WebRTC
The Webification of Communications

Phil Edholm
President and Principal
PKE Consulting LLC
Typical VoIP Client and Media Engine

Components

• Audio
  – Setup and control the hardware
  – RTP, compression, encryption, statistics, etc.
  – Produce low-latency audio from microphone
  – Conceal loss, de-jitter and play audio from the network
  – Cancel echo, VAD, reduce noise, etc.
  – Manage codecs

• Video
  – Render video, capture camera input
  – Video processing (blue screen, gamma, etc.)
  – Conceal loss, de-jitter and play video from the network
  – Cancel echo, VAD, reduce noise, etc.
  – Manage codecs
  – Bandwidth Management
In the Browser

WebRTC Media Processing

HTML – HTML5 Visual User Experience
WebRTC Implementations

Adding WebRTC to Any Web Server

WebRTC as an extension to existing networks of servers (Carriers)

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Other WebRTC Enterprise Integrations

Integrating a Media Server with WebRTC

Enabling an Existing Contact Center product with WebRTC

SIP Integration with RTP

WebRTC and SIP Clients with Media Gateway

Web Server with WebRTC Control

Media Server

Contact Center Server

VOIP Softswitch

Media Server

HTML & WebRTC API
VOIP RTP
Vendor Media
Vendor SIP
The Data Channel
Additive Communications
Is Cube Slam Cute or A Subversive Plot?

What Percentage of Web Activities would Benefit from Real-Time?
WebRTC and the Web

Replacing What Exists or Augmenting it

Real-time as adjunct to an activity

Real-time as extension of an interaction or app

Real-time all the time

Playing Cube Slam against Bob the Diversionary Bear

Chess Cam by Spacegoo
The Real-Time Web

Application with WebRTC Control

Vendor A UC Platform with WebRTC Control

Application with WebRTC Control

Vendor C UC Platform with WebRTC Control

Social System with WebRTC Control

Vendor A UC Platform with WebRTC Control

Social System with WebRTC Control

Vendor C UC Platform with WebRTC Control

Social System with WebRTC Control

Vendor B UC Platform with WebRTC Control

Social System with WebRTC Control

Vendor B UC Platform with WebRTC Control

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WebRTC Timeline Q2 2014

History

2011
- IETF working group set up
- Google open-sources GIPS IPR
- Chrome & Opera browsers start supporting WebRTC APIs

2012
- Ericsson WebRTC demo at MWC
- Telefonica acquires TokBox
- Chrome supports WebRTC in stable release
- AT&T announces alpha WebRTC APIs

2013
- Chrome 29 Supports Android
- Firefox supports WebRTC in stable release
- Microsoft IE supports WebRTC or CU-RTC-Web
- 1 billion WebRTC capable devices
- 2 billion WebRTC capable devices
- 4 billion WebRTC capable devices

2014
- User familiarity with in-website voice/video
- First operator-branded WebRTC /IMS apps emerge
- 1 billion individual active WebRTC users
- 1st WebRTC primary social/calling app goes viral
- Broad adoption of WebRTC in massmarket contact centres

Assumptions - See disruptive-analysis.com for details

Source: Disruptive Analysis WebRTC Strategy Report, June 2013

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WebRTC forecasts: Over 4 billion devices

Device base supporting WebRTC growing Zero → 4bn in 4 years

Source: Disruptive Analysis WebRTC Strategy Report, June 2013 & Q2 Update June 2013
Definitions & methodology in report - See disruptivewireless.blogspot.com for details
## Company Positions on WebRTC

<table>
<thead>
<tr>
<th>Promoters</th>
<th>Uncommitted/Following</th>
<th>Telcos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google, Firefox, Ericsson, Cisco, Thrupoint, Acme Packet, Alcatel-Lucent, Genband, Oracle, Unify, InGate, Avaya</td>
<td>Juniper Networks, Microsoft, Apple</td>
<td>AT&amp;T, Telefonica, Deutsche Telekom, France Télécom</td>
</tr>
</tbody>
</table>
Potential Barriers

- Microsoft may actively resist
  - Contrary to Friends and Family strength of Lync and Skype
  - Organizational shift may indicate probable support
- Apple is not committing
  - Could block app in App Store
  - Indications are they will support as a standard
  - H264/5 support an issue
- Open Issues
  - Video codecs – VP8/9 versus H264/5
- Security
  - Enterprise Firewalls and SBCs need WebRTC support
WebRTC Benefits

WebRTC enables any web server to deliver a unique real time communications experience, with simplicity and reliability, without dependence on service providers or other services.

WebRTC enables users to participate in a communications experience as delivered by any web site without downloads, registration or general cost.
Game Changer, disrupter, Transformer?

- Industry Disruptions
- Market and Societal Disruptions

Core Technology

Delivery

General
WWW, web, browser Impact

Industry Disruptions
Market and Societal Disruptions

Core Technology
Delivery
General
VoIP Impact

Core Technology

Delivery

General

Industry Disruptions

Market and Societal Disruptions
WebRTC Impact

- Core Technology
- Delivery
- General

- Industry Disruptions
- Market and Societal Disruptions
THE WEBRTC ECOSYSTEM
WebRTC Integration and Development Solutions

End User Experiences

Business Solutions and Applications

Current Communications and Collaboration

- Enterprise
  - Employee Services (Telecom)
  - Contact Center
  - Web Site
  - Business Process
  - Cloud Services

- Service Provider
  - Access Provider
  - Pure OTT
  - Intermediate
  - Cloud Infrastructure

Real Time Interactive Consumer Web

- Web Sites
  - Gaming
  - Entertainment
  - Social
  - Retail
  - Information
  - Community

- Blue Ocean
  - New Business Models
  - Next Generation Social
  - Social Physics

Solutions

Opportunity

End User Experiences
Solutions

Business Solutions and Applications

WebRTC Integration and Development Solutions

Opportunity

End User Experiences

Browsers and Plugins
- Google
- Opera
- Mozilla Firefox
- Temasys
- priologic
- Eyeball Networks

Native Mobile App Development
- Temasys
- MERA

Peripherals and Wearables
- Plantronics

Digital Signage
New Revenue
- TalkPoint
- TollFreeRewards

New Endpoints
- Samsung
- LG

Contract Resources
- Temasys
- CaféX
- Daitan Group
Business Solutions and Applications

WebRTC Integration and Development Solutions

- Complete Framework
  - Development Solutions, Platforms, Tools, and Code
    - Commercia l Tools and Platforms
    - Open Source and Internal Development
  - Development Toolkits
  - Media and Services Tools

End User Experiences

Solutions

Opportunity
Business Solutions and Applications

WebRTC Integration and Development Solutions

Customization and Optimization to Problem or Application

Ease of Implementation

End User Experiences
WebRTC Enterprise Impact

- BYOD
- Extending Collaboration
- Communications Portal
- Transforming Customer Interaction
- Remote Agents
Guest Portals: The Webification of Real-Time?

Vendor A UC Platform with WebRTC Control

Vendor SLP

HTML & WebRTC API

Vendor SIP

VoIP RTP

Vendor C UC Platform with WebRTC Control

HTML & WebRTC API

Vendor SIP

VoIP RTP

www.anyserver.com/portal/kevink

www.companyserver.com/portal/johnc
Guest Portals: The Webification of Real-Time?

Vendor A
UC Platform with WebRTC Control

Vendor G
Web UC Platform with WebRTC Control

Vendor SIP

HTML & WebRTC API

HTML & WebRTC API

VoIP RTP

www.giantweb.com/portal/larryp
• 97% of buyers visit a web-site first.
  • BIA Kelsey, 2011

• By 2015 the Marketing Technologists budget will surpass the CIO’s budget.
  • Gartner Group, 2012

• 70-90% of Contact Center calls are proceeded by a web-site visit in NA
  • PKE Consulting Analysis 2013
Interaction at the Intersection

Information Infrastructure
• Web Site
• Servers
• Big Data

Real-time Experience
• Interaction
• UX
• Media Modality

Network
• RT Ready
• Available
• QoE

WebRTC
Interaction Experience 2.0

Getting the best Possible Employee to Interact with the Customer/Contact
- Contextual
- Optimized

Having ALL of the information to resolve the Customer/Contact problem
- Complete
- Accessible

Having the right communications modality the best possible experience
- Optimized
- Empathetic
Improving Customer Interaction

Getting the Right Employee

- **All Data**
  - "I see you have more information than I do."
  - "How can I possibly help you?"
  - Any Employee

- **None**
  - "Problem Solved"
  - "Great meet – no answer."
  - Right Employee

Contextually Right Person

Having Easy Communications

- **Complete**
  - Big Data Path
  - Interaction Experience 2.0
    - Any Media
    - Big Data Depth
    - Any Employee
    - Right time, employee, data
    - Best possible outcomes

- **None**
  - Immersive Communications Path
  - Interaction Experience 1.0
    - Legacy
    - ACD
    - Call Centers
    - Contact Centres
    - IVR

Interaction Capability

- **Telephony**
- **Multi-modal Immersion**

Reduced Effort
Ultimate Satisfaction

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PKE Consulting 2014
The Web Disconnect

Typical Fortune 1000 Web Site

1  40  30  20  10

240,000 Discrete Contextual Links

Typical Fortune 1000 Contact Centre/IVR

3  800-406-2345
   866-675-4759
   866-657-9867

375 Discrete Contact Routes

The challenge is mapping to the current systems LIMITED resources

Question 1

Question 2

Question 3

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# Customer Classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Percentage</th>
<th>Description</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concierge Class</td>
<td>5-15%</td>
<td>High value Customers</td>
<td>Expectation of direct access to agents</td>
</tr>
<tr>
<td>Web Class</td>
<td>70-90%</td>
<td>Self Service Customers</td>
<td>Use the web first and then go to an agent based response</td>
</tr>
<tr>
<td>Loss Class</td>
<td>5-15%</td>
<td>Low value non-web Customers</td>
<td>Phone access IVR to Agent</td>
</tr>
</tbody>
</table>
Service Goals

Always have an agent available – minimal or no IVR

Optimize web experience to minimize transitions
Use web context to both reduce effort and increase satisfaction
Provide feedback from agents to web

Use IVR and other mechanisms to minimize agent impact
Reduced concern about satisfaction – loss is OK
Optimizing with WebRTC

Time (2-6 years)

- Concierge Class
- Web Class
- Loss Class

Web Site

Agent Direct w/ WebRTC

WebRTC and Agent

IVR and Contact Center Agent

Aggressive IVR and Agent
Digital Learning

Time (2-6 years)

Concierge Class
- Dial and Agent
- WebRTC and Agent

Web Class
- IVR and Contact Center Agent
- WebRTC and Agent

Loss Class
- Aggressive IVR and Agent

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Reducing Agent Interaction

Time (2-6 years)

Concierge Class

Dial and Agent
WebRTC and Agent

Web Site

Web Class

IVR and Contact Center Agent
WebRTC and Agent

Loss Class

Aggressive IVR and Agent

40% reduction in Agent Interactions
Contextual Interactions
Where is there WebRTC Focus?

WebRTC is often cited as a potential disrupter, which markets do you think will see WebRTC based disruption of existing solutions/players in 2014? Please mark all that all choices that apply.

- Video Conferencing
- Contact Centers
- Web Conferencing
- General Enterprise...
- Service Provider
- Audio Conferencing
- Not a Disruptor

There are over 30 start-ups focused in this area

WebRTC World WebRTC Outlook Survey, Dec13
100 Respondents from the WebRTC Community

What markets do you think WebRTC will see the greatest adoption in 2014? Rank the following market areas on a scale of 1-6, 1 being the area of greatest adoption and 6 being the least (each market area must have a unique ranking).

- General Customer Care and Contact
- Social Media
- BYOD
- General Video
- Healthcare
- Service Providers
- Financial Services
WebRTC is......

The Web

Money
Join US at the Enterprise WebRTC Conference and Expo

Attend WebRTC Conference and Expo San Jose, Nov 18-20, get a 50% discount with WRTC- ITEXPO
Thank You and Questions

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