Future of Enterprise Unified Communication in the WebRTC /HTML5 world - Cisco’s perspective

Bill Zeng, CTO – APJC Collaboration
Video demo
HTML5 / “WebRTC” & Possibilities
Why is it interesting?

Ease of Access
- No VoIP expertise needed
- Enables huge web developer population
- New applications
- Mashable communication components
- Cross platform

Ease of Development
- Distribution = URL
- Datacenter, not individual devices
- Low maintenance
- Rapid updates

Ease of Deployment
- Click to access
- Any device
- Reduced need for plugins/native apps
- Extends business comm. systems

MASSIVE ADOPTION
Virtual Meetings
Social Collaboration
Employee-to-Employee Calls
Presentation Recording
Public Interactions
TBD

Business Applications – Use Cases
Measured Integration and Adoption Over Time … Simplified Deployment
Interactive Voice, Video, Data in Web Browsers

A Journey
Browser to Non-Browser Endpoint
High-level Real-time Communications Architecture

Web App via HTTP/HTTPS (e.g. HTML, CSS, JavaScript)

Voice, Video via SRTP

Web Server

GW to SIP

SIP

SIP Proxy
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
Cisco Announces Free WebRTC H.264

- Open Source under BSD and binary module we distribute, we pay MPEG-LA
- Binary versions for Win, Mac, Linux, Android – community can contribute builds for others. Build tools open sourced, you can verify binary signature we distribute matches your build from source
- Minimal constraints for us to pay – we need to distribute; “About” recognition; must be possible for user to disable
- Cisco commits to support and pay barring unforeseen changes in H.264 licensing environment

- Interop with existing installation base;
- Availability of codec experts;
- Multiple codebases;
- Standard Development Organization codec;
- Hardware acceleration on multiple platforms
- Patent risk low – 10 years in the market and millions of devices available today.
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

Products
- Progressively introduce HTML5 & WebRTC
- e.g. “Jabber Public to Enterprise”
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

Cisco HTML5 / WebRTC Product Strategy

Expecting broad, standards-based, interoperable browser support of WebRTC within 1-2 years
Cisco Jabber: Leading User Experience Across Broadest Range of Platforms, Devices … Enterprise & Guest Users

NEW PRODUCT – Jabber Guest … Jabber for public to enterprise calls from desktop browsers & mobile devices

PROOF of CONCEPT … Web version of Jabber for enterprise users
Guest Users

- Web Browser
- Mobile Apps

DMZ

Cisco Expressway

Enterprise Workers

Call Control: SIP
- Cisco Unified Communications Manager (UCM)
- Cisco TelePresence Video Communication Server (VCS via UCM)

Presence & IM: XMPP
- Unified Presence
- WebEx Connect service (SaaS)

Meetings, Conferencing
- WebEx (SaaS)
- TelePresence MCU

Voice Messaging
- Unity Connection

WebRTC Asia Forums
Preparing for new business opportunities with WebRTC
Jabber Guest Browser Experience

User Experience

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

* Images for illustration purpose only. Final UI subject to change.
Jabber Guest WebRTC Vision

- Native Video in the browser
- ZERO Download
- Standards still evolving at IETF and W3C
- Video Codec support outstanding
- Jaber Guest Call Control designed to be WebRTC compatible

HTML5 Standard

Vendor A Browser With Web App X

Native, Zero Plugin

Vendor B Browser With Web App X

WebRTC Asia Forums
Preparing for new business opportunities with WebRTC
Consumer to Video Expert

Public Internet

Firewall Traversal

Voice/Video Call Control

Contact Center

Jabber P2E

Consumer Endpoint

High Level Architecture
The Road Ahead
CONVERGING

- Audio Codecs … G.711, Opus
- Signaling … 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 = minimize latency, quick reaction, consistent data flow
- Screen/Application Sharing
- Etc …

Good Progress on Technology Agreement
Though Some Significant TBDs
Browser Implementations of WebRTC
Initial Versions Coming to Market

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

Mozilla Firefox
- Initial desktop implementation in Firefox 18 Aurora … GA likely in version 20
- 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

Microsoft Internet Explorer
- Actively contributing to standards efforts
- Implementation status not public

Apple Safari
- Maintaining strict secrecy
Standards/Browsers & Cisco Roadmap

Proof of Concept

- Initial “GA” HTML5/WebRTC browsers
- RFCs … media transport, signaling, security, congestion, QoS, etc

Initial Support

- More GA browsers, standards adoption
- 1.0 WebRTC Standards
- RFCs … statistics, architecture, trickle ICE, bundle

Maturing

- Broad HTML5/WebRTC browser adoption
- RFCs … congestion, simulcast

Cisco

- WebEx Meetings, Social
- Jabber SDK, P2E
- Initial HTML5/WebRTC PoC’s

- Browser-based WebEx In-meeting Experience
- SDKs for WebEx, Jabber
- Initial HTML5/WebRTC Support

‘13

‘14

‘15

Industry

- HTML5/WebRTC versions of apps on all major platforms
- Real-time media collaboration easily integrated into web applications
- Broad access & interop via HTML5/WebRTC
- Network interaction with HTML5/WebRTC for QoS

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Preparing for new business opportunities with WebRTC

Subject to Change

Vision
Thank you.