White Paper

Web Conferencing: Unleash the Power of Secure, Real-Time Collaboration

This paper focuses on security information for Cisco WebEx Meeting Center, Cisco WebEx Training Center, Cisco WebEx Support Center, and Cisco WebEx Event Center.

Introduction

Cisco WebEx® online solutions help enable global employees and virtual teams to meet and collaborate in real time as though they were working in the same room. In fact, online collaboration can improve on traditional face-to-face collaboration by making travel time and costs, and even conference room space, a nonissue. Businesses, institutions, and government agencies worldwide rely on Cisco WebEx® solutions to simplify business processes and improve results for sales, marketing, training, project management, and support teams.

For all of these companies and agencies, security is a fundamental concern. Online collaboration must provide multiple levels of security, from scheduling meetings to authenticating participants to document sharing.

Cisco makes security the top priority in the design, deployment, and maintenance of its network, platform, and applications. You can incorporate WebEx® solutions into your business processes with confidence, even with the most rigorous security requirements.

Understanding the security features of Cisco WebEx online applications and the underlying communication infrastructure - the Cisco WebEx Cloud - is an important part of your investment decision.

The Cisco WebEx Cloud Infrastructure

Cisco WebEx Meetings is a software-as-a-service (SaaS) solution delivered through the Cisco WebEx Cloud, a highly secure service-delivery platform with industry-leading performance, integration, flexibility, scalability, and availability. The Cisco WebEx Cloud offers ease of deployment and application delivery to lower your total cost of ownership, while making possible the highest grade of enterprise security.

Switched Architecture

Cisco deploys a globally distributed dedicated network of high-speed meeting switches. Meeting session data originating from the presenter's computer and arriving at the attendees' computers is switched, never persistently stored, through the Cisco WebEx Cloud.[1]

[1] When the user enables network-based recording (NBR), the meeting is recorded and stored. In addition to NBR, WebEx also stores user profile data and user files.

Data Centers

The Cisco WebEx Cloud is a communications infrastructure purpose-built for real-time web communications. WebEx meeting sessions use switching equipment located in multiple data centers around the world. These data centers are strategically placed near major Internet access points and use dedicated high-bandwidth fiber to route traffic around the globe. Cisco operates the entire infrastructure within the Cisco WebEx Cloud. Data within the United States stays within the U.S. region, and data within Europe remains in the European region.

Additionally, Cisco operates network point-of-presence (PoP) locations that facilitate backbone connections, Internet peering, global site backup, and caching technologies used to enhance end-user performance and availability. Cisco personnel are available 24 hours a day, seven days a week, for logistical security, operational, and change-management support.

Overview of the Highly Secure WebEx Meeting Experience

The WebEx meeting experience encompasses:

- Meeting-site configuration
- Security options for scheduling
- Options for starting and joining a WebEx meeting
- Encryption technologies
- Transport-layer security
- Firewall compatibility
- Meeting data privacy
- In-meeting security
- Single sign-on
- Third-party accreditations (independent audits validate Cisco WebEx security)

The terms “WebEx meeting(s)” and “Cisco WebEx meeting sessions” refer to the integrated audio conferencing, Internet voice conferencing, and single and multi-point videoconferencing used in all Cisco WebEx online products. These products include:

- Cisco WebEx Meeting Center
- Cisco WebEx Training Center
- Cisco WebEx Event Center
- Cisco WebEx Support Center (including Cisco WebEx Remote Support and Cisco WebEx Remote Access)

Unless otherwise specified, the security features described in this document pertain equally to all the WebEx applications mentioned above.

WebEx Meeting Roles

The four roles in a WebEx meeting are Host, Alternate Host, Presenter, and Attendee. The following sections describe the security privileges of each role.

Host

The Host schedules and starts a WebEx meeting. The Host controls the in-meeting experience. From a security standpoint, the Host can grant Presenter privileges to Attendees. The Host can also lock the meeting and expel Attendees.

Alternate Host

The Host appoints an Alternate Host, who can start a scheduled WebEx meeting in lieu of the Host. From a security standpoint, the Alternate Host has the same privileges as the Host.

Presenter

A Presenter shares presentations, specific applications, or an entire desktop. The Presenter controls the annotation tools. From a security standpoint, the Presenter can grant and revoke remote control over the shared applications and desktop to individual Attendees.

Attendee

An Attendee has no security responsibilities or privileges.

WebEx Site Administration Module

The WebEx Site Administration module allows authorized administrators to manage and enforce security policies on a meeting-by-meeting basis for Host and Presenter privileges. For example, you can customize session configurations to disable a Presenter's ability to share applications or to transfer files on a per-site or a per-user basis.

The WebEx Site Administration module manages these security-related features:

Account Management

- Lock out an account after a configurable number of failed login attempts
- Automatically unlock a locked-out account after a specified time interval
- Deactivate accounts after a defined period of inactivity

Specific User Account Actions

- Require a user to change password at next login
- Lock or unlock a user account
- Activate or deactivate a user account

Account Creation

- Require security text on new account requests
- Require email confirmation of new accounts
- Allow self-registration (sign-up) for new accounts
- Configure rules for self-registration of new accounts

Account Passwords

Enforce strong account password criteria, including:

- Mixed case
- Minimum length
- Minimum number of numeric characters
- Minimum number of alphabetic characters
- Minimum number of special characters
- No character to be repeated three times or more

- No reuse of a specified number of previous passwords
- No dynamic text (site name, Host's name, username)
- No passwords from a configurable list (for example, "password")
- Minimum time interval before password change
- Change of account password by Host at a configurable time interval
- Change of account password by all users at next login

Personal Meeting Rooms

Personal Meeting Rooms are accessible through a personalized URL and password. In these rooms, the Host can list scheduled and in-progress meetings, start and join meetings, and share files with meeting Attendees. Administrators can set security-related features for Personal Meeting Rooms, including:

- Options for sharing files in the Personal Meeting Room
- Password requirements for files in the Personal Meeting Room

Other Security-Related Features Enabled Through WebEx Site Administration

- The Host or Attendees can choose to store their names and email addresses to make organizing or joining new meetings easier.
- Hosts can reassign recordings to other Hosts.
- Site access can be restricted by requiring authentication for all Host and Attendee access. Authentication can be required to access any site information, such as listed meetings, as well as to gain access to meetings on the site.
- Strong password rules can be applied to WebEx Access Anywhere.
- All meetings can be unlisted.
- Approval of a "Forgot Password?" request can be required.
- Account passwords can be required to be reset rather than re-entered on behalf of a user.

Security Options for Scheduling WebEx Meetings

- Individual Hosts can be given the ability to specify meeting access security (within parameters configured at the site administration level that cannot be overridden).
- A meeting can be unlisted so that it does not display on the visible calendar.
- Attendees can be allowed to join meetings before the Host joins.
- Attendees can access audio before the Host joins.
- Only attendees with an account on the WebEx site can be allowed to join.
- Teleconference information can be displayed in meetings.
- Meetings can end automatically in a configurable time if only one Attendee remains.
- Attendees can be required to enter their email address when joining meetings

Listed or Unlisted Meetings

Hosts can opt to list a meeting in the public meeting calendar on a customized WebEx site. Or they can schedule the meeting as unlisted, so that it never appears on a meeting calendar. Unlisted meetings require the Host to inform Attendees explicitly of the existence of the meeting, either by sending a link to Attendees using the email invitation process or by requiring the Attendee to enter the provided meeting number on the Join Meeting page.

Internal or External Meetings

Hosts can restrict meetings Attendees to those with an account on a customized WebEx site, as verified by their ability to log in to the site to join the meeting.

Meeting Passwords

A Host can set a meeting password and then choose to include or exclude the password in the meeting invitation email.

Enrollment

- The host can restrict meeting access with the registration feature. The Host generates an “access control list” allowing only invitees who have enrolled and been explicitly approved by the Host.
- Meetings can be secured by blocking the reuse of registration IDs in WebEx Training Center and WebEx Event Center. Any Attendee attempting to reuse a registration ID already in use will be prevented from joining the meeting. This prevents the sharing of IDs among multiple attendees.
- In addition, a Host can maintain meeting security by restricting access and expelling participants.

Any combination of these scheduling options can be fine-tuned to support your security policies.

Starting and Joining a WebEx Meeting

A WebEx meeting starts after a Host’s user ID and password are authenticated by your customized WebEx site. The Host has initial control of the meeting and is the initial Presenter. The Host can grant or revoke Host or Presenter permissions to any Attendee, expel selected Attendees, or terminate the session at any time.

The Host can appoint an Alternate Host to start and control the meeting in case the Host is unable to attend or loses the connection to the meeting. This keeps meetings more secure by eliminating the possibility that the Host role will be assigned to an unexpected, or unauthorized, Attendee.

You can configure your customized WebEx site to allow Attendees to join the meeting, including the audio portion, before the Host, and to limit the features available to early joiners to chat and audio.

When an Attendee joins a WebEx meeting for the first time, the WebEx client software is automatically downloaded and installed on the Attendee’s computer. The WebEx client software is digitally signed using a VeriSign-issued certificate. In subsequent meetings, the WebEx application downloads and installs only files containing changes or updates. Attendees can use the Uninstall function provided by their computer’s operating system to easily remove WebEx files.

Encryption Technologies

WebEx meetings are designed to deliver real-time rich-media content securely to each Attendee within a WebEx meeting session. When a Presenter shares a document or a presentation, it is encoded by Universal Communications Format (UCF), a Cisco® proprietary technology, which optimizes the data for sharing. The WebEx meeting application on mobile devices such as the iPad, iPhone, and BlackBerry use similar encryption mechanisms as the PC client.

WebEx meetings provide these encryption mechanisms:

- For WebEx meetings on PCs and mobile devices, data is transported from the client to the Cisco WebEx Cloud using 128-bit Secure Sockets Layer (SSL).
- End-to-end (E2E) encryption is an option provided with Cisco WebEx Meeting Center. This method encrypts all meeting content, end-to-end, between meeting participants using the Advanced Encryption Standard (AES) with a 256-bit key randomly generated on the Host's computer and distributed to Attendees with a public-key-based mechanism. Unlike SSL encryption that is terminated at Cisco WebEx Cloud side, E2E encryption encrypts all meeting contents within the Cisco WebEx Cloud infrastructure. Clear-text meeting content data is presented only in the meeting participants' computer memory.[2]
- If a user chooses the related "Remember me" option, that user's login ID and password for WebEx meetings saved on PCs and mobile devices are encrypted using the 128-bit AES.

Site administrators and Hosts can select E2E encryption using the "Meeting type" option. The E2E solution provides stronger security than AES alone (though E2E encryption also uses AES for the payload encryption), because the key is known only to the meeting Host and Attendees.

Every connection from the WebEx meeting client to the WebEx Cloud is authenticated with a cryptographic token so that only legitimate users can join a specific meeting.

Transport Layer Security

In addition to the application layer safeguards, all meeting data is transported using 128-bit SSL. Rather than use firewall port 80 (used for standard HTTP Internet traffic) to pass through the firewall, SSL uses firewall port 443 (used for HTTPS traffic).

WebEx meeting Attendees connect to the Cisco WebEx Cloud using a logical connection at the application, /presentation/session layers. There is no peer-to-peer connection between Attendees' computers.

Firewall Compatibility

The WebEx meeting application communicates with the Cisco WebEx Cloud to establish a reliable and highly secure connection using HTTPS (port 443). As a result, your firewalls do not have to be specially configured to enable WebEx meetings.

Meeting Data Privacy

All WebEx meeting contents (chat, audio, video, desktop, or document sharing) are transient (existing only during the meeting). Meeting contents are not stored at either a Cisco cloud or an Attendee's computer by default. Cisco retains only two types of meeting information. They include:

- **Event detail records (EDRs):** Cisco uses EDRs for billing and reporting. You may review event detail information on your customized WebEx site by logging in using your Host ID. Once authenticated, you can also download this data from your WebEx site or access it through WebEx APIs. EDRs contain basic meeting attendance information, including who (user name and email) joins what meeting (meeting ID) and when (joining and leaving times).

[2] Note that NBR is not available when E2E encryption is enabled. This option is available only for WebEx Meeting Center.

- **Network-based recording (NBR) files:** If a Host chooses to record a WebEx meeting session, the recording will be stored within the Cisco WebEx Cloud and can be accessed in the MyRecordings area on your customized WebEx site. The file will be created only if a Host enables NBR during the meeting or chooses a sitewide option to record all meetings. NBRs can be accessed through URL links. Each link contains a nonpredictable token. The Host has full control of access to an NBR file, including the ability to delete it, share it, or add a password to protect it. The NBR function is optional and can be turned off by the administrator.

Single Sign-On

Cisco supports federated authentication for user single sign-on (SSO) using Security Assertion Markup Language (SAML) 1.1 and 2.0 and the WS-Federation 1.0 protocols. Support for SAML 1.1 is being phased out. Using federated authentication requires you to upload a public key X.509 certificate to your customized WebEx site. You can then generate SAML assertions containing user attributes and digitally sign the assertions with the matching private key. WebEx validates the SAML assertion signature against the preloaded public key certificate before authenticating the user.

Third-Party Reporting

Beyond its own stringent internal procedures, the WebEx Office of Security engages multiple independent third parties to conduct rigorous audits against Cisco internal policies, procedures, and applications. These audits are designed to validate mission-critical security requirements for both commercial and government applications.

Third-Party Security Assessment

Cisco uses third-party vendors to perform ongoing, in-depth, code-assisted penetration tests and service assessments. As part of the engagement, a third party performs the following security evaluations:

- Identifying critical application and/or service vulnerabilities and proposing solutions
- Recommending general areas for architectural improvement
- Identifying coding errors and providing guidance on coding practice improvements
- Working directly with WebEx engineering staff to explain findings and providing guidance for remediation work

Safe Harbor Certification

In March 2012, Cisco obtained Safe Harbor certification for customer and partner data (Safe Harbor certification for employee data was obtained in 2011). This certification serves as an additional component to Cisco's comprehensive privacy compliance program, and while it is not required by any government or standards board, the company recognizes the value that customers place on this certification.

The EU Data Protection Directive prohibits the transfer of European citizens' personal data to non-European Union nations that do not meet the EU's "adequacy" standard for privacy protection. The U.S. Department of Commerce, in concert with the European Commission, developed a Safe Harbor Framework that allows U.S. organizations to comply with the directive by abiding by a set of Safe Harbor privacy principles. Companies certify their compliance with these principles on the U. S. Department of Commerce website. The framework was approved by the EU in 2000 and gives companies that abide by the principles assurance that the EU will consider their practices "adequate" privacy protections for EU citizens.

SSAE16

PricewaterhouseCoopers performs an annual Statement on Standards for Attestation Engagements No. 16 (SSAE16) audit in accordance with standards established by the American Institute of Certified Public Accountants. For additional information on the SSAE16 please see: http://www.ssae16.com.

ISO 27001 and 27002

Cisco has achieved ISO 27001 for the WebEx Services on October 2012. Certification is renewed every three years with an annual interim external audit. ISO 27001 is an information-security standard published by the International Organization for Standardization (ISO) that provides best-practice recommendations on creating an information-security management system (ISMS). An ISMS is a framework of policies and procedures that includes all legal, administrative, physical, and technical controls involved in an organization's information risk-management processes. According to its documentation, ISO 27001 was developed to "provide a model for establishing, implementing, operating, monitoring, reviewing, maintaining, and improving an information-security management system." Refer to this link for additional information on ISO 27001 and 27002: http://www.27000.org/.

For More Information

For more information on Cisco WebEx solutions please visit http://www.cisco.com/c/en/us/products/conferencing/web-conferencing/index.html or contact your sales representative.

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