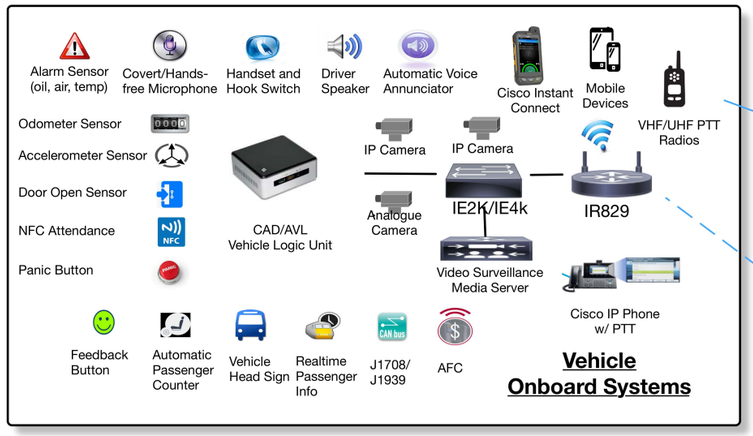
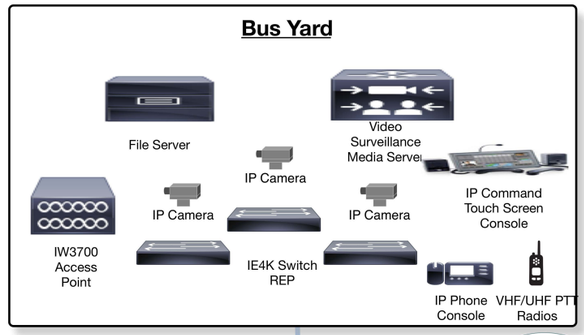
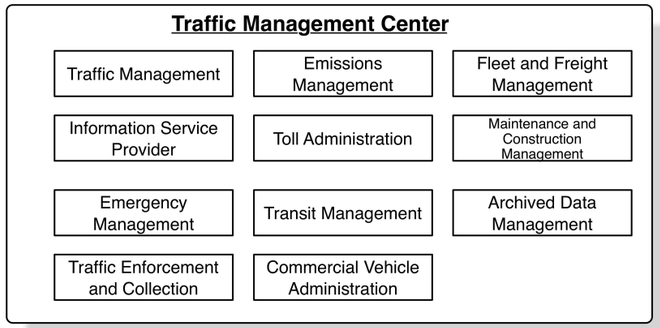
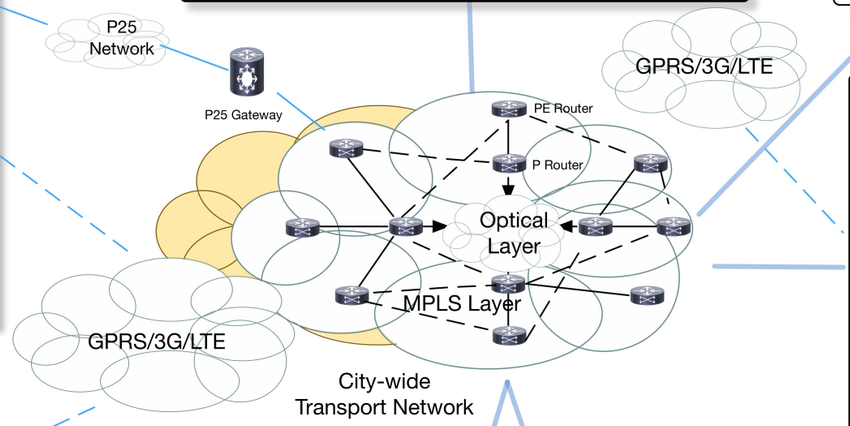
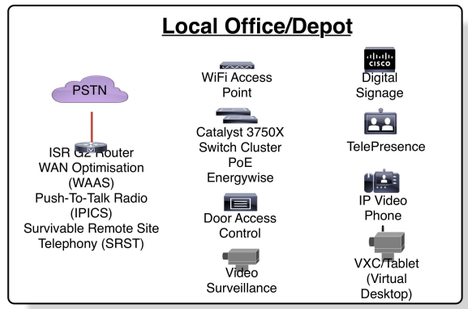
Cisco Connected Mass Transit Reference Architecture











The Mobile TeleWorker gains flexibility and productivity. Cisco delivers a suite of teleworking solutions with a cost-effective approach that preserves business security and agility, increases productivity, and reduce costs by continuously connecting the TeleWorker, anytime, from every location at home or on the road.

Teleworker/Mobile Worker

IP Soft Phone
TelePresence MOVI
Video Conferencing
Virtual Desktop
WAAS Mobile
Anyconnect VPN Client

ISR G2 Router
VPN
Firewall
Wireless

Mobile Phone
Anyconnect VPN Client

Cisco Security solutions protect assets and empowers the workforce. Context-aware security provides high level intelligence, policy governance, and enforcement capabilities. Significantly enhancing the accuracy, effectiveness, and timeliness of any organisation's security implementation.

Cloud Services

Cisco webex
ScanSafe

Cloud Services can offer savings in IT resources such as computing storage and application services. "The Cloud" can provide theses services as elastic resources that are suitable for use in existing or new applications without a large investment in capital resources and ongoing maintenance costs. **WebEx** delivers online meetings and easy-to-use web collaboration tools to the entire workforce. **Scansafe** keeps malware off the corporate network and more effectively controls and secures web usage.

Network Management

Cisco Security Manager (CSM)
Data Centre Network Manager (DCNM)
Identity Service Engine (ISE)

Prime
Network Control Systems (NCS)
Network Analysis Module (NAM)
LAN Management System (LMS)
Collaboration Manager (CM)

Internet

Internet Edge

ASR1000 Router
WebEx Node

ASA5500 Firewall
Intrusion Prevention (IPS)
Virtual Private Network (VPN)

Video Communication Server (VCS) Expressway

Ironport Email Security
Anti-Spam, Anti-Virus
Data Loss Prevention (DLP)

Ironport Web Security
Acceptable Use Policy (AUP)
Malware Prevention

Wireless LAN Controller (Guest Access)

WAN Aggregation

Wireless LAN Controller
WAN Optimisation (WAAS)
ASR1000
ASR1000
WAN Optimisation (WAAS)

Wide Area Application Services (WAAS) is a comprehensive WAN optimization solution that accelerates applications over the WAN, delivers video to the branch office, and provides local hosting of branch-office IT services. Cisco WAAS allows IT departments to centralize applications and storage in the Data Centre while maintaining LAN-like application performance.

IP/MPLS in the WAN enables converged secure link virtualisation. It reduces overall costs by supporting multiple logical networks across a single physical infrastructure.

Primary Data Centre

Ethernet
Fibre Channel over Ethernet (FCoE)
Fibre Channel Storage Links

Catalyst 6500 VSS Services Layer
Firewall
Server Load Balancing (ACE)
Network Application Monitoring (NAM)

Nexus 7000 Core/Aggregation Switch
Nexus 7000 Core/Aggregation Switch

Catalyst 6500 VSS Services Layer
Firewall
Server Load Balancing (ACE)
Network Application Monitoring (NAM)

SAN
MDS 9500 SAN Switch
MDS 9500 SAN Switch
Storage
Storage

Voice Services
Unified Computing System (UCS) Blade
Hypervisor
Nexus 1000v
Virtual Machines
Communication Manager (CUCM)
Unity Connection (CUC)
Jabber (Presence)
Contact Centre (UCCX)
Meeting Place
Attendant Console

Unified Computing System (UCS) Blade
Hypervisor
Nexus 1000v
Virtual Machines
Digital Media Manager (DMM)
Show & Share Server
Webex Social
Network Management
TelePresence Ctrl Server (TCS)
TelePresence Manager (TMS)

Unified Computing System (UCS) Blade
Hypervisor
Desktop Virtualisation Software
Virtual Machines

Nexus 5000 Switch
Nexus 2000 Switch
Unified Computing System (UCS)
IPICS Server
Physical Access Manager (PAM)
Video Surveillance Operations Manager
Video Surveillance Media Server (VSMS)
Enterprise Content Delivery Sys (ECDS)

Nexus 5000 Switch
Nexus 2000 Switch
Unified Computing System (UCS) Rack
Davra RuBAN
Mobility Services Engine (MSE)
Media Exchange Engine (MXE)
Video Comms Server (VCS)
TPresence Multipoint Control Unit (MCU)

Nexus 5000 Switch
ISR G2 PSTN Gateway Voice/Video DSP
PSTN

Cisco Unified Fabric Data Centre provides flexible, agile, high-performance, non-stop operations; self-integrating information technology, reduced staff costs with increased uptime through automation, and more rapid return on investment. It accelerates virtualisation and enables automation to extend the lifecycle of mission-critical resources to support evolving needs. Rail companies can reduce their total cost of ownership (TCO) and increase business agility—both critical to combating the server sprawl and inefficiency inherent in many data centres today.

HQ Campus

PSTN
ISR G2 PSTN Gateway Voice/Video DSP
Building Management System (BMS) HVAC/Lights

Catalyst 6500 VSS Core Switch
Catalyst 3750X Switch Cluster PoE Energywise
Catalyst 3750X Switch Cluster PoE Energywise
Catalyst 3750X Switch Cluster PoE Energywise
Catalyst 3750X Switch Cluster PoE Energywise

WiFi Access Point
Door Access Control
Video Surveillance
PC/Tablet (Virtual Desktop)
IP Video Phone
Digital Signage
TelePresence

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