



BRKUCC-2673

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Cisco (iVt.

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Agenda

- Introduction
- Client Experiences
- Solution Components
- Configuration
- Jabber Guest Cluster
- Call URL Management
- Video & Mobile SDK
- What's New?
- Nextsteps







Jabber Guest – Public-to-Enterprise Communications

- UC/video sessions into businesses ...
 from desktop browsers, mobile clients
- Initiate from public web sites, mobile applications & URLs, e.g. email

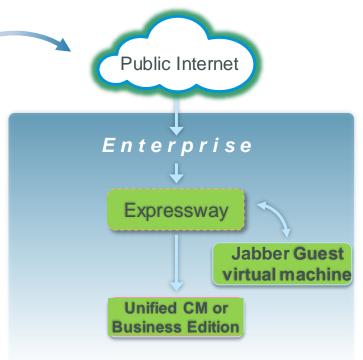
- Calls to individual employees, remote experts / customer care
- SDKs for Web & mobile app integration
- Available since Q2CY2014





Extend Enterprise Collaboration to Customers, Partners, Suppliers Alike

Consumer/ **Partners**









Jabber Family Overview ... Enterprise & Guest Users

Guest Users



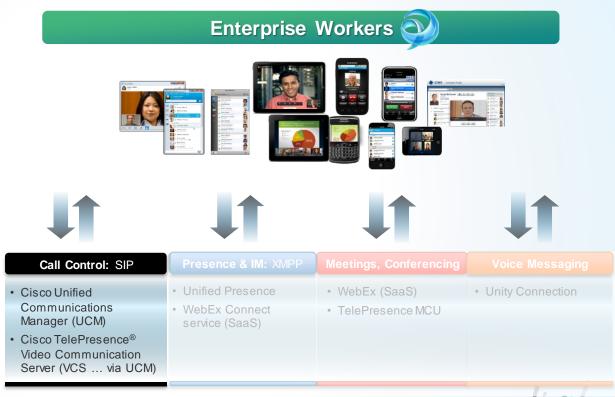
Web Browser



Mobile Apps

DMZ

Cisco Expressway



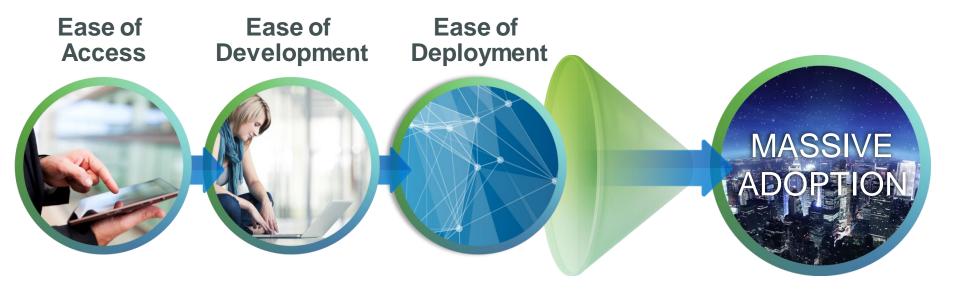


Jabber Guest Status

- 10.0 released in June '14
- See <u>UC Apps ordering guide</u>
- 10.5 released December, 2014
 - Upgrade available via Cisco.com download
 - New orders after FCS receive 10.5 (physical media or eDelivery)
- Android support in EAP since November, 2014 ... targeting FCS Q1 CY15 (subject to change)
- 64-bit iOS SDK on DevNet & client in App Store targeting Q1 CY15 (subject to change)



Jabber Guest Value Proposition





Jabber Guest – Addresses 3 Universal Use Cases

Enhance Customer Interactions

- Add voice, video, and data sharing to your website, email communications, and mobile applications
- For example, involving contact centres in Retail and Financial Services

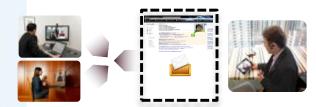
Extend Experts' Reach & Productivity

- Extend unified communications benefits to the entire ecosystem of an enterprise
- For example, involving experts in Healthcare, Financial Services, Education

Offer Temporary Guest Access across Businesses, Governments

- Help associates, customers, partners, suppliers, consultants, etc reach your employees
- Use Case: HR Interviews















Jimmy Kimmel Live! – Powered by Cisco



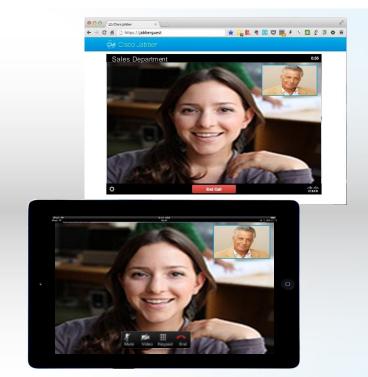




Jabber Guest Browser & Mobile Experiences

User Experience

- Video
 Point-to-point or conferencing
- Midcall control
 Keypad
 Mute audio or video
 Full-screen video
 Camera or audio device selection
 Self-view
- Call control WebRTC Compatible
- Media
 Browser plug-in (desktop web), Native apps (mobile)
 Future WebRTC for media

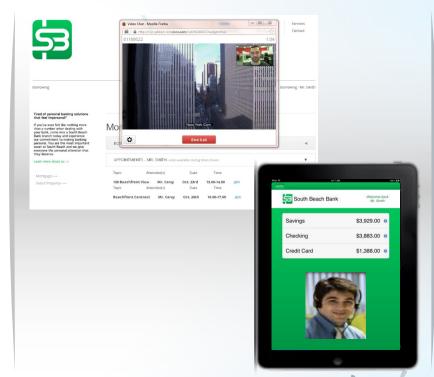




Jabber Guest SDKs

Customisation

- Desktop browser SDK
 Sample HTML and Javascript provided to create video widget and set up event handler
- Mobile native application SDK
 iOS framework
 Each includes sample projects, tutorials, API reference, etc
- Developer enablement via Cisco DevNet ...http://jabberdeveloper.com





Jabber Guest Browser Experience

Video in the Browser

- Call Control = WebRTC Standard (ROAP)
- Video termination *in the browser* is plugin based

 Currently Cisco Jabber Guest utilises a H.264

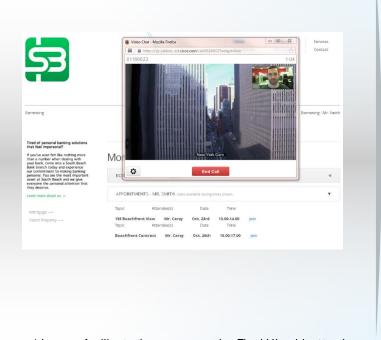
 AVC based browser plugin to leverage web

 browsers for HD Video

One-Time download

Built on Jabber Video Engine

Interoperable with other Cisco video end-points such as Cisco Jabber, Cisco TelePresence etc.



^{*} Images for illustration purpose only. Final UI subject to change.

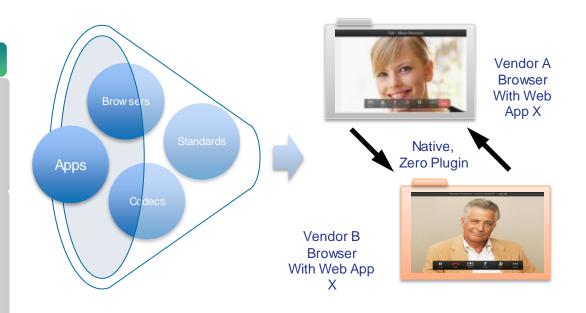


Jabber Guest

WebRTC Vision

HTML5 Standard

- Native Video in the browser
- ZERO Download
- Standards still evolving at IETF and W3C
- Video Codec support outstanding
- Jabber Guest Call Control is already WebRTC based (ROAP)





Browser Implementations of WebRTC



Google Chrome

- Initial desktop implementation in Chrome 23 Stable & later
- Initial mobile implementation in Chrome 26 for Android Beta
- Actively contributing to standards efforts
- Contributing to open source, e.g. WebRTC.org



Microsoft Internet Explorer

- Actively contributing to standards efforts
- · Implementation status not public



Mozilla Firefox

- Initial desktop implementation in Firefox 20 & later
- Actively working on open source implementation & contributing to standards efforts
- Cisco contributed OpenH264 and open source development, e.g. RFC4566compliant SDP engine, call control application logic



Apple Safari

Maintaining strict secrecy



Call Resolution

Video Adaptation

Resolution Challenges

- Volatile consumer networks
- Device Hardware Capabilities
- Camera
- Processor

Adaptation

- Bandwidth probe pre-call to determine network conditions
- Rapid Upward Adapt
- Mid-Call Downward Adaptation



^{*} Images for illustration purpose only. Low res image not actual screenshot..





Requirements

Jabber Guest Virtual Machine (OVA)

- RAM: 4 GB
- CPU: 2 logical CPUs with 1 core per CPU
- Storage: 100 GB
- OS: Centos 6.5 64-bit
- VMware vSphere 5.x and later
- See docs for more details, e.g. server, CPU models

Cisco TelePresence® Expressway

X8.2 or later

8.6 or later, incl BE6K

Use "Non-BE6000 UC" requirements for coresidency with BE6K, max 100 sessions supported

Cisco Unified

Communications

Manager

Mobile Native Support

iOS

iPhone 4S and later

iPad 2 and later

iOS 7.0 and later

Desktop Browser Support

Windows

Vista and later

Firefox 10+

IE 8+ (32-bit only, IE 11)

Chrome 18+

Mac

OS X 10.7 and later

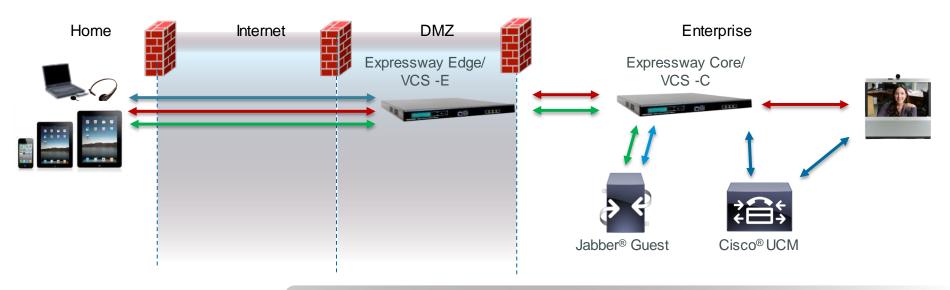
Firefox 10+

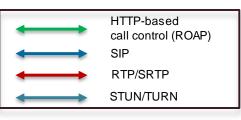
Safari 5+

Chrome 18+



Jabber Guest Call Flow

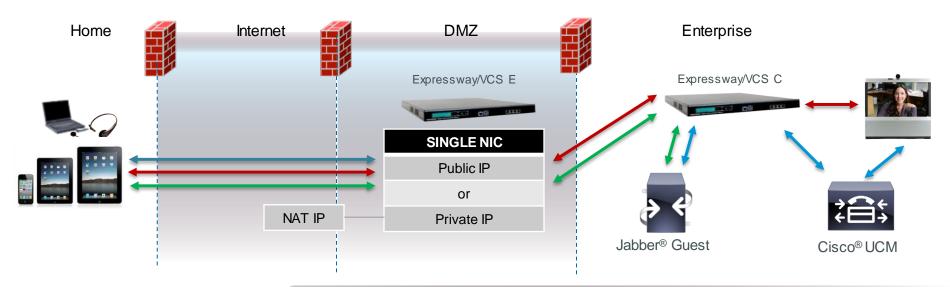


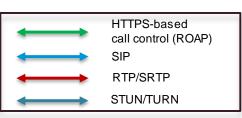


Jabber Guest ...

- Serves up Javascript call control based on URL
- For mobile, uses Cisco® app from app store or integrates it into third-party app
- For laptop browsers, initiates H.264 plugin install as needed for Cisco or 3rd-party Web app
- Converts HTTP call request to SIP INVITE

Expressway/VCS E Single NIC Deployment Model

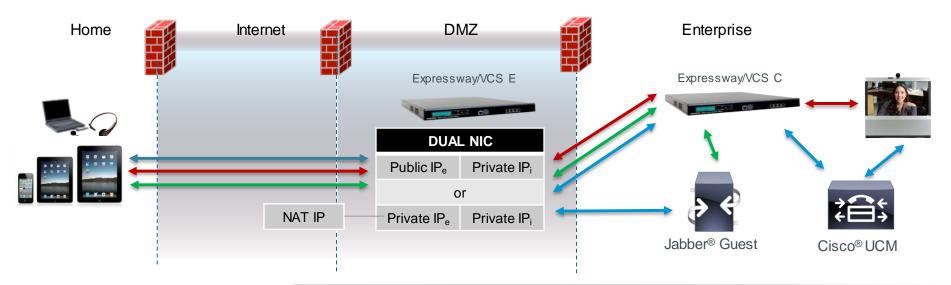


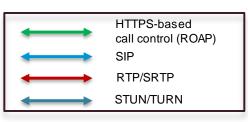


- SIP call control is between Jabber Guest server and Expressway/VCS C
- When using NAT on the Internet-DMZ interface, Jabber Guest server remaps SDP from the NAT IP to the Expressway/VCS E private IP
- Does not use Expressway/VCS traversal zone for media ... see docs for firewall requirements



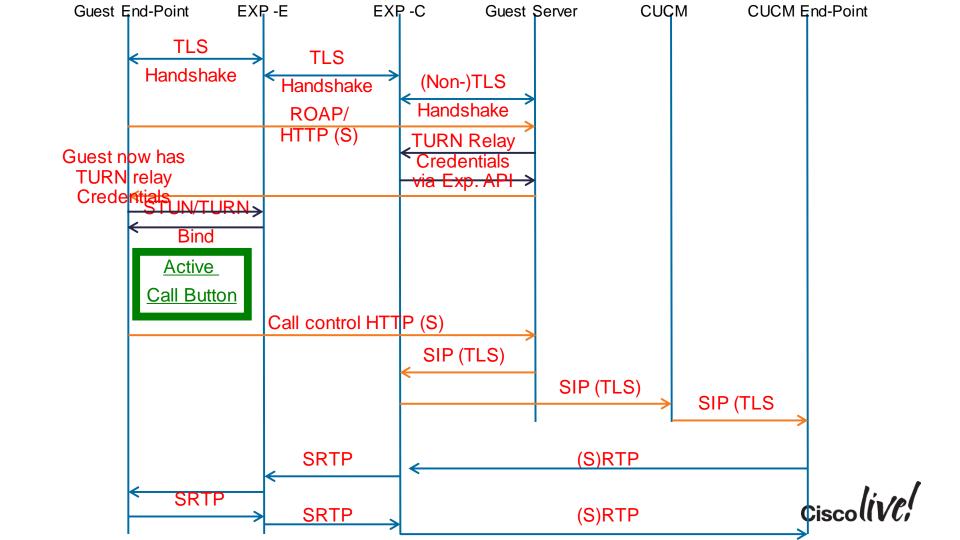
Expressway/VCS E Dual NIC Deployment Model





- SIP call control is between Jabber Guest server and Expressway/VCS E
- When using NAT on the Internet-DMZ interface, Jabber Guest server remaps SDP from the NAT IP to the Expressway/VCS E external private IP
- Uses Expressway/VCS traversal zone for media ... see docs for firewall requirements







Call Control and Media

Call Control and Media

Typical production deployment

- Route calls using Cisco Expressway
- Route calls using Cisco Unified Communications Manager —

 Typically used in lab environment for basic testing before Expressway is introduced



Call Control and Media - SIP

SIP

- Enable SIP over TLS **Enable SRTP** SIP port: 5061 SIP domain: ucdemolab.com SIP server: vcsc1.ucdemolab.com Expressway-C server that proxied the HTTP request from Jabber Guest client Send SIP traffic to SIP server specified above
- 5061 SIP over TLS
- Send SIP signal to Expressway-C in expressway single NIC deployment
- Send SIP signal to Exp-E in dual NIC deployment



Expressway-E server that provided TURN service

Call Control and Media – TURN credential's

Cisco Expressway-C

Expressway-C (IP vcsc1.ucdemolab.com address or DNS name) Request short-term Expressway-C server that proxied the HTTP request from Jabber Guest client TURN credentials from Expressway-C server specified above HTTPS port: 443 Domain: ucdemolab.com Username: admin Password:

Guest requires admin credentials for Exp-C to access TURN API to reserve TURN resource.



Call Control and Media – TURN Server

Enter details of TURN server in the Cisco Jabber Guest environment

Cisco Expressway-E		
Expressway-E TURN server (IP address or DNS name):	vcse1.ucdemolab.com	
TURN port:	3478	



Call Control and Media – Static NAT

 If Static NAT is in use on Expressway, you will need to enter IP NAT information on Cisco Jabber Guest admin interface.

Cisco Expressway-E Network Address Map				
Static NAT mode				
Public IP (Static NAT)	>> External IP (DMZ)	>> Internal IP (DMZ)		
1	>>	>>		





Administration Steps

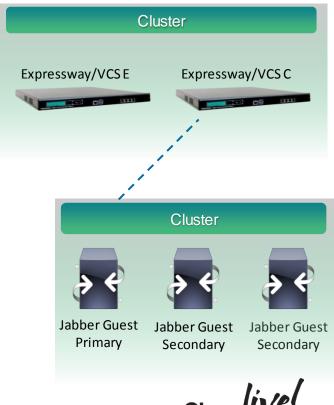
- On Guest: Set priority 1 to point at Jabber Guest PRIMARY node.
- On Guest: Set priority 2 & 3 to each SECONDARY node.
- On Expressway: Add Jabber Guest servers with associated priority
- On Expressway: Create zones for each Jabber Guest node.



Scalability, High Availability & Redundancy

- Target scalability = 2000 concurrent sessions via standalone VM
- Cisco Jabber Guest cluster priority is set in Expressway-C
- VM deployment models
 - Standalone VM
 - Cluster for high availability, redundancy
- Cluster is 3 VMs
 - Same scale as Standalone VM
 - Clusters are independent of each other
- Setup and manage cluster via VM CLI





Data Replication

- Jabber Guest can be administered from any node in the cluster.
- It is recommended you use one server for administration to simplify troubleshooting

Data that replicates	Data that does not replicate
Users	Settings > Local SSL Certificate
Links	Settings > Call Control and Media (Local)
Services > Passwords	Logs
Settings > Links	
Settings > Mobile	
Settings > Secure SIP Trust Certificate	
Settings > Call Control and Media	



Nominating PRIMARY node

- Access Jabber Guest server via Root Access
- On Primary Node:
 - Type "cluster initiate"

```
[root@jabberguest ~]# cluster initiate
Create a cluster administrator account
Enter the username to use for the account:
admin
Enter the password to use for the account:
Confirm the password to use for the account:
Configuring database for replication
Configure this database node as primary
   NOTE - A healthy cluster should have three nodes. Two more nodes should
    be added to complete the cluster.
```

- You will be prompted for a cluster admin account. Be sure to remember these details, you will need them for the subsequent nodes to join the cluster
- Once completed, type "cluster status"
- Notice, this node is now "PRIMARY"

```
[root@jabberguest ~]# cluster status
---> 10.99.150.155 PRIMARY
```



Nominating PRIMARY node

- Changes will not take affect until tomcat service has been restarted.
 - Type "service tomcat-as-standalone.sh restart"



Nominating the first SECONDARY node

- Move onto Root access on your second node.
- Type "cluster join <IP or HOSTNAME of PRIMARY>". This will erase all current configuration and copy the configuration from the PRIMARY node.

```
[root@jabberguestnodeB ~]# cluster join 10.99.150.155

WARNING - This operation will clear all existing data on this server.
```

- You will need to enter the cluster administrator credentials that you entered on the PRIMARY node.
- Restart tomcat for changes to take affect.



Nominating the second SECONDARY node

- Finally, move onto the third node. Again, type "cluster join <IP or HOSTNAME of PRIMARY>"
- Enter the cluster administration credentials
- This will complete the three node cluster:

```
root@10.99.150.155's password:
Enter cluster administrator username:
admin
Enter cluster administrator password:
Configuring database for replication
Configure this database node as secondary
Stopping database service
Removing old data
Starting database service

NOTE - The cluster has three nodes and is complete.
```



Nominating the second SECONDARY node

Finally, check the status of the cluster:

```
[root@jabberguestnodeC ~]# cluster status

10.99.150.155 PRIMARY

10.99.150.156 SECONDARY

---> 10.99.150.157 SECONDARY
```



Communication between SECONDARY Node's B & C

- Once all 3 node's are members of the cluster, the admin must enable communication between Node B & C.
- Before commands:

- On Node B, use command "cluster allow <NODE-C IP or hostname>"
- On Node C, use command "cluster allow <NODE-B IP or hostname>"
- After commands:

```
[root@jabberguestnodeB ~]# cluster status

10.99.150.155 PRIMARY

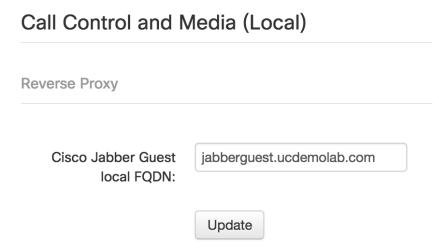
---> 10.99.150.156 SECONDARY

10.99.150.157 SECONDARY
```



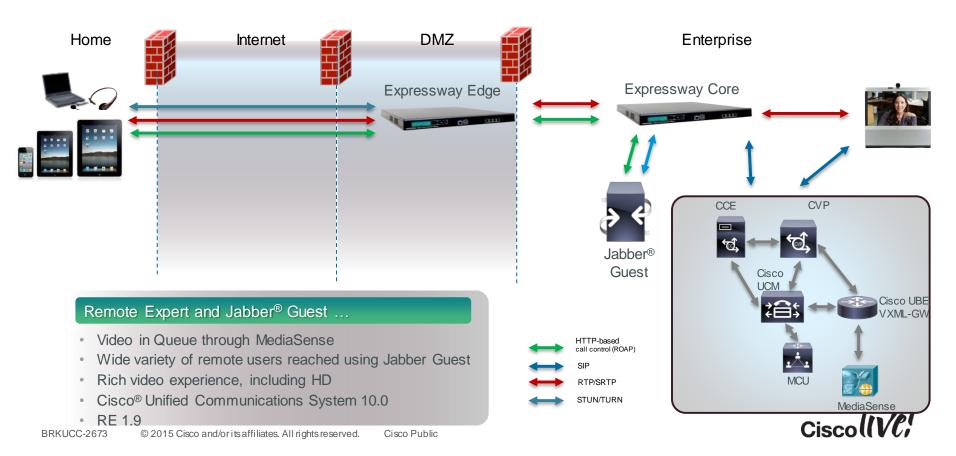
Node FQDN's

 Once a cluster has been configured, be sure to check "Call Control and Media (Local)" on each server, and ensure the correct FQDN is on each node respectively





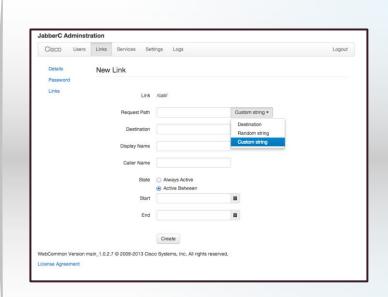
Remote Expert and Jabber Guest





Making Calls

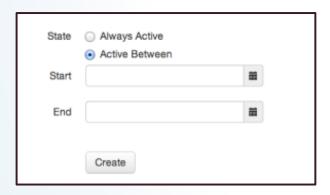
- Jabber® Guest can use "Ad-hoc" calling or admin managed links.
- Some examples:
 - URI dialing: http://example-jabberc.com/call/janedoe@example.com
 - Four-digit Directory Number: http://example-jabberc.com/call/1234@example.com
 - Eight-digit Directory Number: http://example-jabberc.com/call/12345678@example.com
- http://example-jabberc.com/...: Location of enterprise
- .../call/1234@example.com: URI or Directory Number of Cisco® UCM registered endpoint

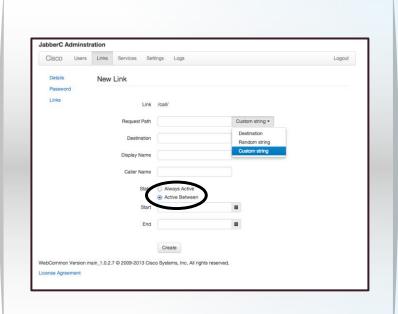




"Timed" URL Configuration

- A time-bound link may be created
- Link only valid during time specified in admin console
- Helps manage time of in-house expert
- RESTful API may be used to manage link timing from third party scheduling software







Call Link Management API

- A user with admin rights may utilise the Management API
- Restful API provided to create, update, delete call URL's, as well as retrieve certain information about individual links.
- The API can return or retrieve data in either application/json or application/xml.

Resource	Description
GET https://[IP address]/cjg-api/rest/links/	Returns a list of links and the properties for each link. Parameters: • limit—The number of items to limit the list to. • offset—The offset into the full result list to start this list at. Examples of limit and offset for paging links: • Gets the first 10 links (page 1): /cjg-api/rest/links?limit=0&offset=10 • Gets the next 10 links (page 2): /cjg-api/rest/links?limit=10&offset=10
GET https://[IPaddress]/cjg- api/rest/links/[linkObjectId]	Takes a linkObjectID and returns the object properties for the specified link.



Call Link Management API:

POST https://[IPaddress]/cjg-api/rest/links/	Create a new link Content-Type: application/json Body: {"isEnabled": true, "requestPath": "AnyValueYouWant","destination": "johndoe@cisco.com} The request pat value must be unique. You also need to pass in the isEnabled flag or the link will be disabled Resulting Link: https://[server]/call/AnyValueYouWant	
PUT https://[IP address]/cjg-api/rest/links/[linkObjectld]	Update Link Content-Type: application/json Body: { "is Enabled": true, "requestPath": "AnyValueYouWant", "destination" johndoe@cisco.com } The requestPath value must be unique. You also need to pass in the isEnabled flag or the link will be disabled. Resulting link: https://[server]/call/AnyValueYouWant	
DELETE https://[IP address]/cjg- api/rest/links/[linkObjectId]	Delete the specified link.	



Jabber Guest API (cont.)

Property	Description
linkObjectID	Unique identifier for a link
isEnabled	The status of the link. This flag must be passed in when creating or updating a link or the link will be disabled.
requestPath	The part of the link after /call. For example, https://[linkPrefix][requestPath]. Must be unique.
destination	DN or URI that is called when a user clicks on the link. Destination is required.
displayName	The name displayed on the client when placing a call using this link. Optional.
callerName	The name displayed on the destination endpoint in the enterprise when a call is placed using this link. Optional.

Property	Description
callerAlias	The Caller ID displayed on the destination endpoint in the enterprise when a call is placed using this link. Optional.
validAfter	The date and time when a link becomes active. Default value: If left blank, the link can be used immediately to route calls. Optional.
validBefore	The date and time when a link expires, and can no longer be used to route calls. If left blank, the link never expires. Optional.
linkPrefix	The part of the link before the request path. linkPrefix is the same for all links in a cluster.
userObjectld	The user responsible for creating the link. Default: If left blank, defaults to the logged-in user.









Simple to Embed Video

- Cisco Jabber Guest functionality is exposed on a web page by embedding the application widget.
- The widget can be embedded using an iFrame. E.g.:

```
<div>
```

<iframe id="jabberc" src="https://jabberguest.mycompany.com/call/MikeHolland@cisco .com?widget=true">

</iframe>

</div>

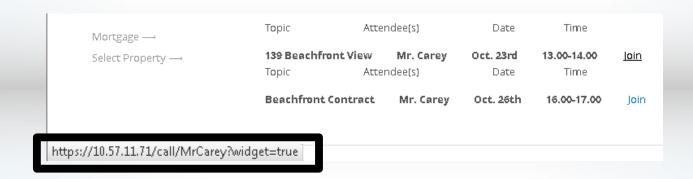
- Navigating away from the active call page will end the call to prevent a user accidently closing an active call, Jabber Guest will first prompt the user to confirm the close
- There is a widget sizing tool located at: https://<server>/call/widget-size.html.





Making Calls

- Hyperlink under "join" button may be seen below.
- Notice "?widget-true". Video only widget, i.e. no additional web page



Cisco Public





Jabber Guest Mobile in Action



What Does This SDK Offer?

Jabber Guest SDK for iOS package

- An iOS framework that packages all available Jabber Guest APIs
- A couple of sample projects that help you walk through the supported integration scenarios
- Documentation that includes tutorials and API references



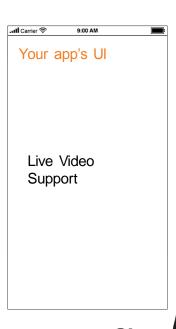


High Level: Use Pre-Packaged View Controller (1/2)

 The SDK provides a view controller class which handles all aspects of Jabber Guest functionality for you. You just need to instantiate the view controller and segue to it from







High-Level: Use Pre-Packaged View Controller (2/2)

•	Class Name	Description
	CJGuestCallViewController	The high level Jabber Guest view controller that controls the entire call
	CJGuestViewControllerDelegate	Protocol that handles events when end call / More button was pressed, or Invalid certificate was received from Jabber Guest server

Properties that have to be set before seguing

Name	Description	
NSString * serverName	Jabber Guest server address	
NSString * toURI	SIP URI of the remote end point	

Protocol methods need to be implemented before initiating the segue

Name	Description
callFinishedForCallController	called when the end call button was pressed or disconnect occurs
moreButtonPressedForCallControll	called when the More button was pressed
er	

Set its delegate



Low Level: Use Custom Views (1/2)

 Instead of letting the view controller take care of everything for you, you can use the main Jabber Guest class together with the pre-packaged view subcomponents to build your own custom solution.



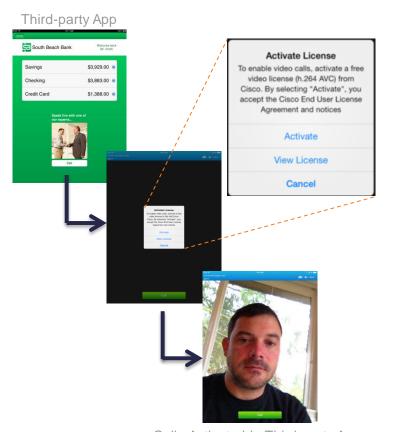
Low Level: Use Custom Views (2/2)

•	Class Name	Description	
CJGuestCall A singleton, represents the lifecyc		A singleton, represents the lifecycle of a single entire call.	
	CJGuestCallBarView	call bar customised view	
	CJGuestCallBarViewDelegate	protocol that handles event when a button on the view was pressed	

Key methods and properties in CJGuestCall

	Name	Description
Class method	sharedInstance	this method returns the active call instance
Instance methods	startCall	call this method to establish a call
	endCall	call this method to end the call
Properties NSString * serverName		Jabber Guest server address
	NSString * toURI	SIP URI of the remote end point
	IBOutlet UllmageView * remoteView	represents the called party's video during an active call
	IBOutlet UllmageView * selfView	represents the local user's transmitted video during an active call

User Activation of Cisco H.264 AVC in 3rd-party iOS Apps



- To be covered by Cisco's H.264 license & royalty payments to MPEG-LA, third parties must use SDK for iOS "activation" mechanism in their apps
- Users must "Activate" one time before calls will work
- Third parties that use the SDK for iOS in their apps without the Cisco activation mechanism will need to license H.264 from MPEG-LA and pay them royalties



Common Troubleshooting Tips

- If Jabber Guest does not listen on port 5061 (if configured), restart tomcat:
 - # service tomcat-as-standalone.sh restart
- Jabber Guest installs, and eth0 fails to start:
 - Delete network interface file. Run this command:
 - # rm /etc/udev/rules.d/70-persistent-net.rules
 - Then reboot: # reboot





Capabilities in 10.X

Client

- Mobile: iPhone and iPad (in App Store)
- Web: Windows (IE, Firefox, Chrome), add-on
- Web: Mac (Safari, Firefox, Chrome), add-on
- · Call initiation through web links
- Video call to Cisco® UCM endpoints
- Firewall/NAT traversal through Expressway X8.2+, TURN, and reverse proxy
- In-call: Mute, DTMF, video start/stop, full screen, end
- · Far-end transfers and forwards
- Audio-only mode

SDK

- iOS: With sample app code
- · Web: With widget
- REST API on server for link management

Solution

- Remote Expert 1.9
- Pre-call confirmation page with video preview
- · Audio or video device selection
- Video bridge support
- Bandwidth and CPU adaptation
- Web app "white-list" security
- SRTP, HTTPS call control
- H.264 AVC, G.722.1, G.711, G.729
- Localisations
- Accessibility (basic)

Server

- Virtual machine (OVA) with web server
- HTTP-to-SIP gateway
- Administration interface, including link management
- Clustering and redundancy
- Expressway X8.2+ integration
- CTX interoperability, including meeting domain name support



Jabber Guest 10.5

NEW Q4CY14

Customer using Chrome NEED TO UPGRADE!

Platform, Deployment & Quality Enhancements

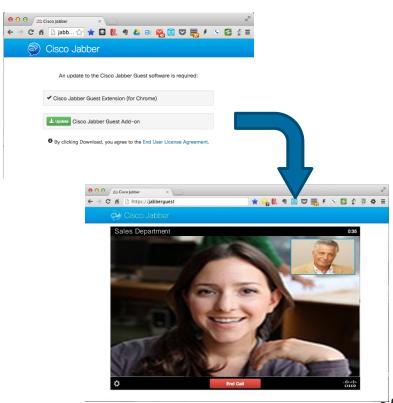
- New Chrome integration
 - replaces NPAPI plugin technology deprecated by Chrome
 - required for new 64-bit Chrome
- Calls to VCS-registered endpoints via CUCM
- HD video transmit by capable iOS devices
- Refreshed iOS user experience
- iOS 8, Mac OS Yosemite (10.10) support
- Android support (client, SDK ... Q1 CY15)
- 64-bit iOS SDK & app (Q1 CY15)
- Quality enhancements





New Architecture, Experience for Google Chrome

- Addresses Chrome dropping NPAPI plugins
- Required for 64-bit Chrome on Windows & Mac
- Chrome changes require using both an extension & a native "add-on"
- Video is in a native window automatically overlaid on top of the browser window
- SDK is also supported



Closer Look at 10.5 Chrome Experience

Windows and MAC

1

Extension Install from Chrome Web Store

2

Add-on Install from Jabber Guest 3

Call

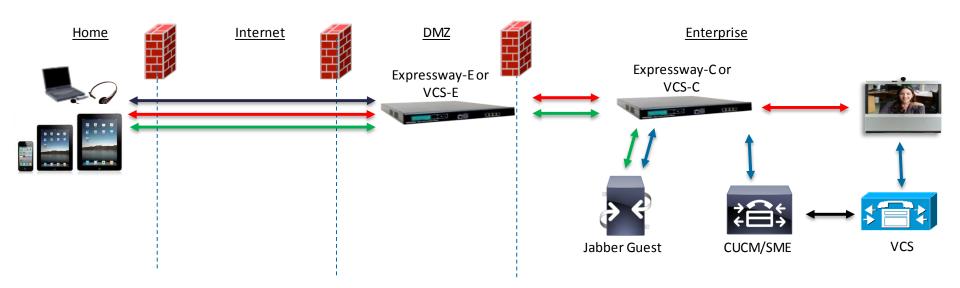


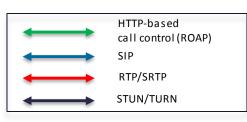






Calls to VCS-registered Endpoints via CUCM





Jabber Guest 10.5 ...

- Supports calls to VCS-registered endpoints where CUCM is in the call signalling path
- DOES NOT SUPPORT calls to VCS-registered endpoints when CUCM is not in the call path



iOS and Mac Enhancements

HD Video Transmit from iOS

- Requires capable device
- iPhone 5s, 6, 6 Plus
- iPad Air, Air 2, Mini 2, Mini 3

iOS UI updated to better align with other Jabber clients

Jabber Guest	10.0	10.5
iOS 8		√
Mac OS X 10.10	✓	√



Jabber Guest for Android (10.5)

- Cisco-provided client in Google Play store
- Native Android SDK on DevNet (http://jabberdeveloper.com)
- Same capabilities as Jabber Guest for iOS
 - exception: HD video transmit
- Same 3rd-party device support as Jabber for Android 10.6 (details in slide notes)

Smartphones



Tablets





64-bit Jabber Guest SDK & App for iOS

- As of Feb 1, 2015, new App Store apps must be 64-bit, built with iOS 8
- Existing apps have until June 1, 2015
- Planning to release an update to the Jabber Guest SDK for iOS meeting these requirements
 - 64-bit Cisco-provided app in the App Store also planned
 - Targeting availability on DevNet & in the App Store in Q1 CY15 (subject to change)
- Also, providing SWIFT-based sample apps with this update



Developer

Dear Developer,

As we announced in October, beginning February 1, 2015 new iOS apps submitted to the App Store must include 64-bit support and be built with the iOS 8 SDK. Beginning June 1, 2015 app updates will also need to follow the same requirements. To enable 64-bit in your project, we recommend using the default Xcode build setting of "Standard architectures" to build a single binary with both 32-bit and 64-bit code.

If you have any questions, visit the Apple Developer Forums.

Best regards, Apple Developer Technical Support





Licensing and Availability

Licensing

- Guests no cost
- Enterprise
 - concurrent session licensing @ \$0 ... rights to use all Jabber Guest software & SDKs
 - Expressway rich-media sessions (RMS) required for firewall/NAT traversal
 - One RMS required on the E, one RMS required on the $C \rightarrow 2 \times $750 = 1500 list
 - For VCS, traversal licenses are analogous to Expressway RMS's

Availability

- Global
- Available since June, 2014



Wrap Up

Additional Resources

- Customers: Visit <u>Cisco.com/Go/JabberGuest</u>
- Developers: Visit <u>Jabberdeveloper.com</u>
- EAP/Beta: Via <u>Collaboration User Group</u>

Key Take Away – Imagine the possibilities

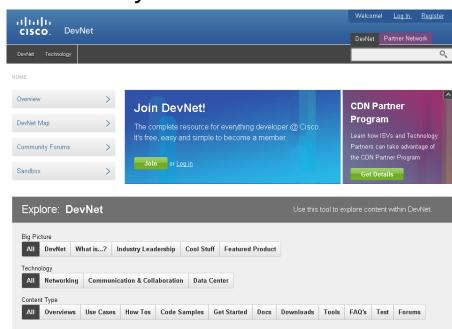
- Expand Your Business Reach and Cut Costs
- Enhance Customer Interactions
- Make Experts Easy to Find
- Frequent interactions with partners, and suppliers



Cisco DevNet - Cisco's New Developer Program

All of the developer resources you need are finally in one central location

- Comprehensive API Index
- Forums
- Developer Sandbox
- FAQs
- Access to support, and more
- The interactive new portal makes finding the information and support faster and easier.
- Register at <u>https://developer.cisco.com</u>



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