Cisco Remote Expert 1.9

Architectural Overview

August 2014

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Preface

Cisco Validated Designs (CVDs) provide the foundation for systems design based on common use cases or current engineering system priorities. They incorporate a broad set of technologies, features, and applications to address customer needs. Cisco engineers have comprehensively tested and documented each CVD in order to ensure faster, more reliable, and fully predictable deployment.

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http://www.cisco.com/c/en/us/solutions/enterprise/design-zone/remote_expert.html

Introduction

The Cisco Remote Expert Solution connects customers with subject matter experts regardless of their respective physical locations. Cisco Remote Expert Solution brings together Cisco's industry-leading technologies in the areas of Telepresence, Collaboration, and Contact Center.

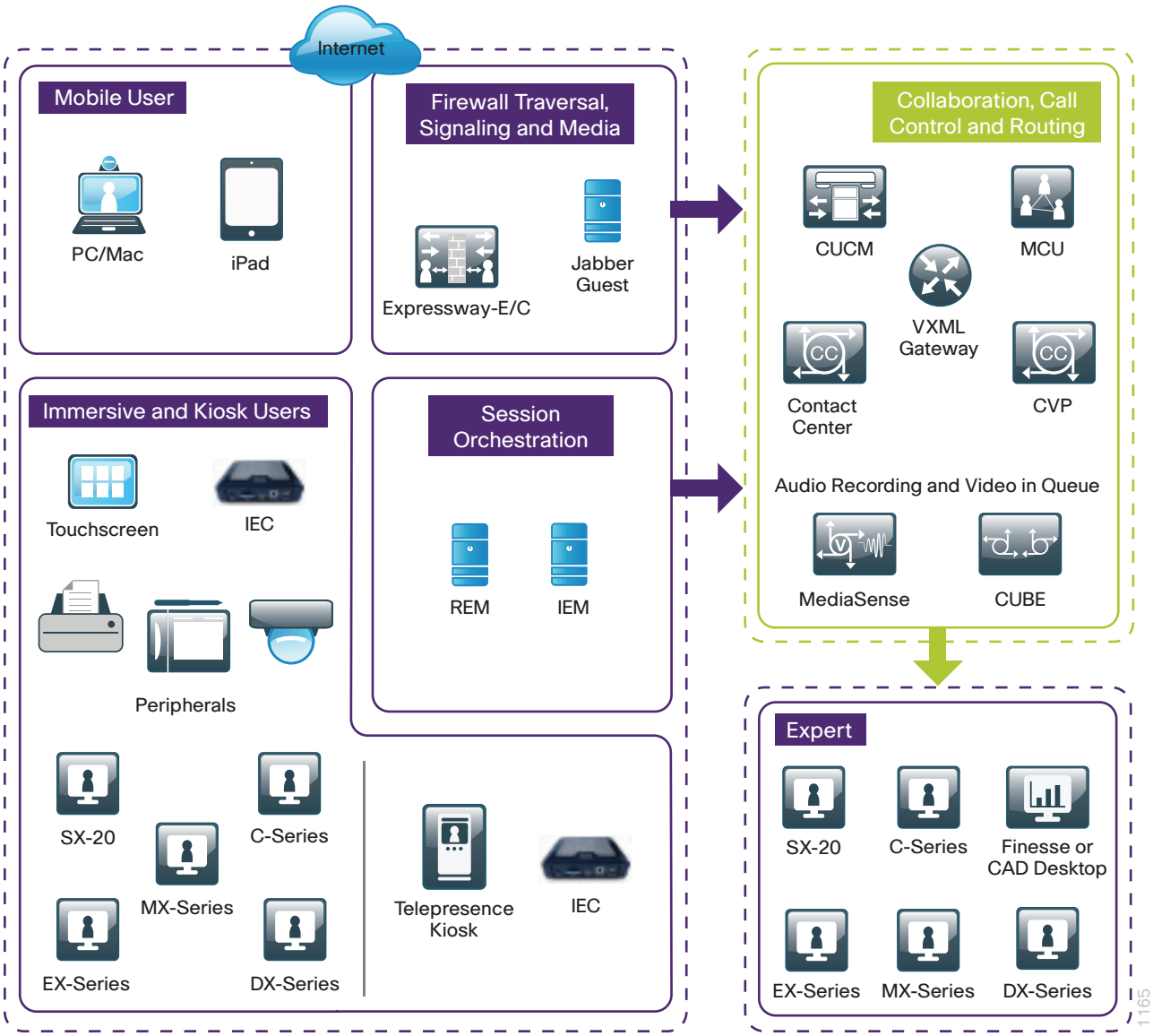
Cisco Remote Expert Solution allows specialized experts to cover larger territories, meet with more prospects, generate more business, and forge better relationships by meeting at the customer's convenience, while providing a just-in-time expert consultation model. Cisco Remote Expert Solution release 1.9 builds upon its 1.8.5 release and introduces new hardware and software features that enable callers to use new channels to consult with experts. Remote Expert 1.9 is covered by four major sections for better understanding. The first three sections will provide an overview of the three access channels made possible by this release and the fourth section will address infrastructure requirements for a successful deployment.

The three access channels provided in Remote Expert Solution 1.9 are Immersive, Kiosk, and Mobile. The Immersive access channel allows a high definition video collaboration experience from a branch location. The Kiosk access channel provides dynamic content to its user with the ability to place a call from the kiosk to an expert. The Mobile access channel allows an enterprise to provide access to experts via caller owned devices such as tablets and PCs

Enterprises evaluating innovative, multi-channel approaches to customer service and engagement can use this reference architecture to identify the critical products and technologies needed to deploy a successful Remote Expert Solution system. This reference architecture is a companion to the Cisco Validated Design (CVD) Guide for the Cisco Remote Expert Solution, and provides a foundation for understanding the best practices and design techniques described in that document. Information contained in these documents is derived from extensive end-to-end testing of the Cisco Remote Expert Solution.

Figure 1 shows the functional architecture of the Remote Expert 1.9 Solution. The left column shows the three channels that may be used to establish a video call to an expert. The Mobile User block illustrates how Remote Expert Mobile would integrate into the system. The Mobile channel uses the enterprise's DMZ infrastructure that allows incoming calls shown in the Firewall Traversal, Signaling and Media block. Immersive and Kiosk access channels use the Remote Expert Manager and the Interactive Experience Client Manager shown in the Immersive and Kiosk Users block. The common components consisting of Cisco Collaboration infrastructure and Expert locations are shown in the right column.

Figure 1 - Remote Expert Solution High Level Architecture & Components

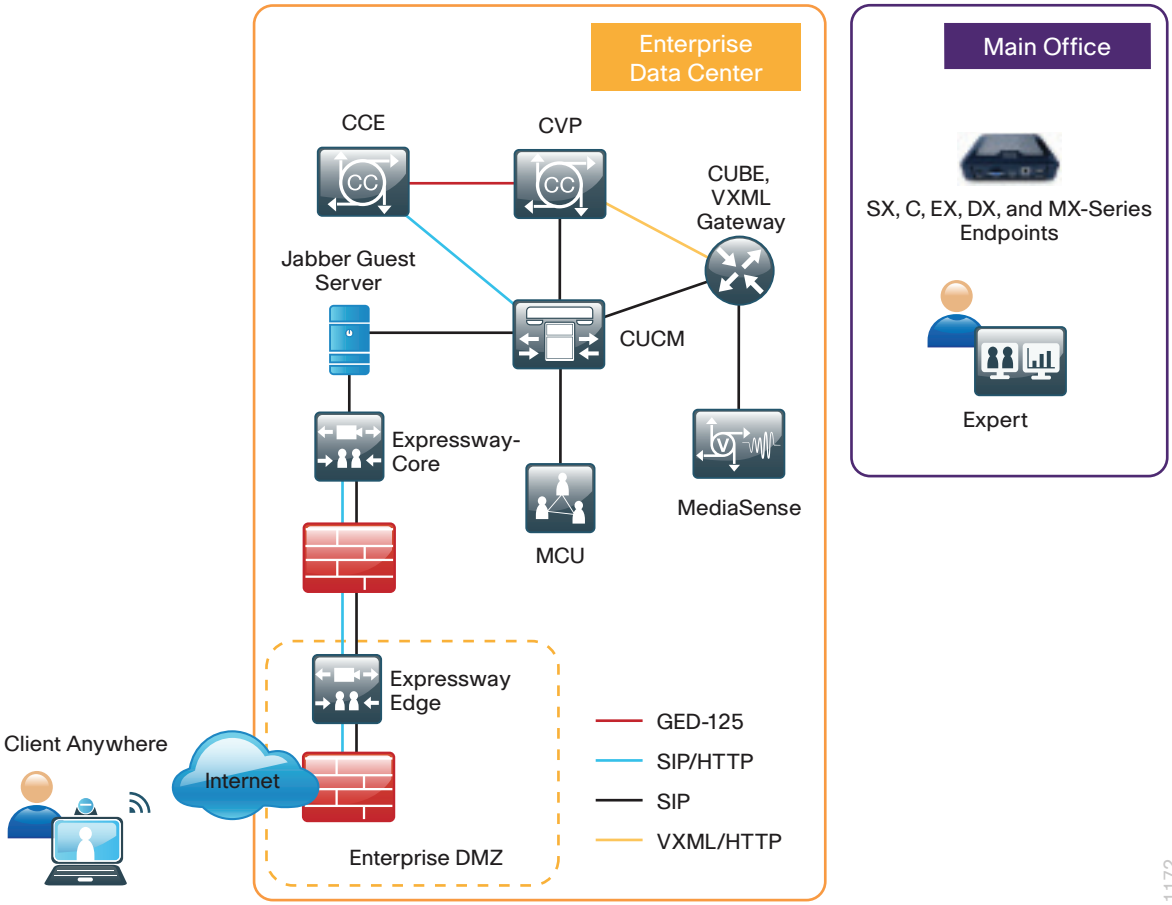


Remote Expert Mobile

In order to expand the reach of the Cisco Remote Expert Solution into the lives of consumers from wherever they may choose to access an expert, the Remote Expert Mobile channel was added in release 1.9. Remote Expert Mobile is different than the other two access channels in that the other two channels rely on Remote Expert Manager and Interactive Experience Manager to help build the user interface and control the endpoints at the customer location. The Remote Expert Mobile channel allows a variety of devices for the consumer to use in order to view the enterprise's web site and then to collaborate with the appropriate expert. This collaboration is accomplished through the deployment of Cisco Jabber Guest to provide the video call back application and Cisco Expressway-Edge and Cisco Expressway-Core to assist in getting the call through the enterprise firewall system.

Figure 2 shows the access and the infrastructure components required for the Mobile access channel. Note that since the access is over the public Internet, a robust Firewall traversal mechanism is required. In addition, the Remote Expert Manager and the Interactive Experience Manager are not required.

Figure 2 - Remote Expert Mobile Access Architecture



Customer Location

As previously noted, the customer location in Cisco Remote Expert Solution Mobile architecture is any one of several devices the consumer chooses to use, be it browser-based from a Microsoft Windows laptop, Apple Mac, or Apple iOS-based applications from tablet devices. The access is typically through an interactive web based interface with the ability to escalate into a video call to an expert by selecting a video chat button. In the background, Jabber Guest client or a plug-in is downloaded first, if not already loaded, and then an IP call is placed into the enterprise to a predetermined HTTP URL. This HTTP URL, and the phone number it maps to, can be configured in such a way that it only permits to make call during a certain time-period (a time-bound URL). The enterprise video telephony system will complete the call from the consumer device when the call is queued for the next available expert.

Infrastructure Required for Access

The unique infrastructure requirements for Remote Expert Mobile are associated with accessing the enterprise from the public Internet. An enterprise typically has two firewalls that this solution must traverse. The first firewall allows access into the corporate DMZ, a network segment within their corporate firewall from the Internet, but without unlimited access to the rest of the enterprise. Access through this firewall is accomplished by enabling the necessary protocols for the video call to be recognized and allowed through. The Cisco Expressway-Edge is located within this DMZ and works with the Cisco Expressway-Core. The Cisco Expressway-Core is inside, located within the data center, beyond the data center firewall, to enable the necessary communications back to the consumer in an outbound fashion.

The infrastructure required within the enterprise for this portion of the solution is primarily Cisco Unified Communications Manager and Unified Contact Center Enterprise. In this case, only the Enterprise version is approved for deployment in order to assure support for the scale possibilities of this architecture. Video in Queue (ViQ), Video on Hold and Recording can be deployed as optional components of the solution. Details on all these products can be found further into this document starting with the Remote Expert Kiosk section.

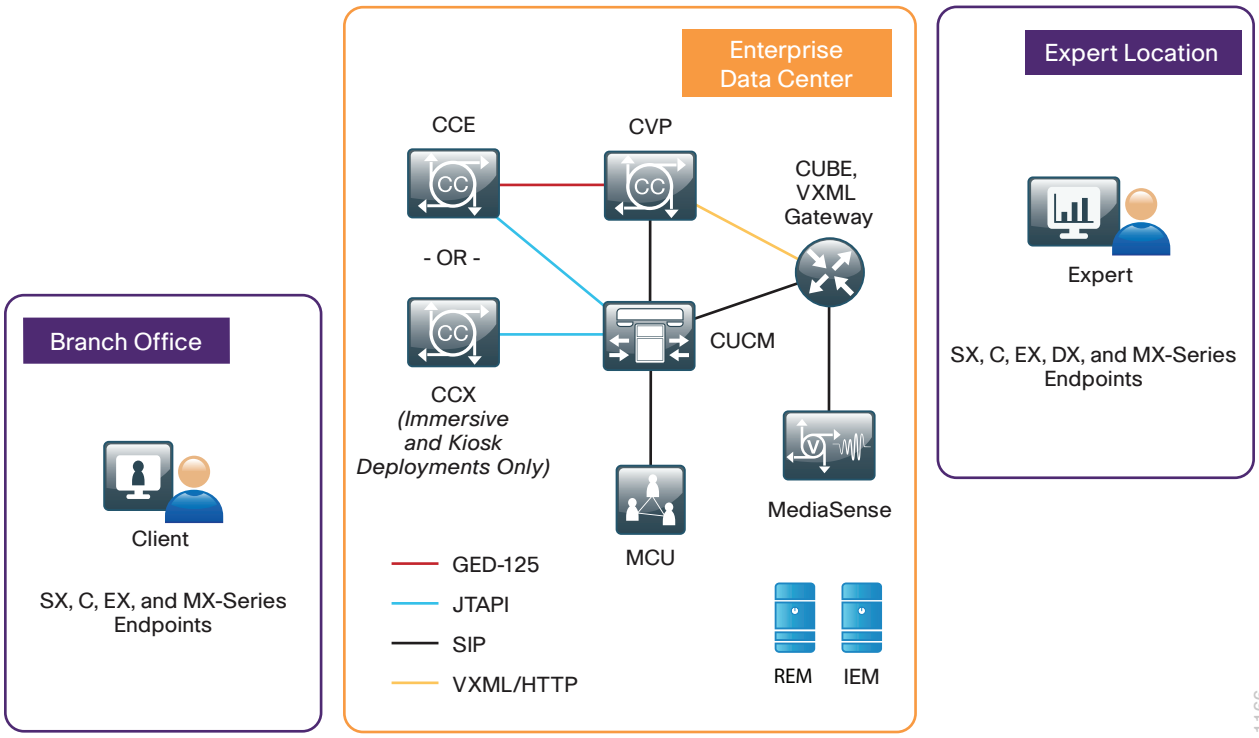
Remote Expert Immersive

Cisco Remote Expert Solution Immersive access channel leverages Cisco Telepresence technology to provide an immersive video consultation experience. Cisco Telepresence technology provides two-way up to 1080p high-definition video between the caller and the expert.

Caller locations are typically located in the enterprise's branch offices while the expert may be located anywhere, such as he headquarters or another branch.

In addition to the video consultation, the caller and expert share a variety of peripherals that further enhances the caller experience. For example, the expert may share documents via a touch-panel, print a document through a printer, get the caller to swipe their credit card in a credit-card reader, and record their signature using a signature capture device, all located at the caller location.

Figure 3 - Remote Expert Immersive Architecture

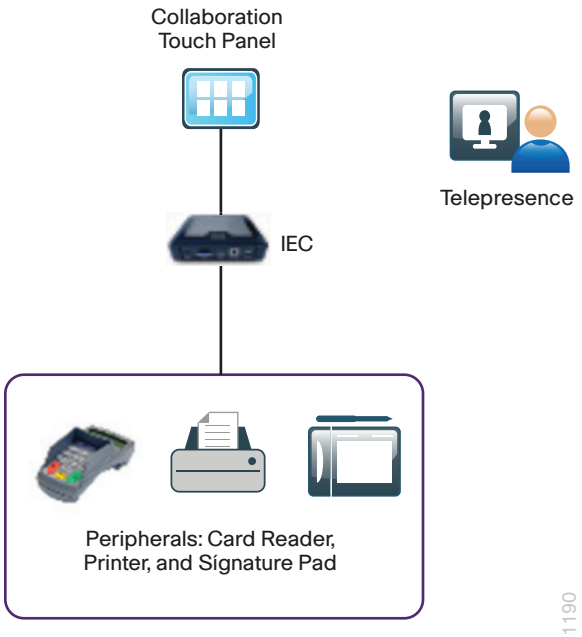


Customer Location

The customer-facing components of the Immersive access channel are typically located in the enterprise's branch offices. Cisco Telepresence creates an immersive virtual face-to-face communication, while customers can interact with experts by means of a convenient touch-panel collaboration monitor. The solution supports a number of Cisco Telepresence endpoints that may be deployed in both customer and expert locations.

The Cisco Interactive Experience Client 4600 (IEC-4610 or IEC-4632) orchestrates the session while also integrating a local printer, card reader, or other human interface devices (HIDs) that enhance the customer experience (see Figure 4).

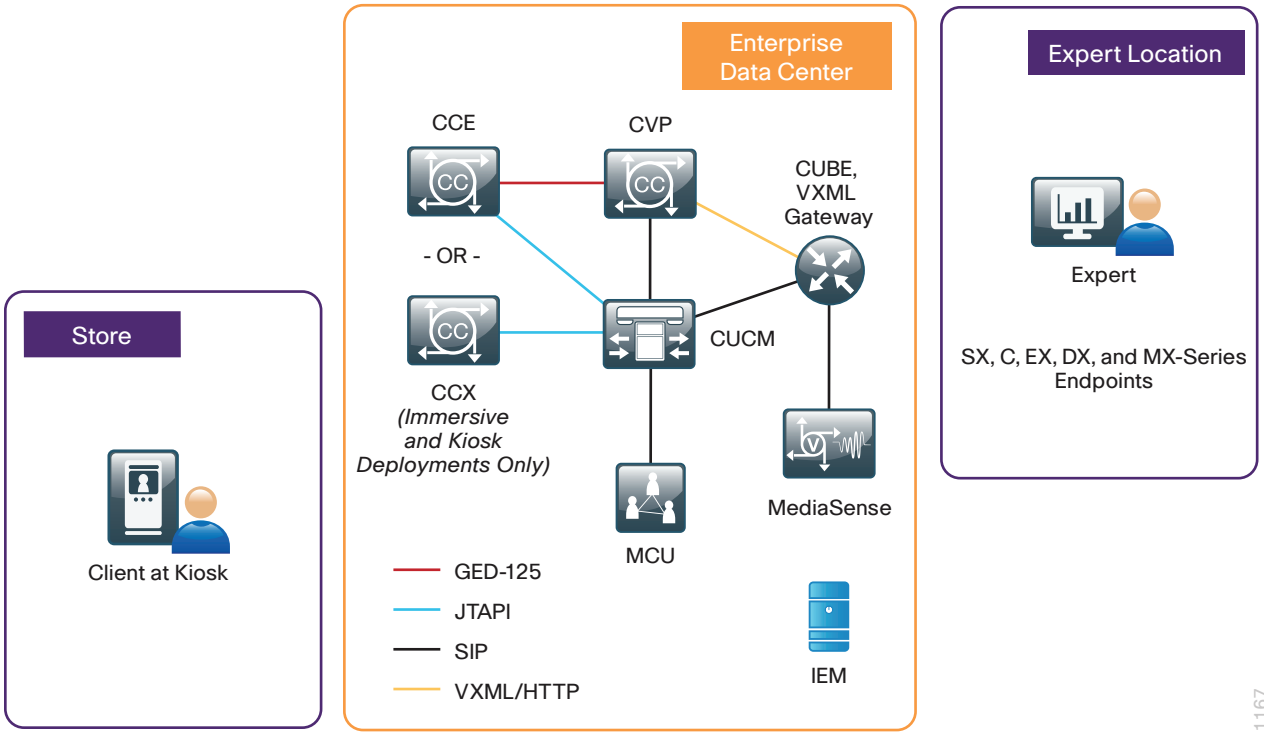
Figure 4 - Customer Location in Immersive Experience



Remote Expert Kiosk

Cisco Remote Expert Kiosk offering combines interactive and non-interactive digital media, collaboration, and an integrated management platform to deliver a rich set of services and information to end-users. Remote Expert Kiosk Solution adds the capability that allows a user to escalate a self-service session to a video call with an expert. This ability further enhances customer experience and satisfaction.

Figure 5 - Remote Expert Kiosk Architecture



Customer Location

At the customer location the Remote Expert Kiosk is composed of the IEC-4632, a touch screen and a camera. The user interacts with the self-serve content via the touch screen, which provides a virtual keyboard, single-point touch screen and smooth kinetic scrolling. In the case where the customer needs further assistance, the customer can start a video call to an expert by simply click on the appropriate button on touch screen.

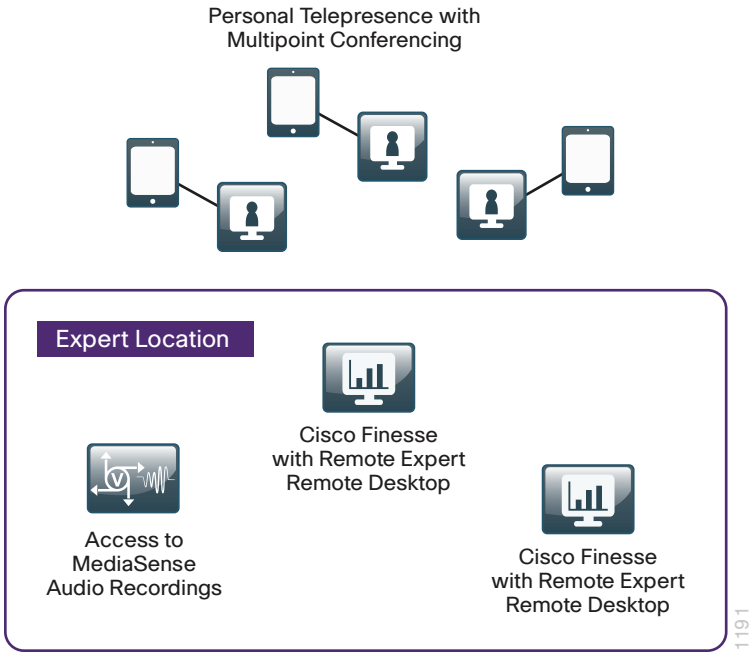
Expert Location

Expert Locations incorporate agent-facing components of the solution. Figure 6 shows a typical expert location. Experts do not need to be dedicated for an access channel. The same expert may handle Mobile, Immersive and Kiosk calls. Enhanced services, such as application sharing, with usage of peripherals will depend on the capability of the access channel.

For the Immersive channel, the expert creates a compelling customer experience with a high-definition Cisco Telepresence session. The expert can further enhance customer engagement through seamless desktop application sharing, multimedia streaming, and interfacing with remote peripherals at Customer Locations to create an "in-person" collaborative experience.

Supervisors have the ability to monitor, search, and playback audio recordings made using Cisco MediaSense.

Figure 6 - Expert Location



Expert Desktop

Expert Desktop refers to the set of functions experts have at their disposal to effectively interact with the caller. In addition to the Cisco Agent Desktop (CAD), Remote Expert Solution allows you to use Cisco Finesse in certain deployments. The Cisco Remote Expert Agent Desktop (READ) is a specific Remote Expert component that works with both CAD and Finesse to provide Remote Expert specific capabilities.

Cisco Finesse

Cisco Finesse is the next-generation agent and supervisor desktop designed to provide a collaborative experience for the various communities that interact with the enterprise's customer service organization. Cisco Finesse offers transparent integration with products in Cisco Collaboration portfolio.

Cisco Finesse is a web application and no desktop installation is required. Experts can work from anywhere by simply invoking a URL and logging in. The Cisco Finesse application can work in virtual desktop environments, and its servers can run as virtual machines in data centers. Cisco Finesse does not rely on the older, proprietary, and more complex CTI based architecture but embraces a web-based architecture. It takes advantage of XML and HTTP standards (for example, REST, JSON, and XMPP).

Gadgets developed by Cisco, the enterprise, or a third party can be incorporated into Cisco Finesse. This is a major distinguishing feature of Cisco Finesse.

Cisco Agent Desktop

Cisco Agent Desktop is a computer telephony integration (CTI) solution for IP-based contact centers that allows contact center agents to use powerful tools that help increase agent and supervisor productivity, improve customer satisfaction, and reduce costs. In addition to traditional agent application support, the Premium version of the CAD application supports an integrated browser, which is required for use with Remote Expert Agent Desktop.

Cisco Remote Expert Agent Desktop

The Cisco Remote Expert Agent Desktop (READ) is a browser-based application for experts, and it is provided either through CAD application's integrated browser, or as a gadget in Cisco Finesse. READ allows experts to use powerful tools that help increase the expert's productivity, improve customer satisfaction, and reduce costs. With READ, experts can:

- Selectively push videos to the customer
- Remotely print at branch site
- Share data (peer-to-peer) in conjunction with Direct Connect application
- Take notes (both private, visible only to the expert, and public, also visible to the customer)
- Access and use IEC connected peripherals such as a printer, scanner, document camera, card reader, etc.

An intuitive GUI decreases IT dependency and simplifies customization, maintenance, and change management.

> **Tech Tip**
>
> Cisco Unified Contact Center Enterprise supports both Finesse and Cisco Agent Desktop while Cisco Unified Contact Center Express currently only supports Cisco Agent Desktop for Remote Expert Deployment

Application Sharing

Direct Connect is a software application installed on the expert's workstation and provided as part of the Remote Expert Solution. Direct Connect allows real-time collaboration between experts and customers using any enterprise application on the expert's workstation. These applications can be natively shared and controlled by either the customer or the expert without the latency, complexity or cost of third-party conferencing or collaboration tools.

Video in Queue and Video on Hold

Video in Queue (ViQ) refers to a video that might be shown to the caller when they are waiting for an expert. Video on Hold (VoH) refers to the video shown to the caller if the expert puts them on Hold, for example, while transferring to or conferencing them with another expert.

For Immersive access, ViQ and VoH can either be shown on the collaboration panel using media streamed to the IEC from a media-server, or in UCCE based deployments, it can be shown on the TelePresence screen using media streamed to it from Cisco MediaSense initiated by the CVP.

For Kiosks, ViQ and VoH can be shown on the collaboration panel using media streamed to it from Cisco MediaSense initiated by the CVP.

Transfer and Conferencing

During a Remote Expert video call, the expert may transfer the caller to another expert, if appropriate, or conference in another expert to create a three-way call. To create a conference, the Remote Expert solution uses video MCUs to mix and distribute video to all of the participants in the conference.

> **Tech Tip**
>
> Transfer and conferencing are not supported in Remote Expert deployments with UCCX.

Video in Queue and Video on Hold

For Immersive and Kiosk channels, when Remote Expert Solution 1.9 is deployed with UCCX, video for both ViQ and VoH will be streamed from a media server and displayed on the collaboration panel.

Solution Components

Cisco Interactive Experience Manager (IEM)

The Interactive Experience Manager (IEM) allows configuration, control, and support of Interactive Experience Clients (IEC) 4600 series. Using the IEM, the system administrator can enable peripherals, apply policy on sessions, and generate logs and reports from the IEC.

Cisco Remote Expert Manager (REM)

Remote Expert Manager (REM) is the core control system of the Remote Expert Solution, providing the collaboration features that make customer interactions with the expert simple and effective.

REM implements the following administrative, control, and messaging functions:

- RE Administrator Console (REAC) - Web-based management interface to add, verify and update all necessary configurations that are needed for normal operation of REM platform
- RE Agent Desktop (READ) - Web-based Expert desktop environment provides CRM, note taking, video streaming, application sharing and printing capabilities between the Expert and the Customer
- RE Interactive Applications Controller (REIC) - Renders graphics, fonts and video on the touch screen located in the customer pod, renders desktop applications shared by the expert, relays Customer touch inputs and facilitates customer control of the expert's shared application
- RE Session Controller (RESC) – Provides session management to initiate and terminate RE video sessions, data sharing sessions, trigger Customer-side printing and control video streaming

The REM relies on the following components for its functions:

- Interactive Experience Manager (IEM)
- Interactive Experience Client (IEC)
- Media Server

Cisco Unified Communications Manager

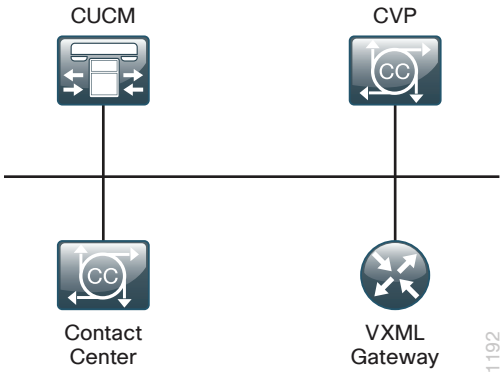
The Cisco Unified Communications Manager is an integral part of the Cisco Remote Expert Solution and provides functions such as call control, dial plan, and call admission control.

Cisco Unified Contact Center Enterprise

Cisco Remote Expert Solution 1.9 supports both Cisco Unified Contact Center Express (UCCX) and Cisco Unified Contact Center Enterprise (UCCE).

In UCCE based deployments, Cisco Customer Voice Portal (CVP) and Voice XML (VXML) Gateway provide inbound call queuing and interactive Voice Response (IVR) services. In conjunction with CVP and VXML Gateway, UCCE provides skills-based call routing to an available expert based on the Customer's selected need.

Figure 7 - Unified Communications Components with Cisco Contact Center Enterprise



Cisco Unified Contact Center Express

Remote Expert Solution Release 1.9 introduces support for Cisco Unified Contact Center Express (UCCX) for Kiosk and Immersive channels in certain deployments, where the more comprehensive feature set of UCCE is not required; the UCCX may provide a simpler design.

Cisco Unified Border Element and Cisco MediaSense for Call Recording

The Cisco Unified Border Element (CUBE) and Cisco MediaSense handle audio session capture between a Customer and the Expert(s). CUBE, acting as a Session Initiation Protocol (SIP) back-to-back user agent (B2BUA), is responsible for intercepting and forking the synchronized two-way conversation to Cisco MediaSense. Cisco MediaSense is a SIP-based media server that provides the actual recording services. These recordings may be searched and played back as required from the Remote Expert Manager console.

Network Considerations

The Remote Expert Solution leverages Cisco's rich portfolio of routers, switches, and network services, so that organizations can deploy an infrastructure that is not only suited to their needs, but is capable of carrying out the traffic demands of the video infrastructure. It should be noted that the Cisco Remote Expert solutions can be configured with varying degrees of High Definition video. The objective of the experience, whether stationary and detailed video or conversational with lots of movement, should be taken into consideration and the appropriate video configurations made, so as to understand the bandwidth required within a particular deployment. The solution is fully capable of being delivered over private WANs, MPLS VPNs, or Metro Ethernet networks, if decisions are made appropriately regarding QoS policies, video requirements, and due consideration is given to the bandwidth required. Cisco Powered WAN/VPN service provider networks typically maintain the high levels of network quality required for an acceptable video experience. More details around the design choices possible and their specific impacts on bandwidth requirements can be found in the Cisco Remote Expert Solution CVD.

Conclusion

The Cisco Remote Expert Solution is a fully integrated, enterprise-class, customer service system, delivering a superior collaborative and rich media experience with best-in-class Return on Investment. The Cisco Remote Expert Solution enables organizations to target expertise at the point-of-need through immersive Cisco TelePresence, self-service “end-of-the-aisle” kiosks, and consumers directly from their homes. Enterprises can centralize specialist pools to provide maximum coverage, and still support “carbon neutral” environmental imperatives. With the Cisco Remote Expert Solution, enterprises can deliver a differentiated and compelling customer experience while reducing revenue leakage and travel expenses. The result is increased customer confidence and loyalty, and improved utilization of trained, valuable business specialists.

References

Cisco Remote Expert Solution Home Page:

http://www.cisco.com/go/remoteexpert

Cisco Remote Expert Solution Design Zone:

http://www.cisco.com/c/en/us/solutions/enterprise/design-zone/remote_expert.html

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