



The Power of We™

HTML5, WebRTC, and the Evolving Impact on Speech and Contact Centers

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HTML5 & WebRTC have support for sophisticated programmability and excellent speech quality, thus having the potential to change the landscape of both **technology-based** and **agent-based customer service**

Strategic Planning Assumption:

By 2015, mobile Web technologies will have advanced sufficiently so that half of the applications that today would be written as native apps instead will be delivered as Web apps.

– *Gene Phifer, Gartner*

HTML5

- ▶ Extends the role of a browser from...
 - ▶ A visual markup language interpreter
- ... to ...





An extended programmable platform for:

- Responsive visual client services
- Core-provided voice & video services
- Expanded programming capabilities, including off-line capabilities



Evolving Status of HTML5



- ▶ Industry Momentum: Major browsers support it:
 Safari,  Firefox,  Chrome,  Explorer 9
- ▶ HTML5 definition is not final, but is closed to new issues.
 - As of December 2012, is a [W3C Candidate Recommendation](#)
- ▶ Three areas with different maturity:
 - Visual Interaction facilities, programming and control (near maturity -- several browser implementations)
 - Video and audio output (near maturity – but several codecs instead of original one)
 - Video and audio capture/encoding (Browsers now introducing support – zero to 12 months out)

Current Status Link: <http://html5test.com>

PC's

Tablets

Mobile (out of 555)

current

Score	Browser
505	Chrome 33 »
494	Opera 19 »
485	Maxthon 4.1 »
448	Firefox 27 »
397	Safari 7.0 »
376	Internet Explorer 11 »

current

Score	Browser
488	Chrome 33 »
471	Opera Mobile 16 »
464	Firefox Mobile 27 »
453	Amazon Silk 3 »
428	Android 4.4 »
412	RIM Tablet OS 2.1 »
412	iOS 7.0 »
376	Internet Explorer 11 »

current

Score	Browser
491	BlackBerry 10.2 »
488	Chrome 33 »
471	Opera Mobile 16 »
464	Firefox Mobile 27 »
428	Android 4.4 »
428	Jolla Sailfish »
412	iOS 7.0 »
332	Windows Phone 8 »
274	MeeGo/Harmattan »
263	Bada 2.0 »
238	Nokia Xpress »

WebRTC



- ▶ WebRTC is a “partner” to HTML5
 - Provides a container for media signaling and codecs
 - Signaling: Web sockets only
 - Codecs: Common (G.711) and internet-optimized (OPUS)
Common (H.264 AVC), and alternatives (VP8)

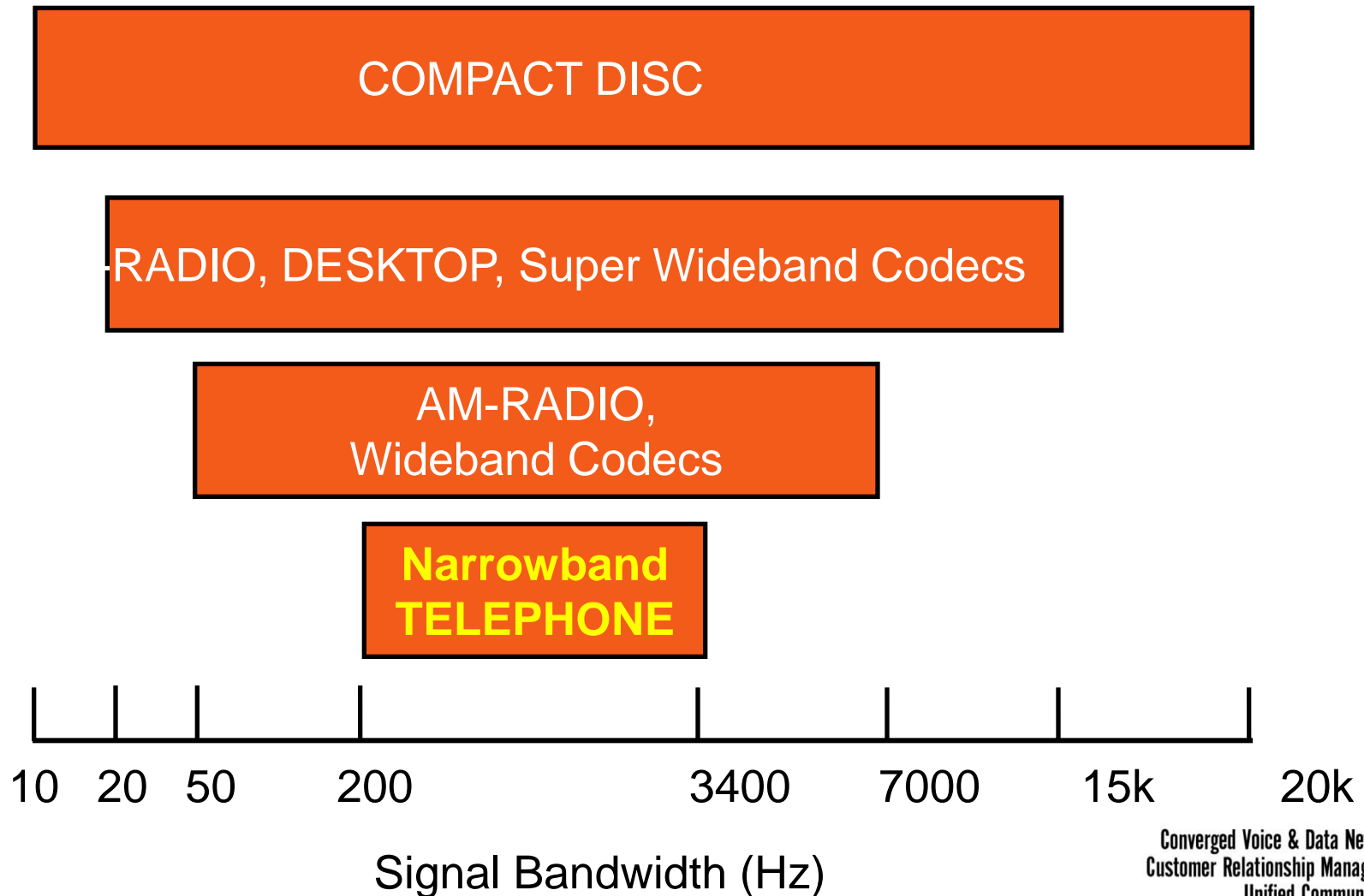
- ▶ Google Media Engine (GME) has been called “WebRTC” – they’re not the same thing
 - GME is the basis of the Google media contributions to the Chrome WebRTC module, derived from GIPS

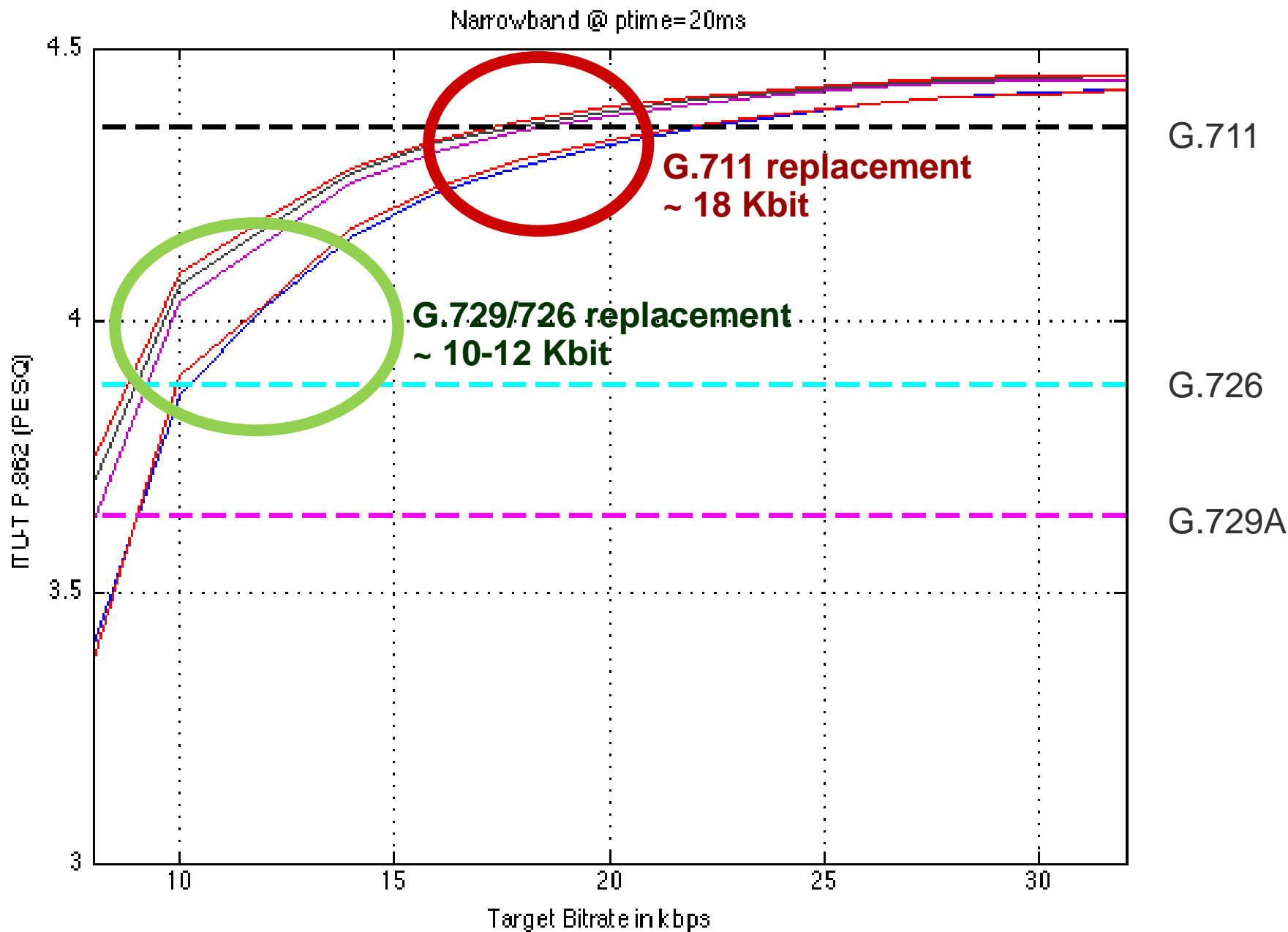
WebRTC Audio

Adopters of the Internet-optimized codec OPUS will enjoy a superior audio experience

- ▶ WebRTC requires two audio codecs: G.711 and OPUS
- ▶ What is OPUS?
 - Open source codec, standardized in IETF RFC 6176
 - Two codecs in one package: SILK and CELT
 - Best of internet and telephony characteristics
 - Good music on hold (Contact Center)
 - Good packet loss concealment (Internet)
 - Good transcoding (conferencing and warm transfers)
 - Spans the range from standard voice to HD quality

Desktop vs. Telephony IVR, and Sound Signal Bandwidth

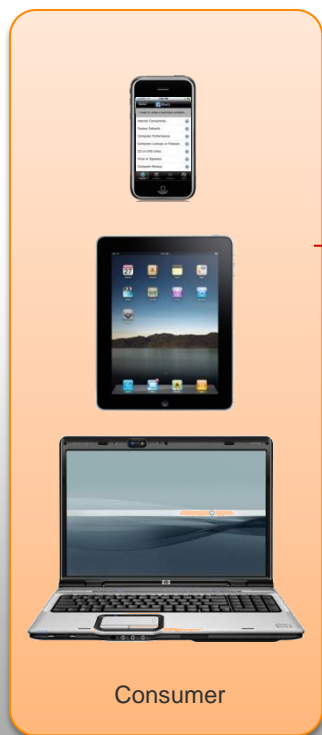




- ▶ Codec available via:
 - Native in Chrome, Mozilla, and Firefox
 - Plugin for Microsoft Internet Explorer and Apple Safari
- ▶ Wide range of bit-rates available
- ▶ Bottom line: Audio far superior to PSTN audio available in substantially less bandwidth
- ▶ **Implication:**
 - **Server-based IVR-like speech processing will be significantly improved over past PSTN IVR systems.**
 - **Simplicity of implementation and licensing for contact centers could spur development of speech dialogues**
 - **Speech analytics (passive topic processing and passive biometrics) will substantially benefit**

Example HTML5/WebRTC-Based Application Architecture

Public Domain



Firewall

DMZ

Enterprise Web Server (App Controller)

WebRTC, plus Interactive and Real-Time Speech Analytics

Avaya Collaboration Environment and Avaya Media Server

Enterprise

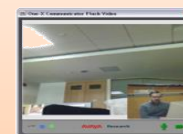
Avaya Aura® Session Manager

Avaya Aura® Communication Manager

Avaya Aura® Call Center



Avaya one-X Agent
Audio, SIP, Video



H.263, SIP



Avaya one-X®
Communicator

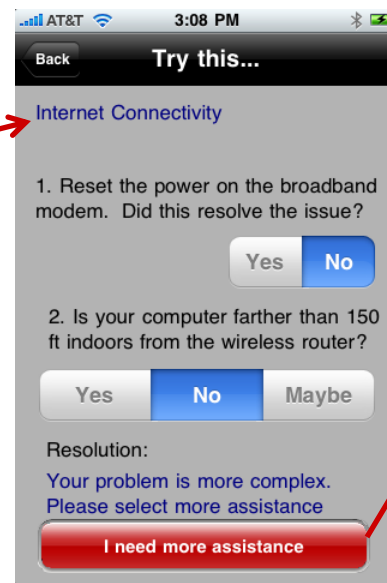
Example: Dynamic Applications via HTML5, with Centralized Server-based Speech App via WebRTC



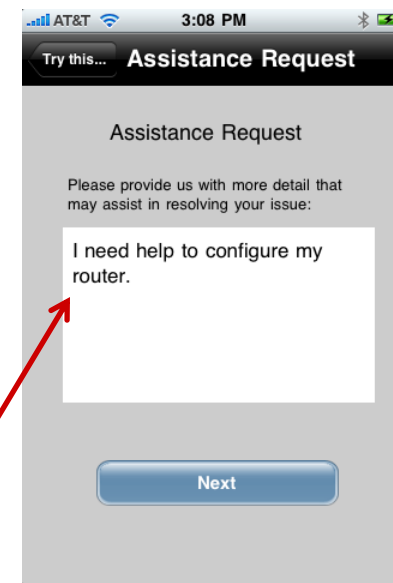
Technical Support



Type of issue



Basic Troubleshooting



Description of Problem

HTML5 Plus and Minus

- + Web application control using HTML5—responsive, but yet still thin client
- + Speech resources in enterprise using standard access via WebRTC and browser—no need for downloaded app
- + Complete understanding of application context

...but...

- Must be connected to Internet
- No additional optimization for device
- Simple apps can be done quickly—sophisticated ones not so easy

The Future of Customer Service

1. Often starts with Web or Mobile Application
2. Issue or question encountered
3. (Text chat from PC user)
4. Add voice (and video, if you want) to talk about issue
 - Today a callback
 - Soon, HTML5/WebRTC transport
5. Cobrowsing / remote control if needed
6. Resolution

Live Agent Contact Center Changes

- ▶ No need for IVR—
 - If you are just starting, visual choices are fast
 - If you are in an app, we already know where you are in your interaction with the company
- ▶ Move from “PBX ACD” to Work Assignment—the first work assigned might be that text chat !
- ▶ Likely codec is not G.711 / G.729—it’s OPUS, affecting:
 - Contact center endpoints
 - PBX systems
(conferenced transfers, escalations, offsite agents)
 - Recording and review systems
 - Speech Analytics (post-call and real-time)

Summary

- ▶ HTML5 / WebRTC for audio is here
- ▶ OPUS is the new change in audio
- ▶ Applications can be thin client with speech easily
- ▶ Contact centers will embrace 'Escalating Customer Service'
 - Adding voice is a natural step
 - Codec change will affect every component, but should increase understandability while reducing bandwidth needs
 - The positive change in agent efficiency could be huge

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