



Optical WAN Migration

How Cisco IT Migrated US WAN to Optical Edge Router Platform



A Cisco on Cisco Case Study: Inside Cisco IT

Overview

- Challenge - WAN Growth

 - Traffic growth, new applications drove Cisco® to higher WAN speeds

- Solution - Cisco 7600 Series Router for high-speed WAN

 - Cisco 7600 Series supports OC-12, STM-4, with good features, performance, migration path

- Results - Cisco 7600 Series now backbone of global WAN

 - 10 pairs of Cisco 7600 Series routers deployed globally
 - WAN availability at all-time high in 2003 (99.999%)

Overview (Contd.)

- Next Steps - Cisco 7600 Series supports new WAN technologies
 - MPLS VPN, QOS, SSM support added easily

Challenge: WAN Growth

- WAN utilization was growing rapidly

Average total utilization across global WAN links doubling every 9 months

OC-3 between San Jose and RTP nearing 50% utilization in 2002

- New peer-to-peer applications being added

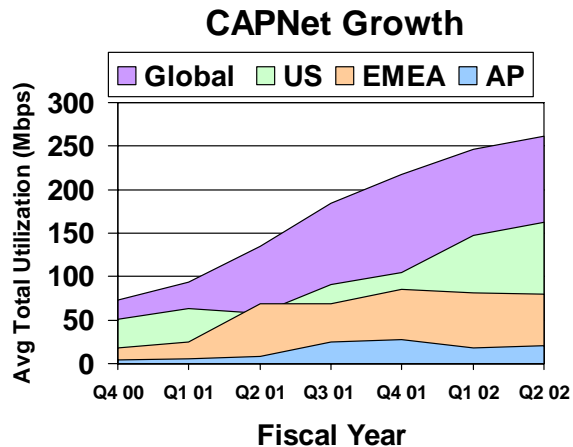
IP telephony

IP video

E-working/collaboration tools

Challenge: WAN Growth (Contd.)

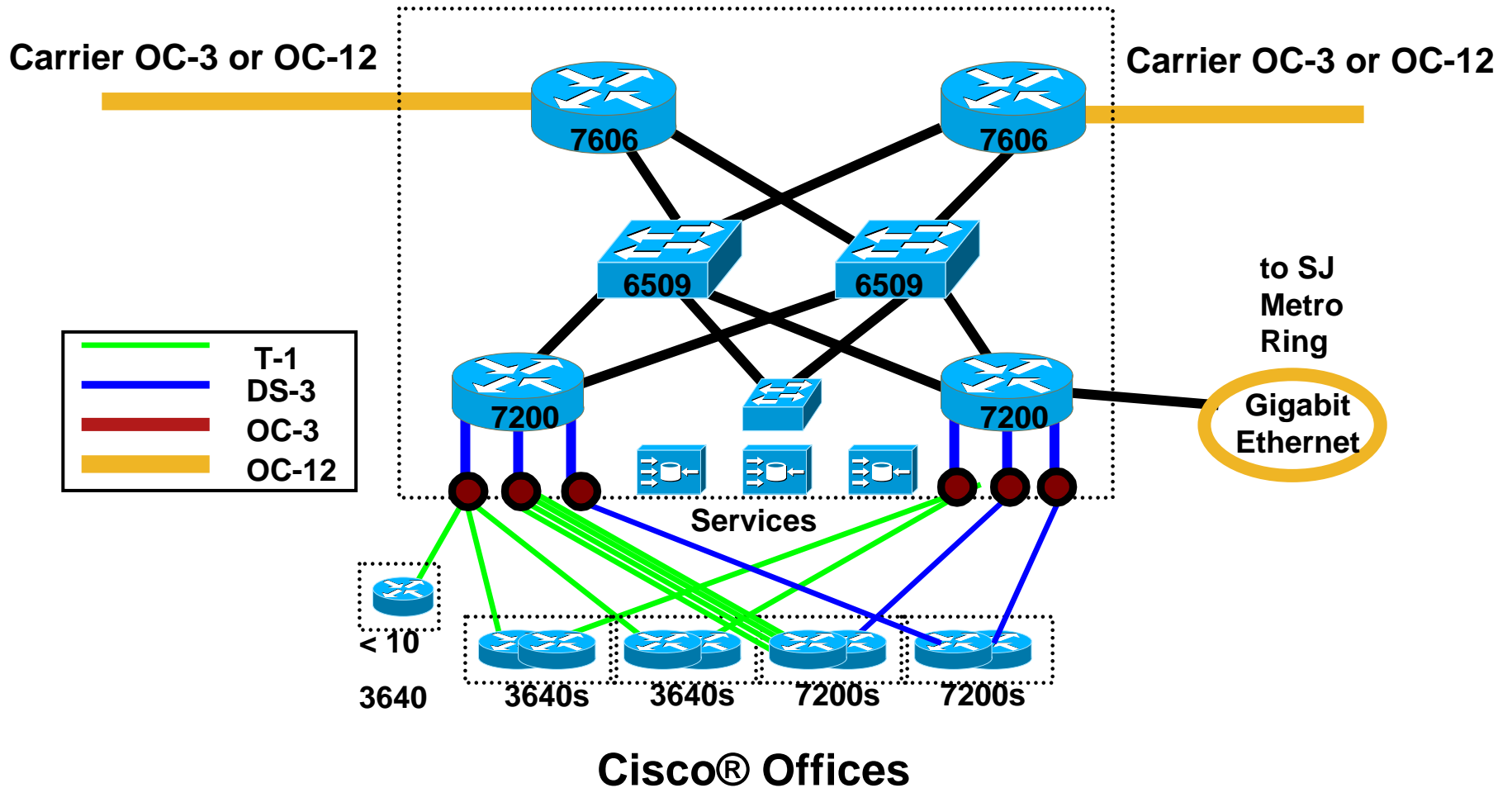
- Cisco® 7200 and 7500 series routers don't handle above OC-3, STM-1



Solution: Cisco 7600 Router for OC-12 WAN

- New WAN design required OC-12 connectivity
- Underlying LAN platform is Cisco® Catalyst® 6500 Series switch and router
- Cisco 7600 Series Router is based on Catalyst 6500 Series technology, with support for higher speeds and higher OC-x and STM-x port connections
- Cisco 7600 Series supported all required interfaces, with a small footprint, a reliable track record, and a good migration plan
- Cisco IT selected the Cisco 7600 Series Router to support the backbone of our global OC-12 / STM-3 / OC-3 / STM-1 WAN for 2003

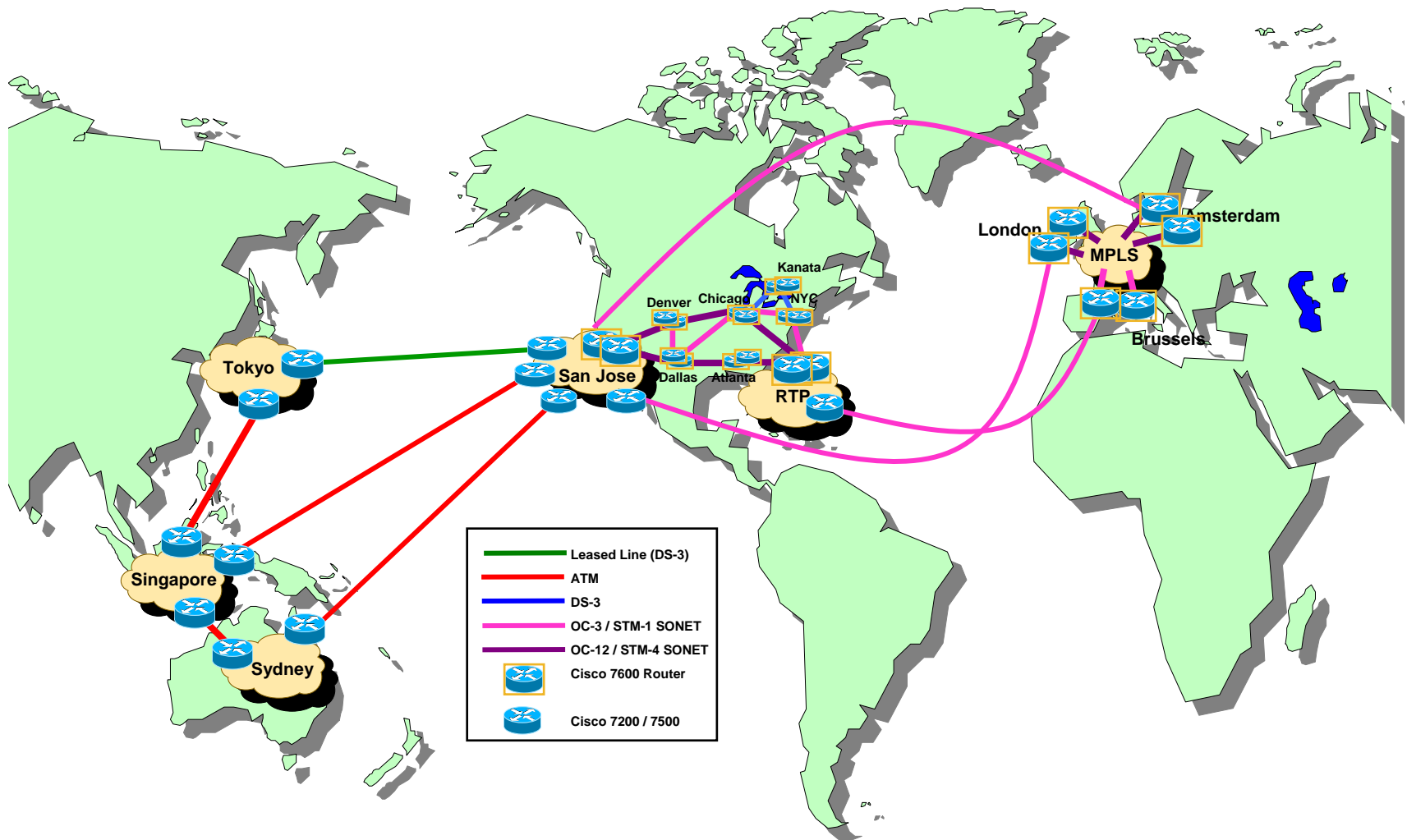
Cisco WAN Hub Site Architecture



Results: Cisco 7600 Series Is Backbone of Global WAN

- Ten pairs of Cisco® 7600 Series routers now in global WAN backbone:
 - Seven pairs in the United States
 - Three pairs in Europe
- Performance and availability have been excellent
 - In 2002, Global WAN links had 99.99% availability
 - In 2003, Global WAN links had 99.999% availability in some quarters

Cisco 7600 Series in Global WAN



Next Steps: Cisco 7600 Series Supports New Technologies

- WAN migrated to MPLS VPN in EMEA

Cisco® 7600 Series routers deployed in Amsterdam, London, and Brussels to handle STM-4 and STM-1 circuits into MPLS provider network

- QoS supported on the WAN

Voice, video, control, normal, and batch data traffic

Cisco 7600 Series handling QoS (CBWFQ) traffic marked at edge

Next Steps: Cisco 7600 Series Supports New Technologies (Contd.)

- Source Specific Multicast and IGMPv3 support added to Cisco 7600 Series (and other routers) in WAN
 - Simplified multicast architecture adds to stability
- Each feature supported in Cisco IOS® Software, required no hardware upgrade

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