WAAS Update

WAAS 5.1 What's New
Citrix and Multi-Stream ICA
Enhanced Sharepoint
Enhanced vWAAS Support
Enhanced Auto-Deploy
WAAS Express 2.0

Mikkel Brodersen
Systems Engineer

27 February 2013

WAAS 5.0 Release Highlights

New Central Manager

- iPad Ready
- Visibility without Agents
- Immersive

Secure Applications

- Encrypted Exchange (beta)
- Enhanced SSL
- ICA enhancements

SMB v2.X

- Native
- Signing

WAAS Express 2.0

- SSL Support
- WAN Failover
- Upstream DRE

AppNav

- Cluster Virtualization
- Scale as you grow
- Simple Management

WAAS 5.1 – New Features

Enhanced Citrix

- MSI Support
- QoS
- Dynamic DSCP Marking
- Improved VDI Performance

Enhanced SharePoint

- Enhanced Acceleration
- Improved User Experience

vWAAS

- VM Hypervisor 5.0
- UCS-E Half Slot and Full Slot

Enhanced Auto-Deploy

- Automate WAAS installation
- Simplified device configuration

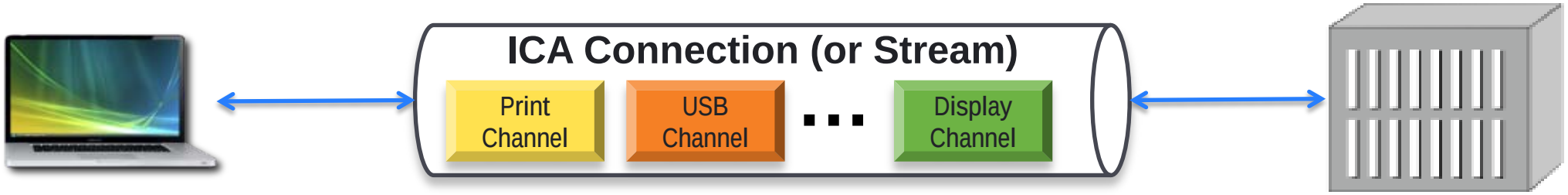
WAAS 5.1: Enhanced Citrix and Multi-Stream ICA (MSI)

New Feature Support

- Multi-stream ICA (MSI) Support
- QoS Support for ICA MSI and non-MSI Streams
- Enhanced ICA/CGP Optimization

Citrix ICA enables VDI

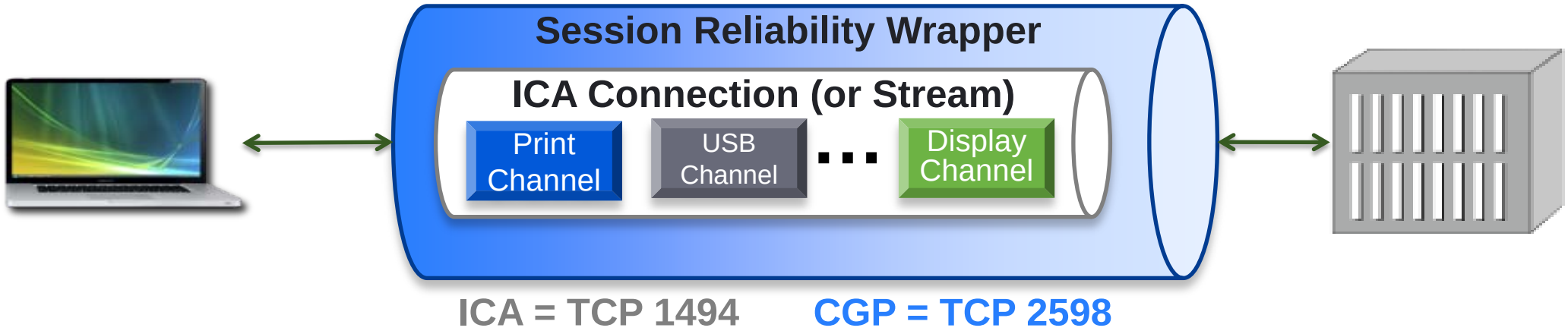
WAAS optimizes all channels within the ICA stream



- Single TCP connection (Stream) per ICA Client
- Citrix Proprietary Encryption
- All ICA virtual channels inside the single stream.
- Network based QoS cannot be applied to individual ICA virtual channels

Session Reliability (aka CGP)

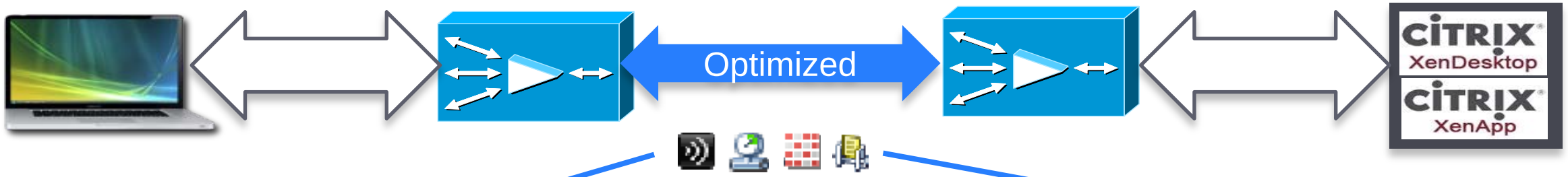
Improves session persistence over the WAN



- Session Reliability encapsulates ICA inside another Citrix protocol called CGP
- This is a “Default” Citrix Setting, Required for Multi-Stream ICA
- WAAS improves CGP over the WAN.

Understanding the Citrix ICA Handshake with WAAS

WAAS transparently interoperates with Citrix Protocols



WAAS transparently inserts itself into the Citrix communication.

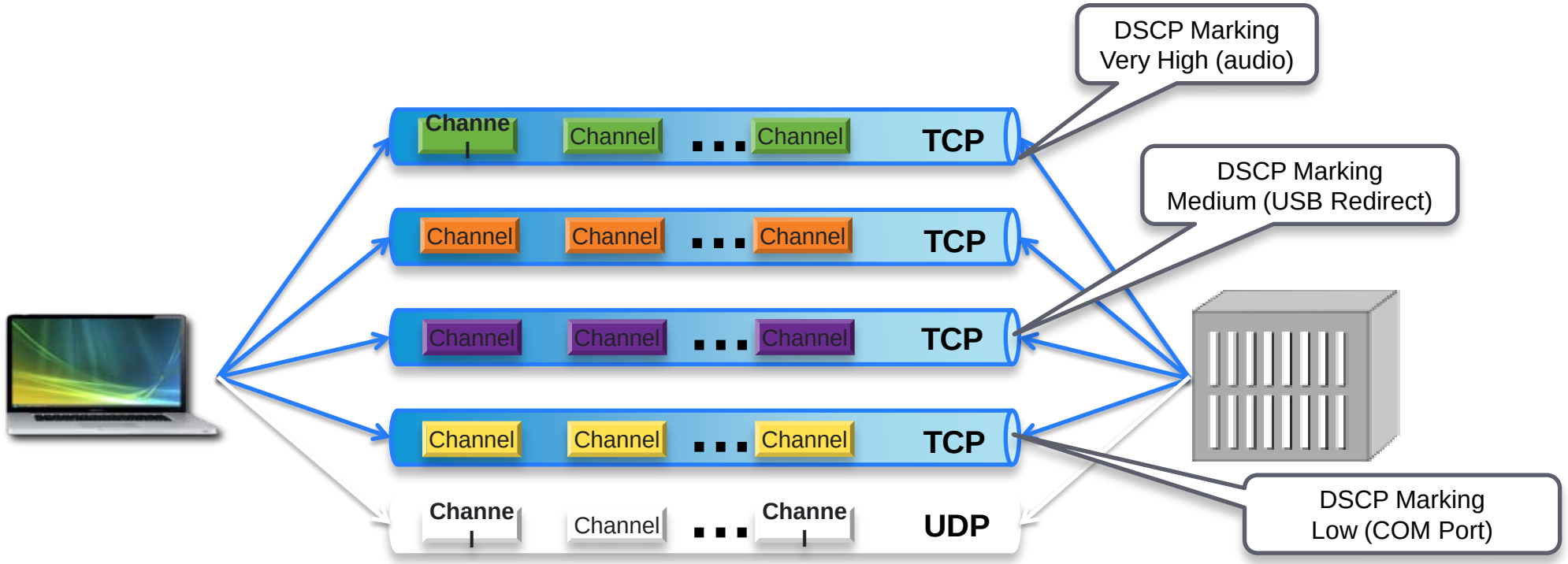
WAAS applies TCP flow optimization to maximize bandwidth usage and mitigate packet loss.

WAAS applies inline compression algorithm over the optimized data, maximizing savings

WAAS delivers Citrix Aware Redundancy Elimination that removes redundant data from across **all** end user connections.

Multi-stream ICA (MSI) Splits a User into 5 Streams

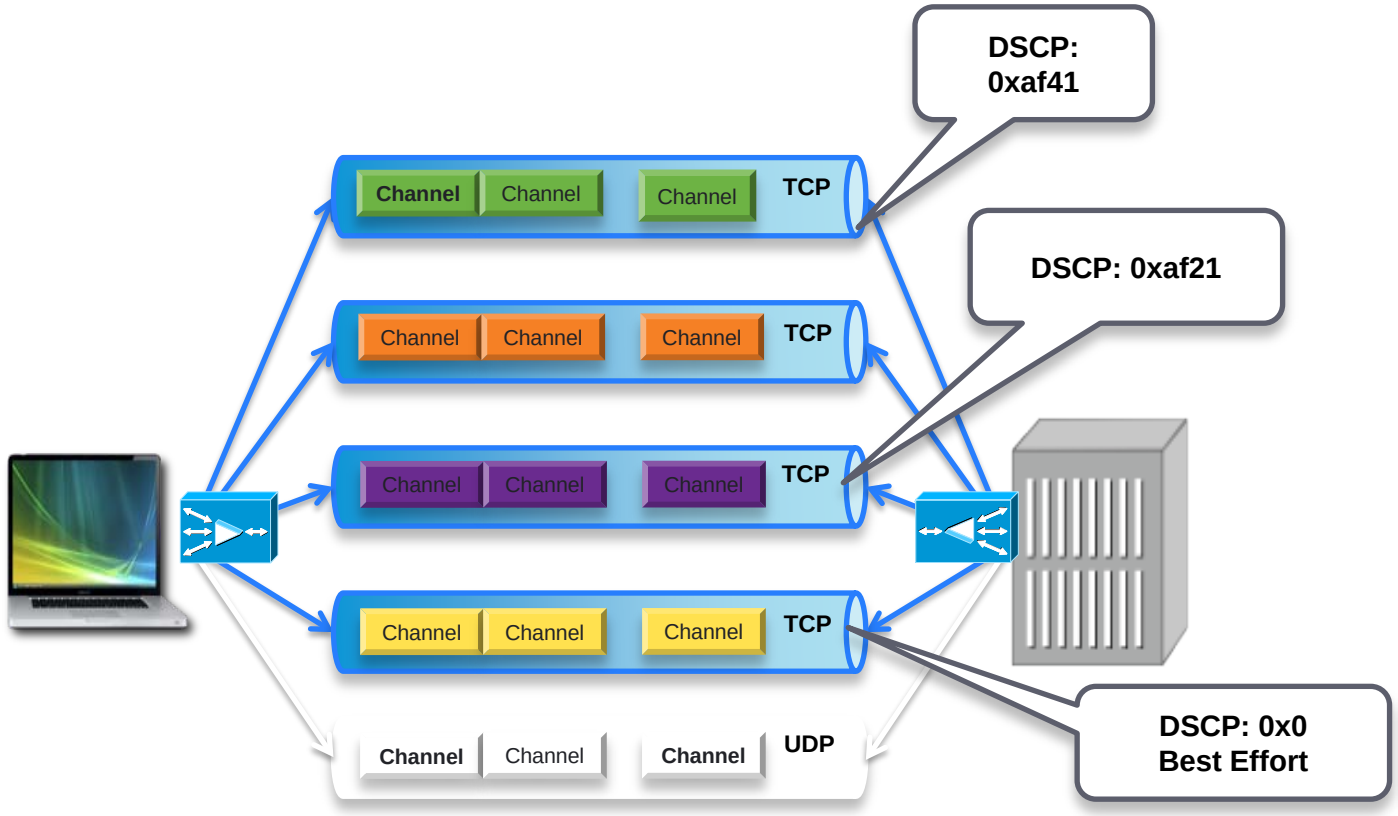
MSI is disabled by default in Citrix today



- Enabling Multi-Stream ICA on WAAS automatically enables it through Citrix.
- WAAS automatically optimizes channels which use separate TCP connections.
- WAAS can dynamically apply DSCP markings to match Citrix Priorities.

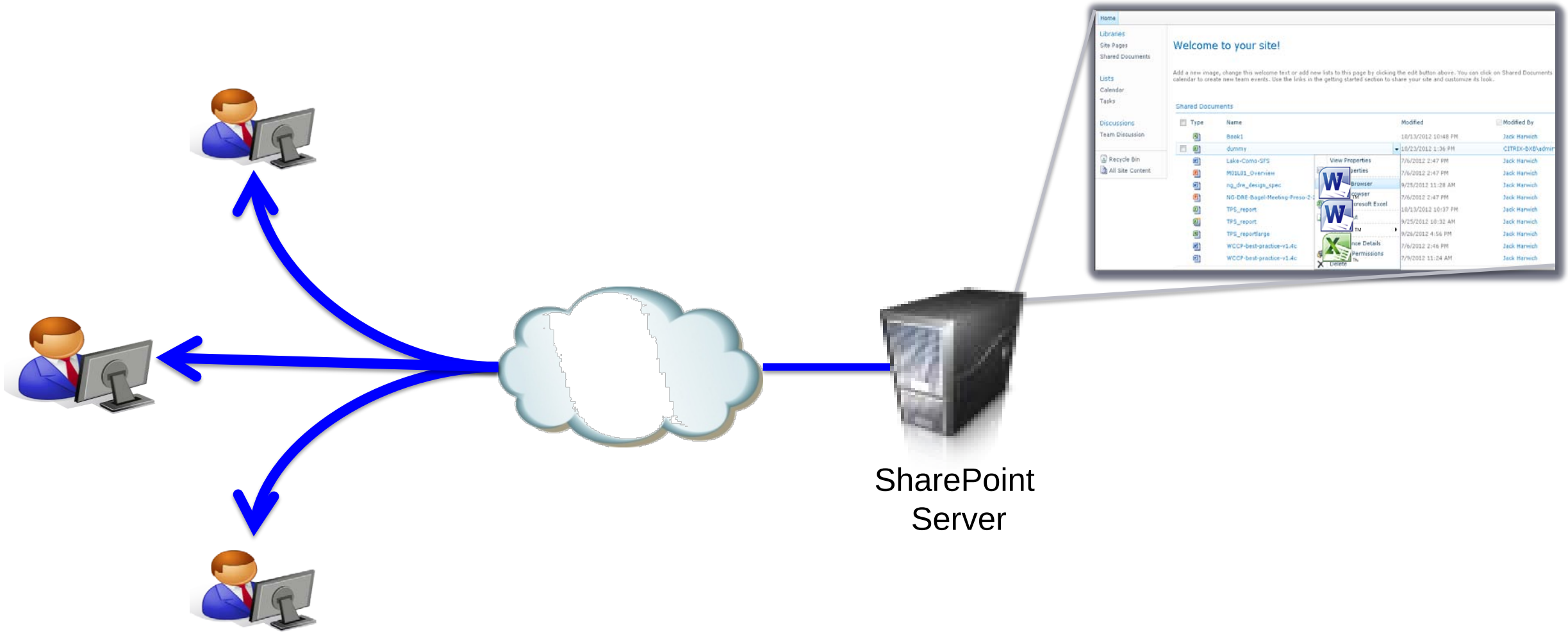
QoS Support for MSI and non-MSI streams

- WAAS can be enabled to implement Differentiated Service Code Point (DSCP) tagging of both MSI and non-MSI ICA and CGP traffic.
- Once enabled, WAAS will interpret the MSI stream type for the TCP connection and enable the appropriate DSCP value.
- The user will be able to enable or disable tagging MSI or non-MSI traffic as well as to define different values for the MSI and non-MSI traffic.



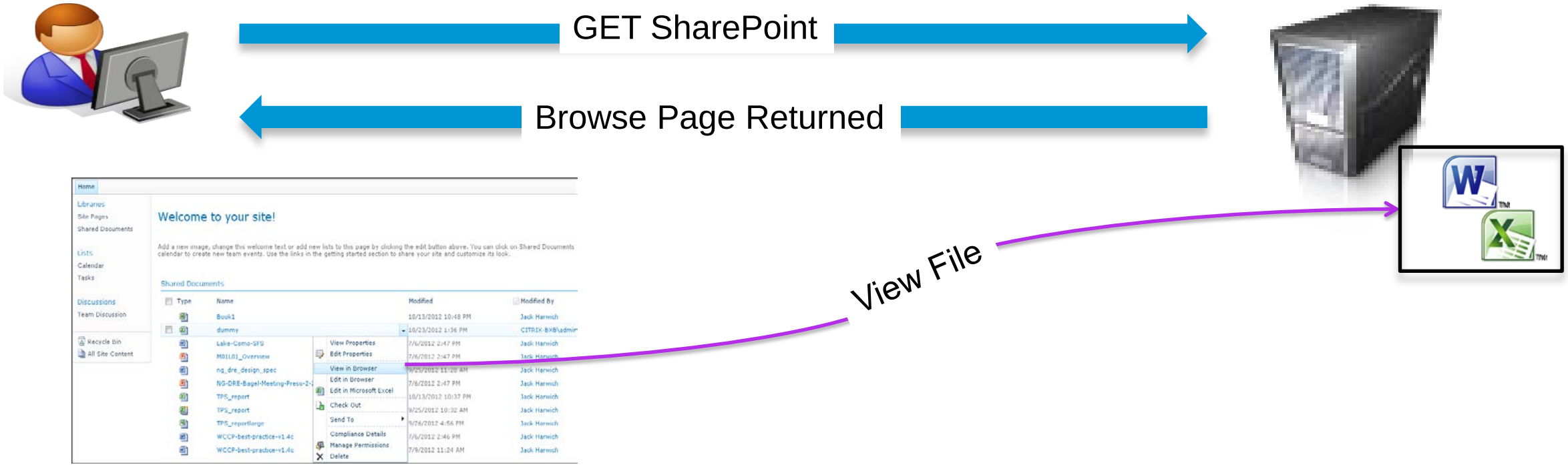
WAAS 5.1: Enhanced SharePoint

SharePoint Browsing for Better Collaboration

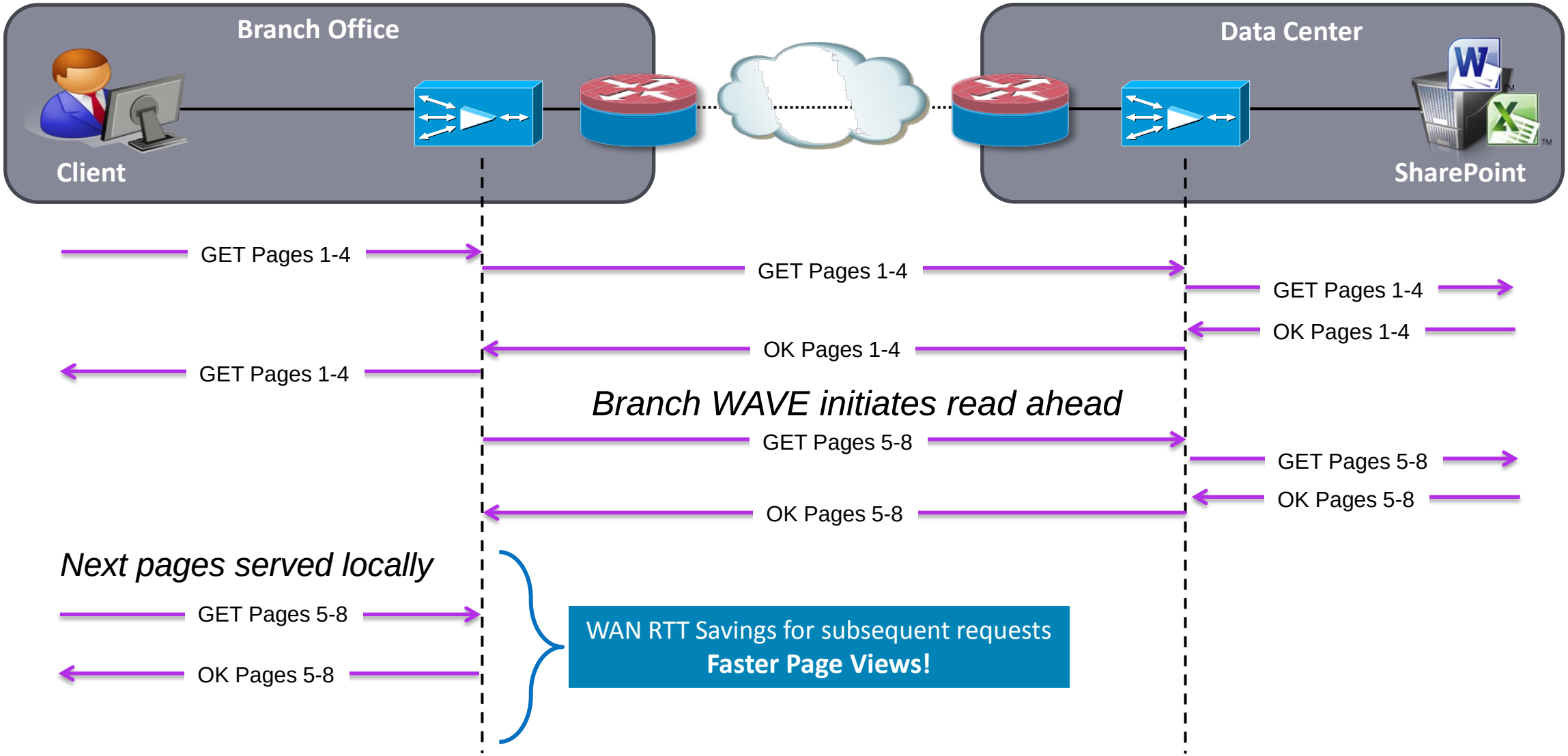


- Like many centralized applications, network performance is key to a successful deployment of SharePoint

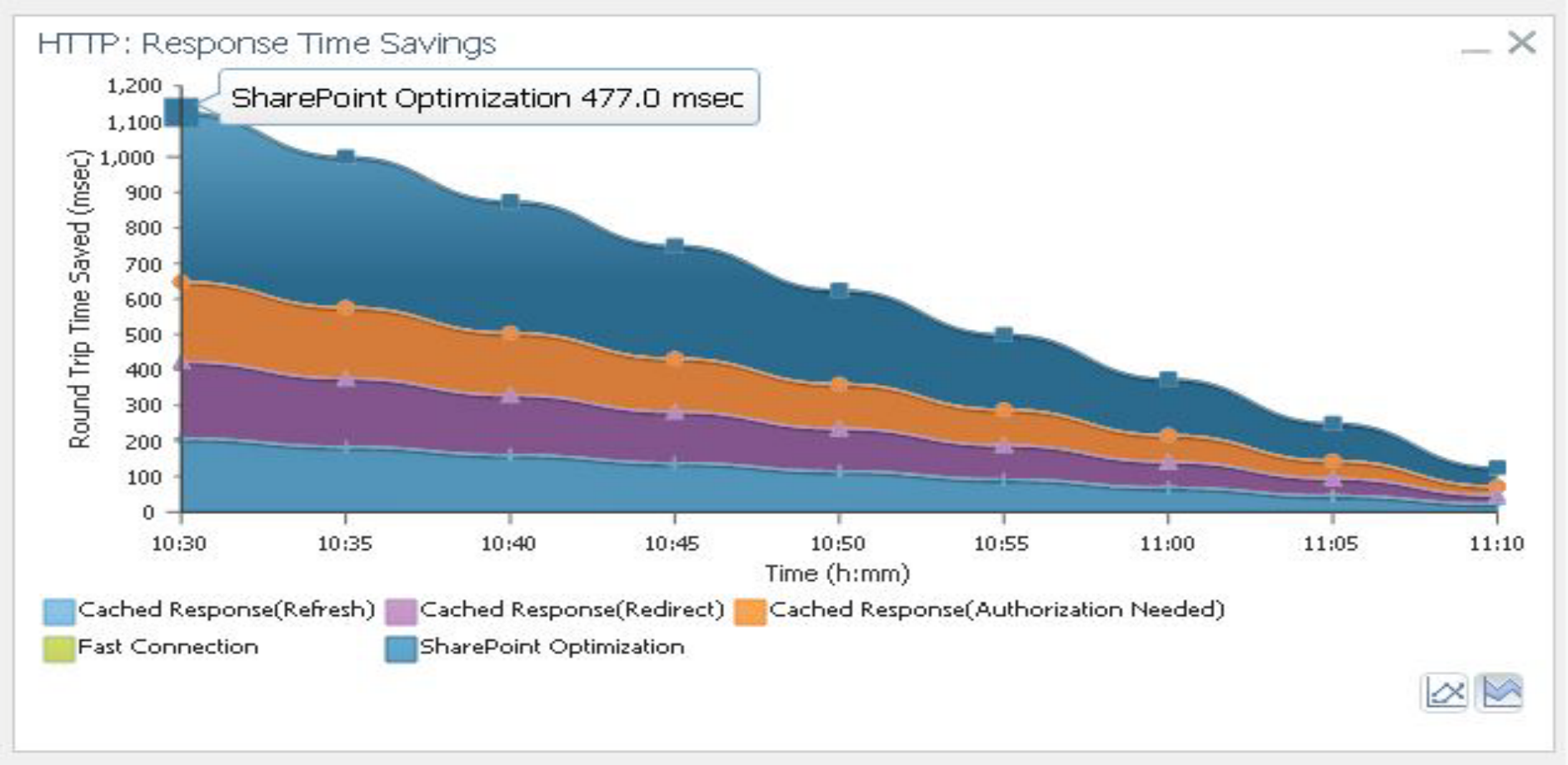
Optimized SharePoint Browsing



Reduce Latency for SharePoint Browsing



SharePoint Response Time Savings

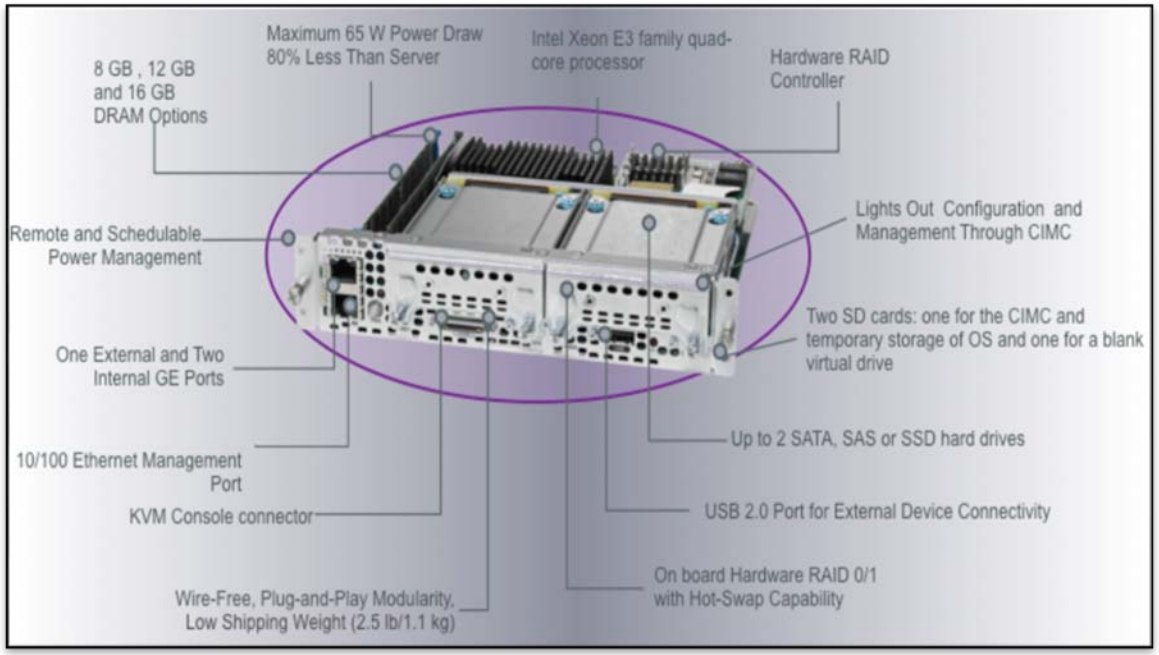


The Response Time Savings will include SharePoint Optimization savings

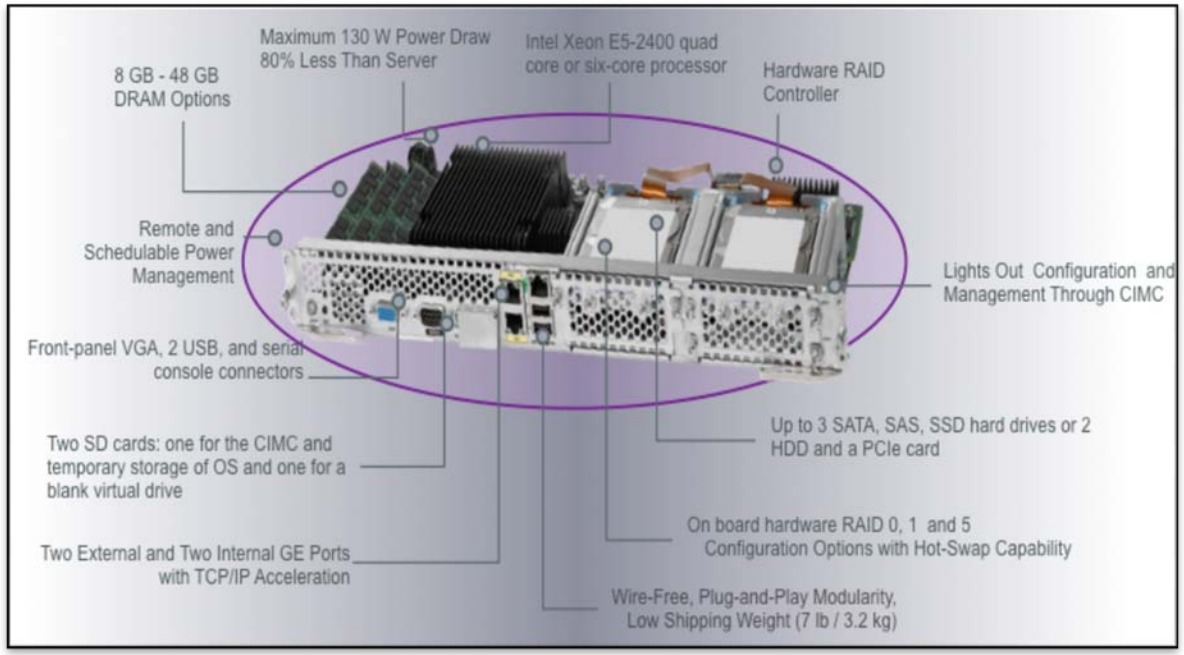
WAAS 5.1: Enhanced vWAAS Support

Compact Compute Platform

UCS-E Single Wide



UCS-E Double Wide



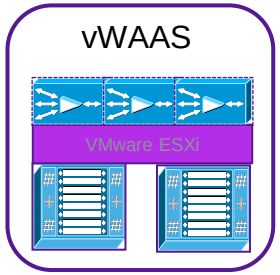
- New high performance server blades for ISR G2
- Supports multiple vWAAS platforms

Hardware Comparison Matrix (UCS E-Series)

	 UCS-E140S	 UCS-E140D(P) / UCS-E160D(P)
Processor	Intel Xeon (Sandy Bridge) E3-1105C (1 GHz)	Intel Xeon (Sandy Bridge) E5-2428L (2 GHz) / E5-2418L (1.8 GHz)
Core	4	4 / 6
Memory	8 - 16 GB DDR3 1333MHz	8 - 48 GB DDR3 1333MHz
Storage	200 GB- 2 TB (2 HDD) SATA, SAS, SED, SSD	200 GB- 3 TB (3 HDD*) SATA, SAS, SED, SSD
RAID	RAID 0 & RAID 1	RAID 0, RAID 1 & RAID 5*
Network Port	Internal: 2 GE Ports External: 1 GE Port	Internal: 2 GE Ports External: 2 GE Ports PCIE Card: 4 GE or 1 10 GE FCOE

Extending Virtualization of WAAS to UCS-E

- For the 5.1 release, WAAS will run on the VMware 5.0 Hypervisor

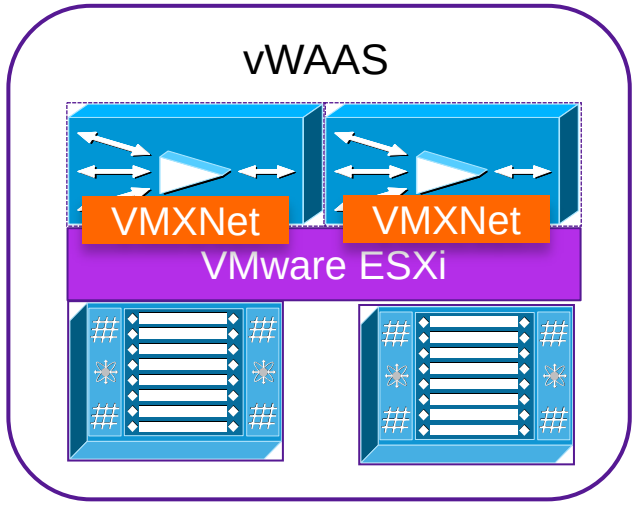


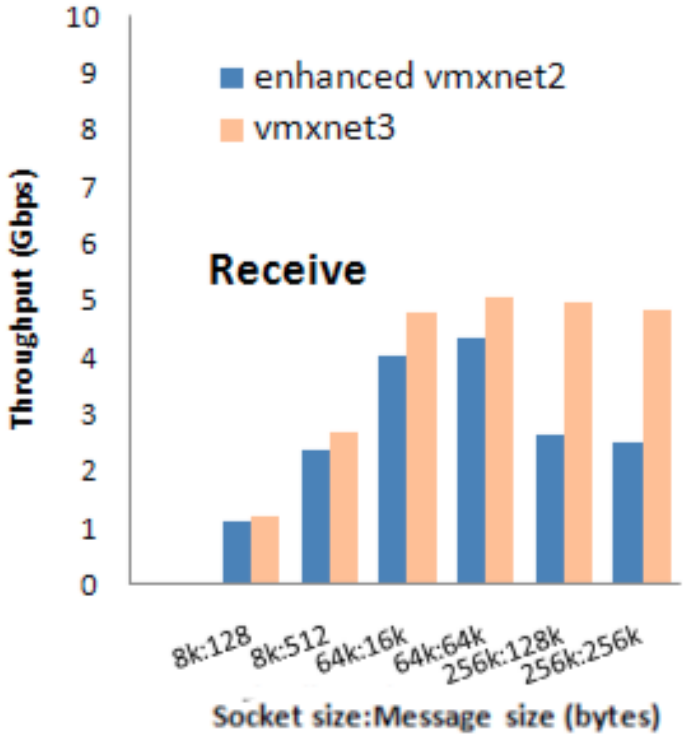
- For UCS-E, both single and double wide slot models are supported

- For UCS-E, VMware 5.0 is required, UCS-E does not support earlier versions of ESXi

Note, WAAS 5.1 can run on ESXi 4.1 on other hardware

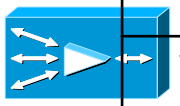
Higher Performance on vWAAS using VMXNet





- The VMXNET virtual network adapter has no physical counterpart.
- VMXNET is optimized for performance in a virtual machine.
- VMware Tools must be installed to have a driver for the VMXNET network adapter available.

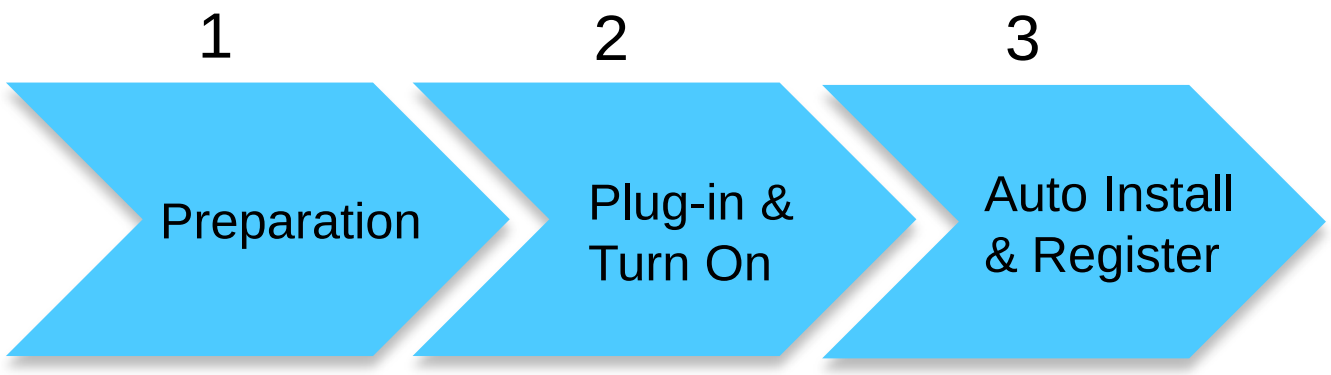
Low to High Capacity for WAAS and UCS-E

Model	Up to Connections	RAM (GB)	Disk (GB)	CPUs	Target WAN Throughput	Remaining Single Wide	Remaining Double Wide
 vWAAS-200	200	2	160	1	10 Mbps	Cores: 3 Memory: 14GB Disk: 840 GB	Cores: 5 Memory: 46 GB Disk: 1.84 TB
 vWAAS-750	750	4	250	2	50 Mbps	Cores: 2 Memory: 14GB Disk: 750 GB	Cores: 4 Memory: 44 GB Disk: 1.75 TB
 vWAAS-6000	6000	8	500	4	200 Mbps	Cores: 0 Memory: 8 GB Disk: 500 GB	Cores: 2 Memory: 40 GB Disk: 1.5 TB

- Cisco vWAAS can run on either the single wide or double wide UCS-E cards.
- UCS-E has significant resources available after vWAAS is supported.

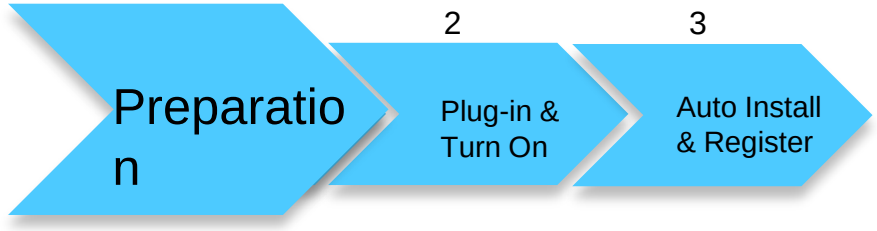
WAAS 5.1: Enhanced Auto-Deploy

Simple as 1, 2, 3 with Auto Deploy

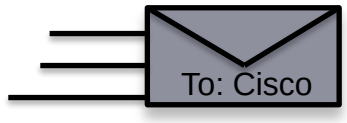


- Auto Deploy is a simple process designed to:
  - Significantly reduce time and OPEX spent at remote sites
  - Enable rapid deployment of WAN Optimization system

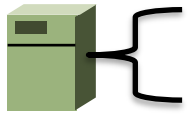
Simple as 1, 2, 3 with Auto Deploy



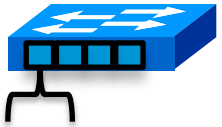
- Order WAAS for remote site
- Update DHCP & DNS for central manager name
- Configure switch/router for WAAS device



DHCP/DNS

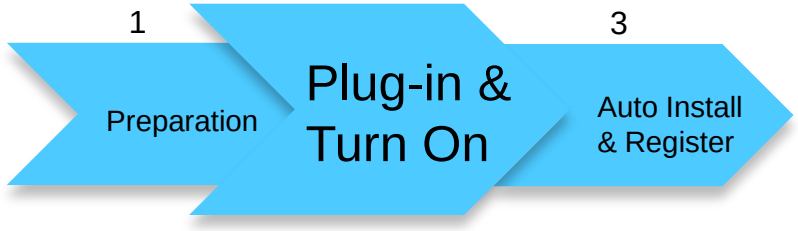


waas-cm.customer.com
IP Address: 10.1.1.1

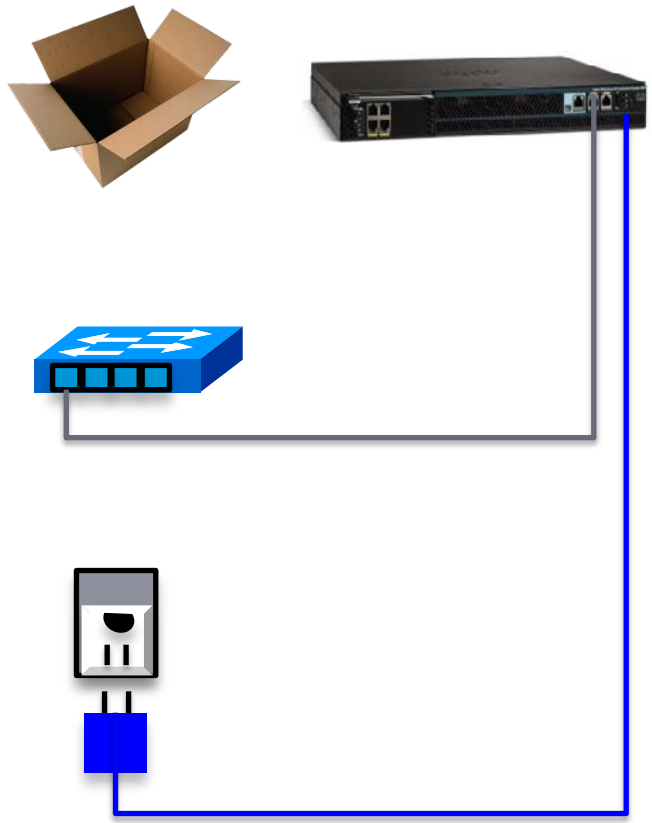


GE1 for WAAS

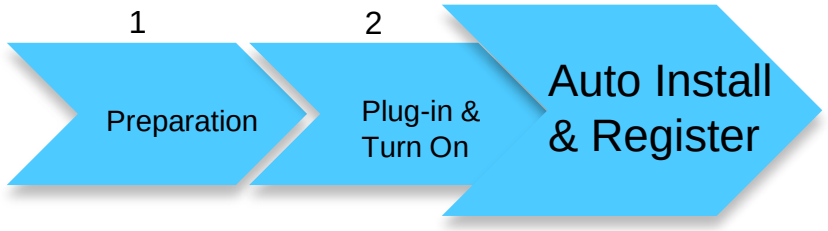
Simple as 1, 2, 3 with Auto Deploy



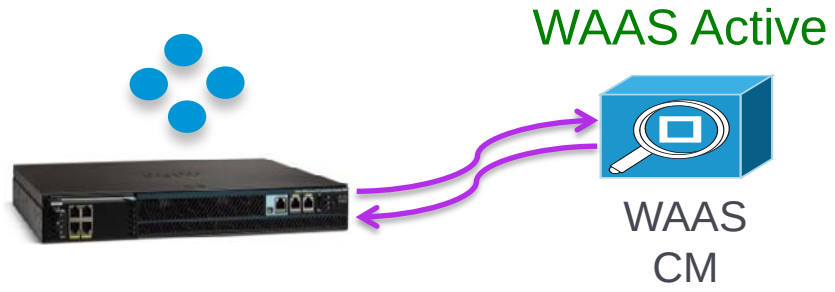
- Unpack the WAAS device and mount
- Connect WAAS to the network
- Plug it in and push “ON”



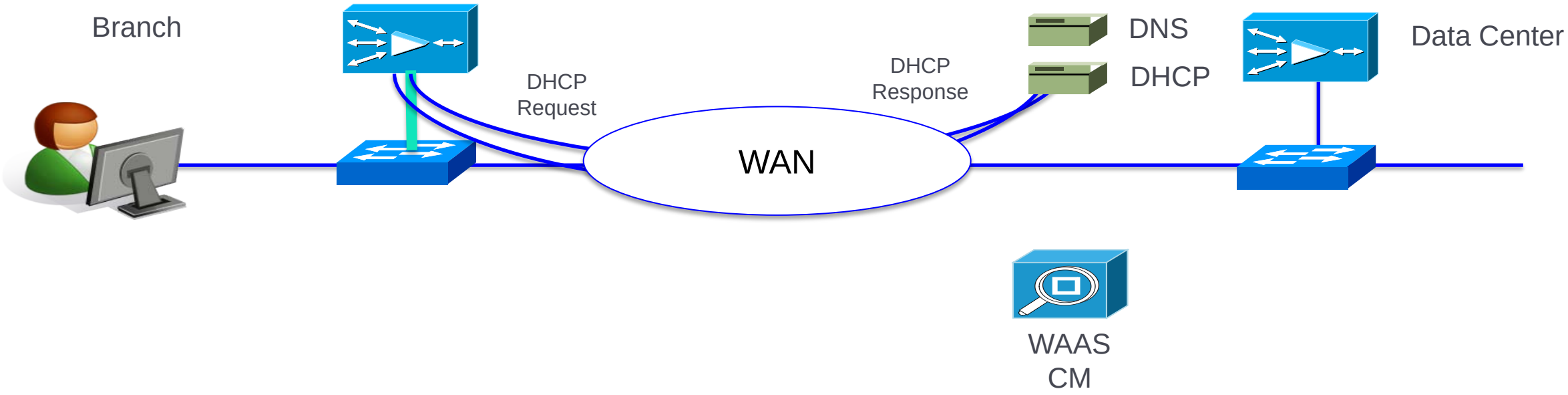
Simple as 1, 2, 3 with Auto Deploy



- WAAS begins auto installation
- Installation process completes
- WAAS registers to the Central Manager

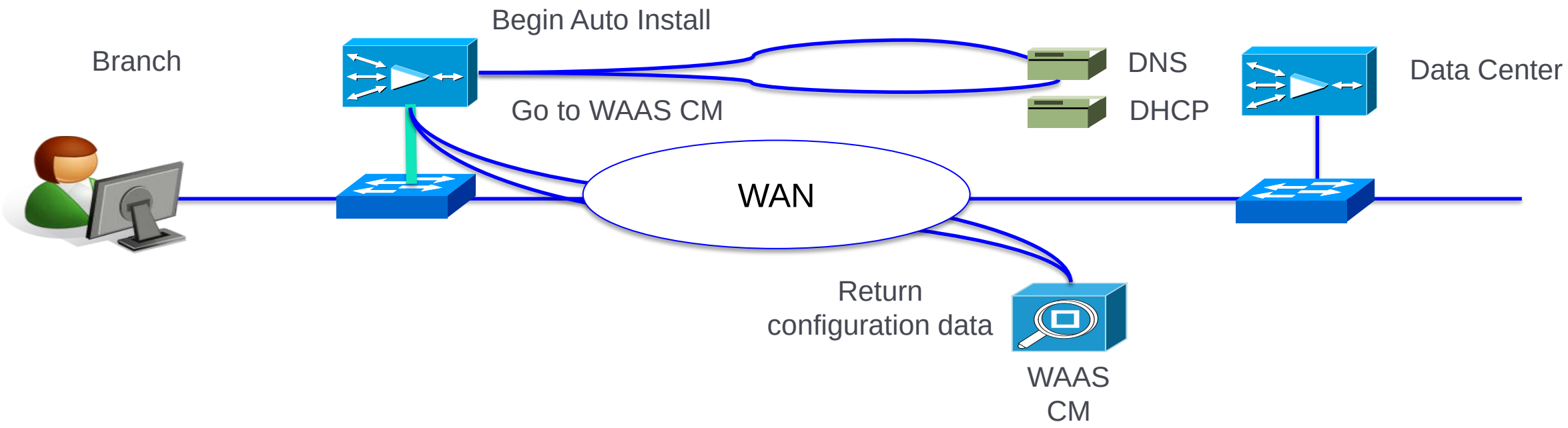


Fast Setup with Auto Deploy



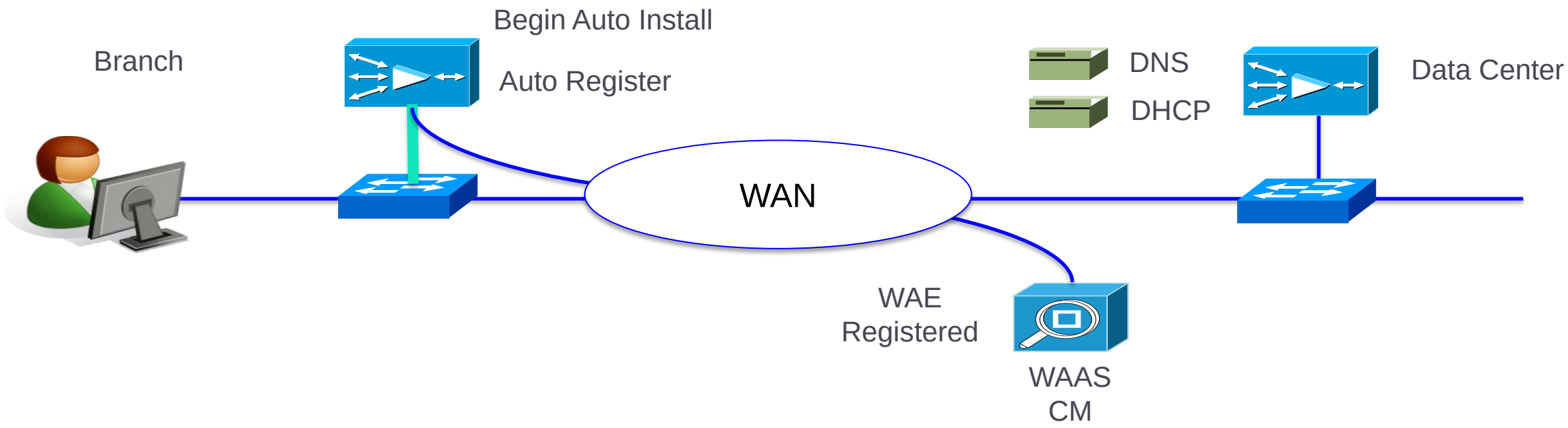
- WAAS Device Shipped to Branch and plugged in
- WAAS Obtains DHCP address upon boot up

Fast Setup with Auto Deploy



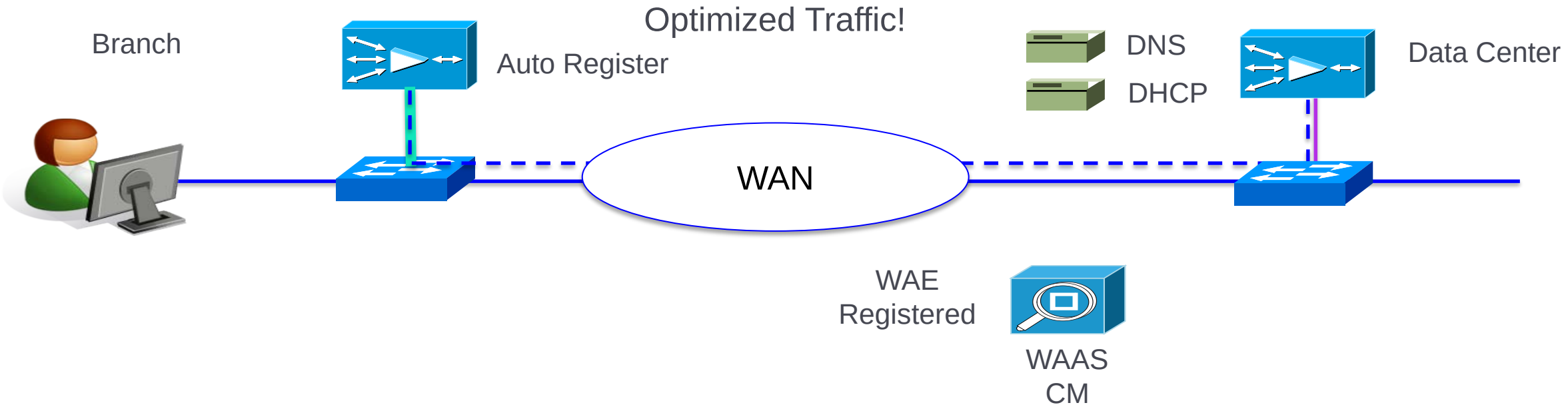
- IP address of CM obtained by DNS
- WAAS device pulls data from CM
- WAAS Auto Installation starts

Fast Setup with Auto Deploy



- WAAS Auto Registers to the WAAS CM

Fast Setup with Auto Deploy



- WAAS auto-discovers other devices and begins optimizing traffic

Additional Enhancements

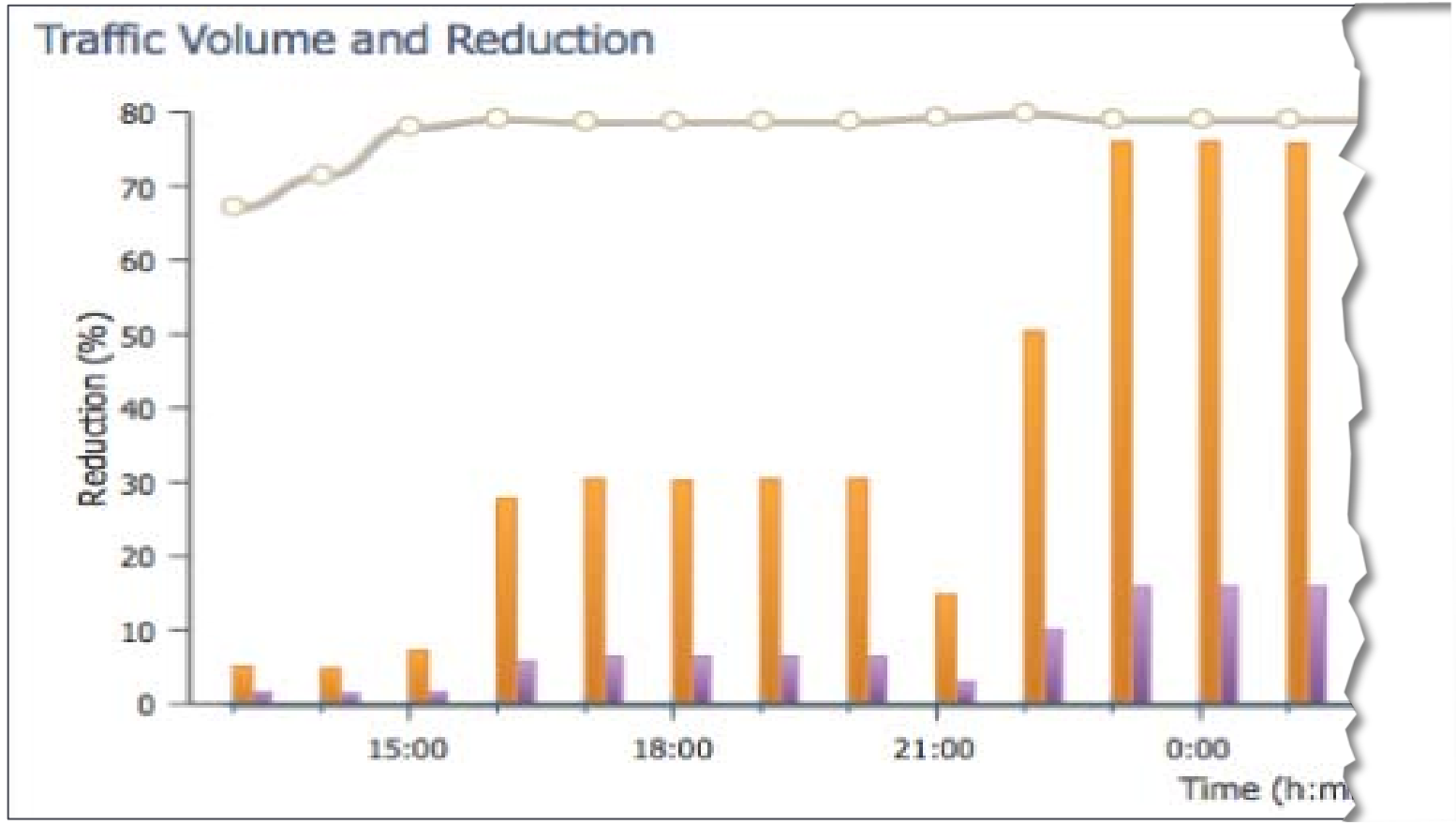
Additional Enhancements

In addition to the the features discussed previously, the following are available in release 5.1

- Enhanced performance support for SMB clients running on Mac OS
- Secure Copy Protocol (SCP) added for secure copy of sysreport files and tech-support output
- Multiple CLI commands added for improved usability

New!

App-Vendor Validated Performance



SAP® Certified
Integration with SAP NetWeaver®

*Source: SAP certification report #18665830

WAAS Express 2.0

What's new in WAAS Express 2.0

IOS 15.2(3)T Available Now

Encrypted Application Support

Optimization of Web Applications Requiring SSL/HTTPS:

- Oracle
- SAP
- MS SharePoint
- Office 365
- SalesForce.com
- Many Others…

Superior Bandwidth Optimization

Reduce Bandwidth Usage:

- Upload Compression
- Multiple WAN Link support

Extended Optimization:

- Microsoft File Services
- Web Apps

Embedded Performance Visibility

Branch Performance Monitoring & Analytics:

- No Agents Required
- No Probes Required

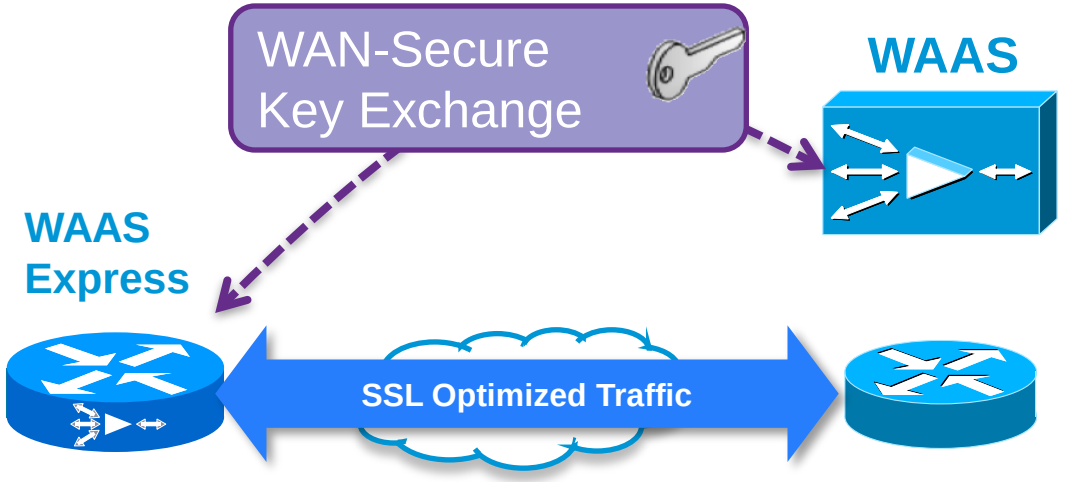
Extended MIBs:

Simplified, Powerful WAN Optimization statistics

Encrypted Application Support

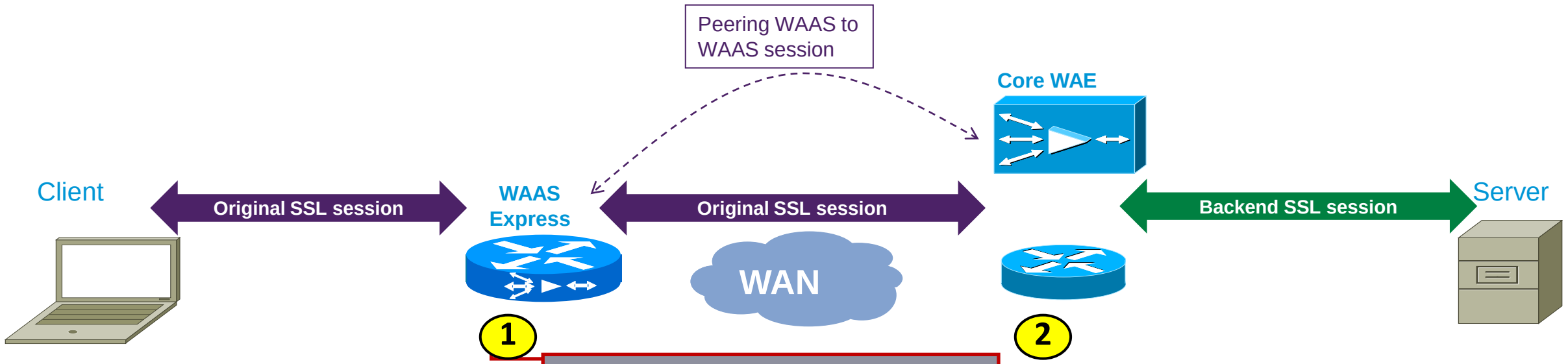
Support for Native SSL and HTTPS Web Applications

- Uses the proven and efficient Cisco WAAS SSL Infrastructure
- Enabled by default if SECK9 license is present.
- SSL Server Key and Certificates never need to be loaded in WAAS Express.
- Dynamic learning and forwarding of SSL session keys from WAAS
- Simple configuration via the WAAS Central Manager
- Utilize Hardware processing on VPN-ISM module for higher performance (1941, 29xx, 39xx)



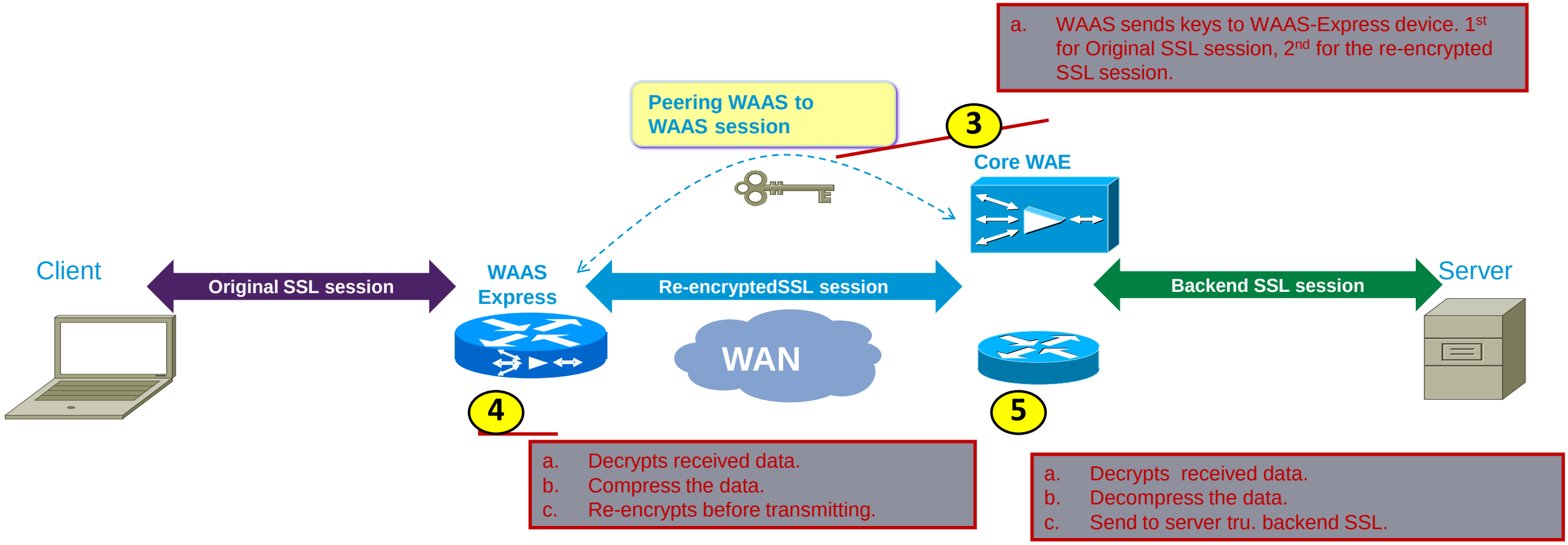
SSL Express acceleration

Handshake phase



SSL Express acceleration

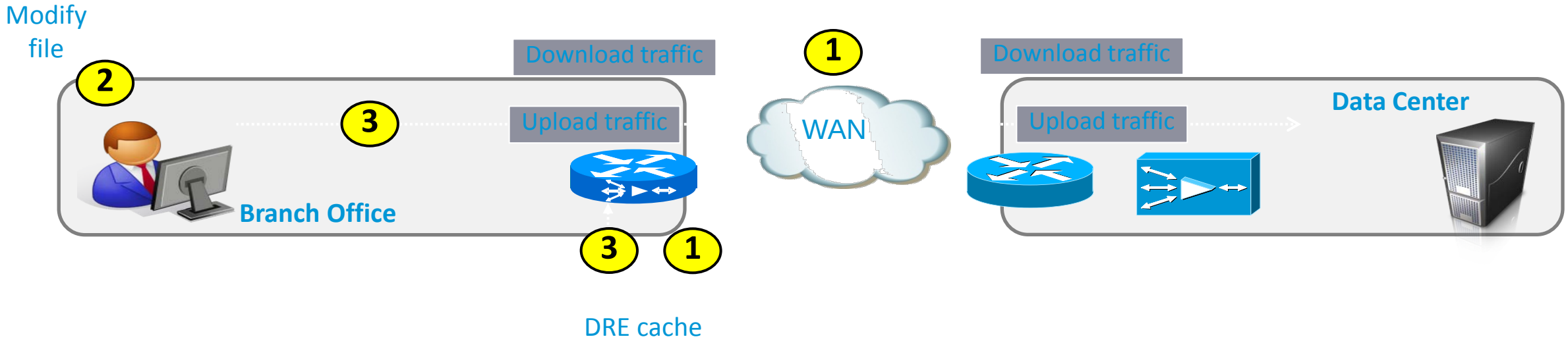
SSL optimization



Superior Bandwidth Optimization

DRE and LZ on Upload and Download

- Bi-Directional optimization enables better compression for typical branch office tasks
- Enabled by default, no configuration required.



Web Application Extended Optimization

Challenges

- BW consumption
- Slow page load

Solutions

- Intelligent DRE
  - DRE hints
  - Server compression offload
- Local HTTP responses
  - Metadata cache

Benefits

- Double the bandwidth for WEB applications
- Improve application performance

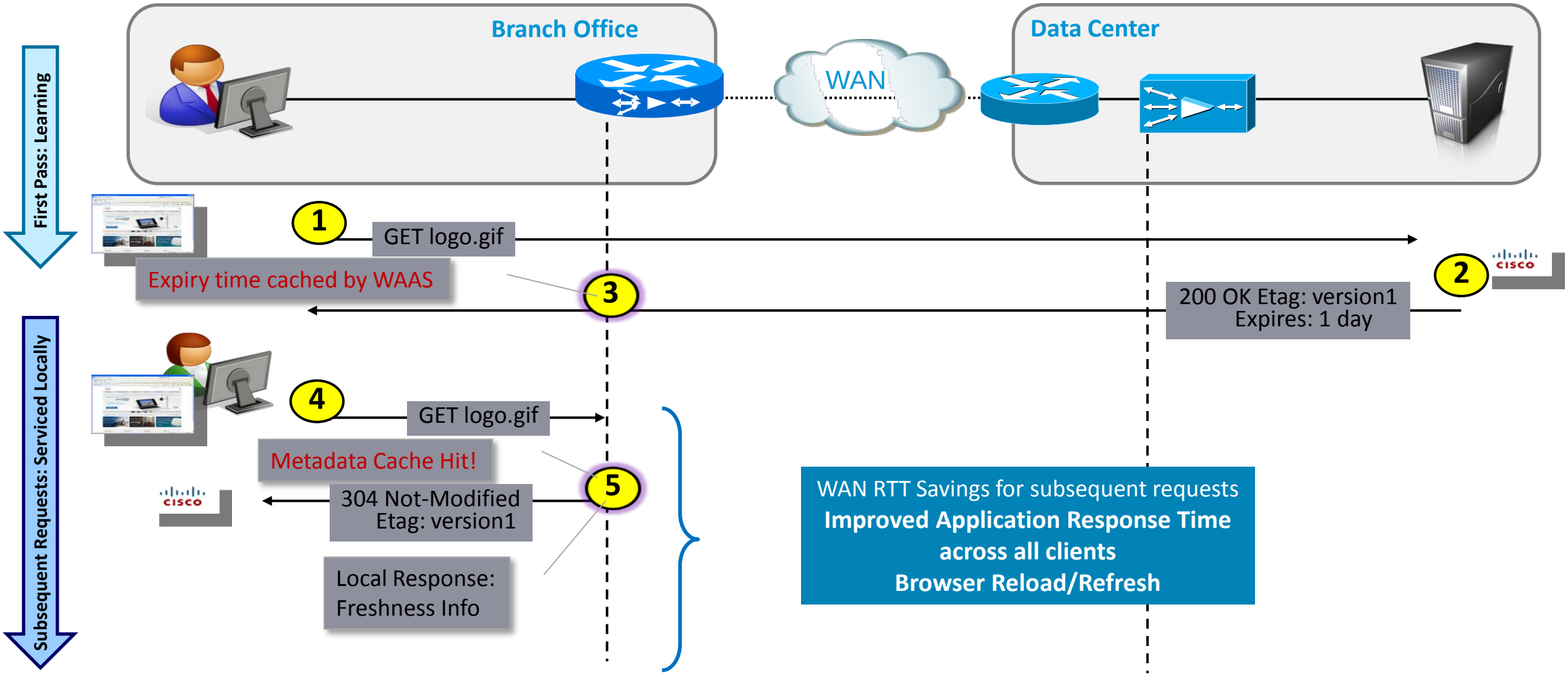
Server Compression Offload

- Removes ‘Accept-Encoding’ Header from HTTP Requests
- Helps achieving a better compression rate on the HTTP response
- Compression is performed by WAE DRE rather than by server
- Can be enabled/disabled by user

Data Pattern Hints

- Better performance, longer history
- Application Aware DRE and LZ

Mitigate latency using conditional response



Microsoft File Services Extended Optimization

Challenges

- "chatty protocol"
- WAN's high latency, packet loss, & low BW diminishes Server access

Solutions

- Data Pattern Hints
- File Type Intelligence,
- Read Ahead
- Metadata Caching

Benefits

- Improve BW consumption
- Mitigates latency due to CIFS request/response

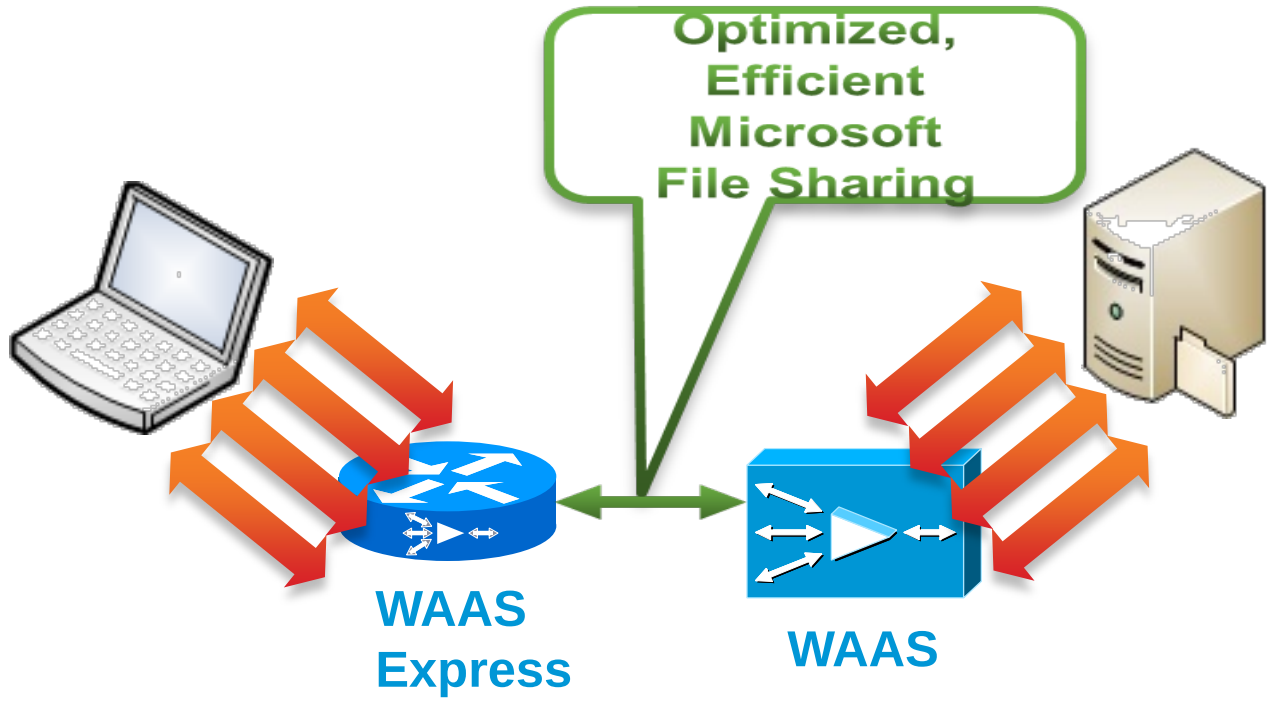
Superior Bandwidth Optimization

Extended Optimization: CIFS Application Support

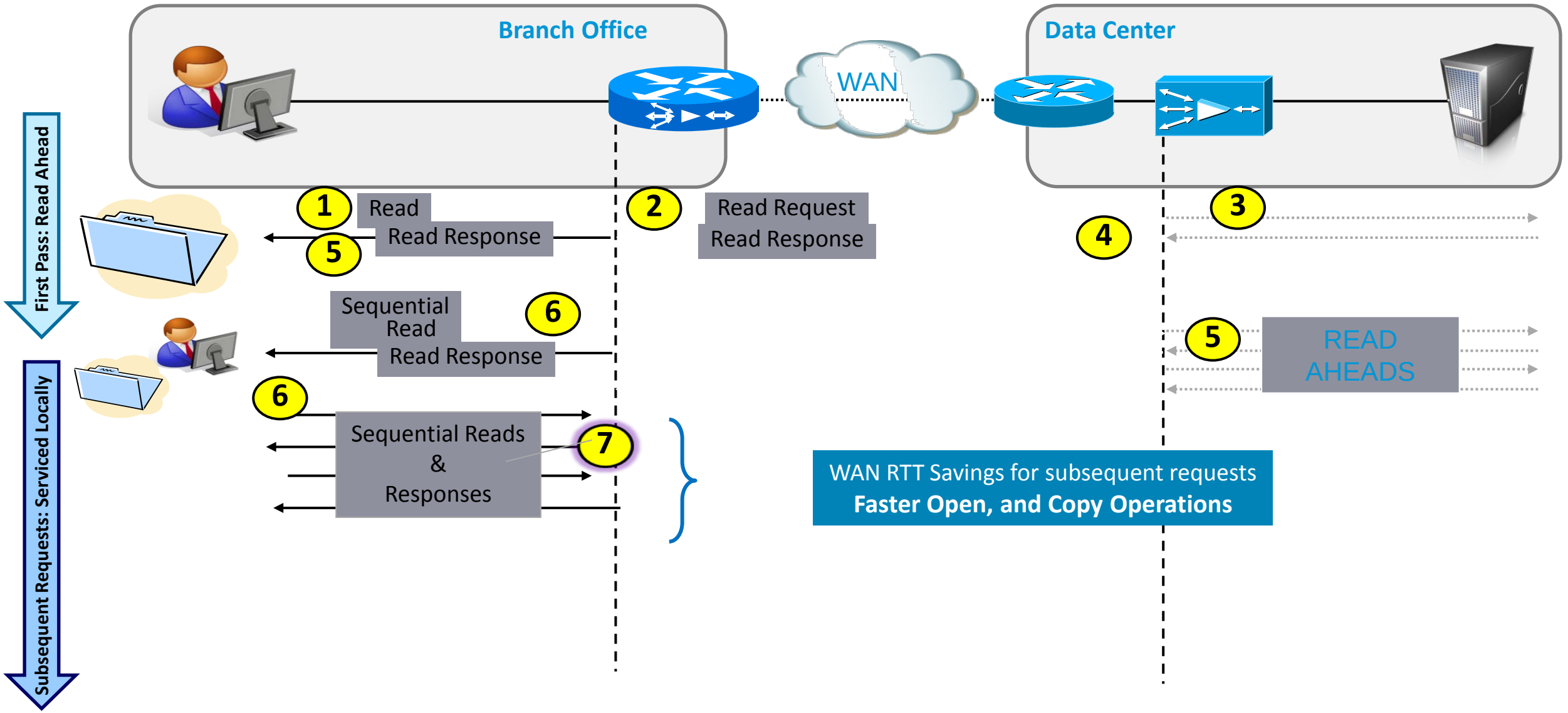
- Data Pattern Hints – Better performance, longer history.
- File Type Intelligence, Read Ahead, Metadata Caching
- Targeted for inefficient CIFS / SMBv1 traffic
- Interoperates with WAAS

  appliance CIFS and

  SMB Optimizers



CIFS Express Read Ahead



Thanks!