WebRTC: Why You Should Care and How Avaya Can Help You

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What is WebRTC?

- A set of standards being defined by the IETF (protocols) and the W3C (JavaScript API)
  - Standard protocols defined at the media plane
  - No standard defined for signaling plane

- The vision: **ubiquitous, standard** support of real time **audio, video and data** between all browsers without plugins / downloads

- Particular attention paid to:
  - NAT / Firewall Traversal
  - Internet-friendly codecs
  - Privacy
Why You Should Care About WebRTC

Context

VPN-Less Access

UBIQUITOUS VIDEO

Browser-Based Agent / UC Clients

Integrated Communications
Different Ways that WebRTC Can Be Used in the Enterprise

- **On-Ramp**
  - SIP at the core
  - Browser with WebRTC is used to originate calls into the SIP core
  - The focus of this presentation

- **Built-In**
  - Multimedia conference bridge has native WebRTC capabilities
  - No need to transition to SIP before entering the bridge

- **Off-Ramp**
  - SIP at the core
  - Browser with WebRTC acts as thin UC or agent client
Use Case

Refrigerator Customer Support Journey

(Google “YouTube Avaya Aura® Collaboration Environment: Enhanced Business Applications”)
Current Customer Journey

1. Enter information on website
2. Find customer support number and dial it
3. Navigate IVR maze
4. Play 20 questions to establish identity
5. Tell the agent what you entered on website
6. Get transferred to somebody that can help you
Customer Journey Enabled with WebRTC

1. Enter information on website

2. Click to Call

3. Expert agent greets you by name and knows exactly why you are calling.

Find customer support number and dial it
Navigate IVR maze
Play 20 questions to establish identity
Tell the agent what you entered on website
Get transferred to an expert
Hello Susan, my name is Gary. Let me see how I can help you with the fluctuating temperatures on your Coolomatic 5000.
How to Implement this Use Case?

Enter Collaboration Environment
How Do I Leverage WebRTC in My Web Application?

- WebRTC APIs make it (somewhat) easy to make 2 browsers pointed at the same website talk to each other.
- In a contact center, this simple functionality isn’t sufficient.

Collaboration Environment makes it easy to embed real time communications into any web experience.
Collaboration Environment Bridges HTTP and SIP

HTTP
SIP

Support Website
Agent Selection
Agent Desktop

CONTEXT (UUI)

ICE
STUN
TURN

Policy Enforcement
Call Recording

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Avaya WebRTC Snap-in Architecture

- **HTML 5**
- **Customer Facing Web Application**
- **DMZ**
- **Avaya WebRTC Snap-In**
- **Avaya Aura®**
- **Avaya Media Server**
- **SIP Media Stream**
- **STUN/TURN**
- **Avaya WebRTC JavaScript (JSL)**
- **Standard WebRTC API**
- **WebApp HTML / JavaScript**
- **HTTP Reverse Proxy**
- **HTTP Signaling**
- **SIP**

= Customer Developed / Provided
= Avaya Developed
= Either Customer Provided or Avaya Developed

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Collaboration Environment is a highly available, highly scalable platform for deployment of diverse “Snap-Ins” developed by Avaya, Business Partners and Customers.

Includes SIP call control, J2EE HTTP, Email and SMS capabilities.
WebRTC Snap-in

Translates HTTP signaling to SIP signaling, enforces authorization, engages AMS to translate WebRTC media to SIP media.
WebRTC JavaScript Library (JSL)

Downloaded from WebRTC Snap-in and invoked by Web Application JavaScript. Interfaces to standard WebRTC browser JavaScript interface and signals with WebRTC Snap-In using HTTP.
**Avaya Media Server (AMS)**

Terminates ICE, STUN, TURN, DTLS. Translates WebRTC media stream to SIP media stream.
Avaya SBC for Enterprise

Secure edge component for WebRTC. Includes STUN and TURN server as well as optional HTTP Reverse Proxy.
Avaya WebRTC Trust / Security Model

Something Different than We’ve Ever Seen Before
Web Application provides Authorization Token to Snap-In telling it that any given call is valid. Optionally asserts caller identity.

Snap-in validates Authorization Token.
Generation / Propagation of Browser ICE Candidates

Browser generates IP address / port pairs (ICE Candidates). Sends to Snap-In in SDP Offer.

Snap-in relays SDP Offer (including ICE Candidates) to AMS.
Avaya Media Server performs ICE negotiation with browser. Sends selected browser IP address / port pair to TURN server in Avaya SBCE for Enterprise.

TURN server only allows incoming UDP (audio / video) packets from specified addresses.
Establishment of SRTP key

Browser and Avaya Media Server establish DTLS (Datagram Transport Layer Security) session and establish SRTP key over this session.
Why did Avaya choose this model? Embrace the Web in WebRTC!

- Customers have already invested in a secure, scalable HTTP infrastructure.
  - Reverse Proxies and Application Delivery Controllers protect against DoS / DDoS, enforce policies

- Avaya sends WebRTC signaling through existing infrastructure, embracing the customer’s investment

- On-premises TURN server (as part of Avaya SBC for Enterprise) allows secure media relay across enterprise firewall
  - A cloud based service may be offered in the future
  - This would mean NO new DMZ elements for WebRTC

- Conspicuous in its absence: VPN
Peeling the Customer Journey Onion

A Suite of Snap-ins Working Together
The Snap-ins Behind Enhanced Customer Journey

The **WebRTC snap-in** make it easy to add click to call capabilities from any web application to any Avaya Aura® endpoint.

**Collaboration Designer** provides graphical design environment for implementing workflows.

**Context Store** is a highly scalable, highly available in-memory data grid with a web service interface.

**Work Assignment** selects the best resource (e.g. Agent) to handle a work request (e.g. call) based on a customizable set of attributes.

**Real-Time Speech** enables immediate detection of spoken phrases in two-party calls.
Putting the Snap-ins Together to Create a Seamless Support Experience
In Conclusion

Avaya WebRTC: a powerful start with a bright future
Additional Use Cases for Collaboration Environment 3.0 WebRTC

- Click to call from enterprise directory web page

- “Click to call me” URL in email signature
Enhancements coming in the near future

- **Video**
  - One and two way video between browsers, mobile devices and Avaya Aura® endpoints such as Communicator.

- **Mobile**
  - Native iOS and Android SDKs to incorporate real-time Audio / Video into custom mobile apps

- **Unified Communications and Agent SDK**
  - Ability to create full-fledged browser-based UC and Agent clients
  - No download, install, plugin or VPN required!
WebRTC brings a change of paradigm
Avaya helps make it happen

Communications Integrated into Fit for Purpose Experiences

Dedicated Communication Clients
Sample WebRTC Enterprise Use-Cases
Opportunities for both the UC and CC aspects of communications

Browser UC Client
- Audio, Video, IM, Collaboration
- UC client for cloud based service
- Tailor User-Client to Work-duties

Web Assistance
- Web customers voice / video / collaborate with contact center agents—without a download

One-Touch Video
- Call me from an email link.
- Click-to-discuss from application

Web Agent Desktop
- Thin client agent position without VPN

Web Video Conferencing
- Browser-based video conferencing
- No downloads, greater usage

VDI Communication
- Voice and video to a VDI brick.
- Media on brick, Virtual desktop.