



RFC 4594 Based Enterprise 12-Class QoS Model

Application Class	PHB	Admission Control	Queueing & Dropping	Application Examples
VoIP Telephony	EF	Required	Priority Queue (PQ)	Cisco IP Phones
Broadcast Video	CS5	Required	(Optional) PQ	Cisco IP Video Surveillance, Cisco Enterprise TV
Real-Time Interactive	CS4	Required	(Optional) PQ	Cisco TelePresence
Multimedia Conferencing	AF4	Required	BW Queue + DSCP WRED	Cisco Unified Personal Communicator
Multimedia Streaming	AF3	Recommended	BW Queue + DSCP WRED	Cisco Digital Media System (VoD)
Network Control	CS6		BW Queue	EIGRP, OSPF, BGP, HSRP, IKE
Call Signaling	CS3		BW Queue	SCCP, SIP, H.323
OAM	CS2		BW Queue	SNMP, SSH, Syslog
Transactional Data	AF2		BW Queue + DSCP WRED	Cisco WebEx, Cisco MeetingPlace, ERP Apps
Bulk Data	AF1		BW Queue + DSCP WRED	Email, FTP, Backup Apps, Content Distribution
Best Effort	default		Default Queue + RED	Default Class Traffic
Scavenger	CS1		Min BW Queue (deferential)	YouTube, iTunes, BitTorrent, Xbox Live

Enterprise 12-Class QoS Model Mapping Onto a 6-Class Service Provider Model

Application Class	PHB	Application Class	SP Class
Network Control	CS6	CS5	SP Real-Time (RTP/JUDP)
Broadcast Video	CS5 -> CS2	CS6	SP Control Class
VoIP Telephony	EF	AF3	SP Critical-Data 1 (TCP)
Multimedia Conferencing	AF4 -> AF2	CS3	SP Critical-Data 2 (TCP)
Real-Time Interactive	CS4 -> CS5	AF2	SP Scavenger
Multimedia Streaming	AF3 -> AF2	CS2	
Call Signaling	CS3	AF1	
Transactional Data	AF2 -> AF3	CS1	
OAM	CS2	default	
Bulk Data	AF1		
Scavenger	CS1		
Best Effort	default		

Approximate Bandwidth Requirements Per Video Stream

Video Category	Specific Video Application	Approximate Bandwidth Per Stream/Participant
Desktop Video	Standard Definition VoDs and Live	200 Kbps - 1.5 Mbps
	Digital Signage Enterprise TV	1.5 Mbps - 5 Mbps
	High Definition VoDs and Live	8 Mbps - 25 Mbps
Cisco TelePresence	CTS-500/CTS-1000 720p Resolution	2.1 Mbps - 8.7 Mbps
	CTS-500/CTS-1000 1080p Resolution	4.5 Mbps - 10.8 Mbps
	CTS-3000/CTS-3200 720p Resolution	4.5 Mbps - 14.1 Mbps
	CTS-3000/CTS-3200 1080p Resolution	11.7 Mbps - 20.4 Mbps
Desktop Video Collaboration	CUVA and CUPC	50 Kbps - 1.5 Mbps >384 Kbps Recommended
	Cisco IP 7985G Phone	Up to 768 Kbps
IP Video Surveillance	WebEx Conference via Webcam (Video Only)	32 Kbps - 284 Kbps (Max. of Six Streams)
	Cisco 4000 Series HD Cameras - H.264 Mode	~4 Mbps Typical
	Cisco 2500 Series Cameras - MPEG-4 Mode	~1 Mbps Typical

Legend

IP Video Surveillance Components: Analog Camera, Standalone Encoder, IP Camera, Virtual Matrix Monitor, Operations Manager Viewer, Video Camera, Cisco Digital Media Encoder 1100 or 2200, Scientific Atlanta Encoder 4300 or 4400, Digital Media Player 4300 or 4400, Flat Panel Display, Video Portal Client.

Digital Media Systems Components: Digital Media Manager, Video Portal Server, Web Server / Content Repository, Streaming Server, MXE 3000 - Cisco Media Experience Engine, Content Distribution Manager, Core or Edge ACNS WAE, Cisco TelePresence Multipoint Switch, Cisco Session Border Controller or Cisco Unified Border Element, CTS Manager, Cisco Unified Personal Communicator, Cisco Unified MeetingPlace Application Server, Cisco Unified MeetingPlace Integration Server, Cisco Unified MeetingPlace (CUJ/M) Server, Cisco Unified MeetingPlace Media Server, Cisco Unified MeetingPlace MCU, Cisco WebEx Client.

Desktop Video Collaboration Components: Cisco TelePresence Multipoint Switch, Cisco Session Border Controller or Cisco Unified Border Element, CTS Manager, Cisco Unified Personal Communicator, Cisco Unified MeetingPlace Application Server, Cisco Unified MeetingPlace Integration Server, Cisco Unified MeetingPlace (CUJ/M) Server, Cisco Unified MeetingPlace Media Server, Cisco Unified MeetingPlace MCU, Cisco WebEx Client.

Network Components: Cisco Catalyst 1440 YSS, Cisco Catalyst 6500E Series, Cisco Nexus 7000 Series, Cisco Nexus 5000 Series, Cisco IOS Router, Cisco ACE Application Switch Module or Appliance, Cisco ACE VWS WAE, Cisco WAE 15454 Series, Cisco ASR 1000 Series, Cisco Catalyst 4500 Series, Cisco Catalyst 3750-E Series, Cisco ASA 5500, WLAN Access Point, WLAN Controller or WISM, Network Management Server, Cisco Wireless Router with Integrated Switch, Tape Array, Fibre Channel Array, Cisco MDS 9600 Series, DWDM Ring Optical Fiber.