

Cisco Expressway Series Version X8.7

Advanced Gateways for Simple and Highly Secure Collaboration

Product Overview

Collaborating with someone should be as simple and secure as a phone call. But often it's not. Tools that enrich interaction such as video and content sharing typically are confined to enterprise locations or to users who are on the same network or using the same kind of application or device. It breaks down when employees leave the office, or when they reach out to suppliers, customers, or partners who aren't using the same system, network, or device. These barriers force people to use less productive means such as the phone or email. Meanwhile, they miss out on the stronger relationships, faster decision making, and competitive edge that comes with the best forms of collaboration.

Cisco® Expressway Series is an advanced collaboration gateway that helps solve these problems. It works with Cisco Unified Communications Manager, Cisco Business Edition, and Cisco Hosted Collaboration Solution to help make collaboration universal. The main uses for Cisco Expressway Series include:

- **Mobile and remote access.** Extend office connectivity to on-the-go and home office employees. Cisco Expressway makes collaboration as easy to use outside the enterprise as it is inside, by simplifying the end-user experience. Using highly secure mobile access based on Transport Layer Security (TLS), Cisco Jabber® mobile users can access all their collaboration workloads (video, voice, content, instant messaging, and presence) without the extra step of establishing a VPN. Cisco Expressway also supports single-sign-on capabilities for Cisco Jabber users, integrating directly with the enterprise authentication and authorization methods in place. Both these capabilities help provide mobile experiences simply from anywhere, on a range of devices with Cisco Jabber clients, and they complement common IT department BYOD security policies.

In addition, Expressway makes it easier for teleworkers to use their Cisco endpoints (Cisco TelePresence® EX Series, MX Series, and SX Series; Cisco TelePresence Integrator C Series; and Cisco DX Series). Workers gain simplified provisioning, configuration, and registration of these devices, as well as the ability for these users to connect from their home office without having to establish a VPN connection.

- **Business-to-consumer (B2C) collaboration.** Cisco Expressway, with Cisco Jabber Guest, allows you to extend rich and engaging interactions to prospects and customers over the Internet. In a simple point-and-click method, you can more securely and easily extend rich media communications – IM, voice, and video – to guests coming in from your website or mobile application, whether they are consumers, other businesses, or even temporary employees.
- **Business-to-business (B2B) collaboration.** Share collaboration services with business partners. Cisco Expressway simplifies business-to-business (B2B) collaboration, including instant messaging and presence (IM&P) federation. Using Uniform Resource Identifier (URI) dialing, organizations can more securely collaborate with partners and suppliers, just as if they shared an office. No prearrangements are needed.

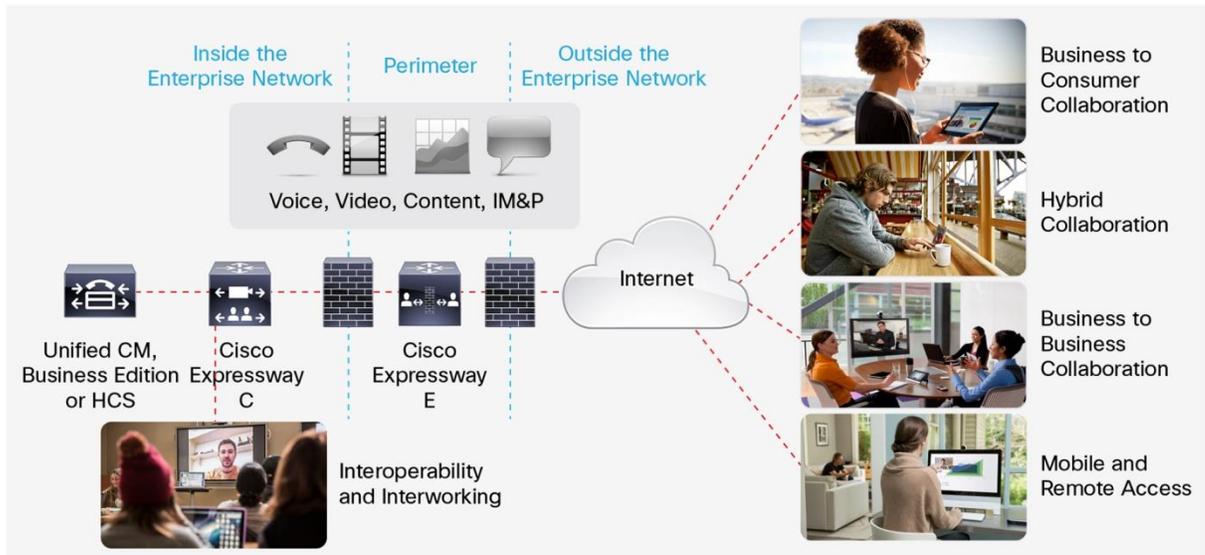
- **Hybrid Collaboration.** Cisco Expressway helps connect your on-premises assets to cloud-delivered services. It extends and protects your current investment while creating a unified experience for users on your network as well as those connecting from beyond it. Cisco Expressway can enable the following hybrid services:
 - [Cisco Collaboration Meeting Rooms Hybrid](#). Connect your on-premises Cisco and third-party video endpoints and systems to Cisco WebEx[®] users in the Cisco Collaboration Cloud to deliver a unified conferencing experience.
 - [Cisco Spark™ Hybrid Services](#)
 - Connect your on-premises Cisco Unified Communications Manager with [Cisco Spark](#) in the Cisco Collaboration Cloud to deliver integrated calling experiences.
 - Connect your on-premises Microsoft Exchange to Cisco Spark users in the Cisco Collaboration Cloud, making it easier for them to schedule and join meetings, especially when they are mobile.
- **Interoperability and interworking.** Connect with third-party video endpoints and different protocols. Expressway can connect any standards-based endpoints, including SVC, AVC, H.323, Session Initiation Protocol (SIP), and Binary Floor Control Protocol (BFCP). With Expressway you can continue to use legacy video endpoints, whether from Cisco or from third-party providers. This gives you tremendous flexibility: utilize your existing endpoints now, and upgrade to new endpoints how and when you're ready. Cisco Expressway also supports Microsoft Lync and Skype for Business clients, even though they utilize the proprietary Remote Desktop Protocol (RDP).

Cisco Expressway consists of the two components that work together to deliver the overall solution. They include Expressway-C and Expressway-E.

- **Expressway-C** can enable the interworking of Cisco TelePresence endpoints with standards-compliant H.323, H.264 SVC, or SIP third-party video systems as well as Microsoft Lync and Skype for Business clients.
- **Expressway-E** (along with Expressway-C) can enable businesses to establish VPN-less video communication with remote and home office users, business partners, and customers.

Figure 1 illustrates a deployment with Cisco Expressway-C and Expressway-E forming a highly secure traversal link that can enable video, voice, content, instant messaging, and presence collaboration outside the firewall. Cisco Expressway works with most firewalls and complements existing security policy, requiring only minimal firewall configuration.

Figure 1. Cisco Expressway Series Deployment



The Cisco Expressway Series supports flexible deployment options. It can be deployed on the Cisco Expressway CE1100 Appliance or as a virtualized application for VMware and similar virtual environments.

Benefits of the Cisco Expressway Series

- **Increased competitiveness:** Expressway helps enterprises speed decision making and business processes with real-time video, voice, content, instant messaging, and presence collaboration beyond the firewall.
- **Enhanced workforce mobility:** Expressway embraces mobility and device proliferation trends. It provides simple and highly secure access for a range of Cisco Jabber unified communications clients, with single-sign-on capabilities and without the need for a separate VPN client. Therefore, it complements common bring-your-own-device (BYOD) strategies.
- **Improved productivity and agility:** Expressway empowers people to collaborate with colleagues, customers, and partners in a more timely and effective manner while helping reduce travel costs.
- **Interoperability:** Expressway breaks down barriers by supporting open standards and providing interworking between disparate systems and protocols. This helps enhance the value of your existing investments and increases the number of participants with whom you can connect. Supported standards include IPv4 to IPv6, H.323 to SIP, and Microsoft environments, including Microsoft Remote Desktop Protocol (RDP) to enable content sharing with Lync and Skype for Business users.
- **Flexibility:** Expressway supports businesses of all sizes as part of the Cisco Business Edition solutions or an enterprise Cisco Unified Communications Manager deployment. Its services can also be enabled through a cloud using Cisco Hosted Collaboration Solution.
- **Simplified licensing:** Mobile and remote access using Expressway is included as part of Cisco Unified Workspace License (UWL) Standard and Pro and Cisco User Connect License (UCL) Enhanced and Enhanced Plus agreements. For Cisco Hosted Collaboration Solution deployments, it is included in the Cisco Hosted Collaboration Solution Foundation and Standard license bundles.

Features and Benefits

Table 1 lists the features and benefits of Cisco Expressway.

Table 1. Features and Benefits

Feature	Benefit
User Interface	
Web browsers supported	<ul style="list-style-type: none"> The web interface supports Internet Explorer 8, 9, 10, and 11; Firefox 3 or later; and Chrome
Management interfaces	<ul style="list-style-type: none"> Support for industry standards such as HTTP and Secure HTTP (HTTPS), XML, Simple Network Management Protocol (SNMP v1, v2, and v3), Secure Copy Protocol (SCP), and Secure Shell (SSH) Protocol Embedded setup wizard for initial configuration Support for call logging and diagnostics Local time-zone-aware
Language	<ul style="list-style-type: none"> English, Chinese (Simplified), French, German, Japanese, Korean, Russian, and Spanish
Endpoint Support and Session Management	
Supported endpoints	<ul style="list-style-type: none"> Expressway is compatible with any standards-compliant SIP or H.323 video conferencing or telepresence device, but does not support local registration of these standards-compliant endpoints. Cisco TelePresence EX Series, MX Series, and SX Series; Cisco TelePresence Integrator C Series; Cisco DX Series; and Cisco Jabber, registered to Cisco Unified Communications Manager through Expressway mobile and remote access Microsoft environments (see documentation for details: http://www.cisco.com/c/en/us/support/unified-communications/telepresence-video-communication-server-vcs/tsd-products-support-series-home.html)
Session control	<ul style="list-style-type: none"> Support for H.225/Q.931 and H.245 call-control-routed mode and non-call-routed mode Support for H.323 SIP Interworking Encryption Support for H.323 SIP Interworking DuoVideo Support for URI dialing Support for direct call signaling among neighbored Cisco Expressways and Video Communication Servers, border controllers, and gatekeepers Support for call policy management (RFC 3880) Support for call routed mode Support for call loop detection
Zone control and bandwidth management	<ul style="list-style-type: none"> Support for remote zone monitoring Support for remote zone redundancy Support for up to 1000 neighbor zones (including Cisco Expressways and Video Communication Servers, border controllers, gatekeepers, and SIP proxies) Support for subzone area definition for bandwidth management Support for flexible zone configuration with named zones and default zone Support for forwarding of requests to neighbor zones Support for inter-zone bandwidth management: Definable call by call <ul style="list-style-type: none"> Maximum bandwidth per call Maximum aggregate bandwidth for all neighboring zones Support for intra-zone bandwidth management: Definable call by call <ul style="list-style-type: none"> Maximum bandwidth per call Maximum aggregate bandwidth Support for auto-down-speeding if call exceeds a per-call maximum Support for gateway load balancing Support for automatic network failover Support for capacity warnings for users and administrators
Network	<ul style="list-style-type: none"> Support for Domain Name System (DNS) addressing Support for IPv4 and IPv6 simultaneously Support for IPv4 and IPv6 translation services

Feature	Benefit
Firewall Traversal	
Traversal services	<ul style="list-style-type: none"> Expressway technology Serial tunnel (STUN) discovery and STUN relay services Firewall traversal STUN-compliant H.460.18/19-compliant H.460.18 client-proxy support Support for H.460.19 multiplexed media SIP support
Remote collaboration services supported	<ul style="list-style-type: none"> XMPP for IM HTTPS for logon, provisioning and configuration, contact search, and visual voicemail services SIP for session establishment, registration, and invitation using Cisco Unified Communications Manager Business Edition and Cisco Hosted Collaboration Solution Real-Time Transfer Protocol (RTP) and Secure RTP (SRTP) for audio and video Binary Floor Control Protocol (BFCP) for content sharing Single sign-on for Cisco Jabber 10.6 and later
Network	<ul style="list-style-type: none"> Support for DNS addressing Support for IPv4 and IPv6 simultaneously Support for IPv4 and IPv6 translation services
Scalability and Capacity	
Single Expressway virtual machine capacity (small and medium-size deployments)	<ul style="list-style-type: none"> The capacity of one Expressway unit (small and medium-sized virtual machine) follows <ul style="list-style-type: none"> Up to 2500 proxied registrations to Cisco Unified Communications Manager Up to 100 video calls or 200 audio calls
Single Expressway virtual machine capacity (large deployments)	<ul style="list-style-type: none"> The capacity of one Expressway unit (large virtual machine) follows: <ul style="list-style-type: none"> Up to 2500 proxied registrations to Cisco Unified Communications Manager Up to 500 video calls or 1000 audio calls* <p>*Assumes a 10-Gbps interface</p>
Expressway CE1100 Appliance	<ul style="list-style-type: none"> The capacity of one Expressway CE1100 Appliance is: <ul style="list-style-type: none"> 1- or 10-Gbps network interface Up to 2500 proxied registrations to Cisco Unified Communications Manager Up to 500 video calls or 1000 audio calls* <p>*Assumes a 10-Gbps interface</p>
Clustered Expressway capacity	<ul style="list-style-type: none"> Up to 6 Expressway appliances and virtual machines can be deployed as a cluster to increase capacity and provide redundancy Clustering increases the maximum call capacity by up to 4 times
Microsoft Lync, Skype for Business interworking capacity	<ul style="list-style-type: none"> The maximum number of calls interworked to Microsoft Lync/Skype for Business is 100. It is highly recommended to use a separate Expressway-C server for this function.
System Security and Resilience	
Security features	<ul style="list-style-type: none"> Secure management with HTTPS, SSH, and SCP Secure file transfer Inactivity timeout Capability to lock down IP services Authentication required on HTTP, HTTPS, SSH, and SCP H.235 authentication support Transport Layer Security (TLS) for SIP signaling Roles-based password-protected GUI user access Capability to enforce strict passwords Capability to disable root access over SSH Automated intrusion protection
Resilience and reliability	<ul style="list-style-type: none"> Capability to deploy Expressway in a redundant (6) cluster Capability to share licenses across a cluster Capability to replicate configuration for clusters

Feature	Benefit
Supported RFCs	
RFC	2543, 3261, 3264, 1889, 3265, 3325, 3515, 3891, 3892, 2327, 4566, 5626, 5627, 5389, and 5766

Product Specifications for Virtualized Environments

Expressway can be deployed virtually or as an appliance. Table 2 lists the Expressway virtualized application specifications.

Table 2. Cisco Expressway Virtualized Application Specifications

Product Feature	Product Specification		
Virtualized Application Specifications			
Servers for virtual environment	<ul style="list-style-type: none"> • Cisco UCS[®] B-Series Blade Servers or C-Series Rack Servers or third-party servers that meet the minimum requirements • VMware vSphere or vCenter server running VMware ESXi, which includes Cisco UCS E-Series Servers on Cisco Integrated Services Routers (ISR) For full details of host requirements, refer to the Expressway Series virtual machine deployment guide.		
Virtual Machine Host Requirements	Small Deployment (For the Cisco Business Edition 6000 Platform)	Medium-Size Deployment (Typical Installation)	Large Deployment (Performance and Scalability)
vCPU	2 core	2 core	8 core
Reserved CPU resource	3600 MHz (2 x 1.8 GHz)	4800 MHz (2 x 2.4 GHz)	25600 MHz (8 x 3.20 GHz)
Reserved RAM	4 GB	6 GB	8 GB
Disk space	132 GB	132 GB	132 GB
Network interface card	1 Gbps	1 Gbps	10 Gbps

Product Specifications When Deployed as an Appliance

Expressway can also be deployed as an appliance on the Expressway CE1100 Appliance. Table 3 shows the features and benefits of these appliances, Table 4 lists the specifications, and Table 5 provides standards compliance information.

Table 3. Appliance Features and Benefits

Cisco Expressway CE1100 Appliance Features	Benefits
10-Gbps unified network fabric	<ul style="list-style-type: none"> • Low-latency, lossless, 10-Gbps Ethernet, industry-standard Fibre Channel over Ethernet (FCoE), and native Fibre Channel fabric • Wire-once deployment model in which changing I/O configurations no longer means installing adapters and re-cabling racks and switches • Fewer interface cards, cables, and upstream network ports to purchase, power, configure, and maintain
Redundant fans and power supplies	<ul style="list-style-type: none"> • Dual-redundant fans and hot-swappable, redundant power supplies for enterprise-class reliability and uptime • Power efficiency through Cisco Common Form-Factor Platinum power supplies (450 W and 650 W)
Integrated dual-port Gigabit Ethernet	<ul style="list-style-type: none"> • Outstanding network I/O performance and increased network efficiency and flexibility • Increased network availability when configured in failover configurations
Trusted Platform Module (TPM)	<ul style="list-style-type: none"> • TPM is a chip (microcontroller) that can more securely store artifacts used to authenticate the platform (server). These artifacts can include passwords, certificates, or encryption keys. • TPM can also be used to store platform measurements that help ensure that the platform remains trustworthy, helping to ensure authentication and authorization.
Tool-free access	<ul style="list-style-type: none"> • Tool-free access to all serviceable items, and color-coded indicators to guide users to hot-pluggable and serviceable items

Table 4. Product Specifications for the Expressway CE1100 Appliance

Item	Platform Specification
Processors	Two 3.50-GHz Intel® Xeon processors (E5-2637 v3/135W 4C/15MB Cache/DDR4 2133MHz)
Memory	32 GB (2 X 16 GB DDR4-2133-MHz RDIMM/PC4-17000/dual rank/x4/1.2v)
Network interfaces	Intel X520 dual-port 10-Gb Small Form-Factor Pluggable Plus (SFP+) adapter
RAID card	Cisco 12-Gbps SAS Modular Raid Controller and Cisco 12-Gbps SAS 1-GB FBWC cache module (Raid 1)
Hard drives	Two 1-TB SAS 7.2K rpm 3.5-inch HDD with hot plug; drive sled mounted
Internal Recovery Partition (IRP)	<ul style="list-style-type: none"> • 32-GB SD Card
Cisco Integrated Management Controller	<ul style="list-style-type: none"> • Web user-interface for server management; remote keyboard, video, and mouse (KVM); virtual media; and administration • Virtual media support for remote CD and DVD drives as if local • Intelligent Platform Management Interface (IPMI) 2.0 support for out-of-band management through third-party enterprise management systems • Command-line interface (CLI) for server management • Provides Cisco UCS visibility and control to management ecosystem partners using a comprehensive XML API
Front-panel connector	One KVM console connector (supplies 2 USB, 1 VGA, and 1 serial connector)
Front-panel locator LED	Indicator to help direct administrators to specific servers in large data center environments
Additional rear connectors	Additional interfaces, including a VGA video port, 2 USB 3.0 ports, an RJ45 serial port, 1 Gigabit Ethernet management port, and dual 1 Gigabit Ethernet ports
Physical dimensions (H x W x D)	1 rack unit (1RU): 1.7 x 16.9 x 28.5 in. (4.32 x 43 x 72.4 cm)
Temperature: Operating	32 to 104°F (0 to 40°C) (operating, sea level, no fan fail, no CPU throttling, turbo mode)
Temperature: Nonoperating	-40 to 158°F (-40 to 70°C)
Humidity: Operating	10% to 90% noncondensing
Humidity Nonoperating	5% to 93% noncondensing
Altitude: Operating	0 to 10,000 ft (0 to 3000 m); maximum ambient temperature decreases by 1°C per 300 m
Altitude: Nonoperating	0 to 40,000 ft (12,000 m)

Table 5. Regulatory Standards Compliance: Safety and EMC for the Expressway CE1100 Appliance

Specification	Description
Safety	<ul style="list-style-type: none"> • UL 60950-1 No. 21CFR1040 Second Edition • CAN/CSA-C22.2 No. 60950-1 Second Edition • IEC 60950-1 Second Edition • EN 60950-1 Second Edition • IEC 60950-1 Second Edition • AS/NZS 60950-1 • GB4943 2001
EMC: Emissions	<ul style="list-style-type: none"> • 47CFR Part 15 (CFR 47) Class A • AS/NZS CISPR22 Class A • CISPR2 2 Class A • EN55022 Class A • ICES003 Class A • VCCI Class A • EN61000-3-2 • EN61000-3-3 • KN22 Class A • CNS13438 Class A

Specification	Description
EMC: Immunity	<ul style="list-style-type: none"> • EN55024 • CISPR24 • EN300386 • KN24

Licensing Information

Expressway Series virtual application software is available at no additional charge to customers who have a license and valid support contract for Cisco Unified Communications Manager Version 9.1.2 or later or for Cisco Hosted Collaboration Solution 9.2.1 or later. Standard and Professional Edition Cisco UWL or Enhanced and Enhanced Plus Cisco UCL agreements support mobile and remote access for Cisco Jabber unified communications clients; Cisco TelePresence System EX Series, Cisco TelePresence MX and SX Series, and Cisco TelePresence Integrator C endpoints; and Cisco DX Series endpoints. Cisco Hosted Collaboration Solution Foundation and Standard license bundles offer similar support for Cisco Hosted Collaboration Solution deployments.

Each concurrent call session terminating on a system not using Cisco Unified Communications Manager or Cisco Hosted Collaboration Solution (for example, business-to-business calls and Cisco Jabber Guests) requires a Cisco Expressway Rich Media Session license. In addition, each concurrent call requiring interworking requires a Cisco Expressway Rich Media Session license. Examples of such calls include H.323-to-SIP interworked calls and H.264 SVC-to-H.264 AVC calls.

Ordering Information

To order Expressway, visit the [Cisco Ordering homepage](#) and refer to Table 6.

Table 6. Ordering Information for Expressway

Product Name	Part Number
Cisco Expressway Series	
Cisco Expressway-C Virtual Edition	EXPWY-VE-C-K9
Cisco Expressway-E Virtual Edition	EXPWY-VE-E-K9
Cisco Expressway-C CE1100 Appliance	EXPWY-C-BDL-K9
Cisco Expressway-E CE1100 Appliance	EXPWY-E-BDL-K9
Ordering Options for Cisco Expressway Series	
Cisco Expressway Rich Media Session License Required for concurrent calls to and from any endpoint or application not registered to Cisco Unified Communications Manager. For example, business-to-business calls, Cisco Collaboration Meeting Rooms, Cisco Jabber Guest, and interworked calls (H.323 to SIP, H.264 AVC to H.264 SVC)	LIC-EXP-RMS
Enhanced Microsoft Collaboration key for Expressway Required to enable Microsoft Lync Gateway functionality	LIC-EXP-MSFT

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For More Information

For more information about the Expressway Series, visit <http://www.cisco.com/go/expressway> or contact your local Cisco account representative or authorized Cisco partner. Product specifications are estimates and subject to change without notice.



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