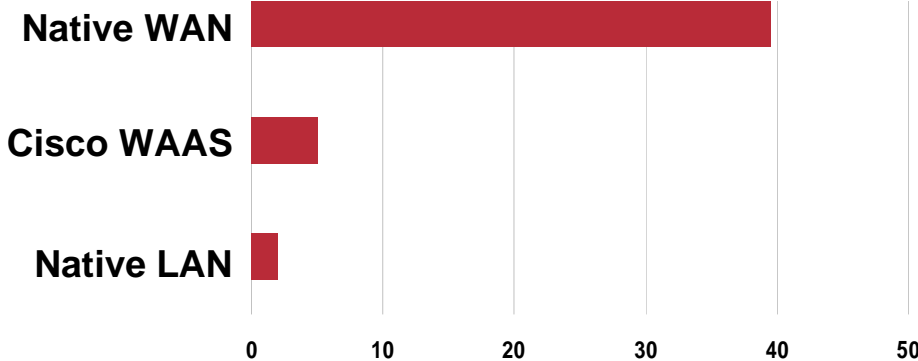
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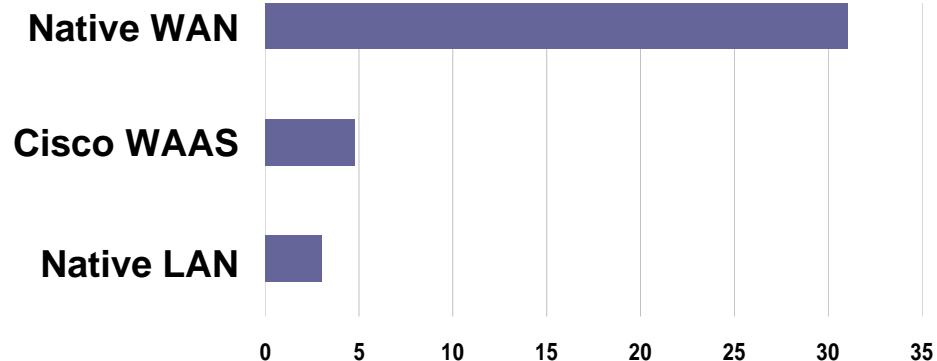
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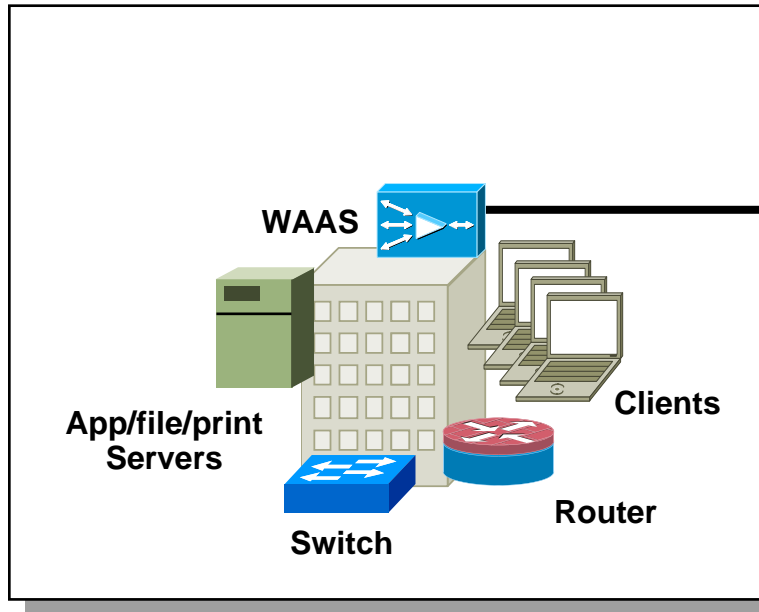
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Cisco WAAS = Near-LAN Speed Access to Applications in Data Centers

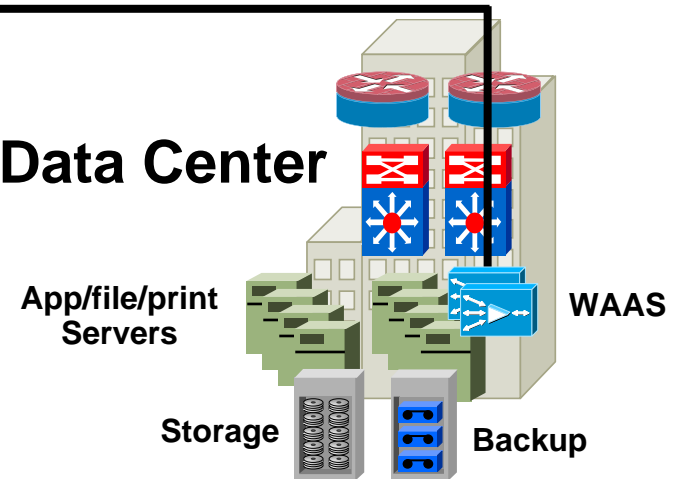
Cisco Vision: The Consolidated Branch

Consolidated Branch



WAAS = key enabler

Data Center



Design Goals:

- Fewer local servers, centralized storage + backup
- Continued high application performance
- Rapidly deploy new applications to complete enterprise
- Preserve services of existing network

Achieved

WAAS: High Customer Priority

Survey of Fortune 1000 CIO's

Storage Networking Technology Heat Index™

Wave 7
Spring 2006

Rank	Technology	Score
1	4 Gbps Fibre Channel (HBA)	100
1	Virtual Tape Library (VTL) for Open Systems Appliance	100
3	Wide Area File Services (WAFS / WADS)	87
4	Fabric-based Intelligence Volume Services Software	73
5	IP-based SAN Extension / Replication Appliance	69
6	Multi-protocol Switch (FC/IB/IP)	65
7	Boot from SAN / Boot from NAS / Boot from IP SAN Software	61
8	Remote Block Mirroring / Wide Area Replication (Async)	55
9	Remote File Mirroring / Wide Area Replication (Async)	52
10	Serial ATA Drives (SATA)	45
11	Virtual Fabrics (LSAN/VSAN) Switching	42
12	Block Replication / Snapshots / Single Point in Time (Sync)	36
13	TCP/IP Offload Engine (TOE)	35
14	Storage Security Appliance	31
15	File Replication / Snapshots / Single Point in Time (Sync)	29
16	NAS Gateways to the SAN Appliance	28
17	Fixed Content / Content Addressed Storage (CAS) Array	27
18	Embedded Switch in a Blade Chassis	23
19	10 Gbps Ethernet for Storage	18
20	Serial Attached SCSI Drives (SAS)	6
21	InfiniBand / Server Switch / Storage Grid Networking	3
22	IP SAN Storage Array	0

Methodology

The TIP Technology Heat Index™ is based on the immediacy of user need – their plans for each technology – and weighted by their Storage spending. The result is an effective measure of user "demand" for technology or, from a vendor's perspective, the relative size of the market opportunity.

The scores are normalized, so the top is 100 and the bottom is zero. These are NOT percentages. They show "relative demand."

See Page 232 for a complete description of how the Heat Index is calculated.

TIP Takes

- Virtual Tape Library (VTL) maintains its #1 position while showing a small decline in the Adoption Index as end users demand greater scalability, expandability and de-duplication functionality.
- Wide Area File Services jumps up to the #3 position as a key enabling technology for remote office backup centralization.

Customer Case Studies

Sabre

IT Challenge:

- Manage “server sprawl” at growing # of branches
- Performance for global Outlook + FTP + file share

Result:

- LAN-level performance while testing centralized Outlook servers
- In production in US, Europe, India, South America

ARPEGE

IT Challenge:

- Centralize file servers – from 5 locations to 1, 4700 branches
- Solve latency/WAN congestion
- No WAN increase + preserve user response times

Result:

- Load time: 10-20 secs
- TCO: centralized servers without increasing WAN bandwidth + data management efficiency

Cisco WAAS: Solution for Today's Branch

- **Addresses broad range of branch IT challenges**
 - Cost savings from servers and bandwidth
 - Maximize data protection and compliance
 - LAN-level application performance across WAN
- **Comprehensive and integrated technology set**
 - Application acceleration, WAN optimization and Wide Area File Services (WAFS)
 - L2 to L7 integration; Branch to Data Center solution
- **Seamless integration into existing IOS networks**
- **True enterprise performance, scalability and resiliency**
- **Comprehensive solution for consolidated branch**
 - Ecosystem partners for complementary capabilities
 - Cisco Professional Services and Global Technical Support

Malte Rademacher
regional marketing director
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ICT Expert LAN/WAN connections

DICTU- Ministry of Agriculture, Nature and Food quality

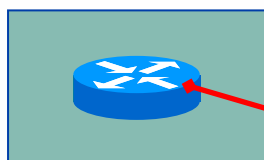


*Voedsel en groen
van internationale klasse*

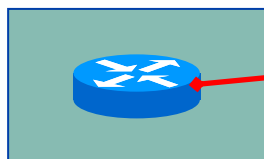


landbouw, natuur en
voedselkwaliteit





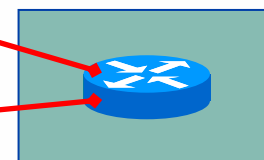
Utrecht



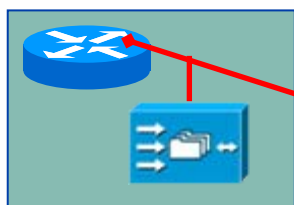
Driebergen

14 Mb ATM Connection

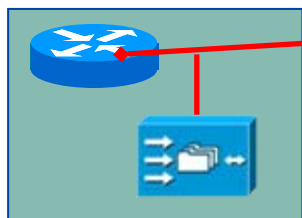
2 Mb T2000 Connection



Ede



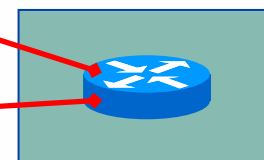
Utrecht



Driebergen

14 Mb ATM Connection

2 Mb T2000 Connection



Ede

Press Q&A

Thank You

CISCO SYSTEMS

