Innovate
Integrate
Transform

Interaction
Information
Networks

PKE
Consulting LLC

WebRTC

The Webification of Communications

Phil Edholm
President and Principal
PKE Consulting LLC

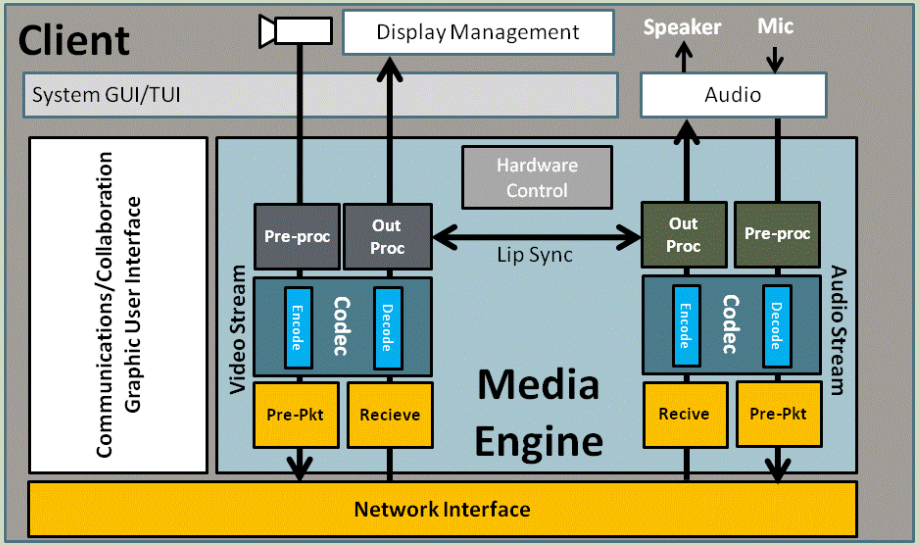
Typical VoIP Client and Media Engine

PKE Consulting LLC

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

Client/Media Engine Structure



In the Browser

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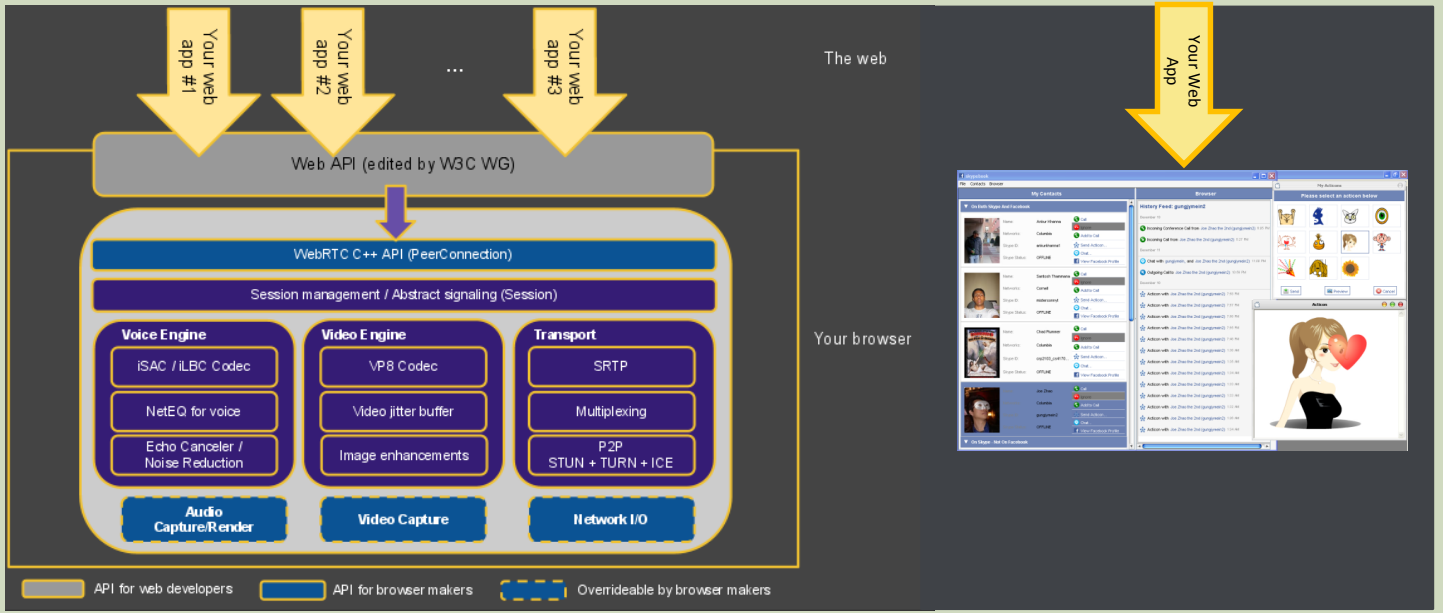
WebRTC
Media Processing

HTML – HTML5
Visual User Experience



WebRTC Implementations

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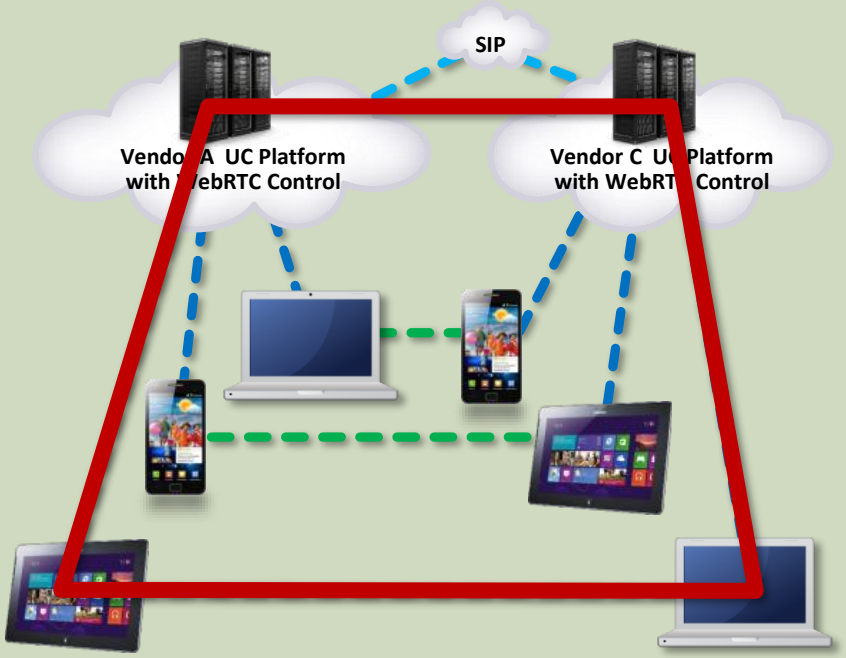
Adding WebRTC to Any Web Server

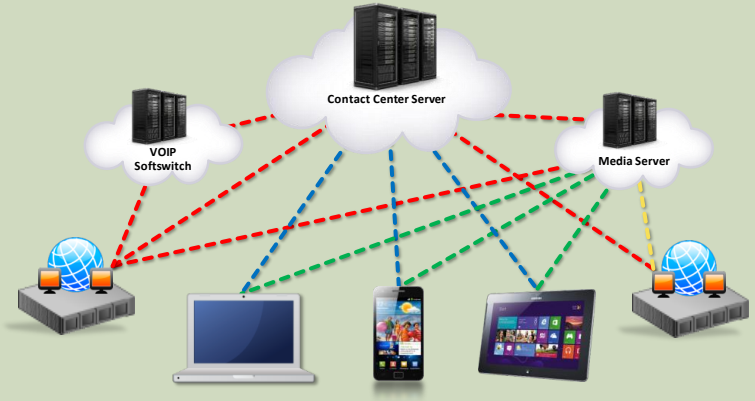
WebRTC as an extension to existing networks of servers (Carriers)



Other WebRTC Enterprise Integrations

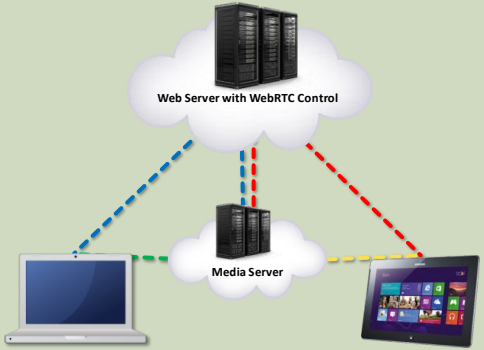
Integrating a Media Server with WebRTC

Enabling an Existing Contact Center product with WebRTC



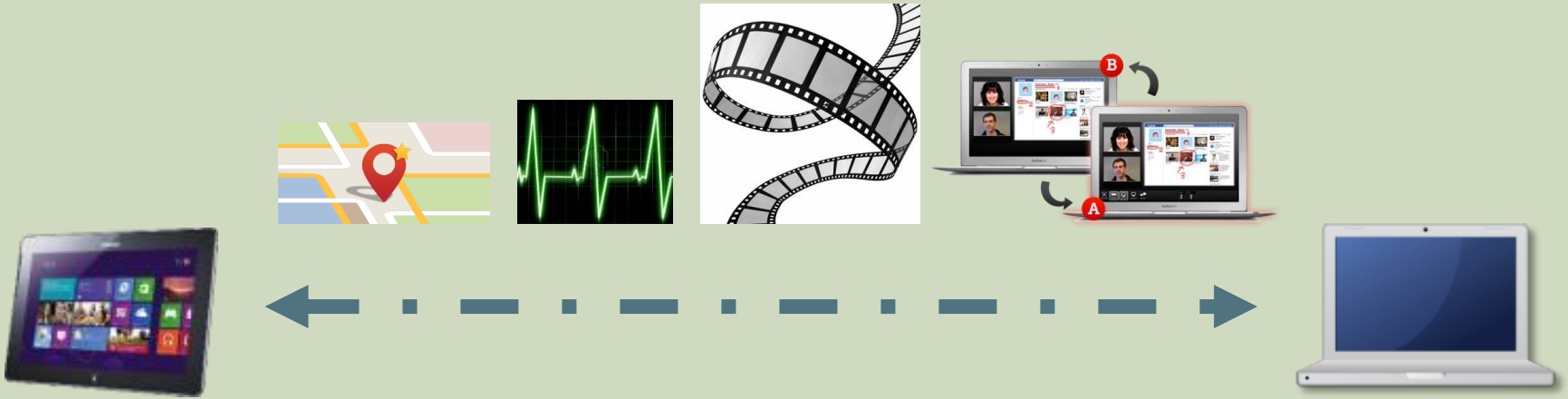
SIP Integration with RTP

WebRTC and SIP Clients with Media Gateway



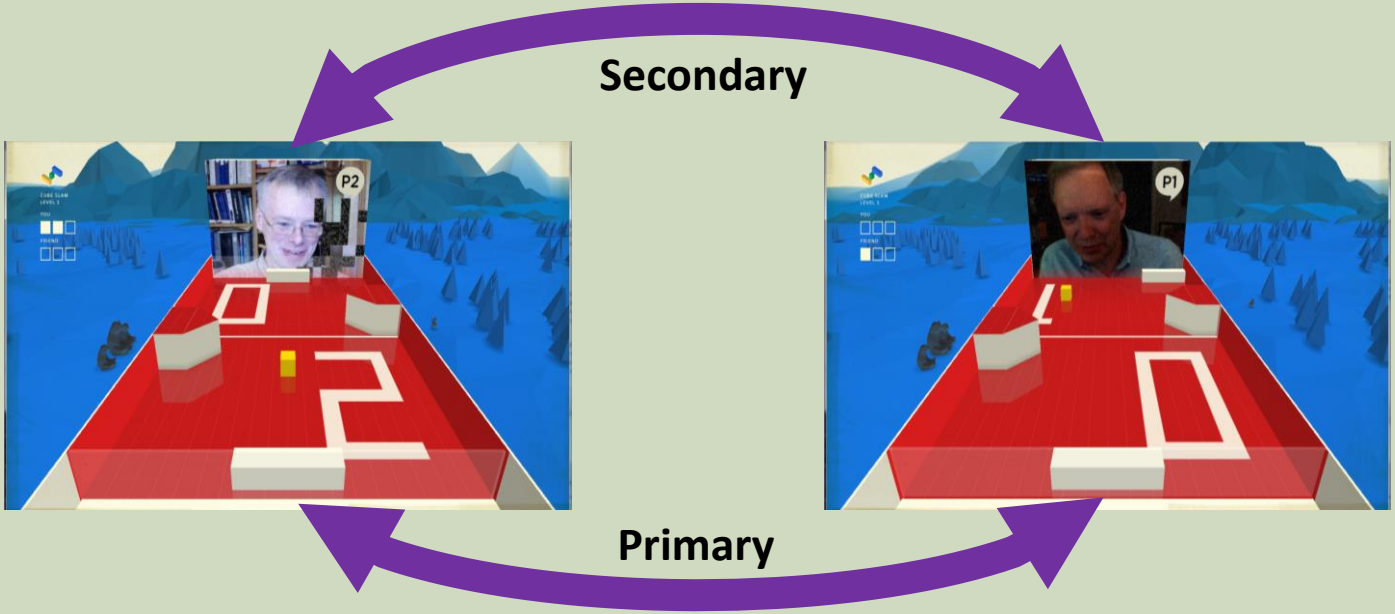
HTML & WebRTC API
VOIP RTP
Vendor Media
Vendor SIP

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

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Replacing What Exists or Augmenting it

bistri
vidtel
weemo
Vonage Crazy generous.
Genesys
INTERACTIVE INTELLIGENCE
Quobis leading your ITinerary
GENBAND
APIDAZE
TELEDINI AVAYA
Temasys
vLine
Custom Branded Video Meeting Rooms
BolderThinking
TROPO

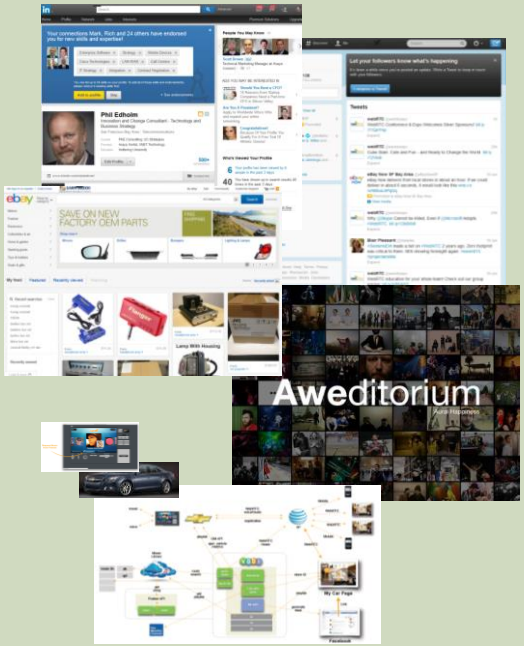
Real-time as adjunct to an activity

Playing Cube Slam against Bob the Diversionary Bear

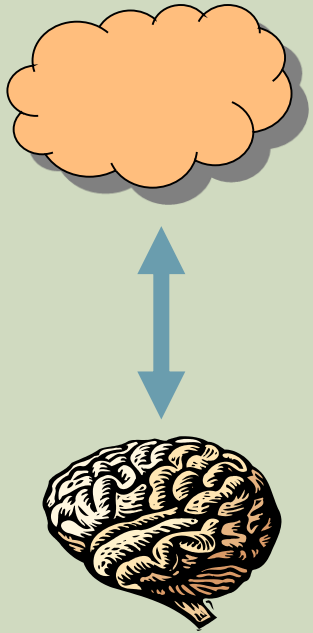
PubNub

Chess Cam by Spacegoo

Real-time as extension of an interaction or app

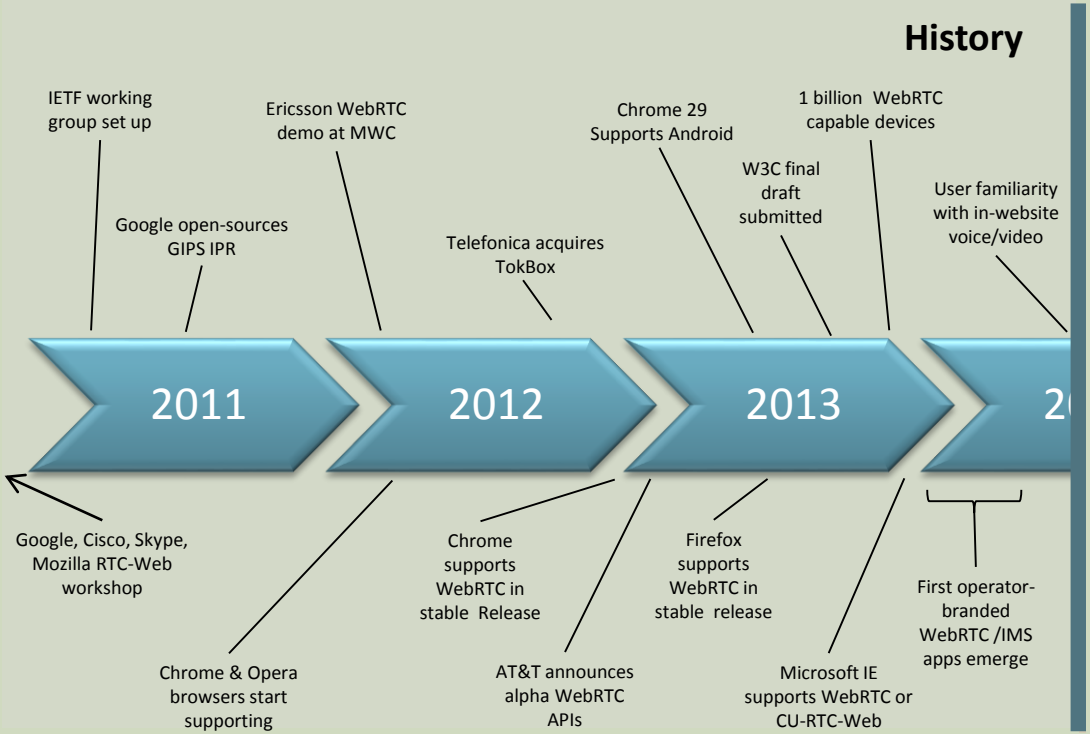


Real-time all the time



The Real-Time Web

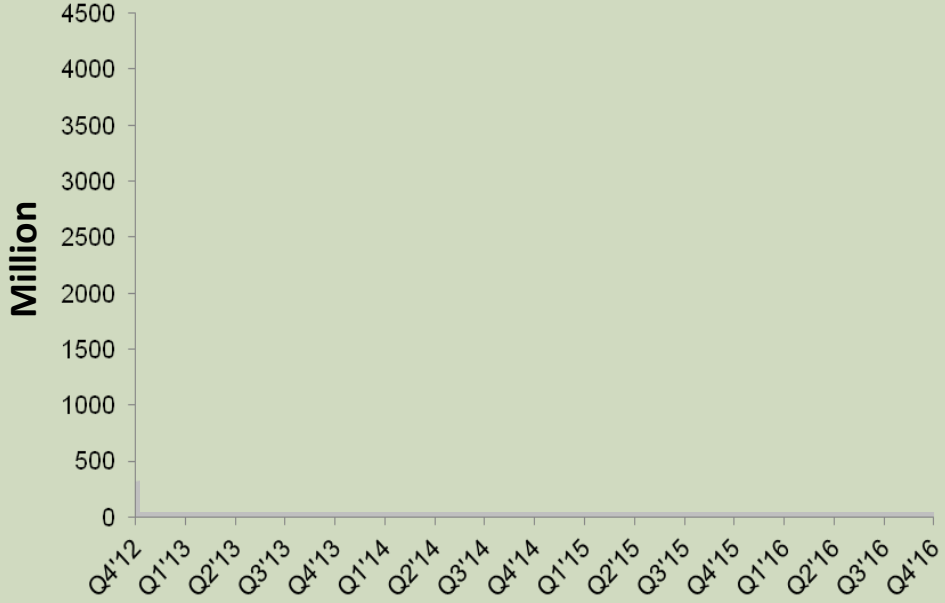
WebRTC Timeline Q2 2014



Source: Disruptive Analysis WebRTC Strategy Report, June 2013
Assumptions - **See disruptive-analysis.com for details**

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

PKE Consulting LLC

Promoters

Google

ERICSSON

CISCO

thrupoint

MITEL

acme packet

Alcatel·Lucent

GENBAND

ORACLE

INTERACTIVE INTELLIGENCE
Deliberately Innovative

UNIFY

inGate

AVAYA

Uncommitted /Following

JUNIPER NETWORKS

Microsoft

Telcos

at&t

Telefónica

Deutsche Telekom

france telecom

Potential Barriers

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- Microsoft may actively resist
  - Contrary to Friends and Family strength of Lync and Skype
  - Organizational shift may indicate probable support
- Apple is not commiting
  - 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

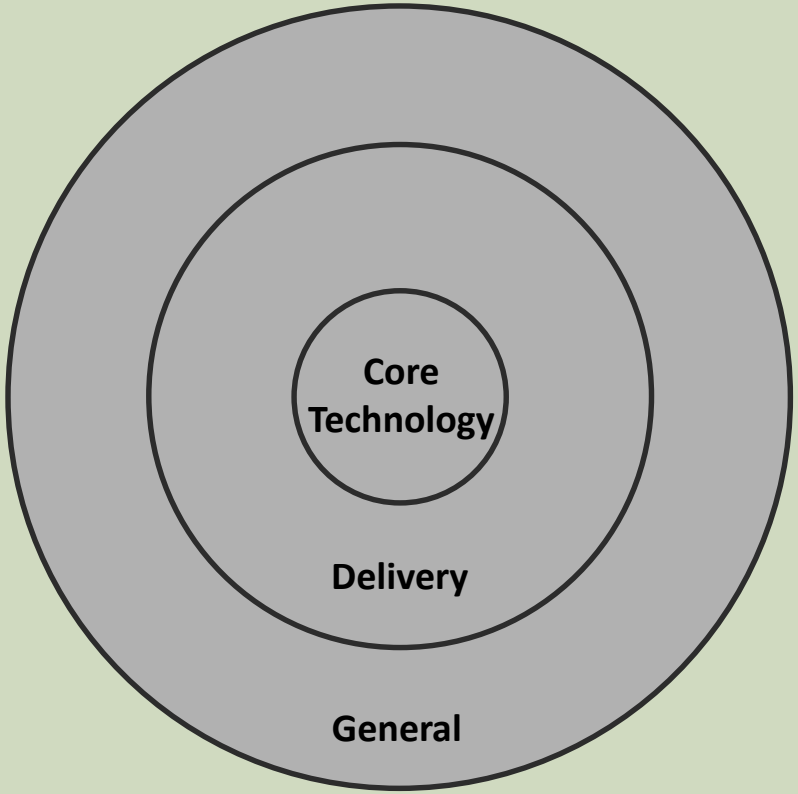
WebRTC Services Provider

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 Services Consumer

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

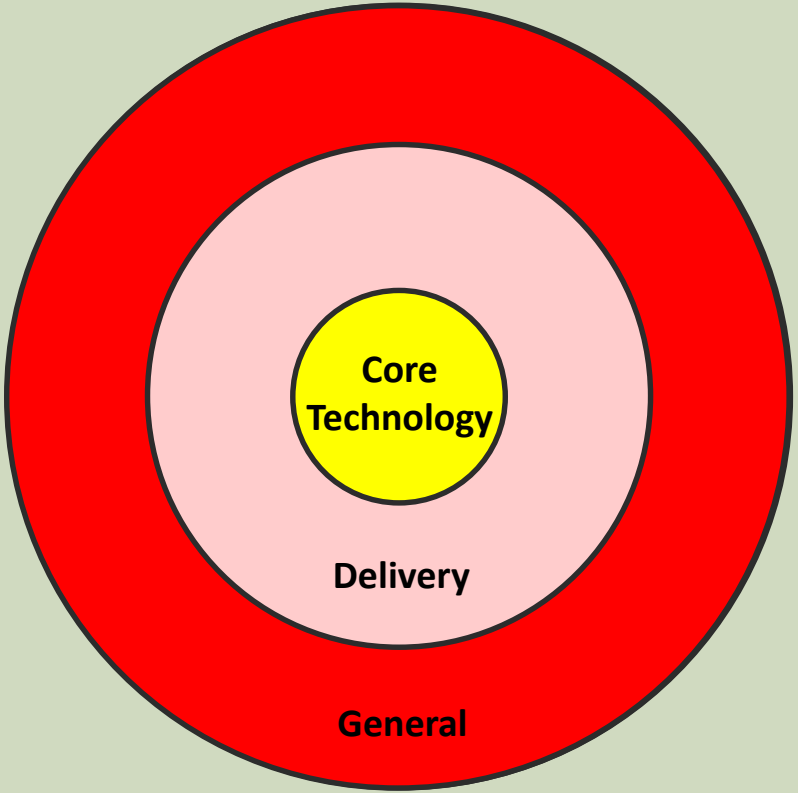
Game Changer, disrupter, Transformer?



Industry Disruptions

Market and Societal Disruptions

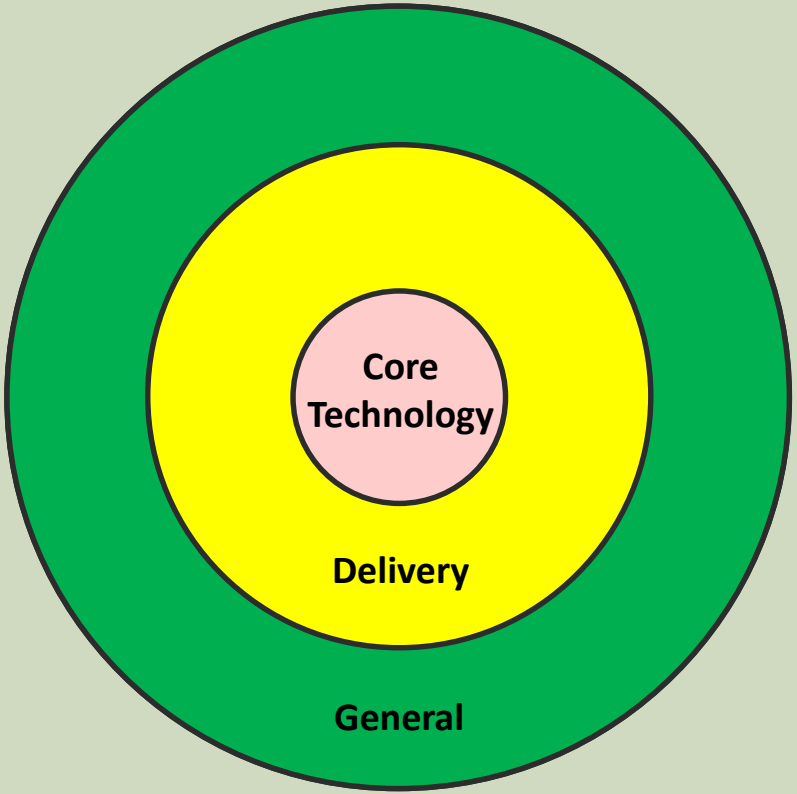
WWW, web, browser Impact



Industry Disruptions

Market and Societal Disruptions

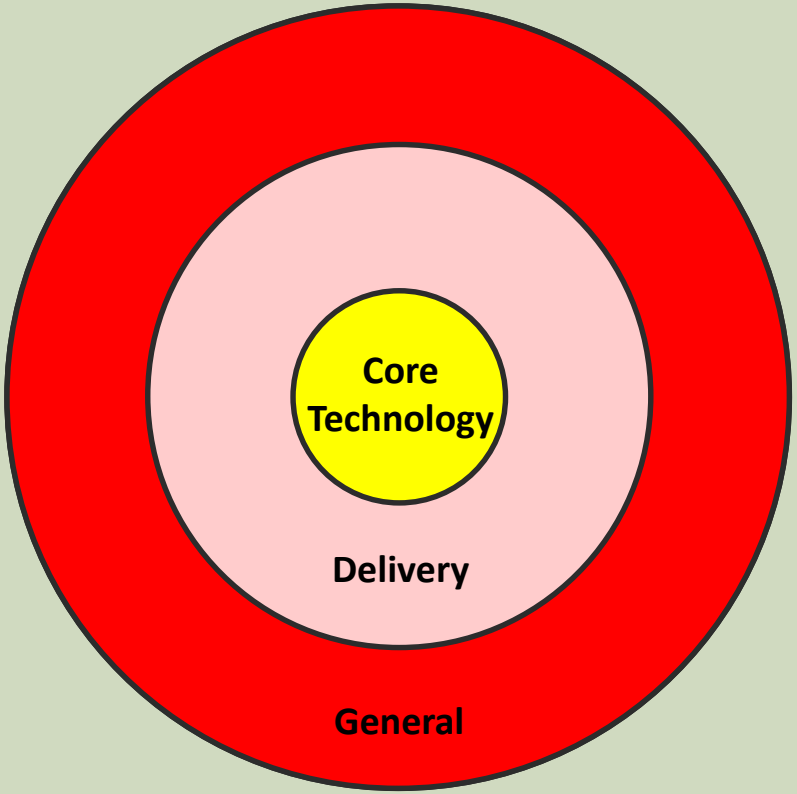
VoIP Impact



Industry Disruptions

Market and Societal Disruptions

WebRTC Impact



Industry Disruptions

Market and Societal Disruptions

THE WEBRTC ECOSYSTEM

Business Solutions and Applications
WebRTC Integration and Development Solutions
End User Experiences
Solutions
Opportunity

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

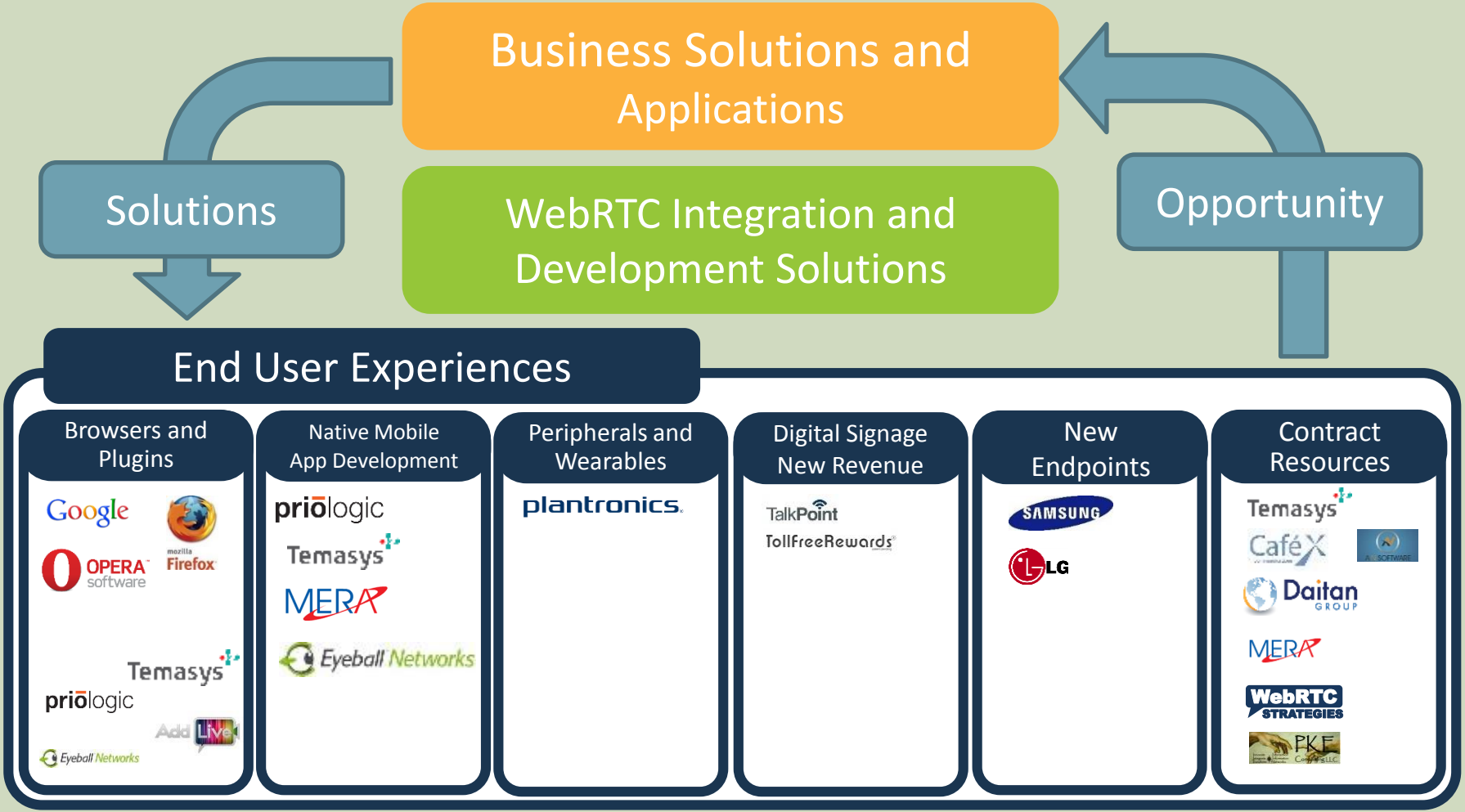
- New Business Models
- Next Generation Social
- Social Physics

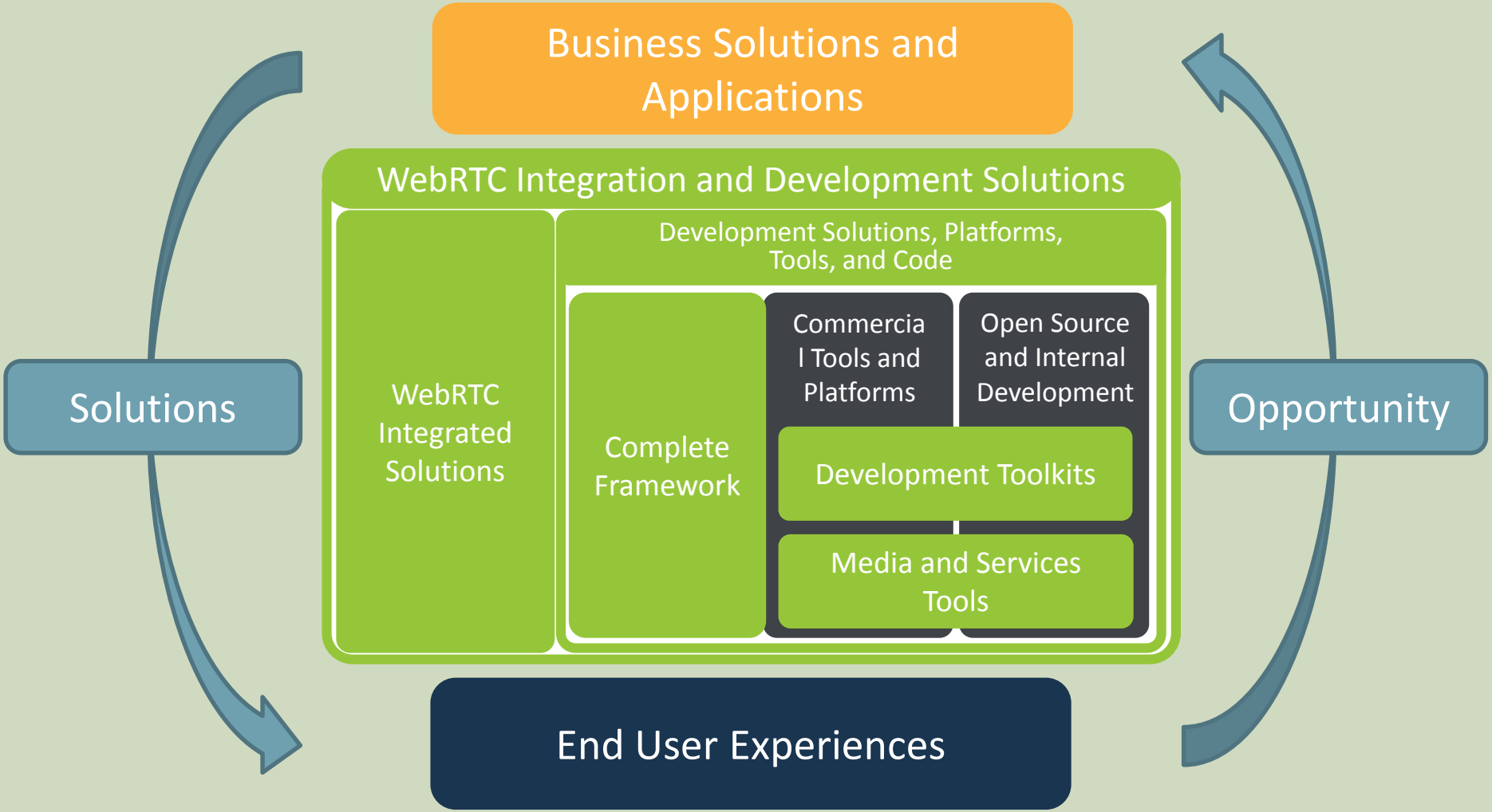
Solutions

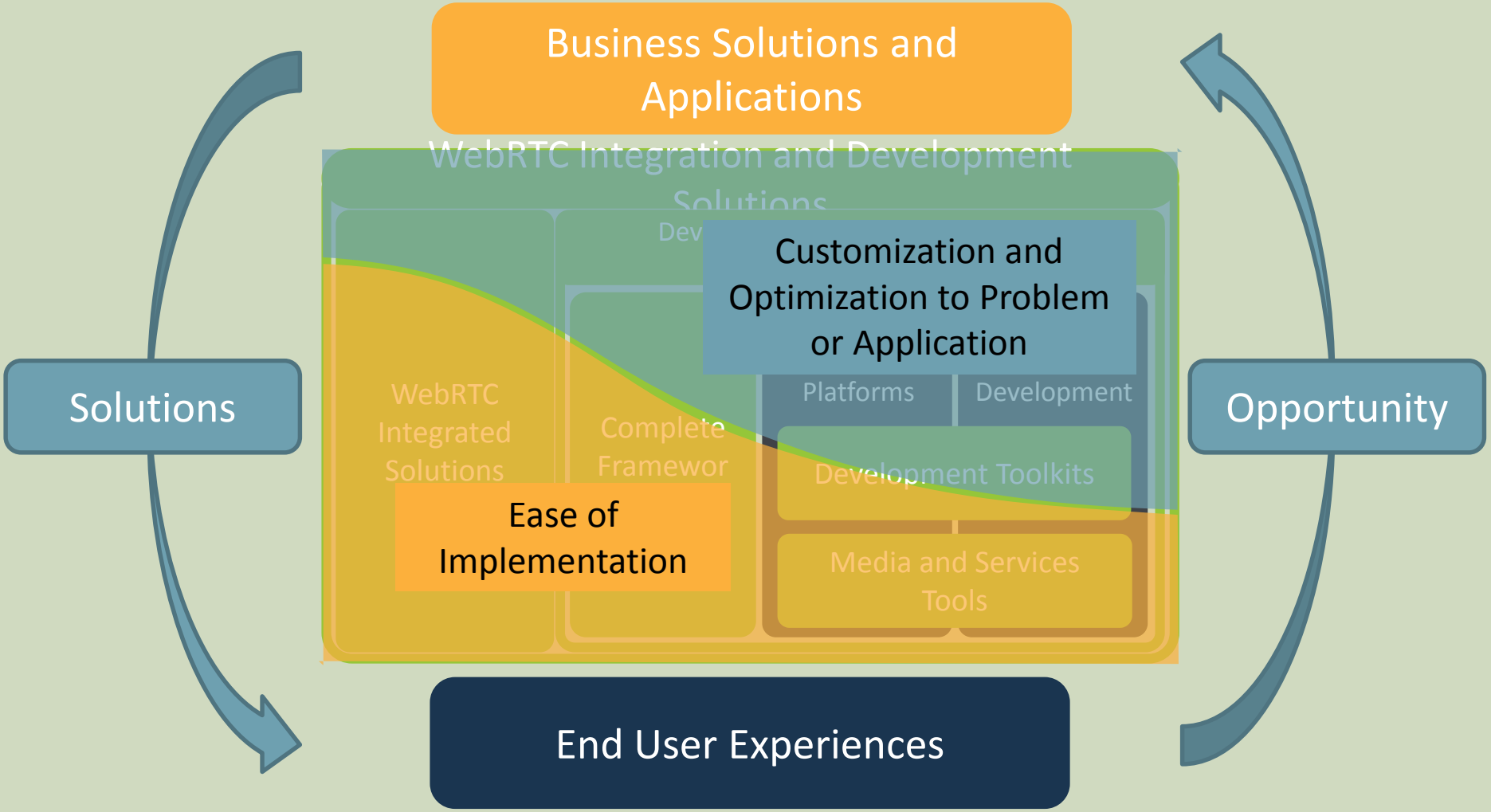
WebRTC Integration and Development Solutions

End User Experiences

Opportunity


Business Solutions and Applications
Solutions
WebRTC Integration and Development Solutions
Opportunity
End User Experiences
Browsers and Plugins
Google
mozilla Firefox
OPERA software
Temasys
priologic
Add Live!
Eyeball Networks
Native Mobile App Development
priologic
Temasys
MERA
Eyeball Networks
Peripherals and Wearables
plantronics
Digital Signage New Revenue
TalkPoint
TollFreeRewards
New Endpoints
SAMSUNG
LG
Contract Resources
Temasys
CaféX
Daitan GROUP
MERA
WebRTC STRATEGIES
PKE


Business Solutions and Applications
WebRTC Integration and Development Solutions
WebRTC Integrated Solutions
Development Solutions, Platforms, Tools, and Code
Complete Framework
Commercial Tools and Platforms
Open Source and Internal Development
Development Toolkits
Media and Services Tools
Solutions
Opportunity
End User Experiences


Business Solutions and Applications
WebRTC Integration and Development Solutions
Customization and Optimization to Problem or Application
Solutions
Opportunity
WebRTC Integrated Solutions
Complete Framewor
Platforms
Development
Development Toolkits
Media and Services Tools
Ease of Implementation
End User Experiences

WebRTC Integration and Development Solutions

WebRTC Integrated Solutions

SP/Carrier Solutions

ERICSSON, Alcatel-Lucent, GENBAND, HUAWEI, BROADSOFT

Video Conferencing Solutions

bistri, voxeet, weemo, VideoTION, vline, Browsetel, openclove, iCLICK, twinlife, onsip, FACEmeeting

Audio Conferencing Solutions

UberConference, iotum, drum.

UC and Communications Solutions

cisco, BROADSOFT, ezuce, openclove, digium, telestax, GENBAND, onsip, Browsetel

Contact Center Solutions

AVAYA, aspect, voxeo, FreeCRM, APEX, CaféX, Browsetel, ifbyphone, TollfreeClicks, Interactive Intelligence, BolderThinking

Development Solutions, Platforms, Tools, and Code

Complete Frameworks

Service Provider IMS Integrated Frameworks

HUAWEI, Alcatel-Lucent, GENBAND, ERICSSON

Service Provider Non-IMS Integrated Frameworks

ORACLE, tok-box, requestec, twilio

Enterprise On-Premises

ORACLE, priologic, CaféX

Enterprise Cloud/Hosted

tok-box, openclove, twilio, Temasys, XIRSYS

Commercial Tools and Platforms

General WebRTC SDKs and Tools

CaféX, intel, priologic, twilio, hookflash, AT&T FOUNDRY, tok-box, plivo, inventivelabs, PEER5, Zingaya, TROPO

Mobile Platform SDKs and Tools

CaféX, hookflash, TalkPoint, priologic, intel, Add Live!, Zingaya, media5, Imagination

Messaging Infrastructure

Acision, IceWarp, PubNub, imo, Clickatell

SP/Carrier Gateways

Alcatel-Lucent CommuniGate, inventivelabs, ITALTEL, GENBAND, ORACLE, Quobis, HUAWEI, MAVENIR, telestax

Enterprise Gateways

voxbone, TollfreeClicks, AudioCodes, media5

SBCs

Sonus, sansay, GENBAND, inGate, ORACLE, AudioCodes

Media Servers and Video Processing

Vidyo, digium, requestec, FROZEN

STUN/TURN/ICE SW & SDKs

Eyeball Networks, ITALTEL, GENBAND, requestec

STUN/TURN/ICE Cloud Services

XIRSYS, Media Network Services

Open Source and Internal

General Open Source Code

WebRTC, PubNub, easyRTC, Google

Open Source Signaling and Data Channel

WebRTC, Google

Media Servers and Video Processing Code

Fraunhofer, Kurento, MCU Media Server

STUN/TURN/ICE Code

RFC5766

Development Toolkits

Media and Services Tools

WebRTC Enterprise Impact

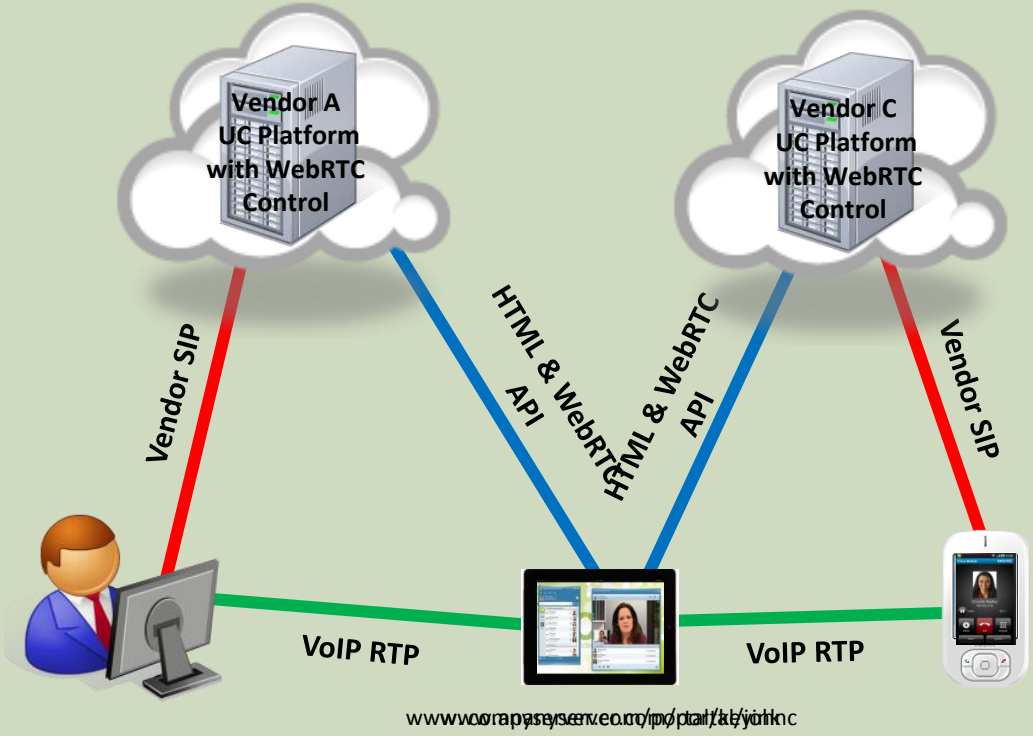
- BYOD

- Extending Collaboration
- Communications Portal

- Transforming Customer Interaction
- Remote Agents

Guest Portals:
The Webification of Real-Time?

PKE Consulting LLC



Guest Portals:
The Webification of Real-Time?

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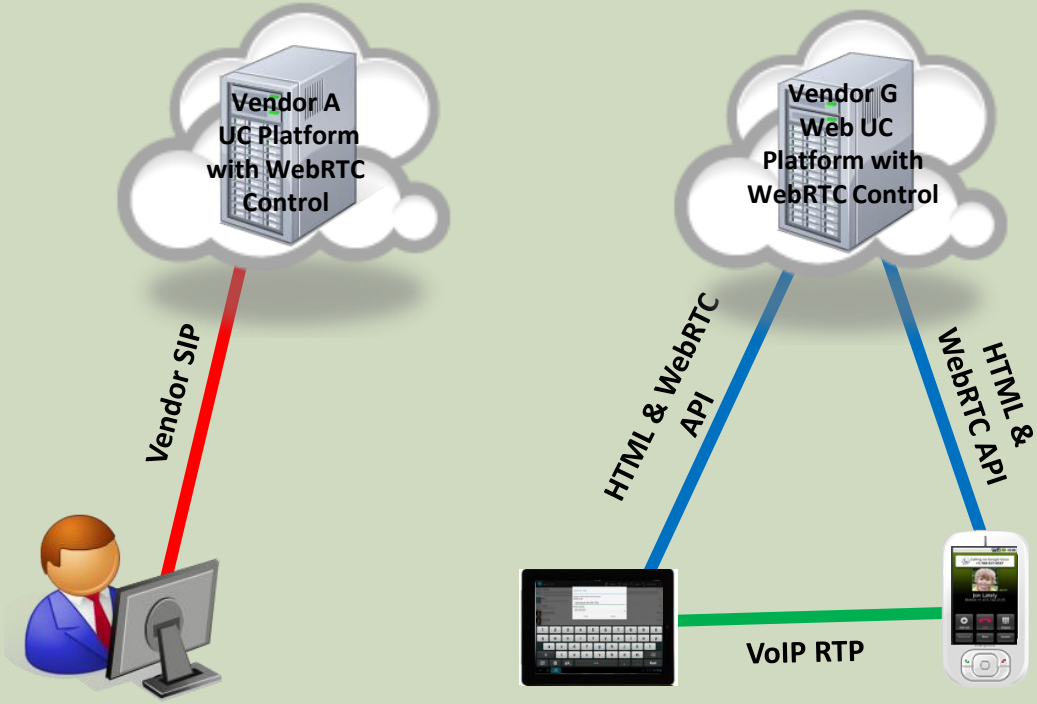
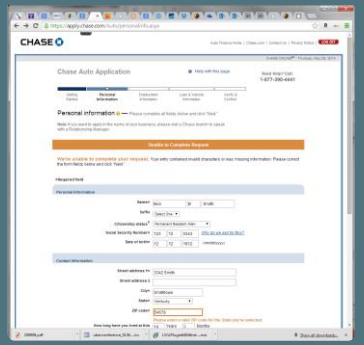
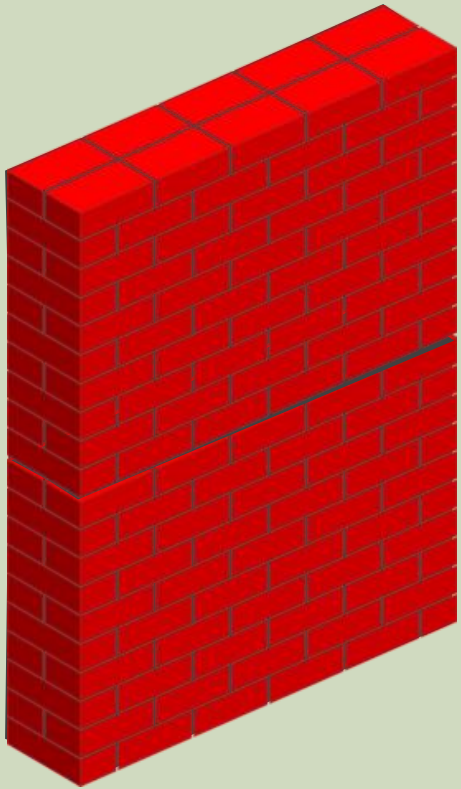


www.giantweb.com/portal/larryp

- 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


CHASE
Chase Auto Application
Personal information



Interaction at the Intersection

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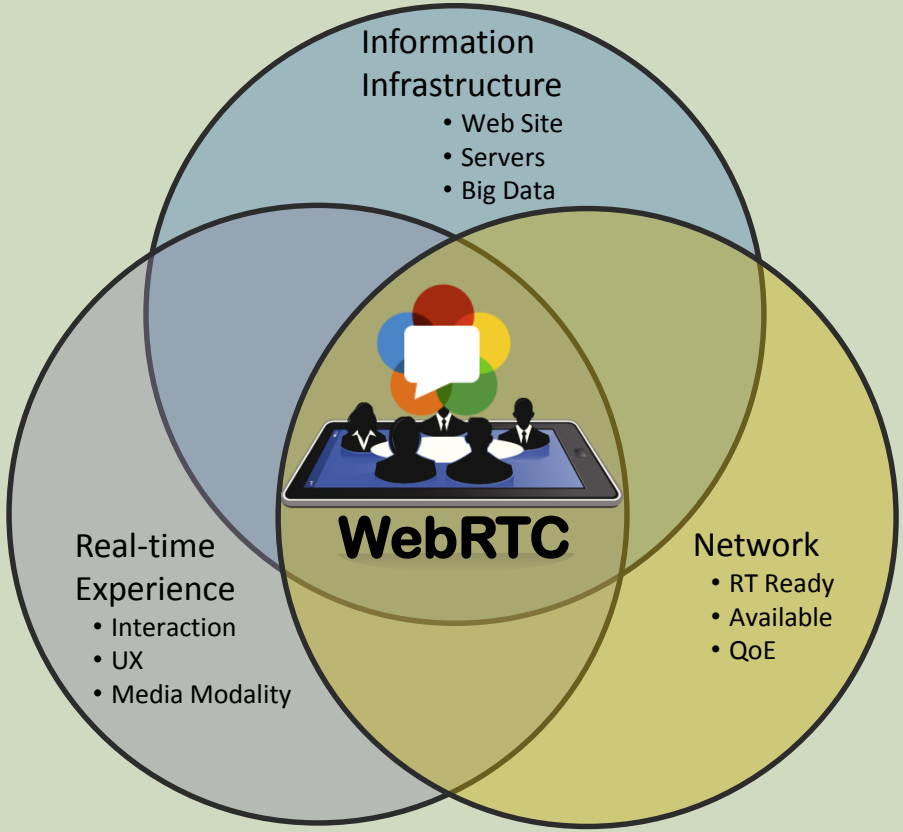


Interaction Experience 2.0

Getting the best Possible Employee to Interact with the Customer/Contact

Contextual

Optimized

Having ALL of the information to resolve the Customer/Contact problem

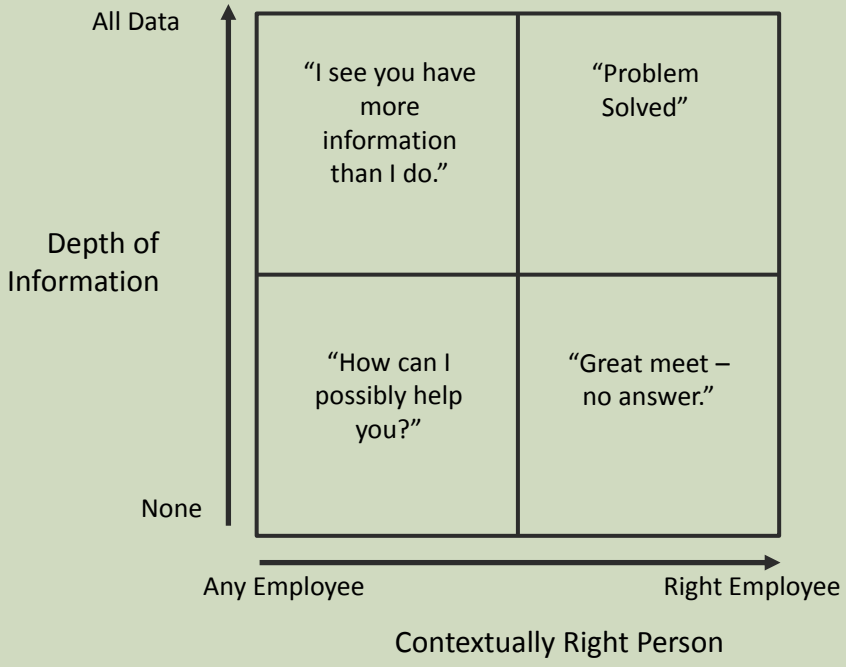
- Complete
- Accessible

Having the right communications modality the best possible experience

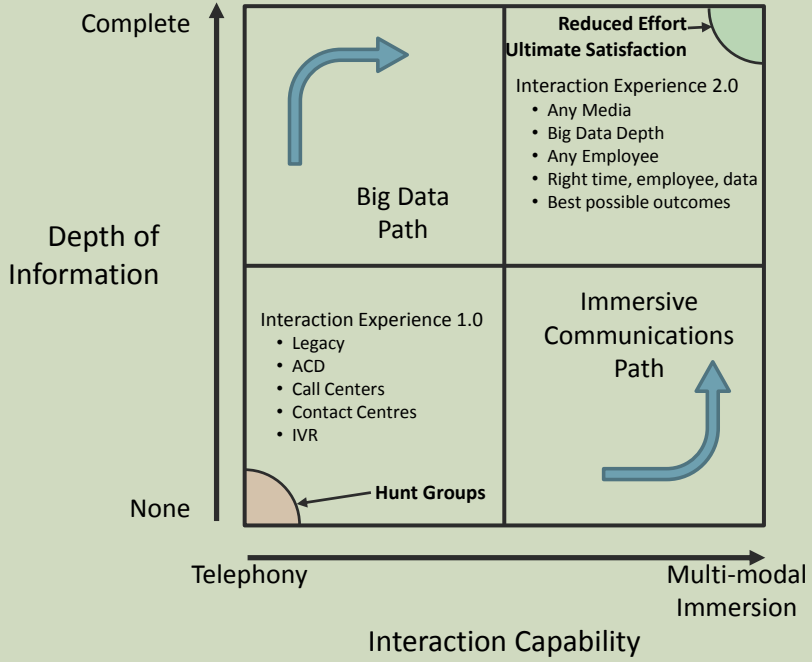
- Optimized
- Empathetic

Improving Customer Interaction

Getting the Right Employee



Having Easy Communications



The Web Disconnect

PKE Consulting LLC

Typical Fortune 1000 Web Site

1 → 40 → 30 → 20 → 10

240,000 Discrete Contextual Links

≠

375 Discrete Contact Routes

Typical Fortune 1000 Contact Centre/IVR

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

5 Question 1

5 Question 2

5 Question 3

The challenge is mapping to the current systems LIMITED resources

Customer Classes

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

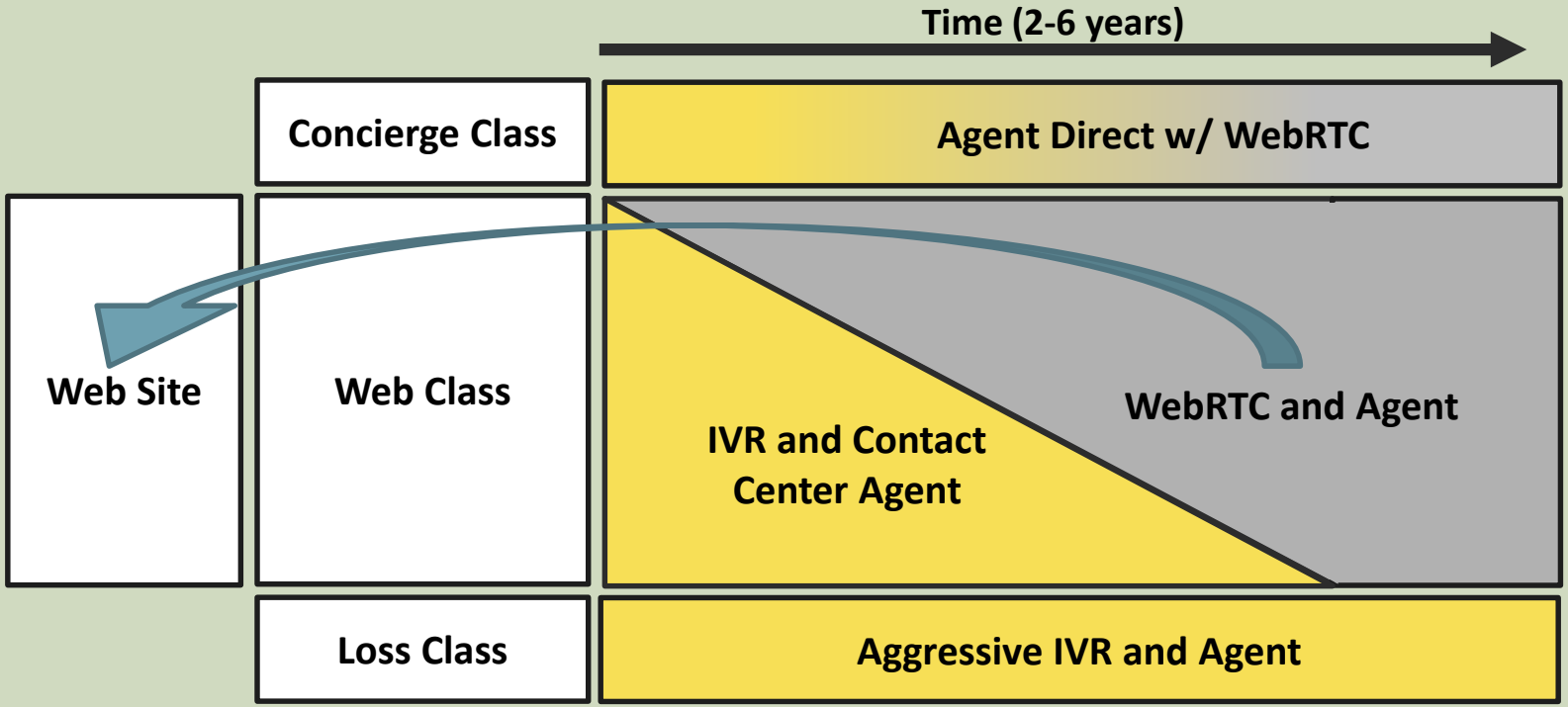
Service Goals

Always have an agent available – minimal or no IVR

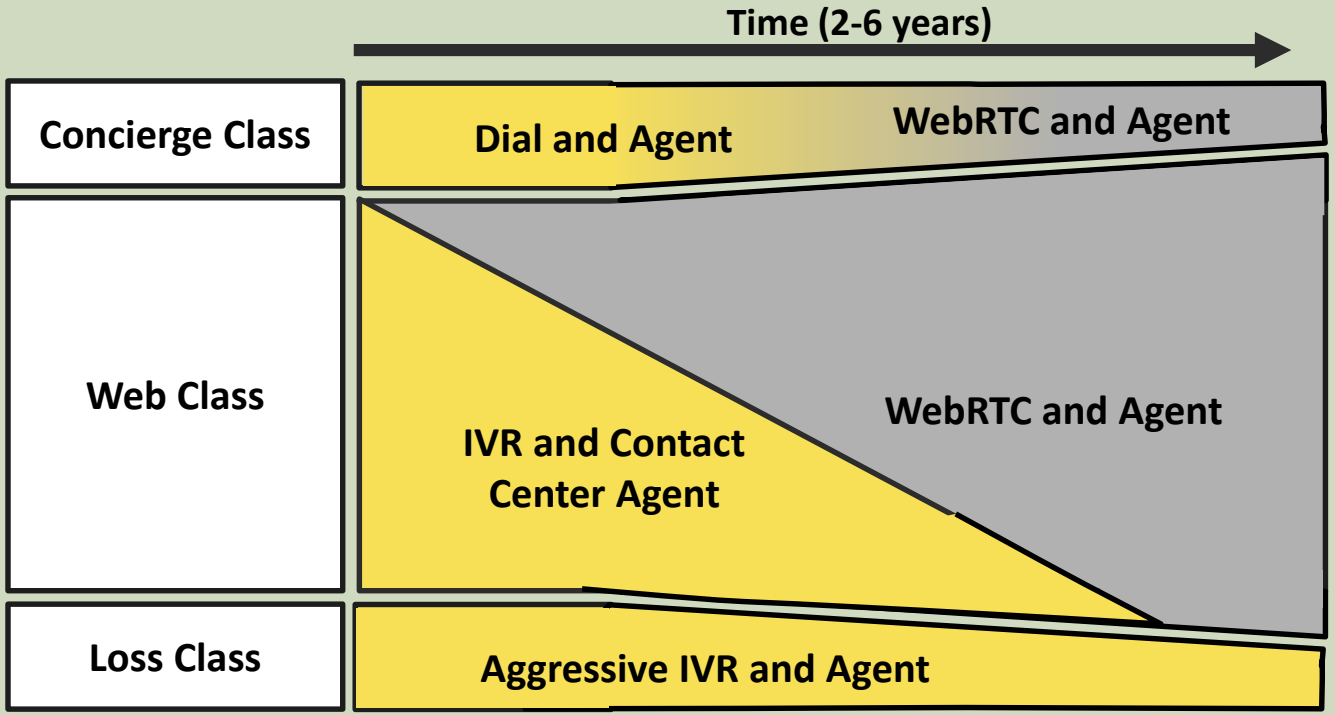
Optimize web experience to minimize transitions
Use web context to both reduce effort and increase satisfaction
Provide feedback from agents to web

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

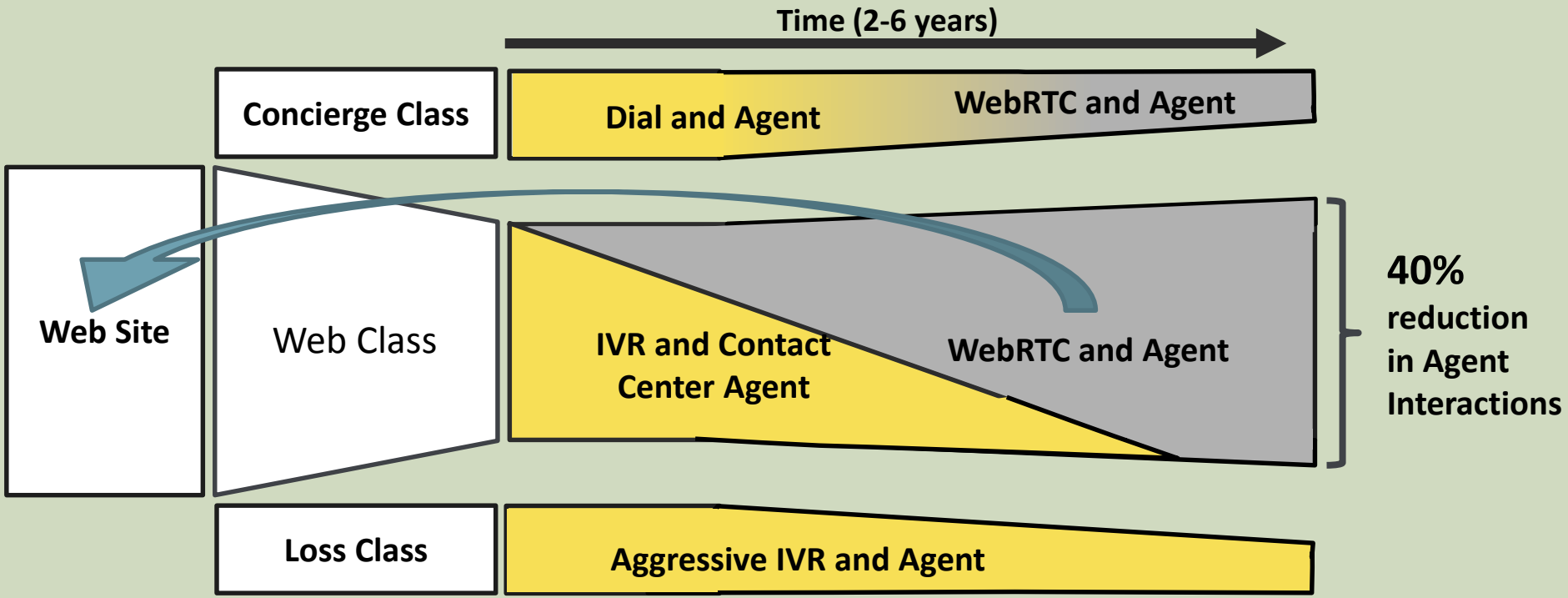
Optimizing with WebRTC



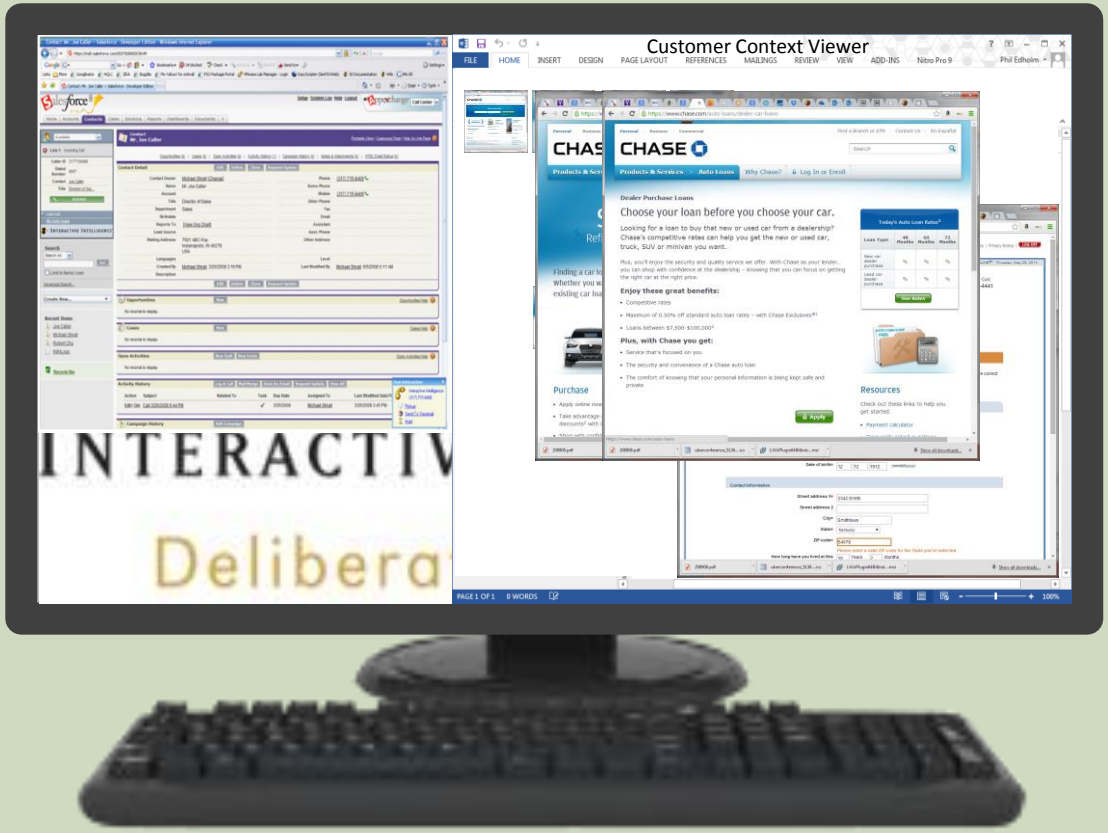
Digital Learning



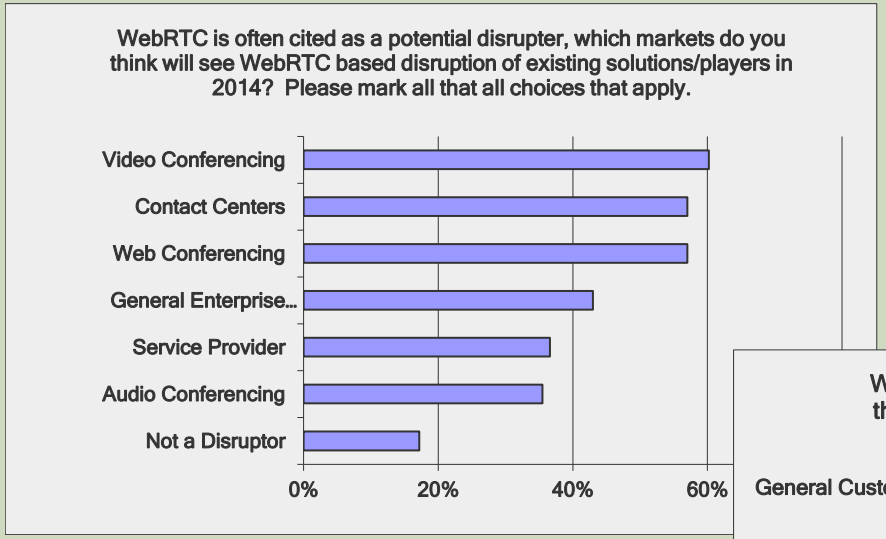
Reducing Agent Interaction



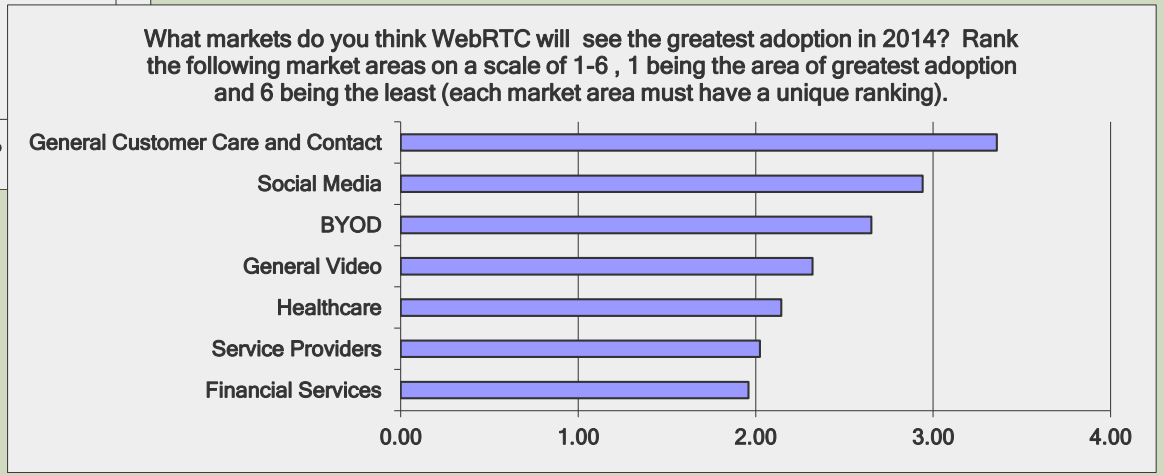
Contextual Interactions



Where is there WebRTC Focus?



There are over 30 start-ups focused in this area



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

WebRTC is……

PKE Consulting LLC

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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