

What You Make Possible



Jabber Web and SDK Application Integration

BRKUCC-2663

Abstract

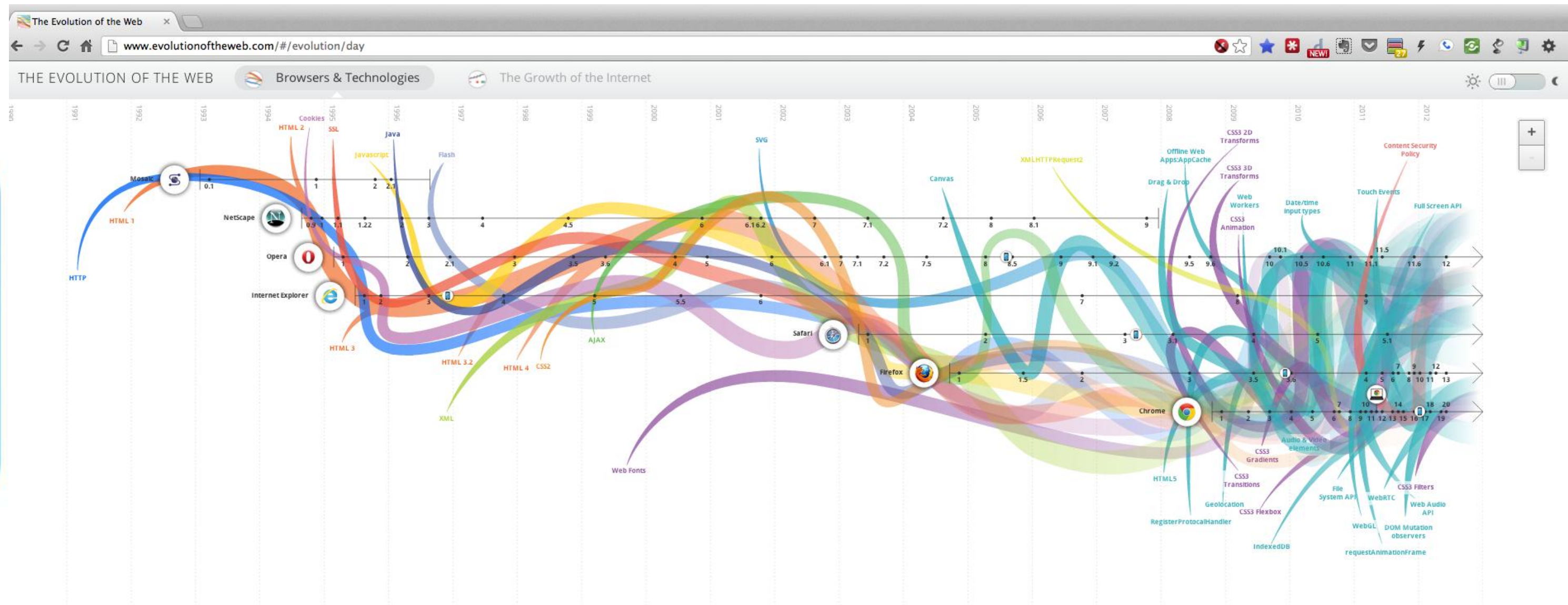
With Jabber Web the great capabilities found in the Jabber clients and also be accessed and utilised directly from a web browser. Also using the Cisco Jabber Software Development Kit (SDK) you can integrate Cisco Unified Communications capabilities into any web application easily and quickly. Application developers, customers, and partners alike can take advantage of this powerful SDK to incorporate voice, video, instant messaging (IM), Presence, voice messaging, and conferencing capabilities. Join this session to hear about how the Jabber web toolkit enables products and services to be built on top of the Cisco collaboration portfolio. This session will explore the Jabber Web client and we will also discuss how the toolkit can be used to add value to your existing collaboration portfolio by incorporating collaboration capabilities pervasively within your line of business application or web portal. UC/Video

Agenda

- Web Browsers & UC/Video Overview
- Cisco Browser-based Collaboration Applications
- Cisco Jabber SDK ... Extending UC/Video to Web Apps
- HTML5 & “WebRTC” Advancements
- Future Possibilities for Web-based UC/Video

Web Browser Technology Evolution

Has Come A Long Way in A Relatively Short Time ...



Explore Interactively via [“The Evolution of the Web”](#)

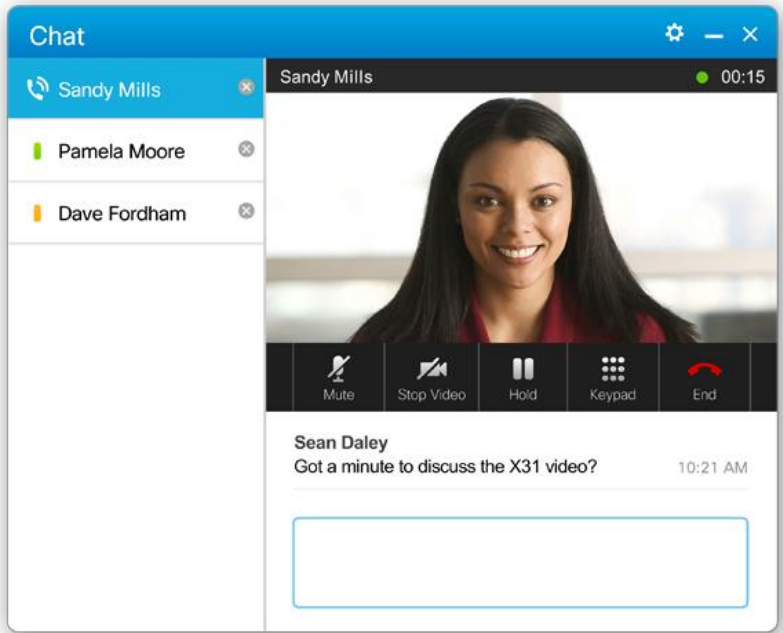
... But Notable UC/Video Capabilities Missing from Browsers

Plugins and native apps fill these gaps

- Softphone engine
- Real-time voice codecs
- Real-time video codecs
- Real-time data/content sharing
- Call signalling
- Media encryption
- Ability to send media to other endpoints
- Notifications
- Firewall traversal negotiation
- Peripheral controls
- System activity detection

UC/Video Is Not Broadly Deployable Today in Browsers Alone

Plugins or native apps that browsers can launch are required



Cisco Strategy for Web

Extend SDKs, Build Standards, Develop Products

SDK

- Build on Jabber SDK
- Empower customers, ISV's, partners, etc



Standards

- Work with standard bodies and industry shapers
- Openness, interoperability



mozilla



...

Products

- Progressively introduce HTML5 & WebRTC
- e.g. "Jabber Web"



Cisco *live!*

Cisco Jabber – The Power to Collaborate

All-in-One UC Application



All-in-one UC Application

- Presence & IM
- Voice, Video, voice messaging
- Desktop sharing, conferencing

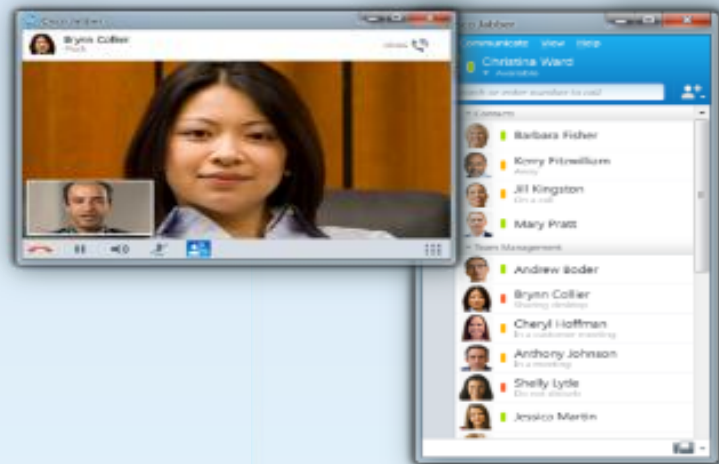
Collaborate from Any Workspace

- PC, Mac, tablet, smart phone
- On-premises and Cloud
- Integration with Microsoft Office

Cisco Jabber: Leading Experience Across Broadest Range of Platforms and Devices



Desktop



Tablet



Smartphone



Web

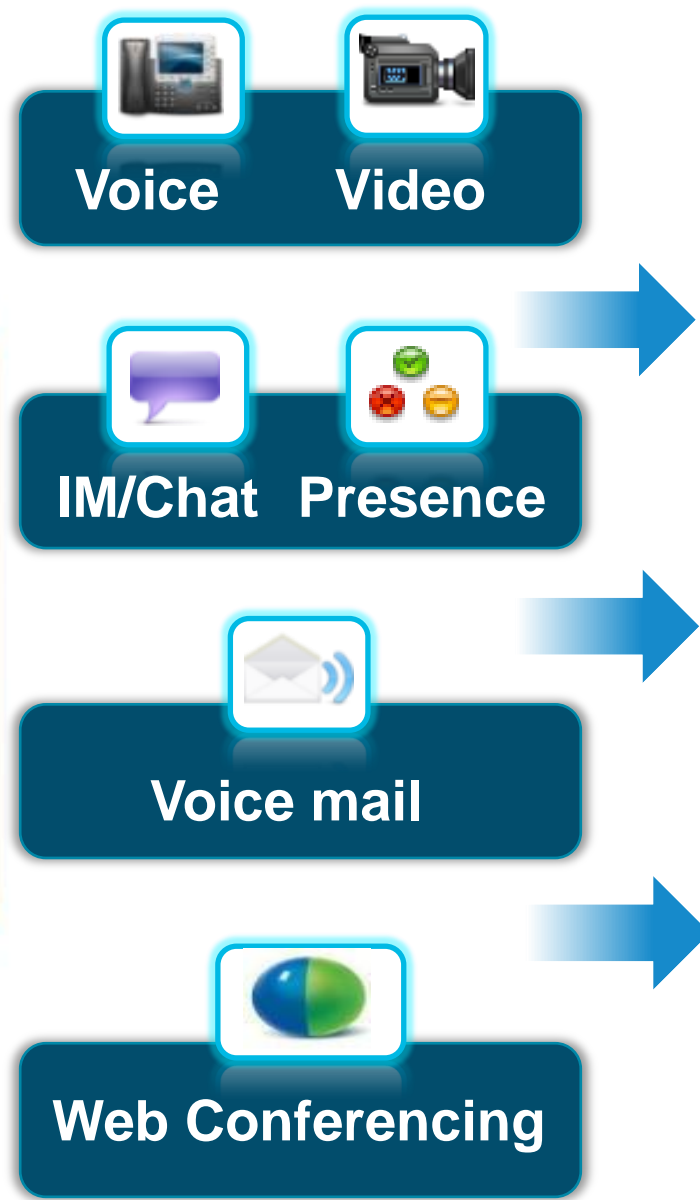
NEW ...
“off-the-shelf”
Jabber for web
browsers



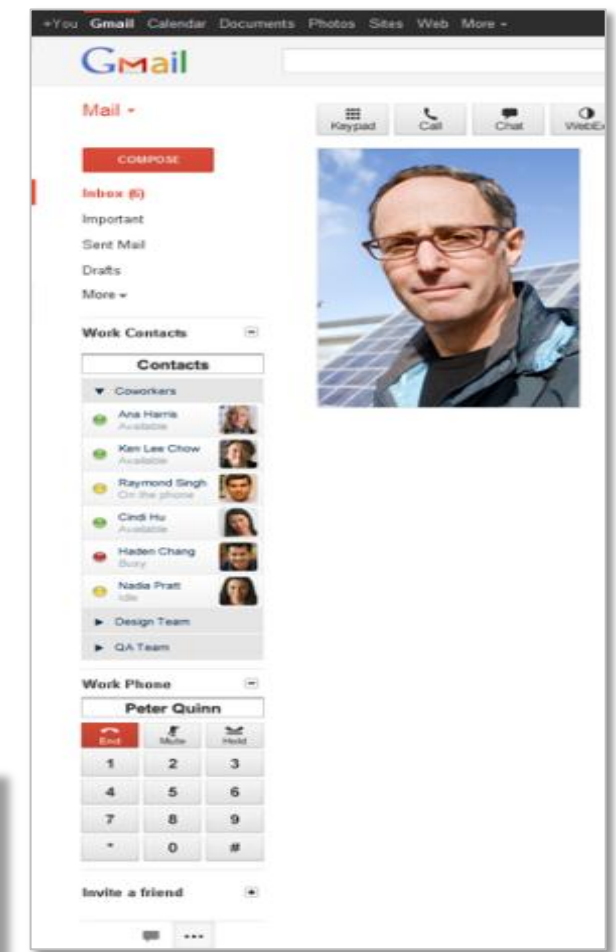
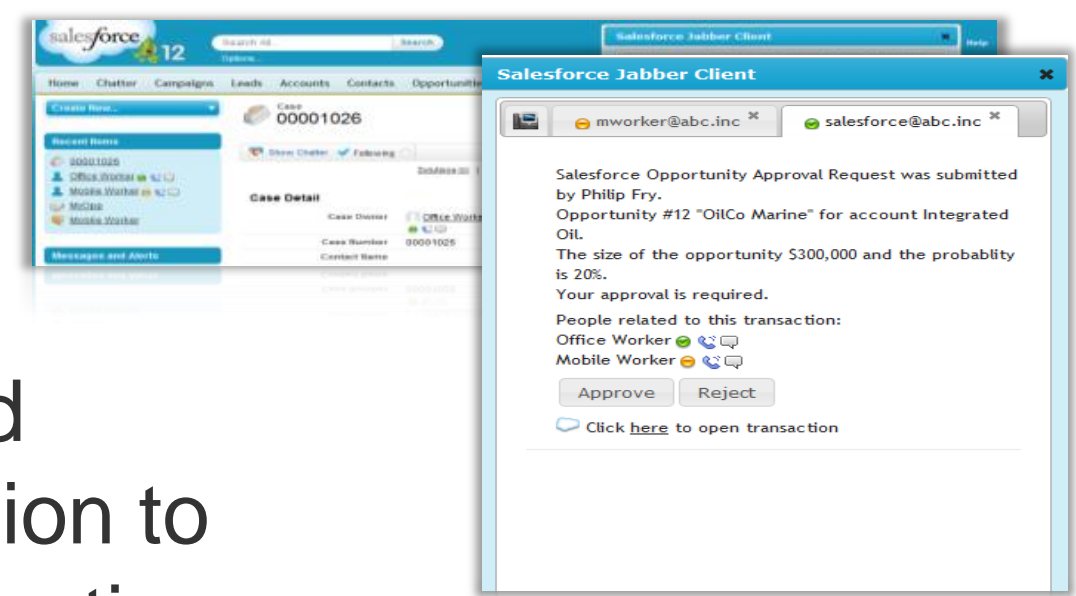
Via
Jabber
SDK
Today

Cisco Jabber SDK

Communications-enabled Workflows



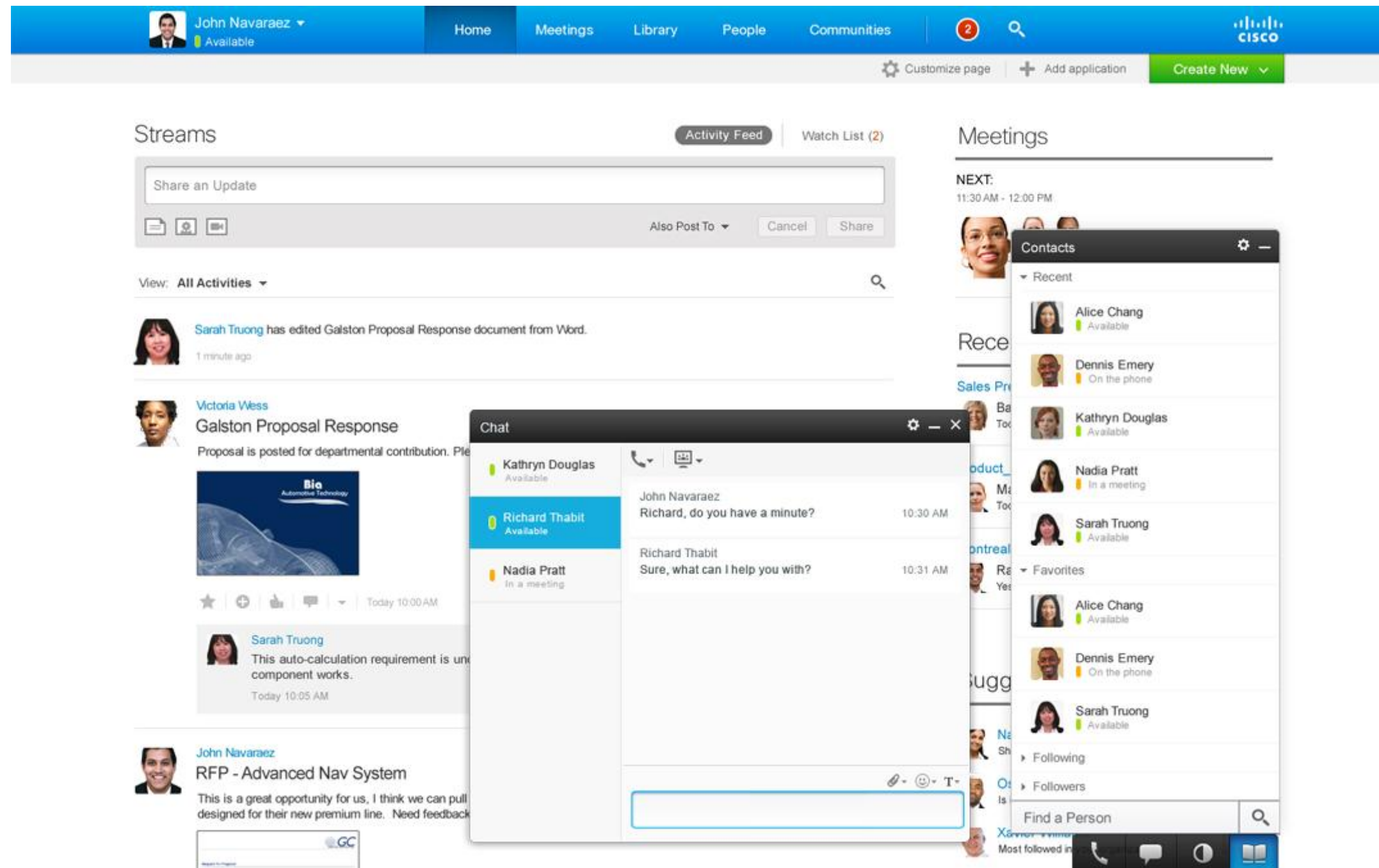
Easily add collaboration to web applications & business processes



www.jabberdeveloper.com

Use Case: Pervasive UC in Enterprise Social Application

- Presence and UC capabilities throughout the application
- Cisco on Cisco Integration – Cisco Quad leverages public facing APIs



Presence enabled

IM / Chat enabled

Click 2 WebEx enabled

Click 2 Call enabled

Use Case: Salesforce.com Cisco UC Integration

- Use Cases: Immediate collaboration with people who are relevant to the current SFDC transaction and receive information from Salesforce workflows and approval processes

Presence enabled

IM / Chat enabled

Click 2 Call enabled

Click 2 Video enabled

The screenshot displays the Salesforce.com interface for a sales opportunity named 'MyOpp'. The opportunity is owned by Steve Smith and is in a pending approval state. The approval history table shows the following actions:

Action	Date	Status	By
Step: Opportunity Approval Stem (Pending for first approval)			
Reassign Approve / Reject	4/10/2012 4:25 AM	Pending	Steve Smith
Approval Request Submitted	4/10/2012 4:25 AM	Submitted	Steve Smith

Two 'Salesforce Jabber Client' windows are overlaid on the interface. The first window shows a video call in progress with a 'Disconnect' button. The second window shows an approval request for the 'MyOpp' transaction, with details such as 'Salesforce Opportunity Approval Request was submitted by Philip Fry' and 'The size of the opportunity \$300,000 and the probability is 20%'. It includes 'Approve' and 'Reject' buttons and a link to open the transaction.

Use Case: Cisco UC enabled Corporate Directory

- Search and connect: real-time collaboration within corporate directories
- Presence, Click 2 Voice / Video / IM / WebEx /

Presence enabled

IM / Chat enabled

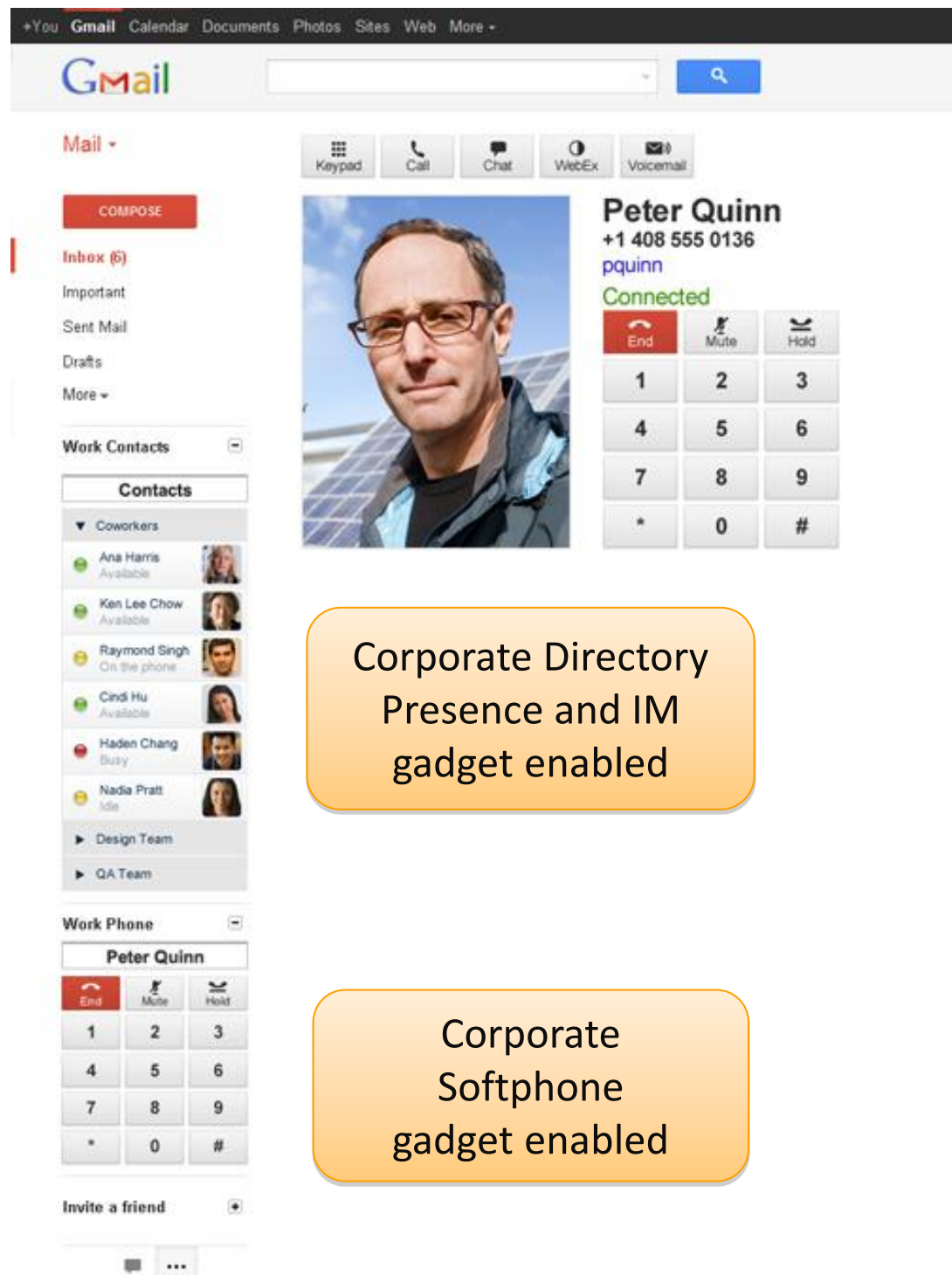
Click 2 WebEx enabled

Click 2 Call enabled

Click 2 Video* enabled

The screenshot displays the CWI Company Portal interface. At the top left is the CWI logo and 'Company Portal' text, with a 'Logout' link at the top right. A search bar is located below the header. The main content area features a profile for Scott McDaniel, a Thermal Analyst in Motor Engineering. His profile includes a photo, name, email (smcdaniel), phone number (+1 408 555 0197), and status (On the phone). Below the profile are sections for 'Expertise' (Thermal Analytics, Eng > more) and 'Reporting Structure' with a list of colleagues: Hans Munitz (Available), Christine Chen (Available), and David Tran (On the phone). To the right of the profile is a 'Contact List' with two groups: 'Coworkers' (Ana Harris Available, Ken Lee Chow Available, Raymond Singh On the phone, Cindi Hu Available, Haden Chang Busy, Nadia Pratt In a meeting) and 'Design Team' (Derek Houston Sharing desktop, Stacy Ramon Available). A video call window is overlaid on the profile, showing Scott McDaniel on the video. The video call controls at the bottom include 'End', 'Mute', and 'Hold' buttons. Above the video call window are icons for 'Email', 'Call', 'Chat', and 'WebEx'.

Use Case: Cisco Voice Enabled Gmail



- Cisco UC Enable Gmail and Google Apps for Business
- Cisco Jabber APIs
 - Web Softphone (AJAX)
 - IM / Presence (CAXL)
- User Capabilities
 - View Presence
 - Click 2 IM
 - Click 2 Call
- Deployment Requirement
 - Corporate VPN active session
- Demo: Completed Integration
 - <http://www.youtube.com/watch?v=plGyEubjBrU>

The Jabber SDK

A Toolkit for Web Applications

Your UC enabled web application

Web Phone
(AJAX)

CAXL
(AJAX)

CUMI
(REST)

WebEx
(URL/
XML)

Video Audio Call Cntl IM/Chat Presence Pub/Sub Voice mail Meeting

Cisco Unified Infrastructure

Communications Manager IM & Presence WebEx Messenger Unity Messaging WebEx Collaboration



Webphone Library

- Web Phone provides two operating modes
 - Control of a physical desk phone
 - Soft Phone functionality
- JavaScript library
- Browser plug-in required for media termination



Toolkit Name: Web Phone API

AJAX / jQuery

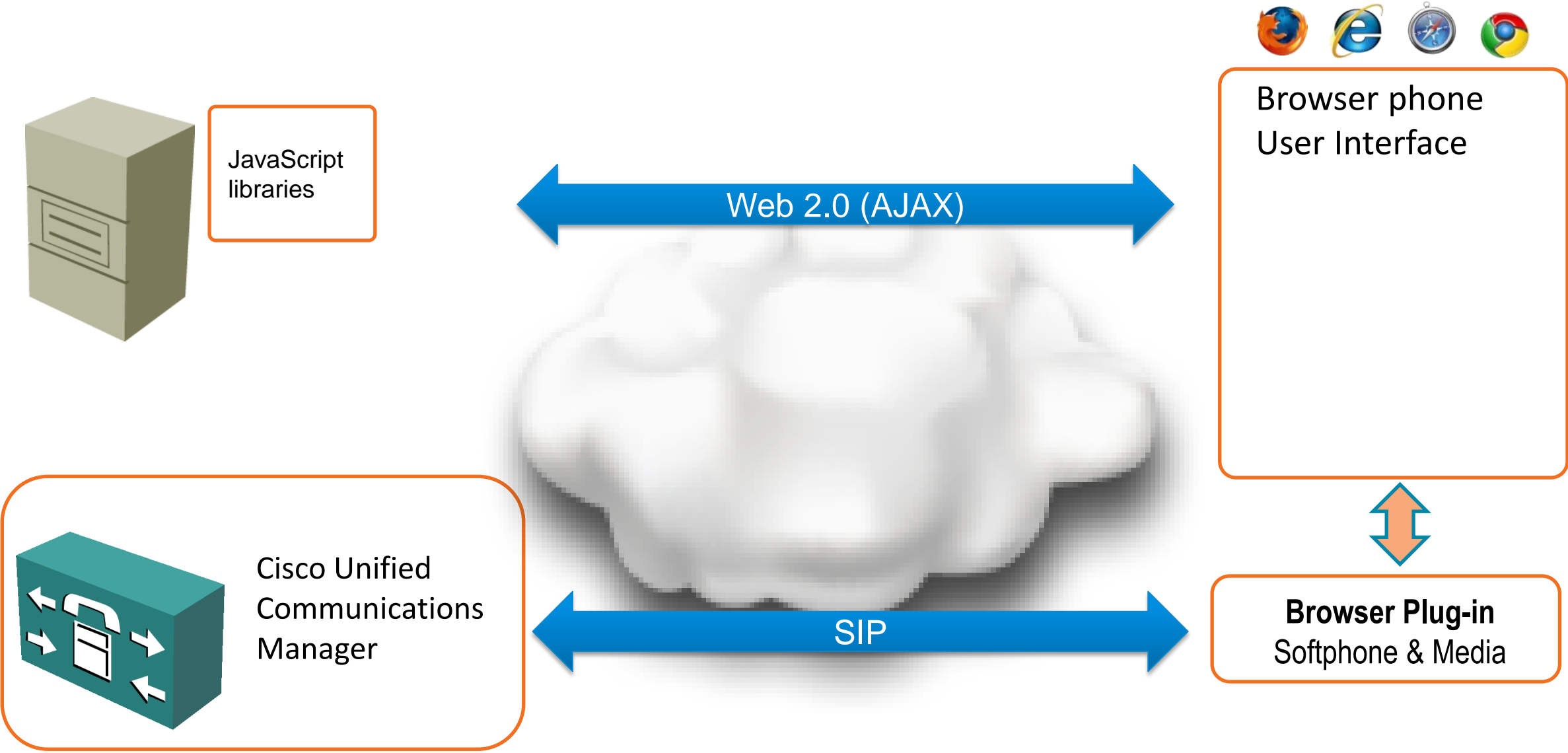


Webphone Library

Feature highlights

- Make voice or video call
- Answer, drop
- Hold/Resume
- Conference
- Transfer
- Enter DTMF
- Add/remove video
- Video adaptation and resolution
- Picture in Picture
- Resize
- Full screen

Webphone Library



Voice Enable Your Webpage in 5 Easy Steps

- Configure CSF device on CUCM
- Install browser plugin on client machine
- Deploy javascript files to your web server (or local machine)
- Copy sample html code
- Enter a number to make a call

<http://developer.cisco.com/web/jabber-developer/uc-enabel-your-webpage-under-5-minutes-video>

Webphone Library – Browser Plugin



- Support Matrix

- Operating Systems:

- Windows 7, XP, Vista
 - OSX 10.6, 10.7

- Browsers:

- Internet Explorer 8 & 9 (Win)
 - Firefox 3.6 + (Win & Mac)
 - Chrome 12 (Win & Mac)
 - Safari 5.1 (Mac)

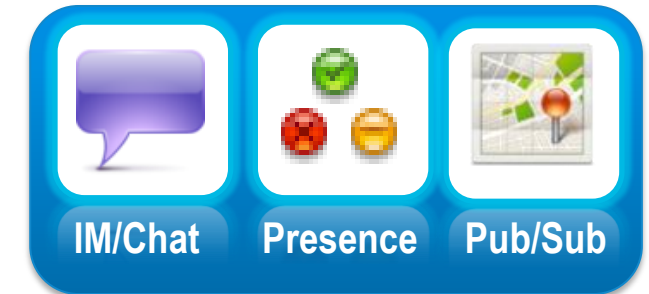
- Soft phone:

- Standards based codecs G.711, G.729 and G.722

- License Considerations

- End user license required
 - CUCM License required for Soft phone

Cisco Ajax XMPP Library



- CAXL is a Web 2.0 JavaScript client SDK for integration of Instant messaging, Presence and Roster services
- Evolution of Jabbers former jabberwerx suite
- Common SDK for on-prem (CUP) and off-prem (Webex) integration
- Uses BOSH for server communication (Bidirectional streams over synchronous HTTP)

Toolkit Name:

Cisco Ajax XMPP Library

AJAX/jQuery

Cisco Ajax XMPP Library

- **1:1 Instant Messaging**
 - Ability to initiate and receive P2P IM
 - Supports xHTML-IM rich-text
- **Multi-user chat room (including Persistent Chat)**
 - Ability to create adhoc and persistent chat rooms
 - Ability to invite and be invited to chat rooms.
 - Ability to search for existing chat rooms
- **Pub/Sub Applications (e.g. for GeoLocation)**
 - Personal Eventing Protocol - Ability to create/publish/subscribe to pub/sub service nodes on a server.
- **User Authentication**
- **Roster Presence and Roster (Contacts List) management**
 - Ability to Add/Update/Remove Contacts
 - Ability to move contacts between groups
- **My presence**
 - Ability to set device presence
 - When integrated with CUP, SDK can be configured to set CAXL device presence to be the same as Presence engine composed presence.
- **Temporary Presence Subscriptions**
 - Ability to create temporary subscriptions to users who are not on your roster (“Quick Contacts”)
 - Ability to do bulk subscribe/unsubscribe of temporary subscriptions. Useful in multi-page applications where each page may have a different list of users

Cisco Unity Connection REST APIs



- Web 2.0 interface for accessing Cisco Unity Connection Voicemail
- CUMI – Cisco Unity Messaging interface for retrieving and managing messages
- CUNI – Cisco Unity Notifications interface for managing notifications
- CUTI – Cisco Unity Telephony interface for telephone record and playback

API Name:

**Cisco Unity Connection REST
REST**

Cisco Unity Connection REST APIs

- Provides access to a wide set of Unity Connection Messaging functionality:
 - Access to messages (including broadcast messages)
 - Send new messages
 - Reply to messages
 - Manage dispatch messages
 - Receive notifications of new messages
 - Telephone Record and Playback of messages
- Specify what messages are returned and how
 - Filtering
 - Sorting

WebEx Library



- The Webex Library provides a simple URL based interface to execute Webex Meeting functionality in a browser
- Cisco recommends Using the URL API for:
 - Authentication to the WebEx Page
 - Immediately starting/joining WebEx sessions
 - URL API Version Coincides with WBS Version
- Cisco also provides an advanced XML interface to Webex Meeting Center

API Name:

WebEx Meeting API

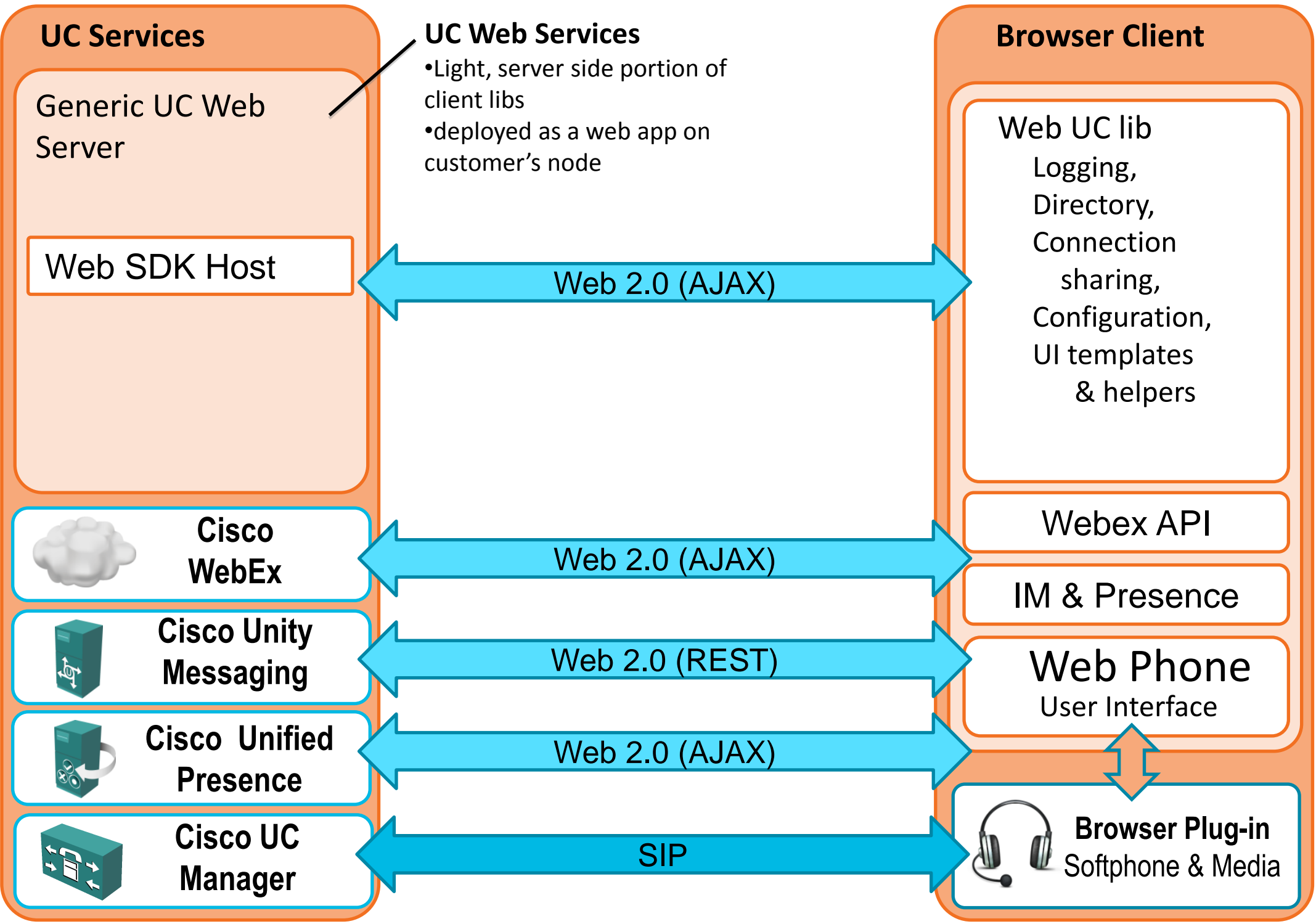
URL based

WebEx Library



- Account Admin and Login
 - User account login
 - User account log out
 - User account creation
 - User account editing
 - User Profile
- Manage meetings
 - My WebEx features
 - Schedule meetings
 - Delete meetings
 - Host meetings
 - Join meetings
 - List meetings
 - Start meetings

Bringing it all Together



Recommended Skillsets

- Industry standard web technologies
 - REST
 - JavaScript
 - jQuery
 - HTML
- API naming is easy to understand
- Developers don't need to be UC or voice experts

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```
main()
```

```
{
```

```
    printf("Hello World!");
```

```
}
```



Hello World!

The HTML Markup

```
<body>
<label for="numtodial">Number to dial:</label>
<input type="text" id="numtodial">
<button type="button" id="callbtn" disabled="true">Make Call</button>
<div id="container">
  <div id="callcontainer">
    <div class="remotename"></div>
    <div id="videocontainer"> </div>
    <button type="button" class="endbtn">End Call</button>
  </div>
</div>
</body>
```

Renders simply as

Number to dial:

Hello World!

Add some JavaScript

```
$(document.body).ready(function() {
var videoObject = null;
$('#container').cwic('init', {
  ready: function() {
    $(this).cwic('registerPhone', {
      user: '**username**', password: '', cucm: '**cucm ip address**',
      success: function() {
        $('#callbtn').attr('disabled', false);
        $('#videocontainer').cwic('createVideoWindow', {id: 'videocallobject', success:
function(id){
          videoObject = $('#'+id)[0];
        }});
      }
    });
  }
});

$('#callbtn').click(function() {
  var num = $('#numtodial').val();
  $('#container').cwic('startConversation', {participant: { recipient: num}, videoDirection:
'sendrecv', remoteVideoWindow: videoObject});
});

$('#container').bind('conversationStart.cwic', function(event, conversation) {
  $('#callcontainer').show();
  $('#container').cwic('updateConversation', {'addRemoteVideoWindow': 'videocallobject'});
});

$('#callcontainer .endbtn').click(function() {
  $('#container').cwic('endConversation');
});

$('#container').bind('conversationEnd.cwic', function(event, conversation) {
  $('#callcontainer').hide();
});
});
```

Hello World!

Enter a number, and this is your HD video call

Number to dial: 4648

Make Call

End Call



Hello World!

Now for Chat & Presence

Some new markup

```
<body>
  <label for="jid">Chat with:</label><input type="text" id="jid">
  <label for="message">Message:</label><input type="text" id="message">
  <button type="button" id="chatbtn" disabled="disabled">Chat</button>
  <div id="IMdialog" class="IMdialog"></div>
</body>
```

Rendered simply as:

Chat with:
Message:

Hello World!

Include the following lines of Javascript

```
var connectArgs = {
    httpBindingURL: ' [REDACTED] com:7335/httpbinding'
};

jabberwerx._config.unsecureAllowed=true;
jabberwerx._config.serviceDiscoveryEnabled=false;$(document.body).ready(function() {
    client = new jabberwerx.Client("MyClient");
    controller = new jabberwerx.RosterController(client);
    client.connect("[REDACTED]", connectArgs);
});
$('#chatbtn').click(function() {
    var jid = $('#jid').val();
    var message = $('#message').val();
    client.sendMessage(jid, message);
});

client.event("messageReceived").bind(function(evt) {
    var message = evt.data;
    var body = message.getBody();
    if (body) {
        var incomingIM = '<div>' + message.getFrom() + ': ' + body + '</div>';
        $('#IMdialog').append(incomingIM);
    }
});
```


Hello World!

Let's test!

Chat with:

Message:

me: Hi Mags

mags. [redacted]: Hi there

mags. [redacted]: Not just chats, but federated chats :)

Hello World!

Now to light up your app

Some HTML to represent a name and their presence state

```
<span id="headerName">Mags Mora ██████████</span><br>  
<span id="renderPresence"></span>
```

In JavaScript register for presence updates

```
client.event("presenceReceived").bind(function(evt) {  
    var presence = evt.data;  
    var jidStr = evt.data.getFromJID().getBareJIDString();  
    if ( jidStr == 'mags ██████████' )  
    {  
        var presenceDisplay = presence.getShow() || 'available';  
        // $('#renderPresence').attr('class', presenceDisplay).text(presenceDisplay);  
        $('#renderPresence').text(presenceDisplay);  
    }  
});
```

Resulting in:

Mags Mora ██████████
dnd

Getting Started –Cisco Developer Network

- Download SDKs, Samples, Videos, Community
- www.jabberdeveloper.com



Jabber Developer - part of Cisco Developer Network

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Jabber

The power of UC in your web app

The Cisco Jabber™ tool kit makes enabling unified communications in your web app easy. Allow your users to initiate a call, manage voice mail, work with instant messaging, and conduct meetings with WebEx all within your existing web application.

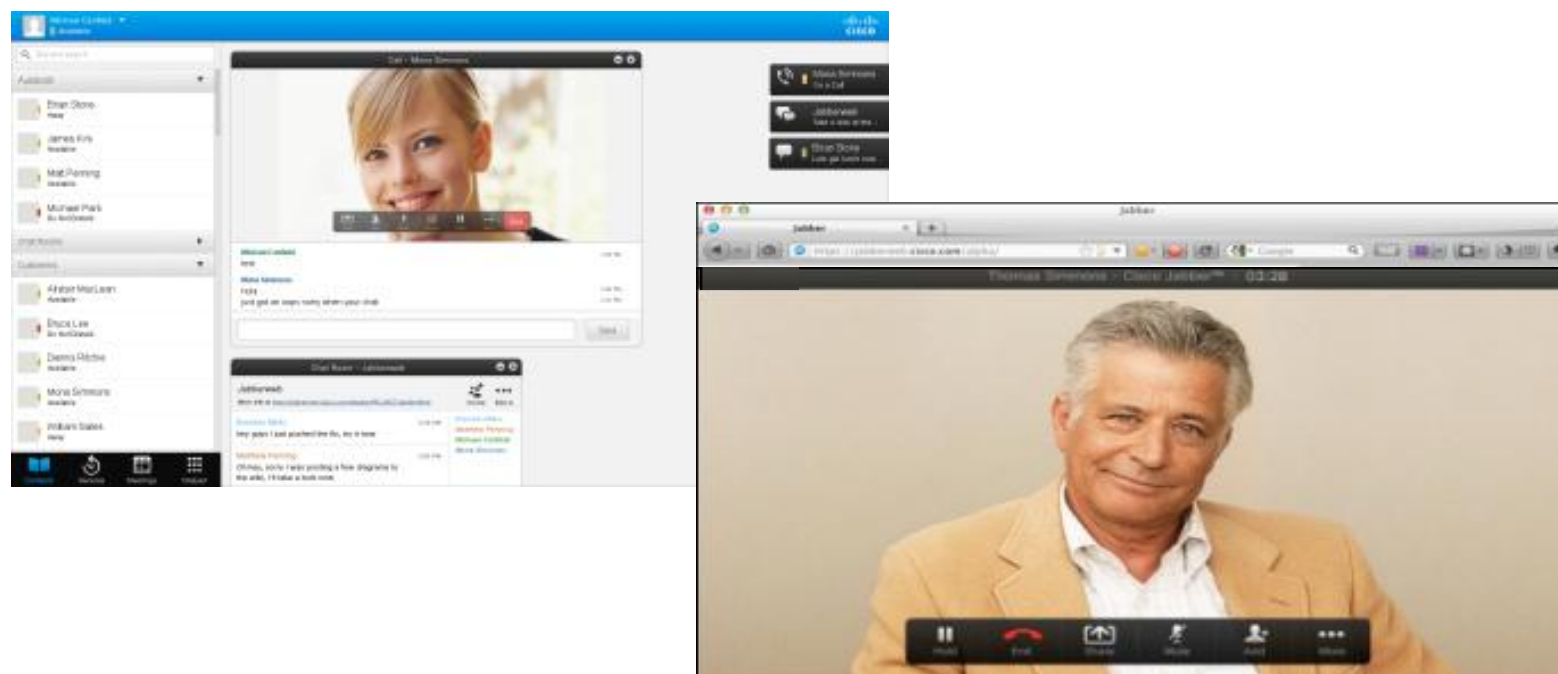
Voice: Web phone (AJAX)
Voice mail: CUMI (REST)
IM and Presence: CAXL (AJAX)
Meeting: WebEx (URL)

Introducing “Jabber Web”

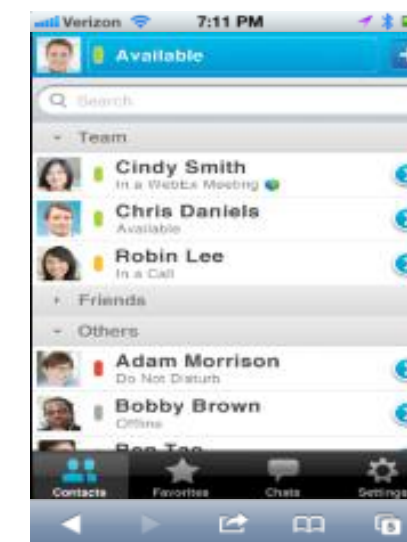


“Jabber Web” Overview

DESKTOP



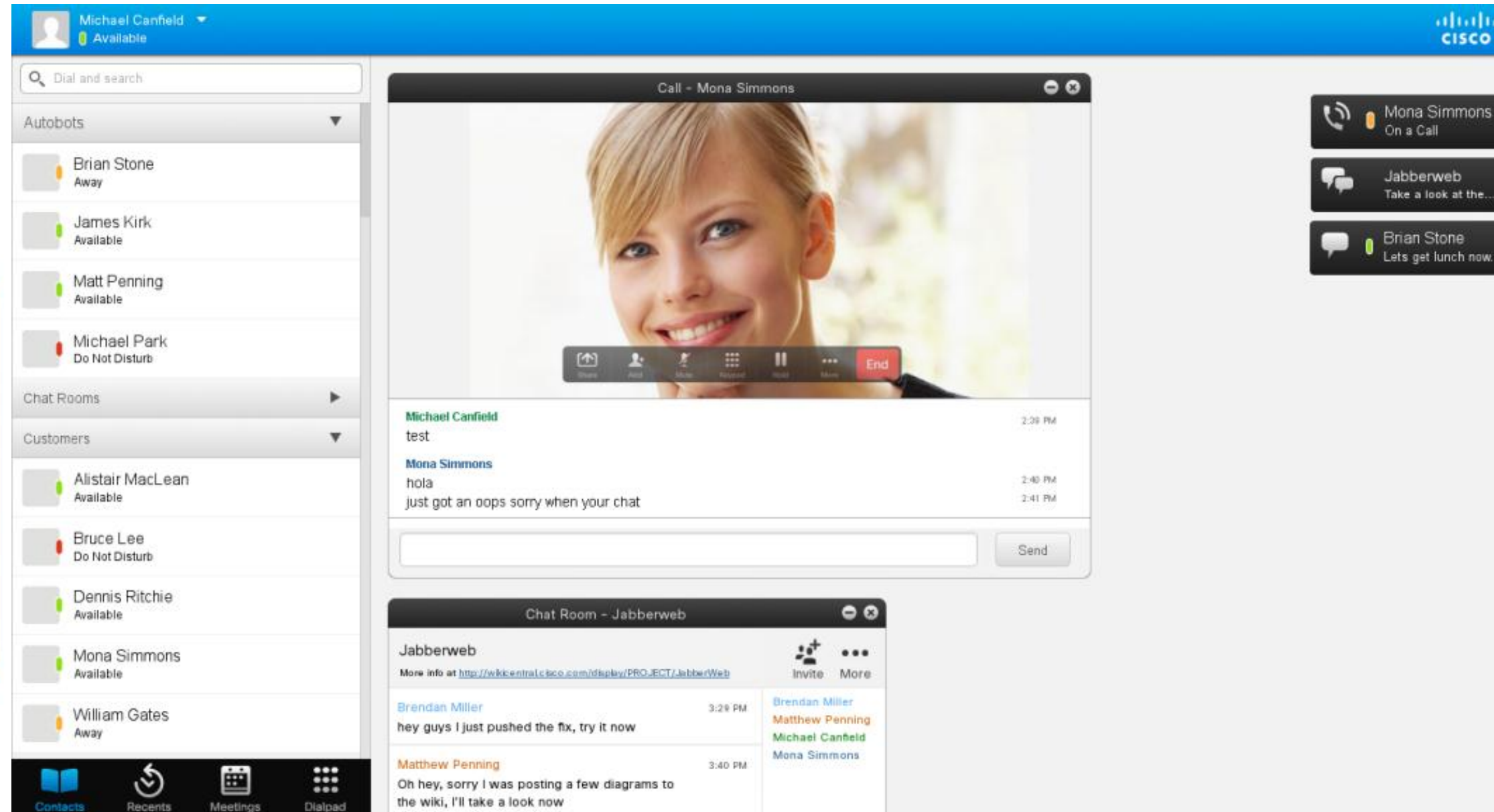
MOBILE



- Browser-based Jabber UC/video for employees
- Primary client for some, alternative client for others
- Sessions from browser to browser, to UC/video endpoints, to PSTN
- Desktop initial focus ... targeting mobile over time
- Initially, on-prem web server deployment with support for cloud services, i.e. IM/P, meetings
 - cloud-based deployment model targeted in future
- Targeting 1st release by 1H CY13 *

* Partially execute committed, subject to change pending follow-on execute commitments. Images for illustration purpose only. Final UI subject to change.

“Jabber Web” Capabilities



Planned for 1st release ...

- Contacts
- IM & Presence
- Voice/Video (plugin)
- Notifications
- Conferencing
- WebEx Meetings
- Jabber for Everyone
- SSO
- Localisations
- Persistent Chat

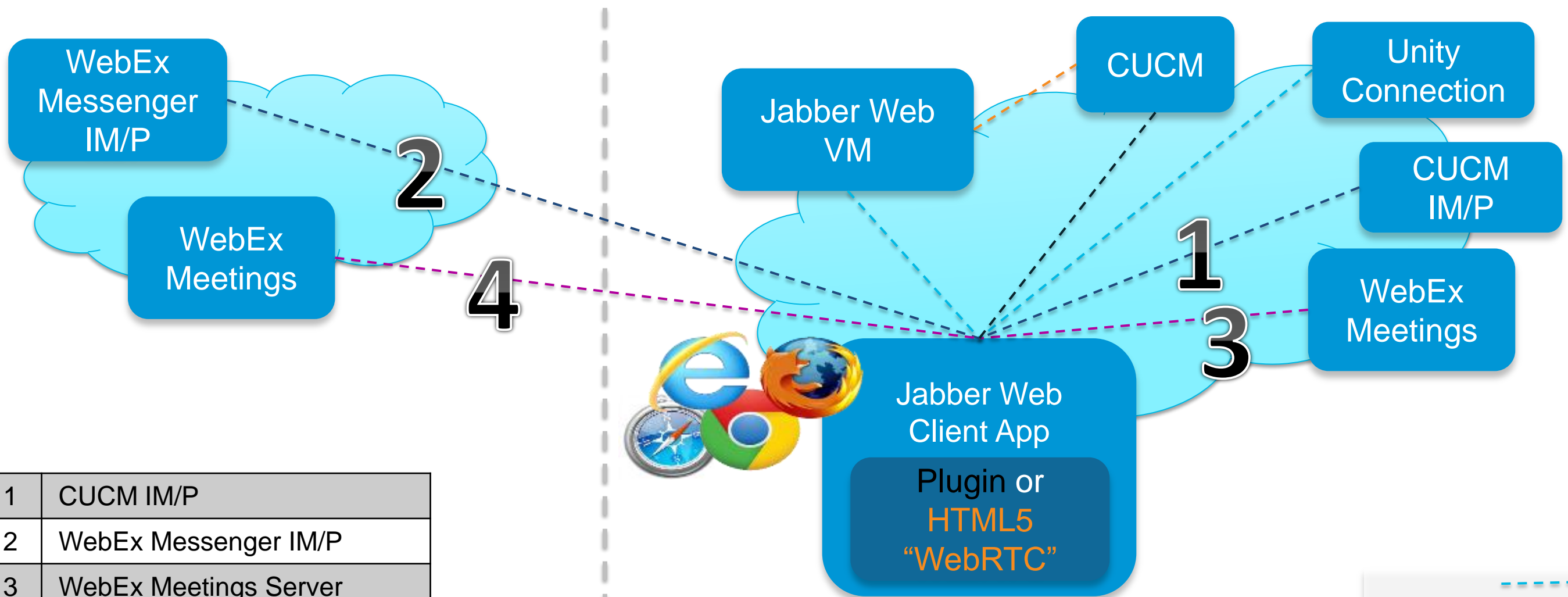


Targeted Deployment Options

Jabber Web on Premise

Outside

Enterprise



1	CUCM IM/P
2	WebEx Messenger IM/P
3	WebEx Meetings Server
4	WebEx Meetings

HTTPS: - - - - -
- - - - -
- - - - -
 SIP: - - - - -
- - - - -

NOTE: subsequent phases targeting Jabber Web (a) WebRTC support, (b) deployed in cloud, (c) supporting enterprise firewall traversal

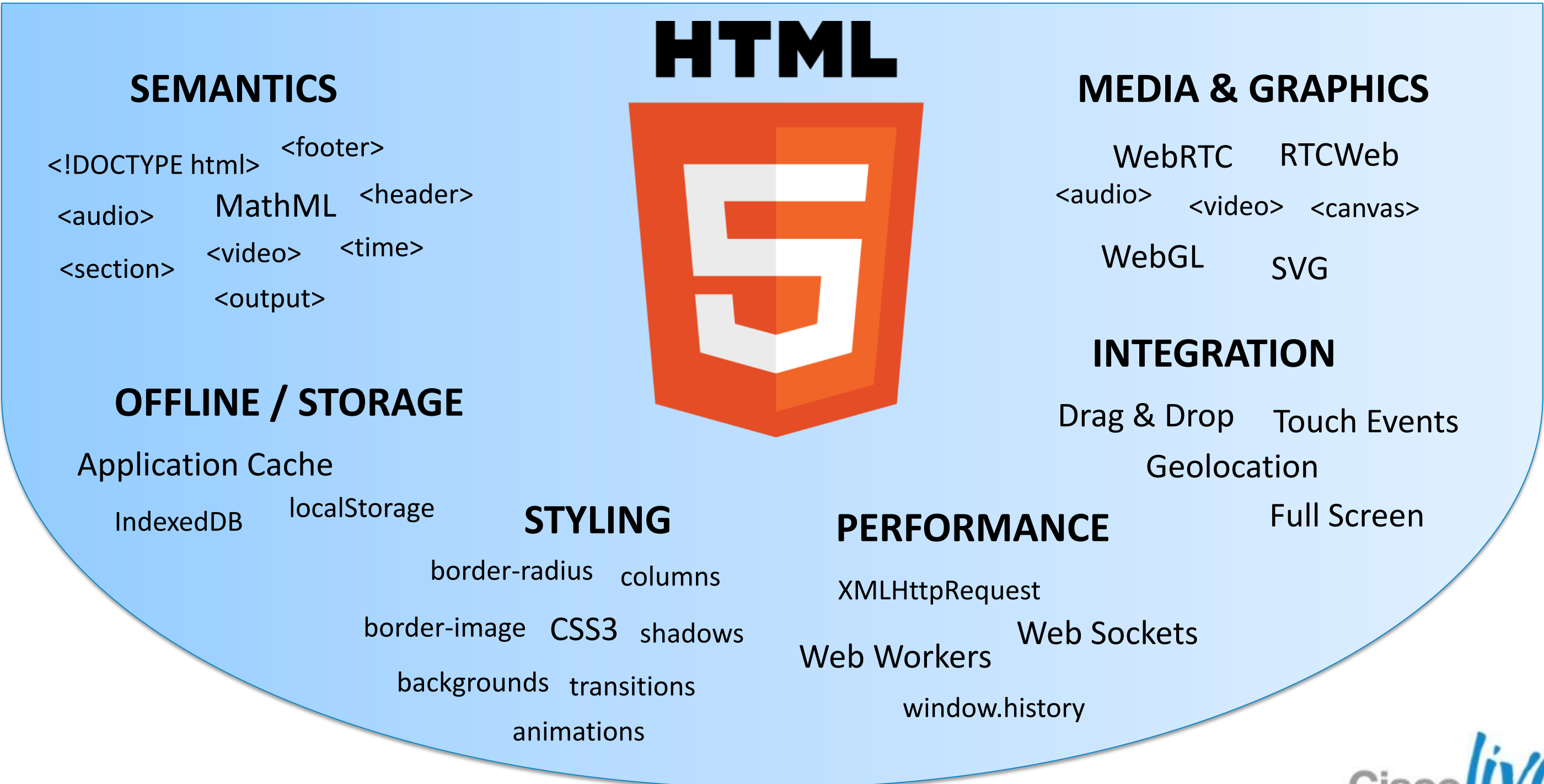


HTML5 & “WebRTC” Advancements



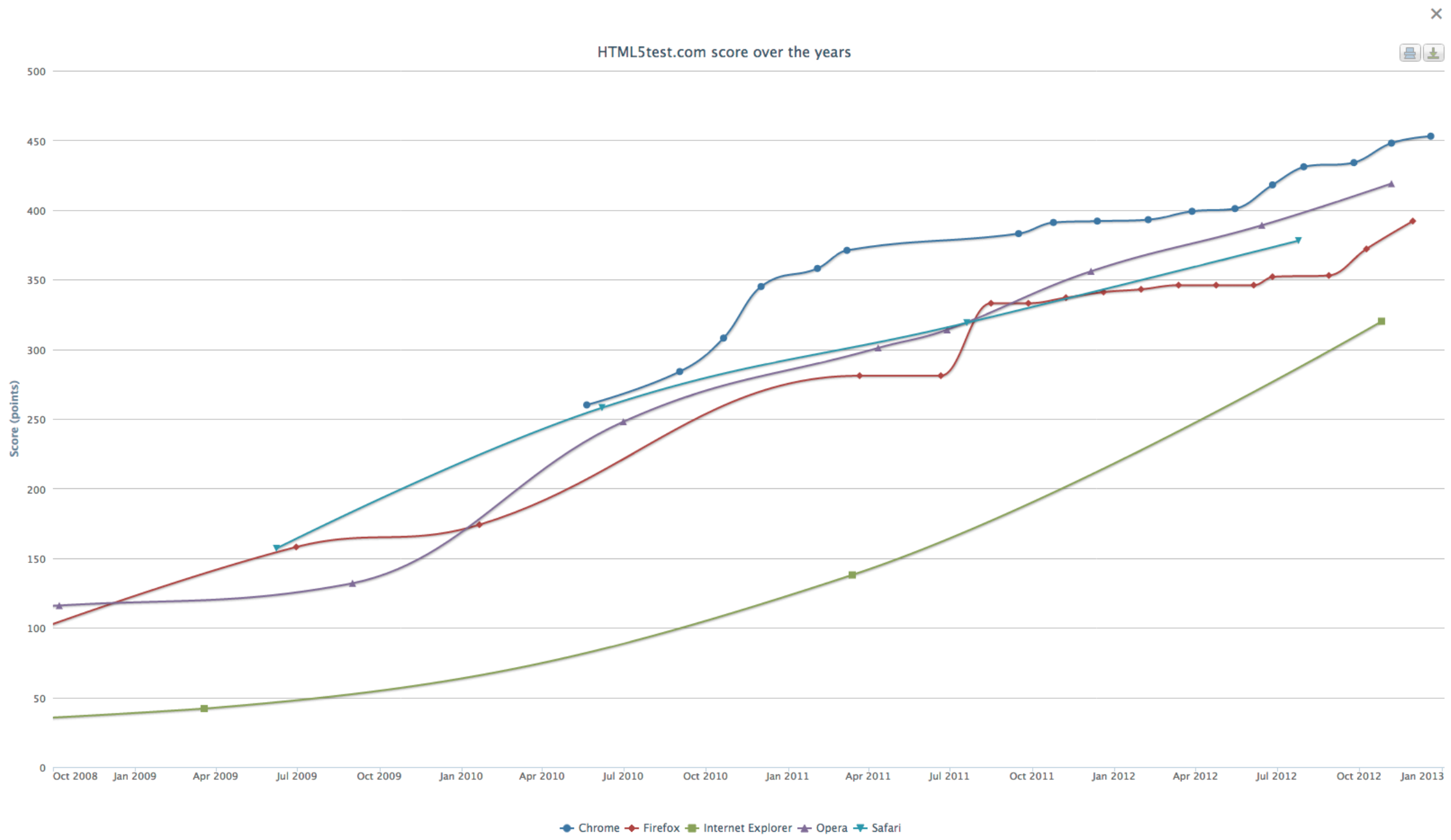
HTML5 Overview

Actually, HTML5 & Friends ... Standards Finalising in Parallel with Implementations



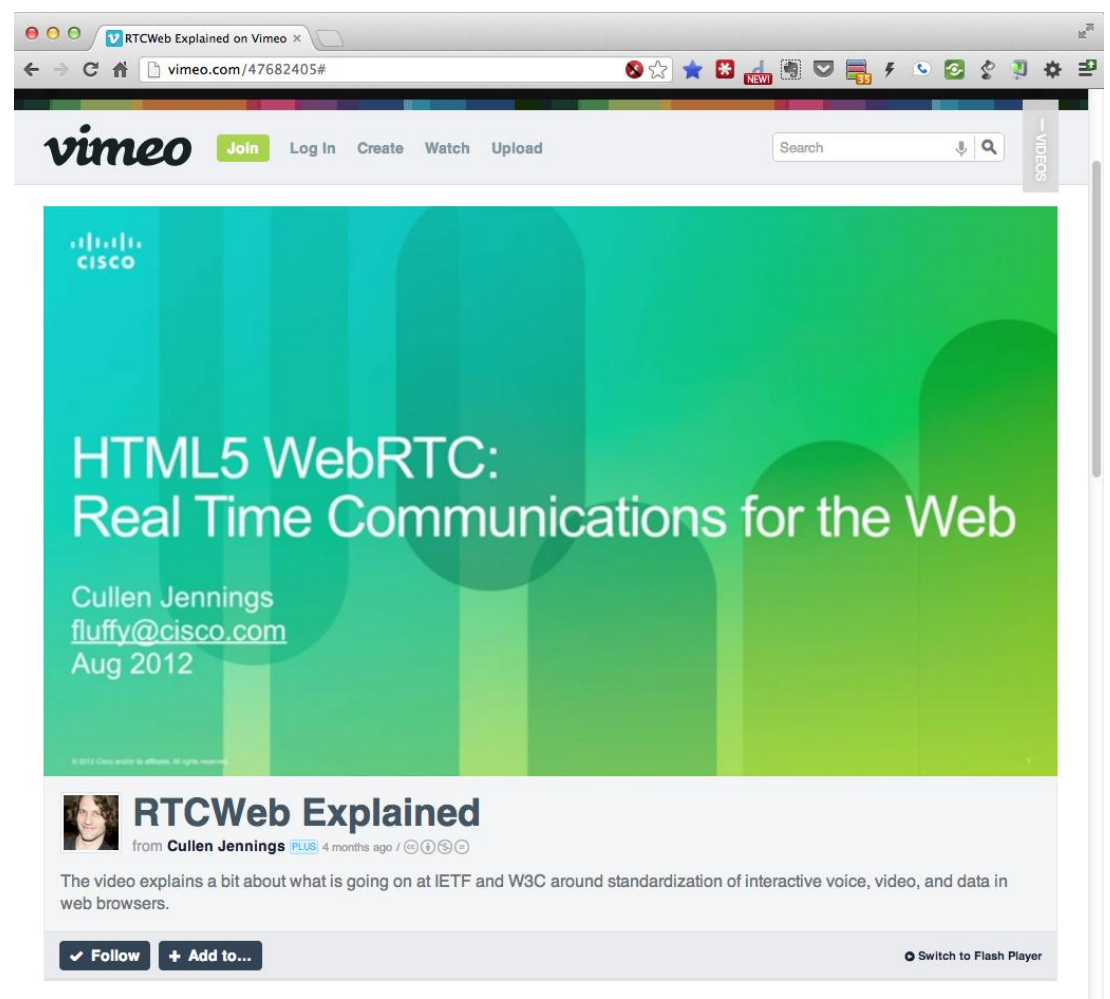
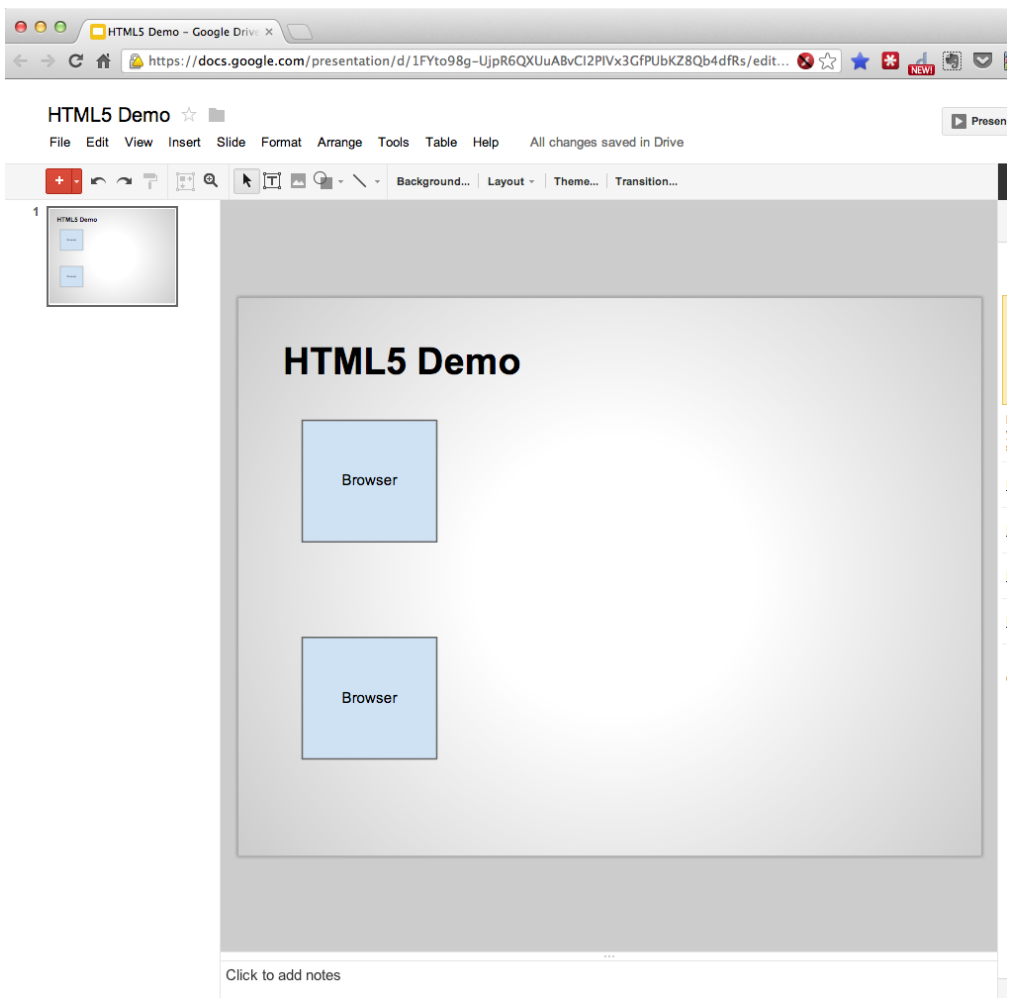
Browser Support of HTML5

Steadily Increasing Trend Across Browsers



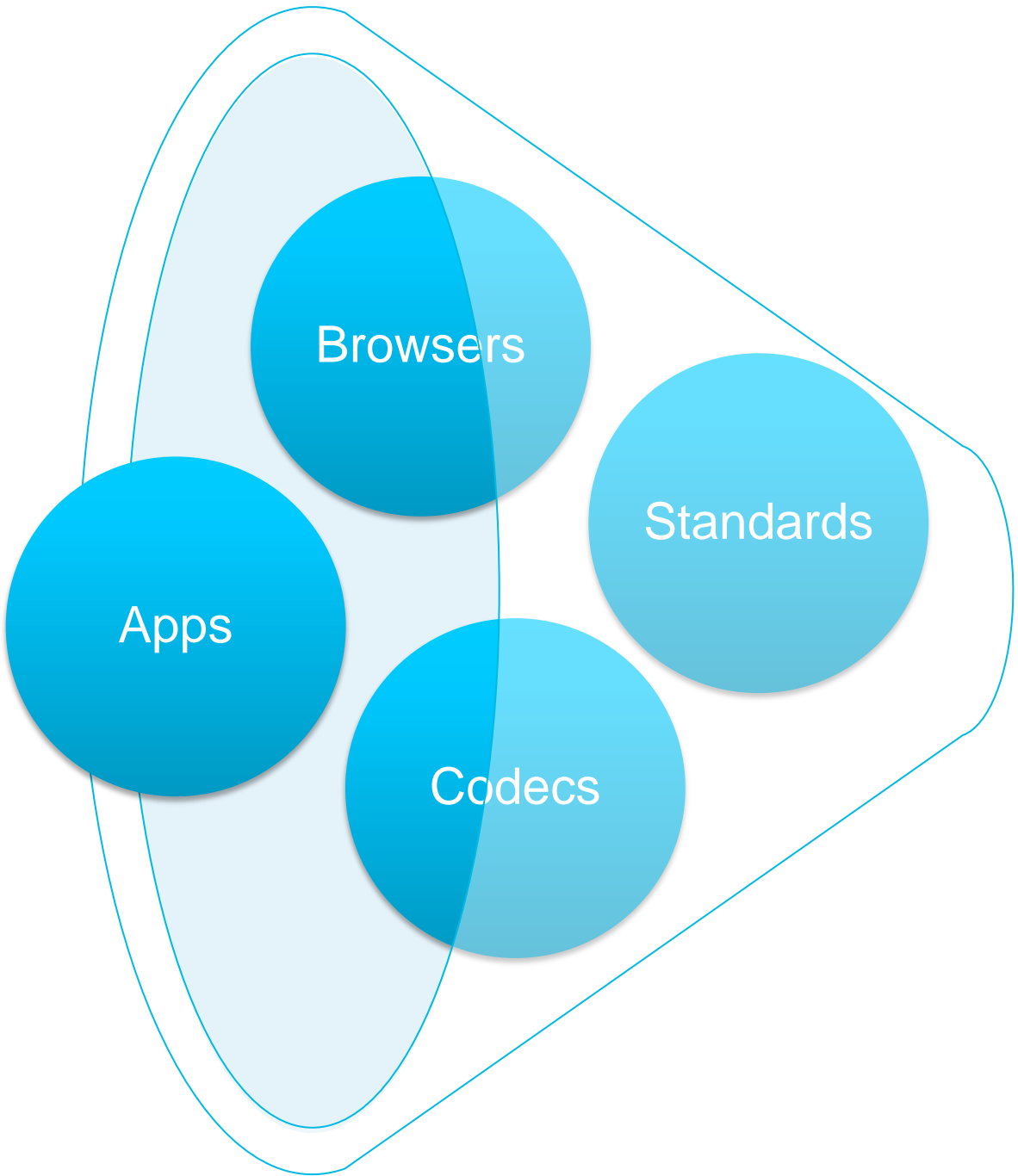
Source: <http://html5test.com/results/desktop.html>

Demonstration – HTML5 Apps



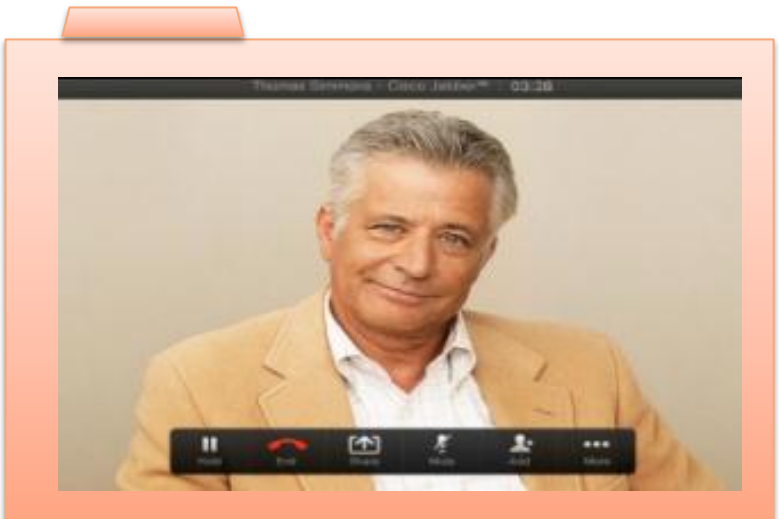
Interactive Voice, Video, Data in Web Browsers

A Journey



Vendor A Browser with Web App X

Native, Zero Plugin



Vendor B Browser with Web App X



Notable Challenges



Media traversal through firewalls, NAT



Securing browsers and media

Validating identity of person calling



Optimising real-time traffic performance



Standards Efforts

Cisco Playing Key Role



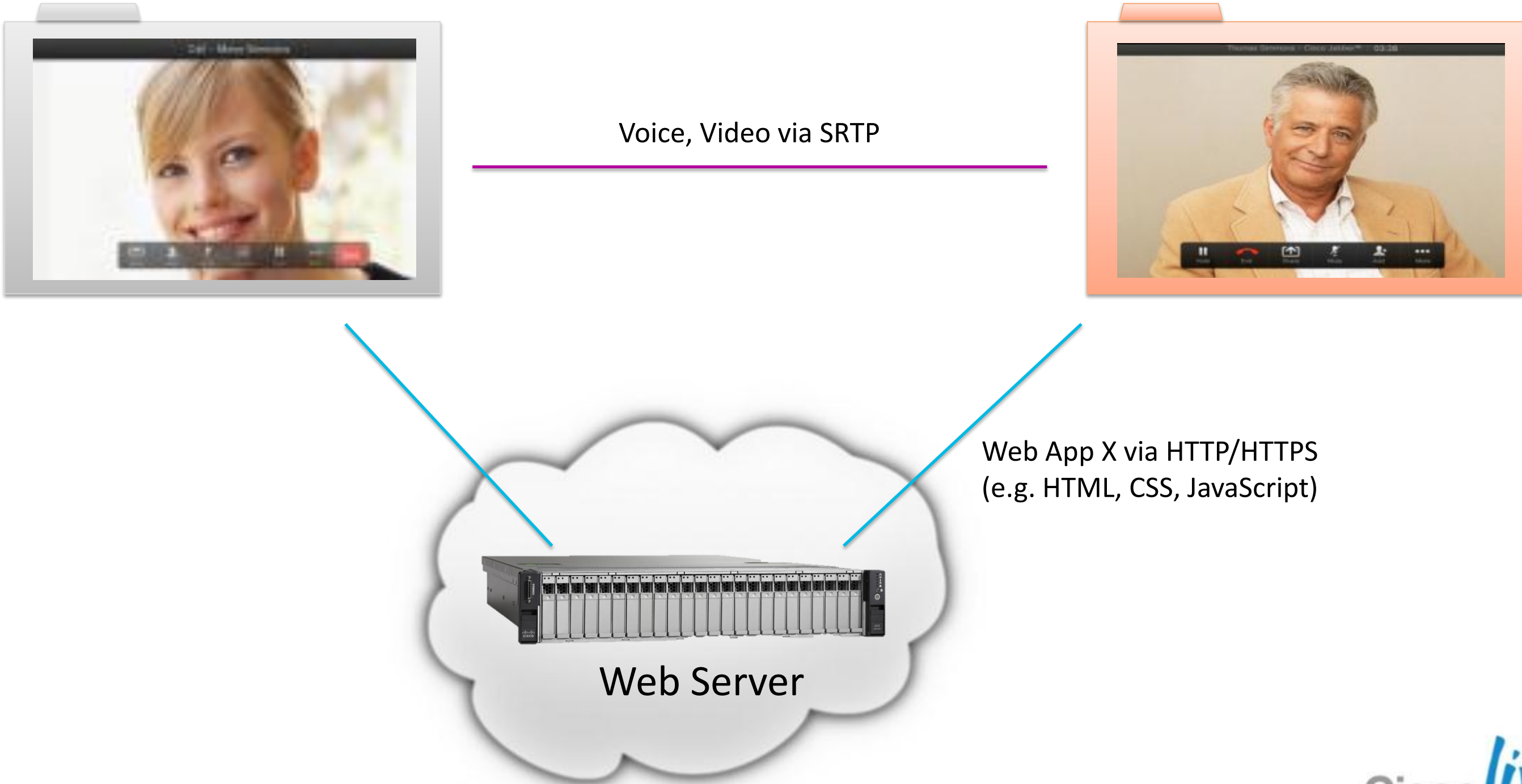
- RTCWeb Working Group
 - Primary effort in IETF
 - Cullen Jennings of Cisco is co-chair
- Defining how browsers communicate with others ... largely re-using existing protocols
- Notable documents ...
 - draft-ietf-rtcweb-audio draft-ietf-rtcweb-data-channel
 - draft-ietf-rtcweb-jsep draft-ietf-rtcweb-overview
 - draft-ietf-rtcweb-qos draft-ietf-rtcweb-rtp-usage
 - draft-ietf-rtcweb-security-arch
 - draft-ietf-rtcweb-use-cases-and-requirements



- WebRTC Working Group
 - Primary effort in W3C
 - Cullen Jennings of Cisco co-authors draft
- Defining how Web applications access browser real-time communications, i.e. API's
- Notable documents ...
 - WebRTC 1.0: Real-time Communication Between Browsers
 - Media Capture and Streams
 - Media Capture Scenarios

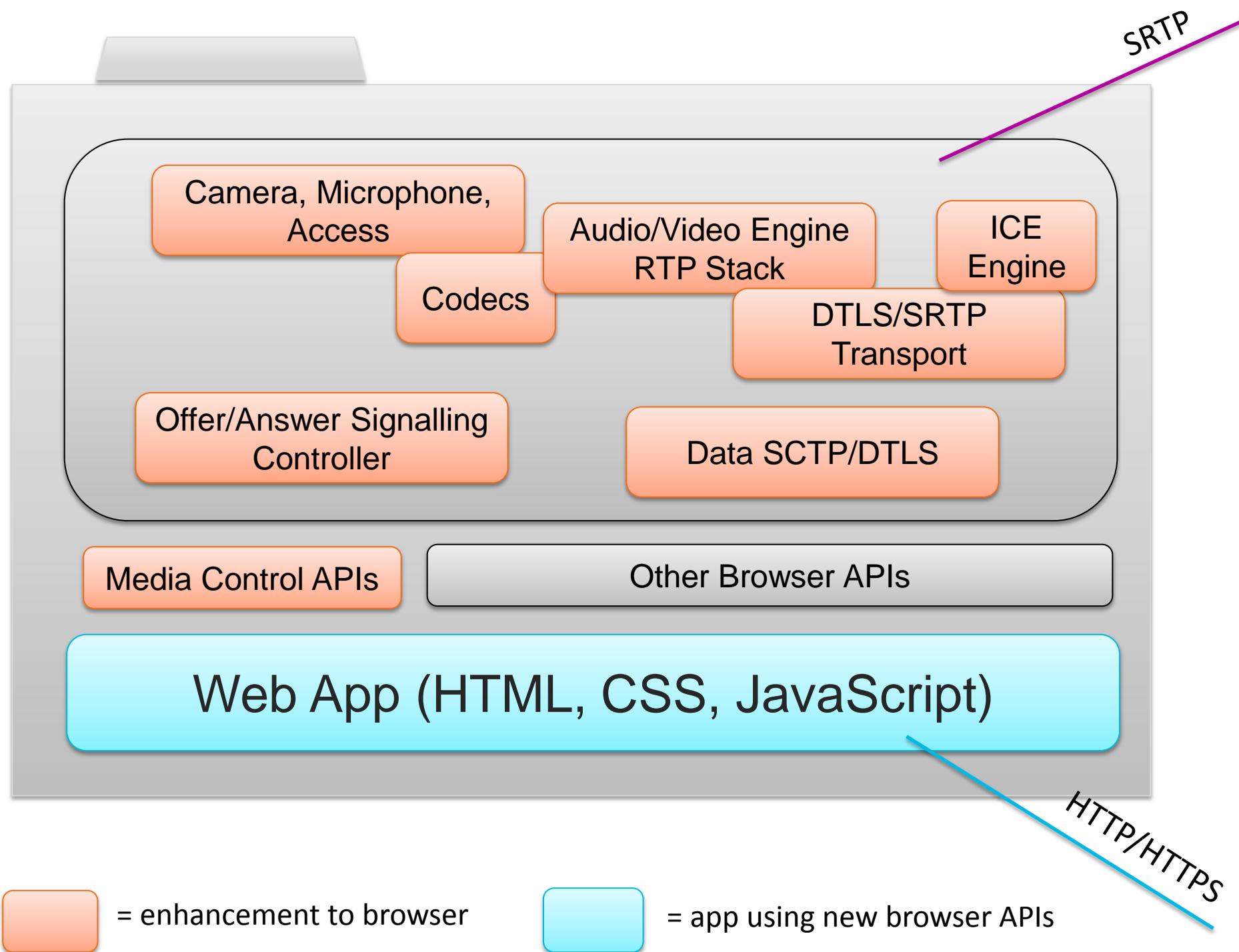
Browser Architecture

High-level Browser-to-Browser Real-time Communications




Browser Architecture

Closer Look at Enhancements for Real-time Communications



- Access to mic, camera
- Audio, video codecs
- RTP for interactive media, lip sync, etc
- SRTP media encryption using DTLS keying
- ICE for NAT/firewall traversal
- SCTP/DTLS for real-time data, e.g. games
- SDP-based offer/answer negotiation

 = enhancement to browser

 = app using new browser APIs

Good Progress on Technology Agreement

Though Some Significant TBDs

CONVERGING

- Audio Codecs ... G.711, Opus
- Signalling ... SDP-based offer/answer using JavaScript
- Firewall/NAT Traversal ... ICE, STUN, TURN
- Media Encryption ... DTLS-keyed SRTP
- Media Consent ... ICE/STUN
- Identity ... identity provider model
- QoS ... DiffServ Code Point markings to enhance WiFi, residential GWs, LTE links

TBD

- Video Codec(s) ... VP8 vs H.264?
- Congestion Control ... goals = minimise latency, quick reaction, consistent data flow
- Screen/Application Sharing
- Etc ...

Browser Implementations of WebRTC

Initial Versions Coming to Market



Google Chrome

- Initial implementation in Chrome 23 Stable
- 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 implementation in Firefox Aurora channel
- Actively working on open source implementation & contributing to standards efforts
- Cisco contributed open source development, e.g. RFC4566-compliant SDP engine, call control application logic



Apple Safari

- Maintaining strict secrecy

Closer Look at Cisco Product Strategy for HTML5 / WebRTC

Expecting broad, standards-based, interoperable browser support of WebRTC within 1-2 years



Offer compelling products today, using existing broadly adopted browser standards



Architect new products for emerging browser capabilities, e.g. WebRTC



Plan support for emerging browser capabilities as they become broadly available

Complement with native platform capabilities if necessary

Progressive adoption by customers & partners over time



Future Application Possibilities for Web-based UC/Video



Consumer Applications

Accelerated Integration of Real-time Communications ... And Adoption



Social Networking



Interactive Gaming



Social Entertainment



Personal Email



TBD

Business

Measured Integration and Adoption Over Time



Virtual Meetings



Employee-to-Employee Calls



Public Interactions



Social Collaboration



Presentation Recording



TBD



Q & A



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Cisco *live!* 365

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