

November 19-21, 2013
Santa Clara Conference Center
Santa Clara, California



WebRTC III

CONFERENCE & EXPO

**The Longest Running Event Bringing
Together The Entire WebRTC Ecosystem**

#webRTCexpo



www.webrtcexpo.com

Business Introduction to WebRTC

Phil Edholm

President and Principal

PKE Consulting LLC

pedholm@pkeconmsulting.com

@Pedholm on Twitter



Welcome

Tuesday November 19, 2013

	Developer Workshops		Business Applications	Exhibits Open
Room	B1	M3	M1	
9:50-11:10am	WebRTC Tutorial and Training	Setting Up A WebRTC Deployment	Business Intro to WebRTC - Extended Session	
11:10-12:30am	The WebRTC Big Build Comparison			
12:35-1:05pm	Oracle Keynote and Box Lunch for Workshop Attendees - Room B5			
1:05-1:10am	Conference Kick-off - Room B5			
1:10-1:40pm	TokBox Keynote - Room B5			
1:40-2:20am	Google WebRTC Overview and Application Demonstrations - Room B5			
2:20-2:30pm	Break			
2:30-3:10pm	Signaling Workshop		Is Your Business Ready for WebRTC?!	
3:10-3:50pm			Customer Service Applications (Panel)	
3:50-8:00pm	Opening Reception - Exhibits Open and Demonstration Theater (4:00 Demo Start) - Exhibit Hall D			

WiFi

- WiFi is available in all of the meeting rooms and the public spaces
- WiFi is not available in the Exhibit Hall
- SSIDs and Password:
 - 5.0 Ghz – **WRTC50** – Password **wrtc2013**
 - 2.4 Ghz – **WRTC24** – Password **wrtc2013**
- Recommend using 5.0 Ghz if it is available on your device

Agenda

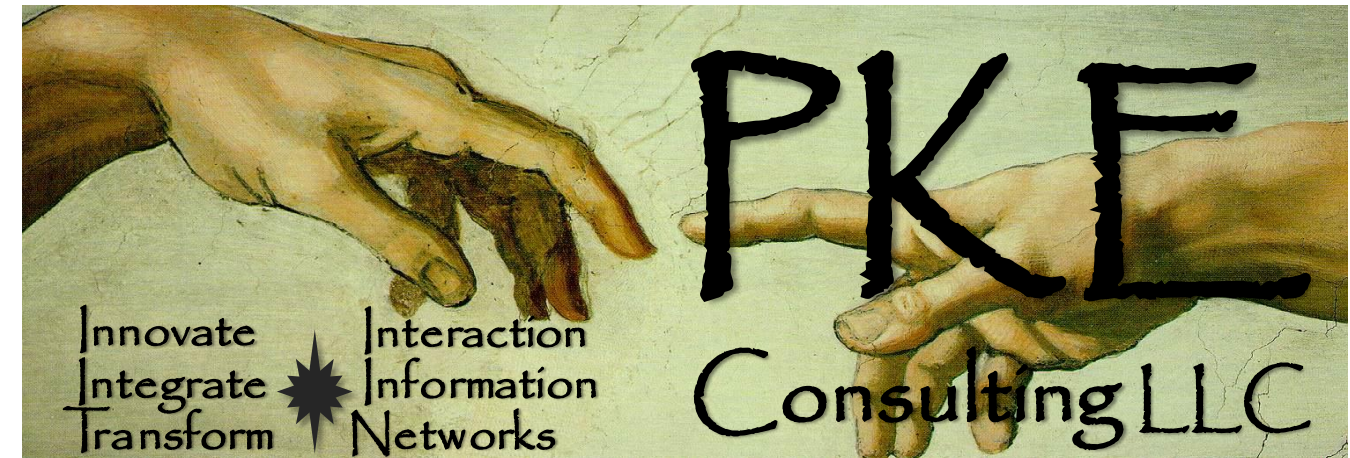
- **Phil Edholm**, PKE Consulting
 - **Lawrence Byrd**, Independent
 - **Chris Vitek**, WebRTC Strategies
 - 10 Minute Break
 - **Tsahi Levent-Levi**, BlogGeek.Me
 - **Brent Kelly**, Constellation Research
 - **John Burke**, Nemertes
 - Panel Discussion
- WebRTC Introduction
 - WebRTC Business Use Cases
 - Interaction Experience 2.0
 - WebRTC Ecosystem
 - The Analysts View
 - WebRTC, Big Data and Security

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WEBRTC INTRODUCTION

WebRTC – Game Change?

- WebRTC makes a browser into a soft-client with a web site defined GUI
- Removes the need for a downloaded client application for communications
- Makes programming much easier
 - JavaScript level programming
 - 10-20M Programmers
- Estimate of 500M to 1.5B WebRTC enabled devices by the end of 2013
- Supported by Google, Mozilla, Opera, Ericsson (Bowser)

Typical Client & Media Engine

Components

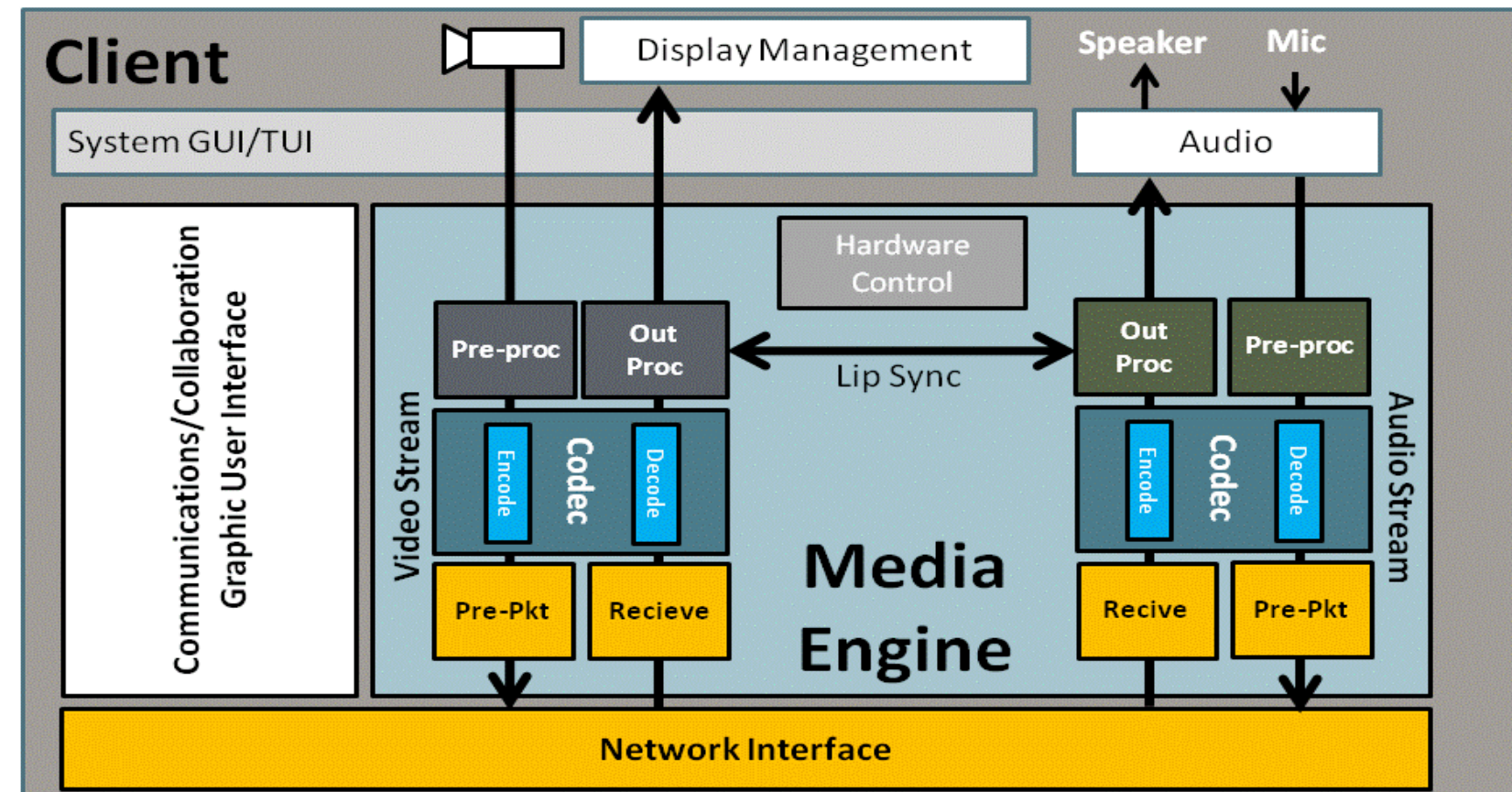
Audio

- 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

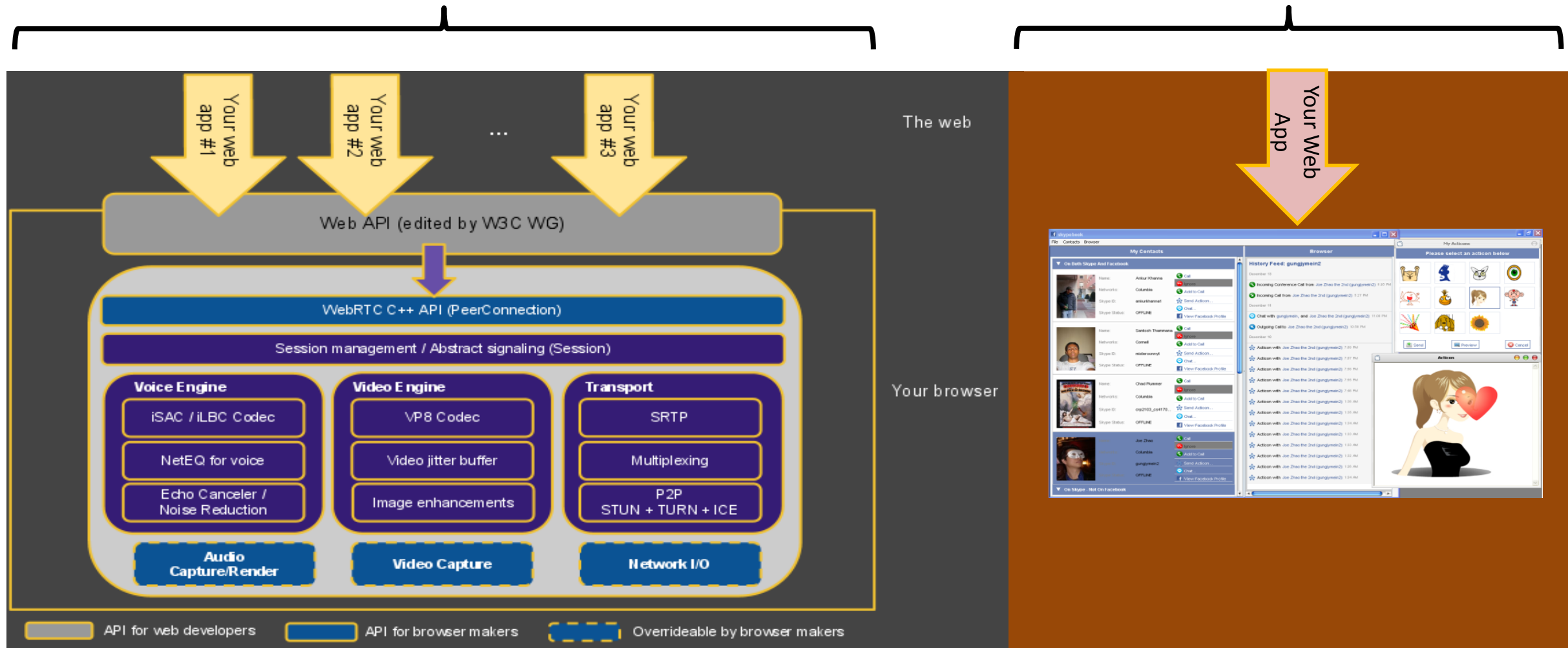
Client/Media Engine Structure



WebRTC Puts the Media Engine into the Browser

WebRTC
Media Processing

HTML – HTML5
Visual User Experience



Standardization

IETF

RTCWEB WG formed after BOF at IETF 80, April 2011

Focus on protocols and interoperability

W3C

W3C WEBRTC WG created May 2011

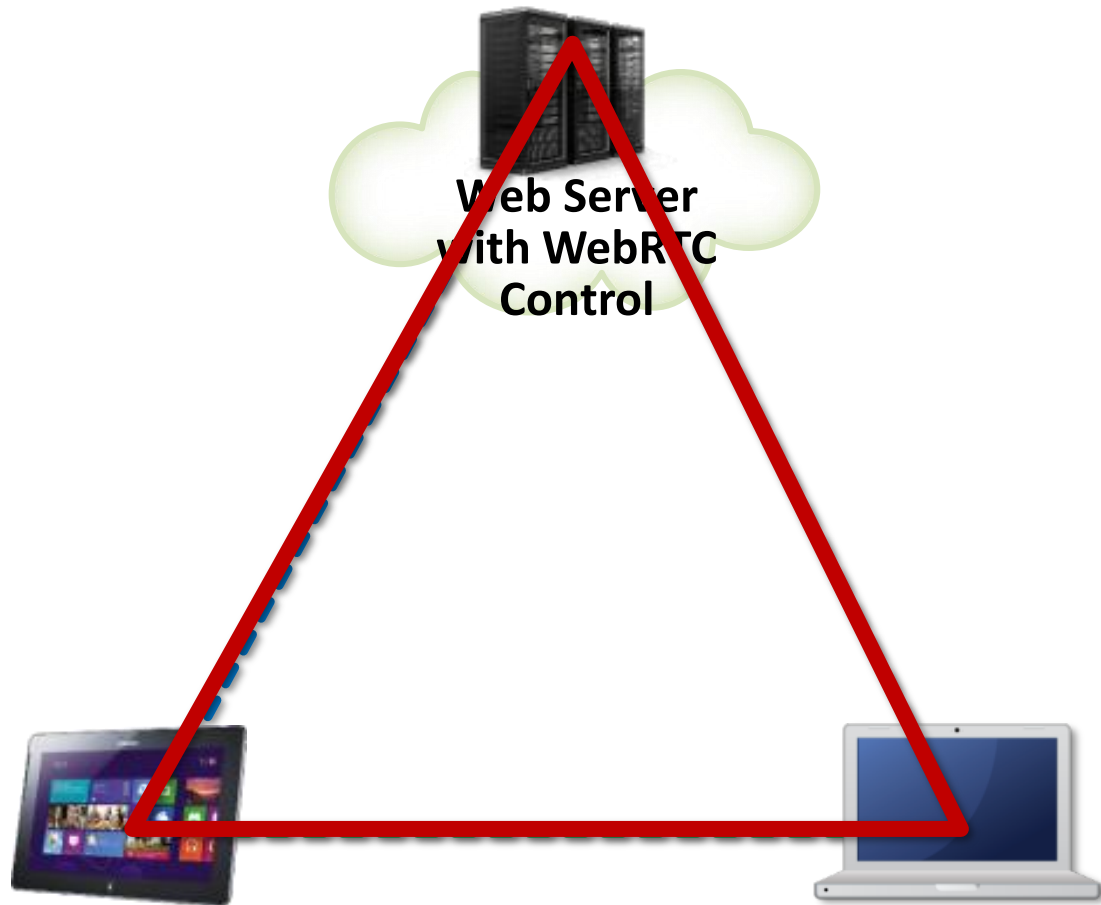
High level APIs and device control (mid, camera, network)

PeerConnection API proposal originally proposed in WHATWG currently being discussed:

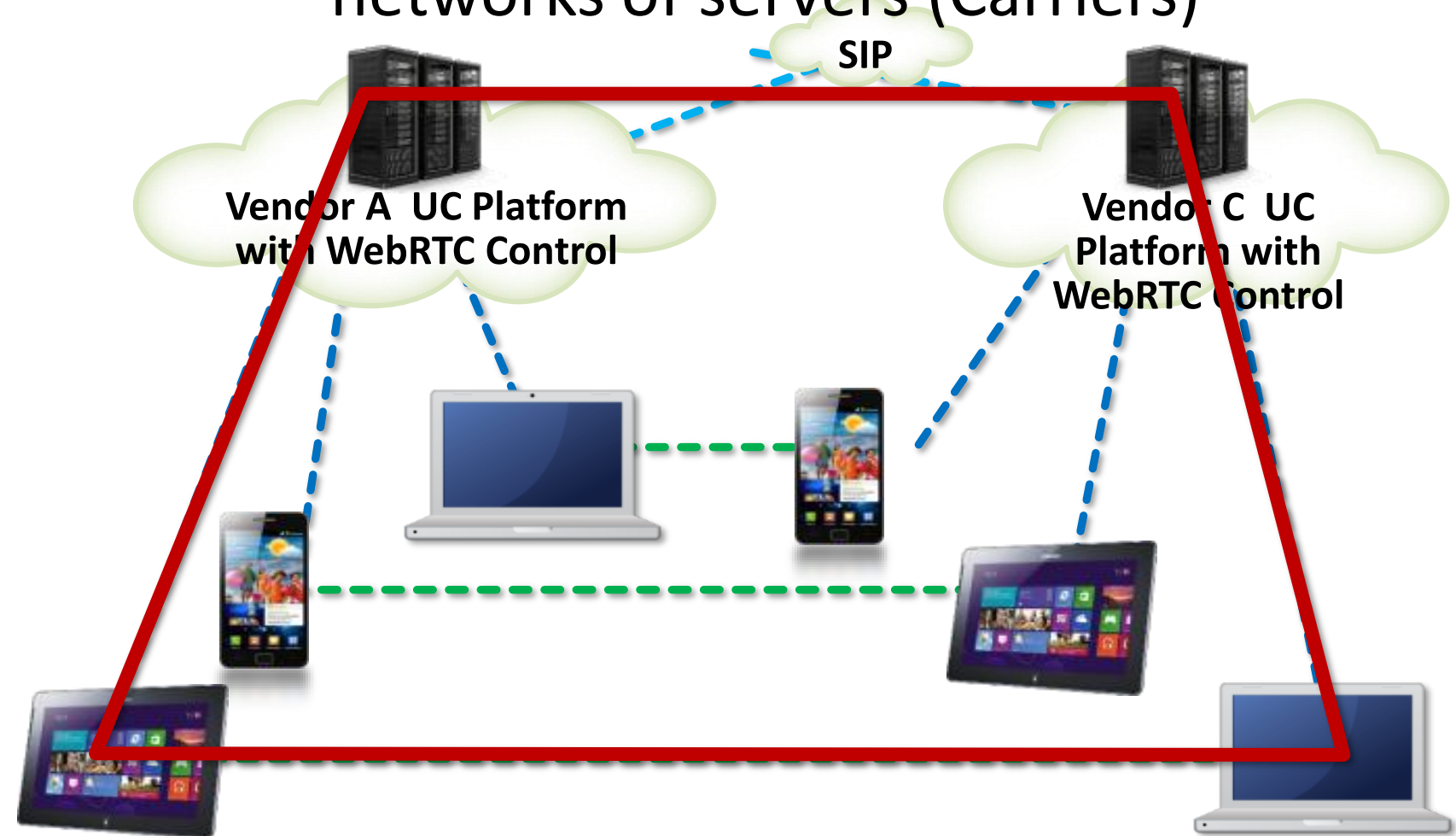
<http://dev.w3.org/2011/webrtc/editor/webrtc.html>

WebRTC Implementations

Adding WebRTC to Any Web Server



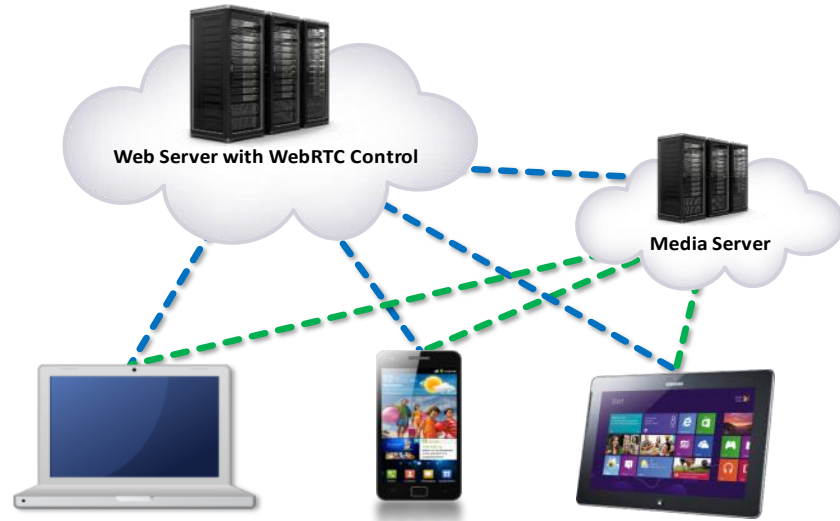
WebRTC as an extension to existing networks of servers (Carriers)



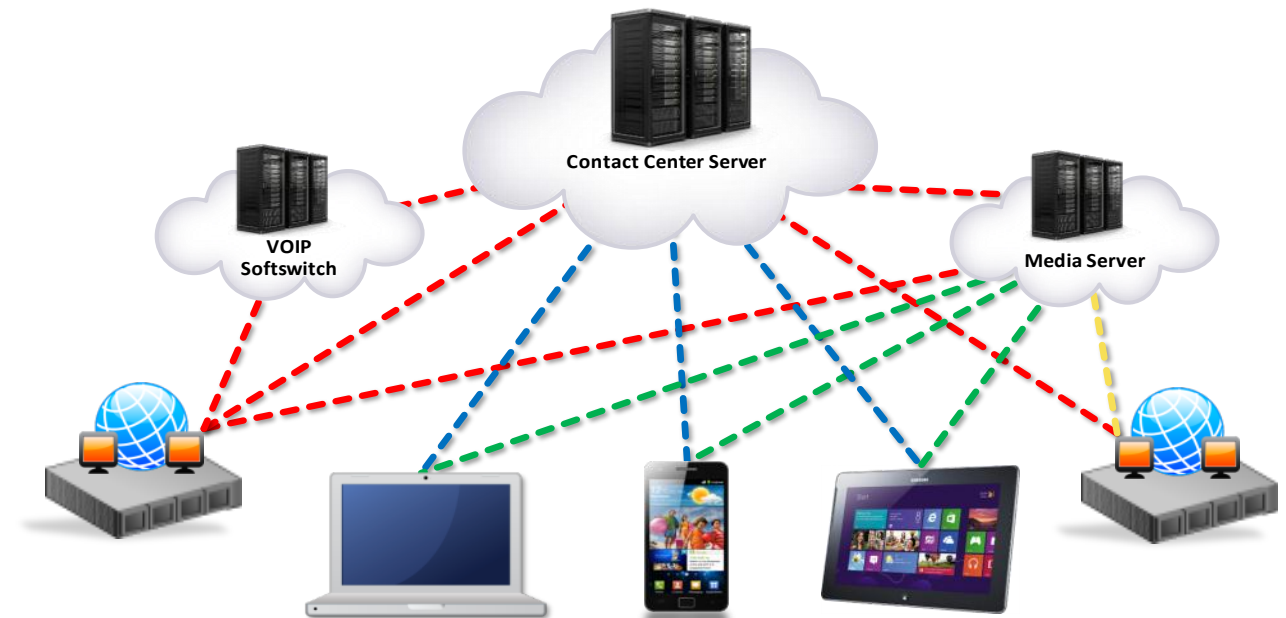
--- HTML & WebRTC API
--- VOIP SRTP

WebRTC Enterprise Integrations

Integrating a Media Server with WebRTC



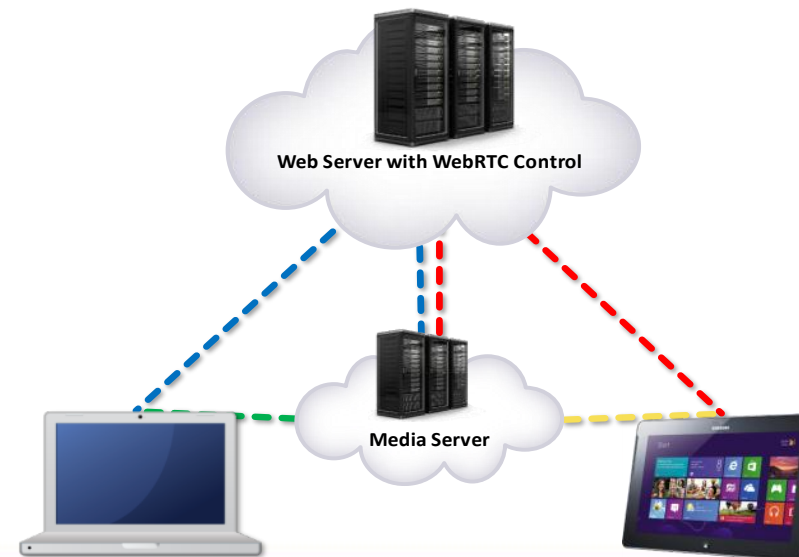
Enabling an Existing Contact Center product with WebRTC



SIP Integration with RTP

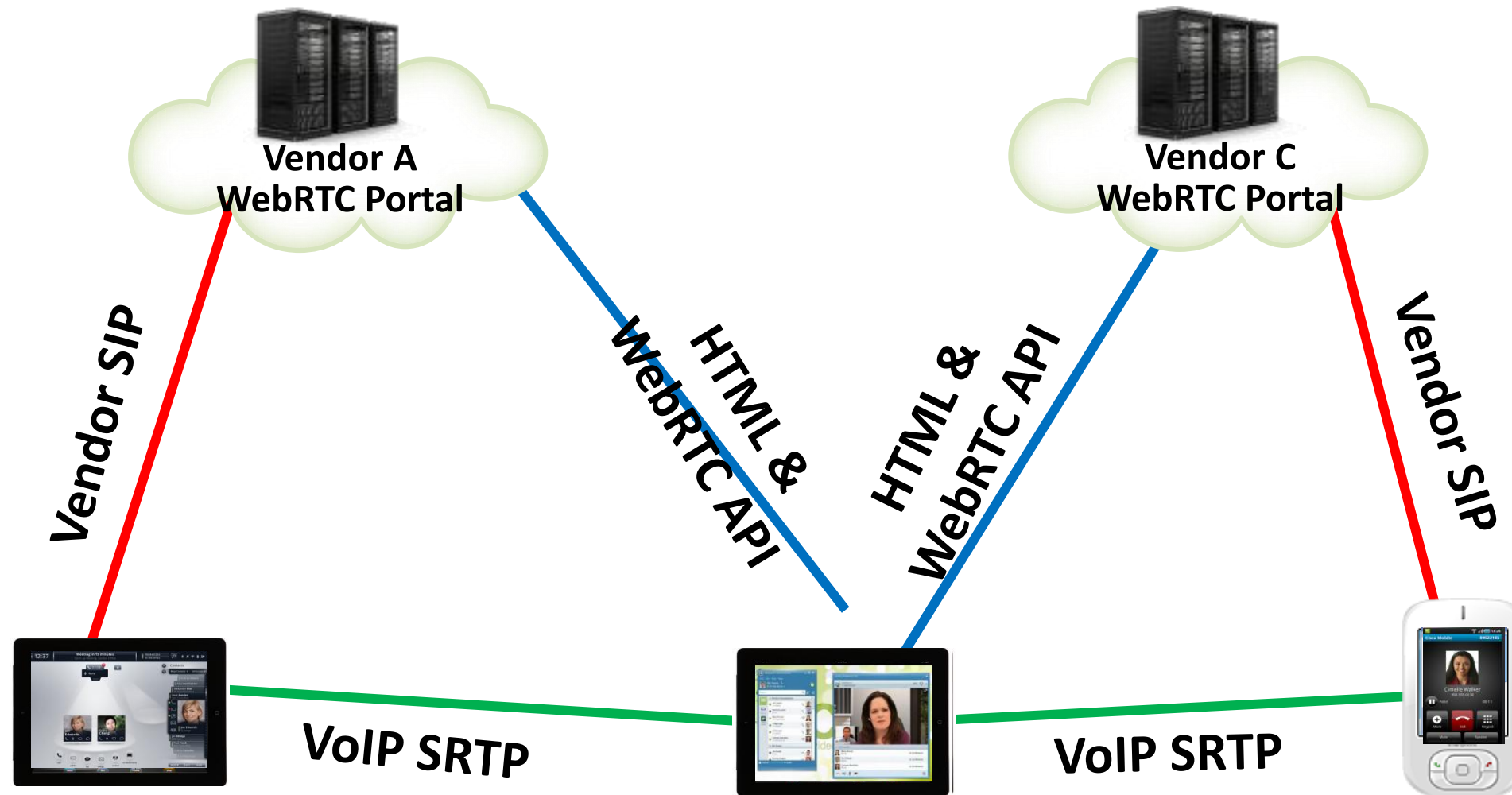


WebRTC and SIP Clients with Media Gateway



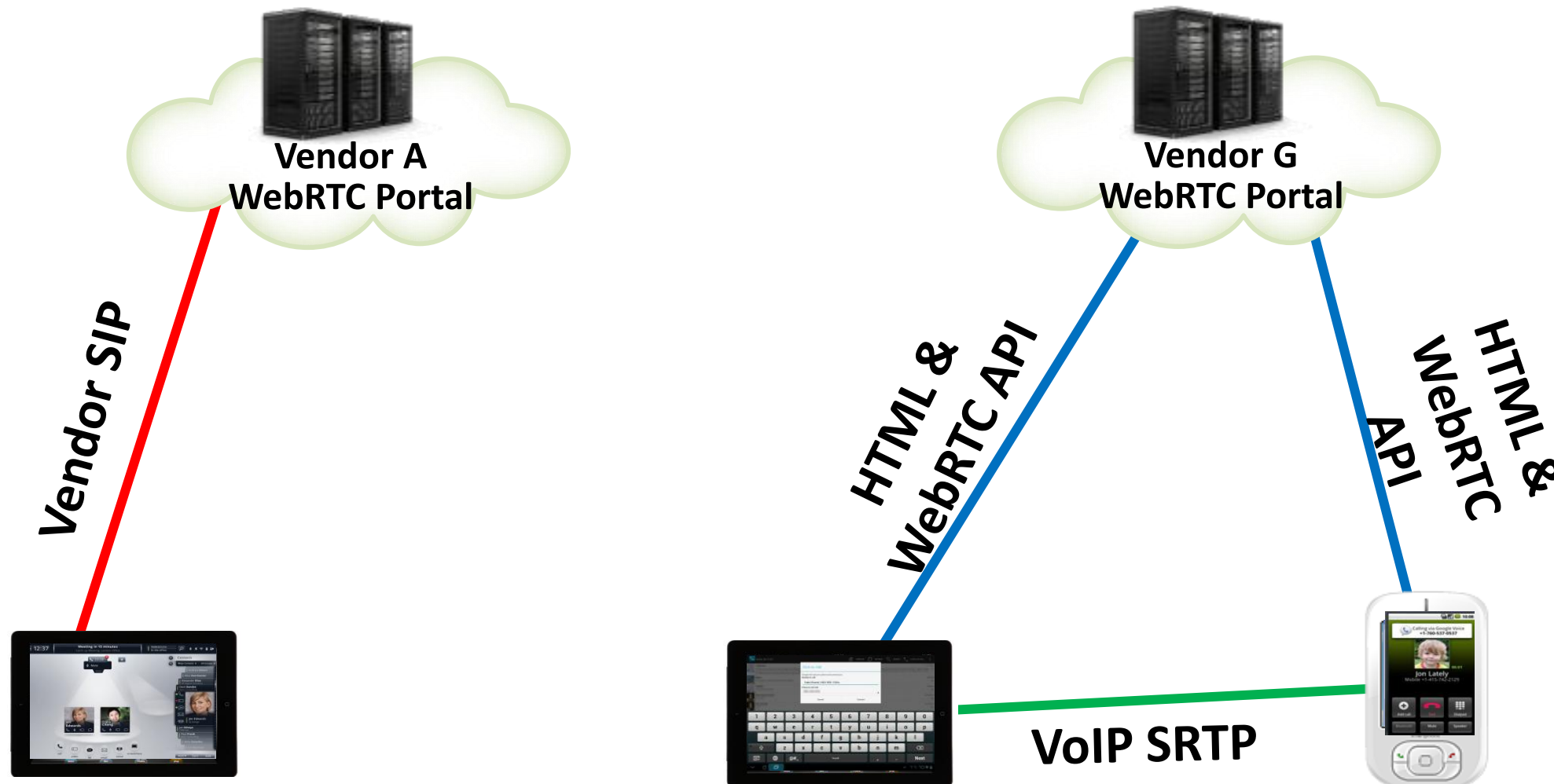
- - - HTML & WebRTC API
- - - VOIP SRTP
- - - Vendor Media
- - - Vendor SIP

Guest Portals: The Webification of Real-Time?



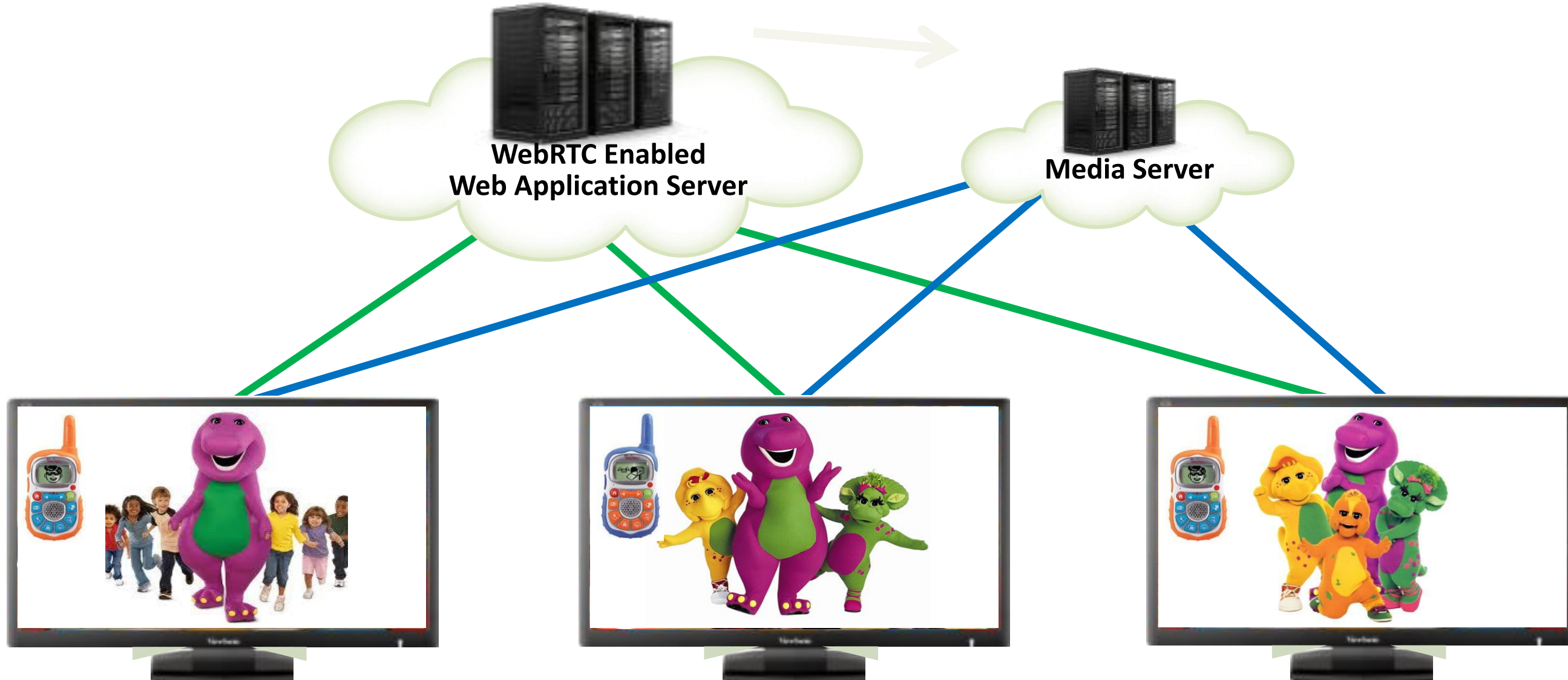
www.doncomp.com/portal/telejoin/c

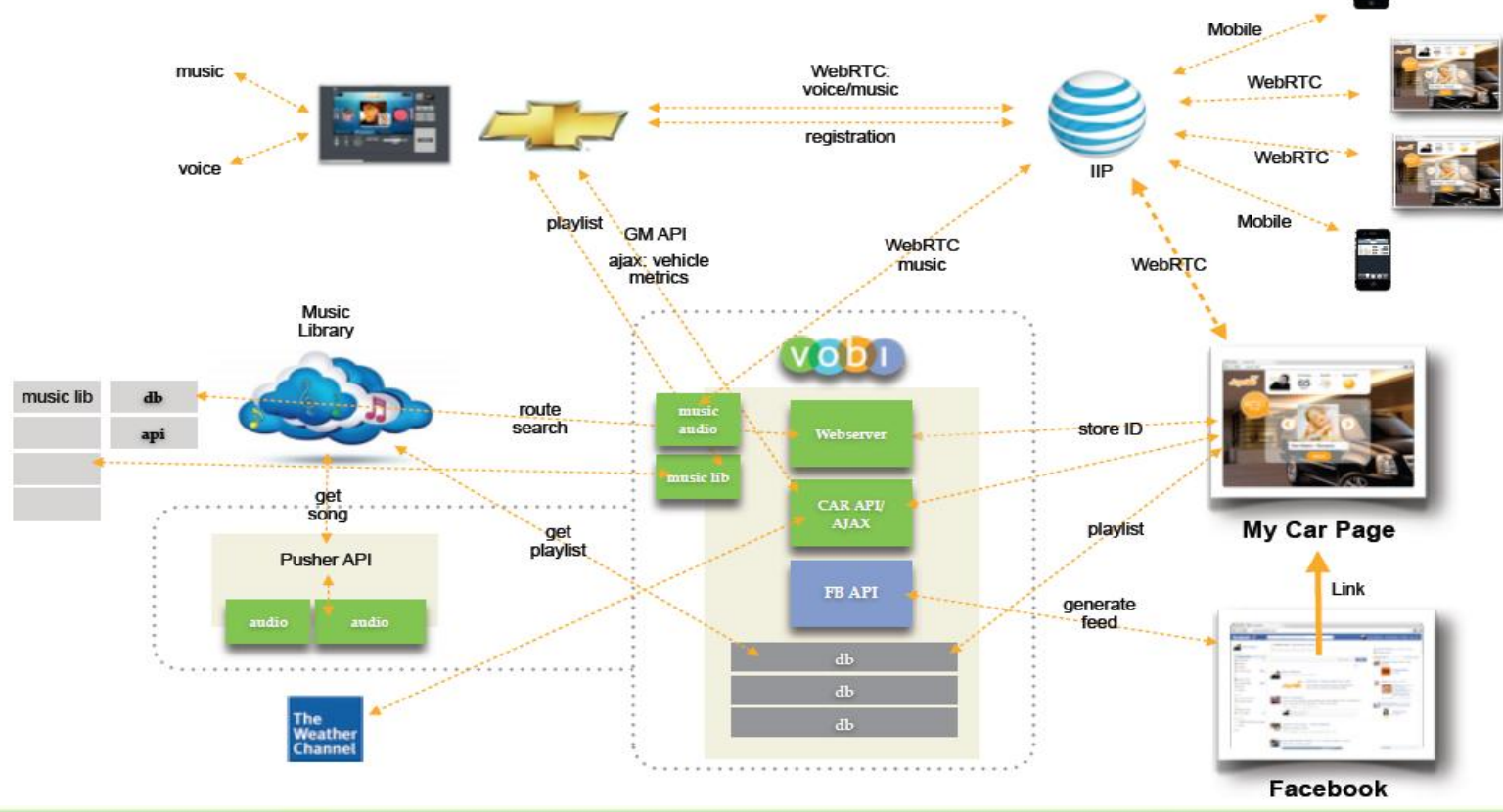
Guest Portals: The Webification of Real-Time?



www.giant.com/circle/larryp

Enabling Media Servers for Other Real Time Applications





WebRTC Timing

- In base Browser Plans
 - WebRTC in Chrome today
 - Mozilla Firefox in general Beta – in GA in weeks
 - Ericsson *bowser* for mobile devices
 - Opera this year
- Other browsers
 - Open source plug-ins for IE and Safari
 - Potential iOS app in app store
- Promotion Community

Potential Barriers

- Microsoft may not actively support
 - 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
- Open Issues
 - Video codecs
- Security
 - Open interface to camera/microphone could become an issue

Company Positions on WebRTC

Promoters



Uncommitted /Following



Telcos



WebRTC Benefits



**WebRTC
Services
Provider**

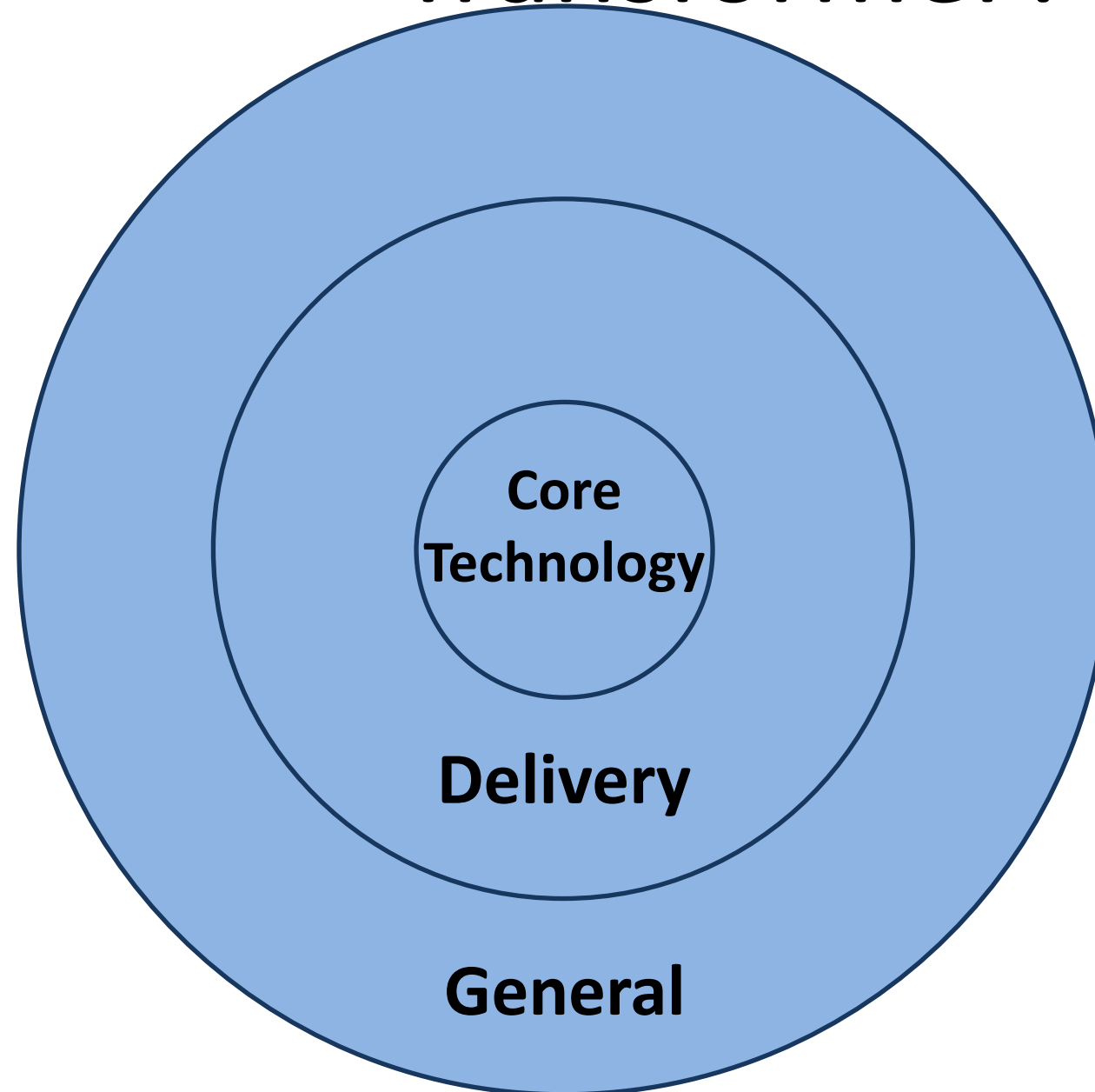
WebRTC enables any web server to deliver a unique real time communications experience, with simplicity and reliability, without dependence on service providers or other services.



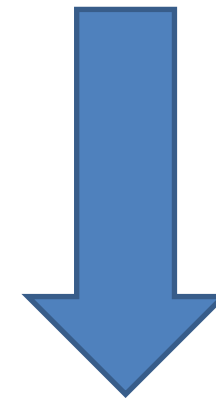
**WebRTC
Services
Consumer**

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?

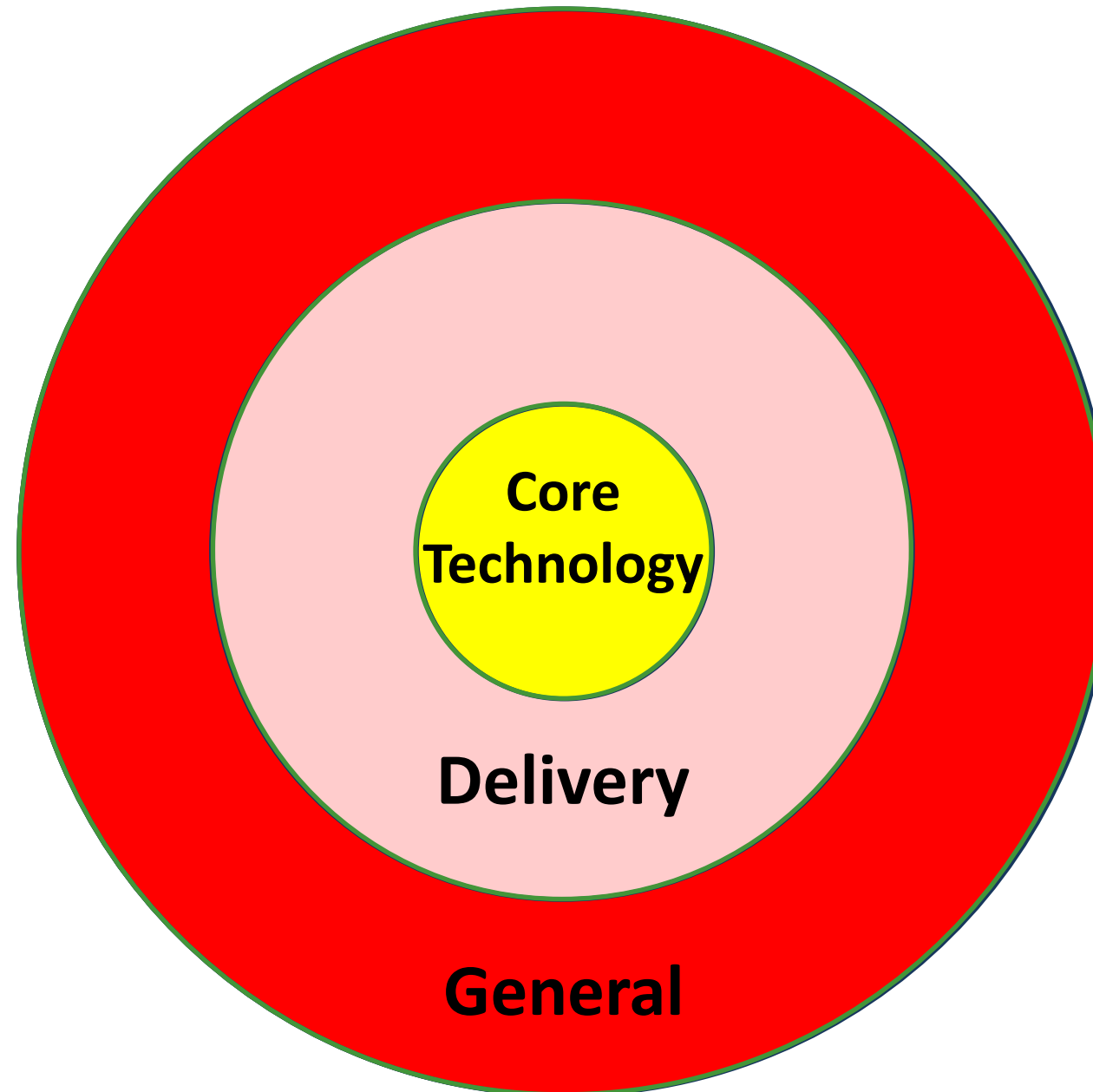


Industry Disruptions

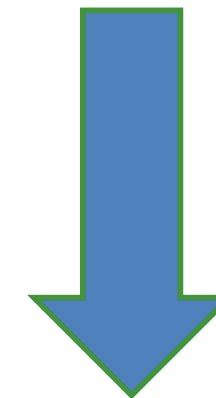


**Market and Societal
Disruptions**

WWW, Web, Browser Impact

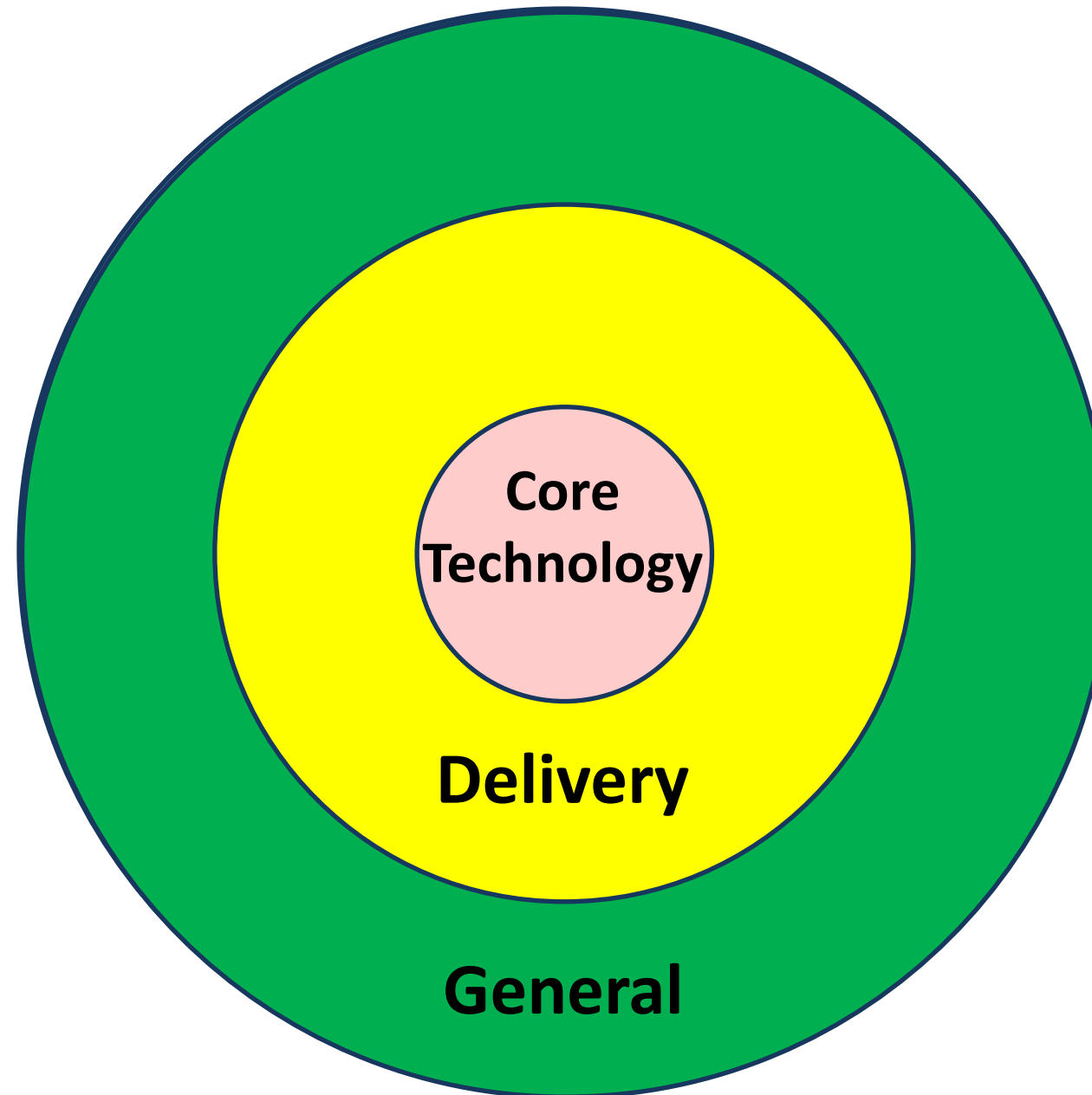


Industry Disruptions



Market and Societal
Disruptions

VoIP Impact

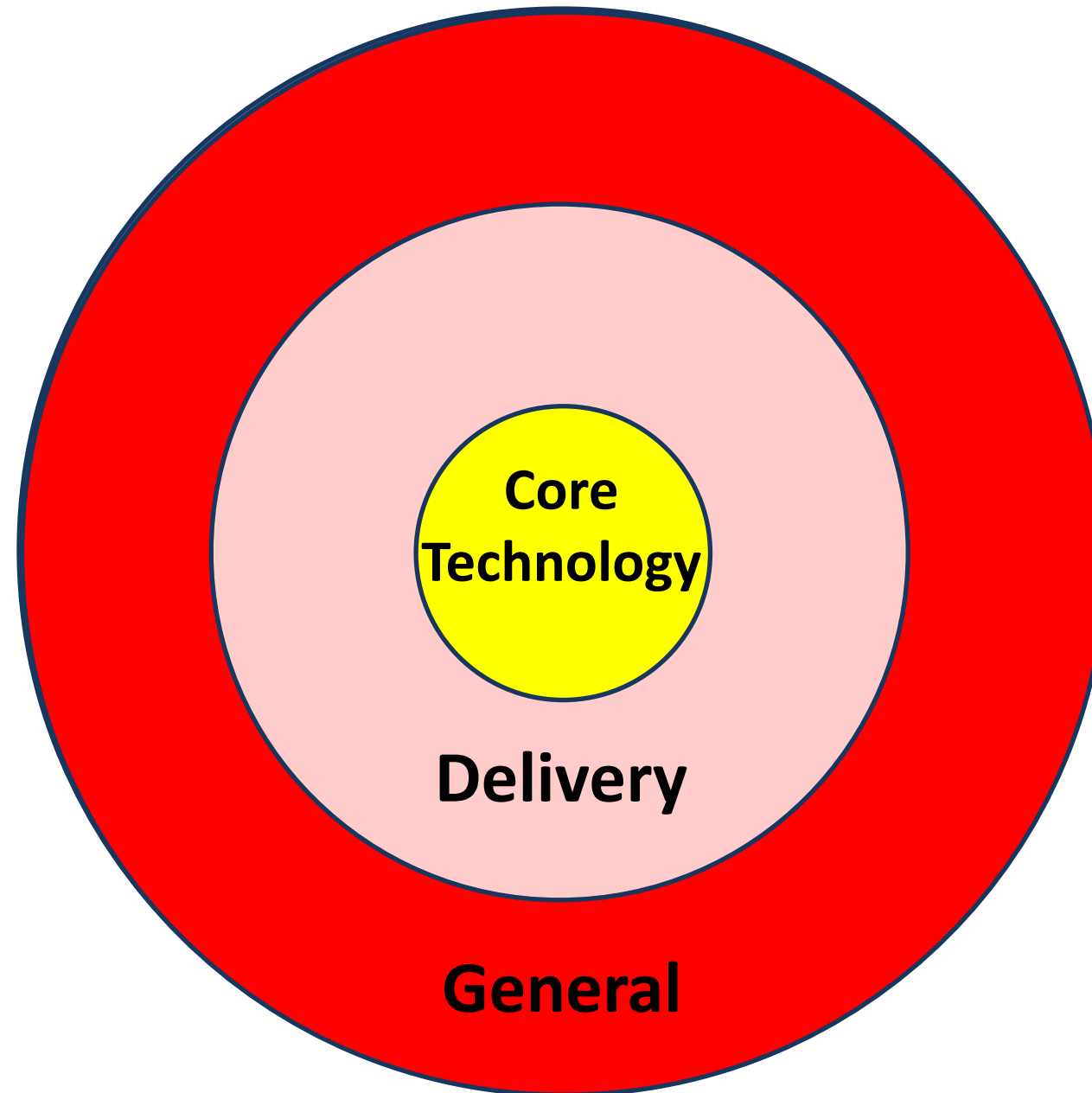


Industry Disruptions



**Market and Societal
Disruptions**

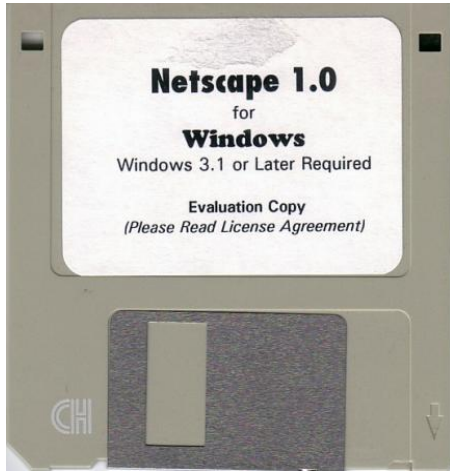
WebRTC Impact



Industry Disruptions



Market and Societal
Disruptions



....and the world changed

.....and it will again.....



WebRTC

The Real-Time Web



Lawrence Byrd
Independent Strategist



WEBRTC BUSINESS USE CASES

@LawrenceByrd on Twitter, LinkedIn, Gmail, G+

Who are We?

Developer

SaaS Vendor

**Enterprise Apps
Vendor**

**Enterprise Comms
Vendor**

Enterprise LOB

Enterprise IT

Service Provider

Consultant, Analyst

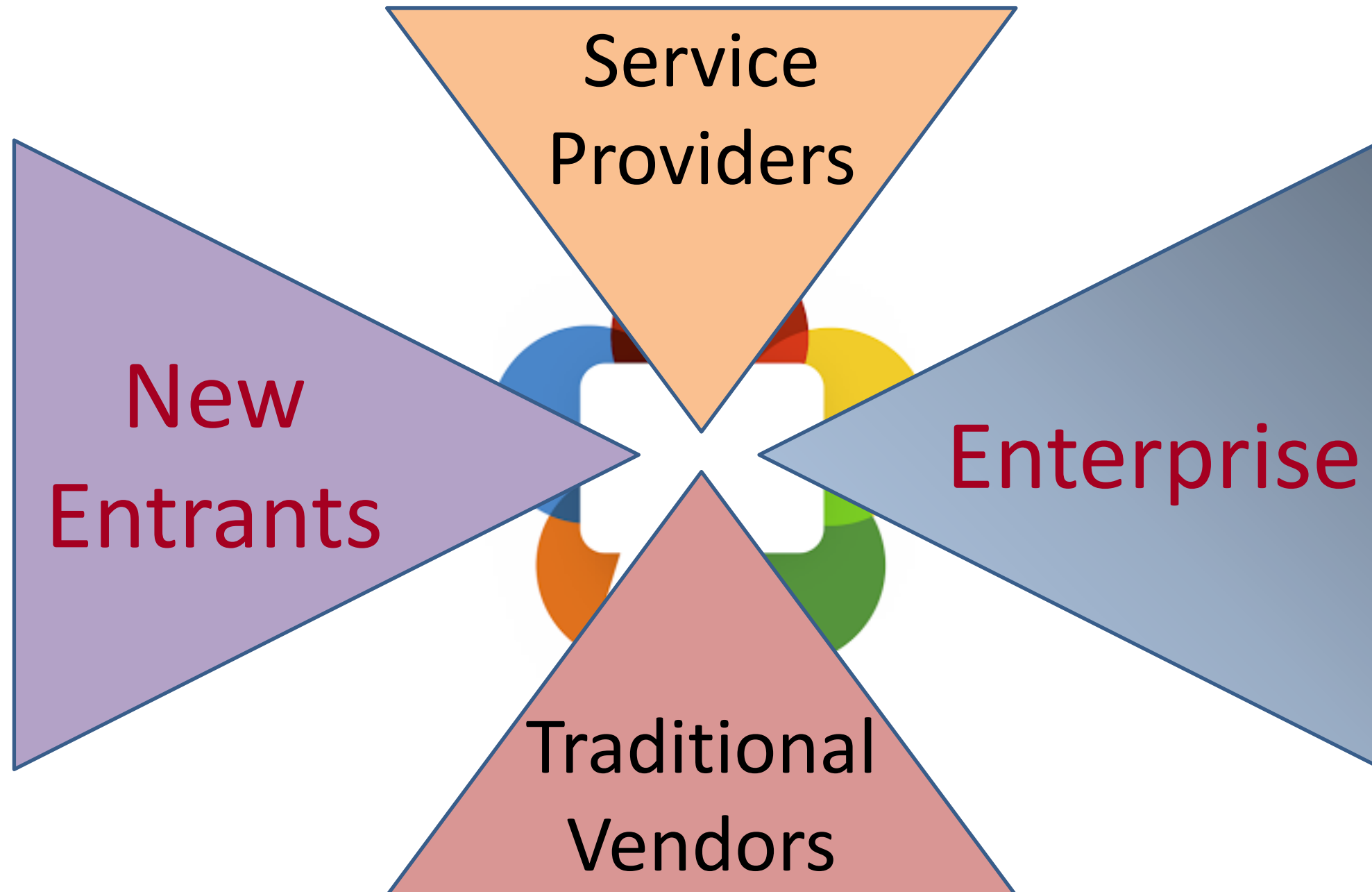


Topics

- ▶ Different Perspectives on Technology Change
- ▶ The Enterprise “Extension” View
- ▶ The SoCoMo “Disruptive” View
- ▶ Example Use Cases
 - Marketing, Customer Experience, Sales, Collaboration
- ▶ So What? Achieving Business Value



Different Perspectives

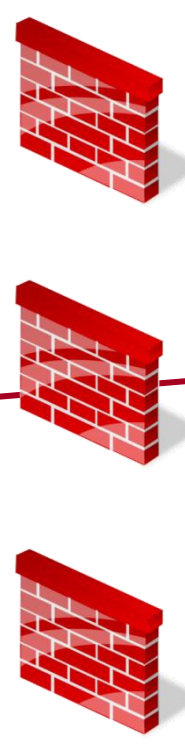


Enterprise "Extension" View

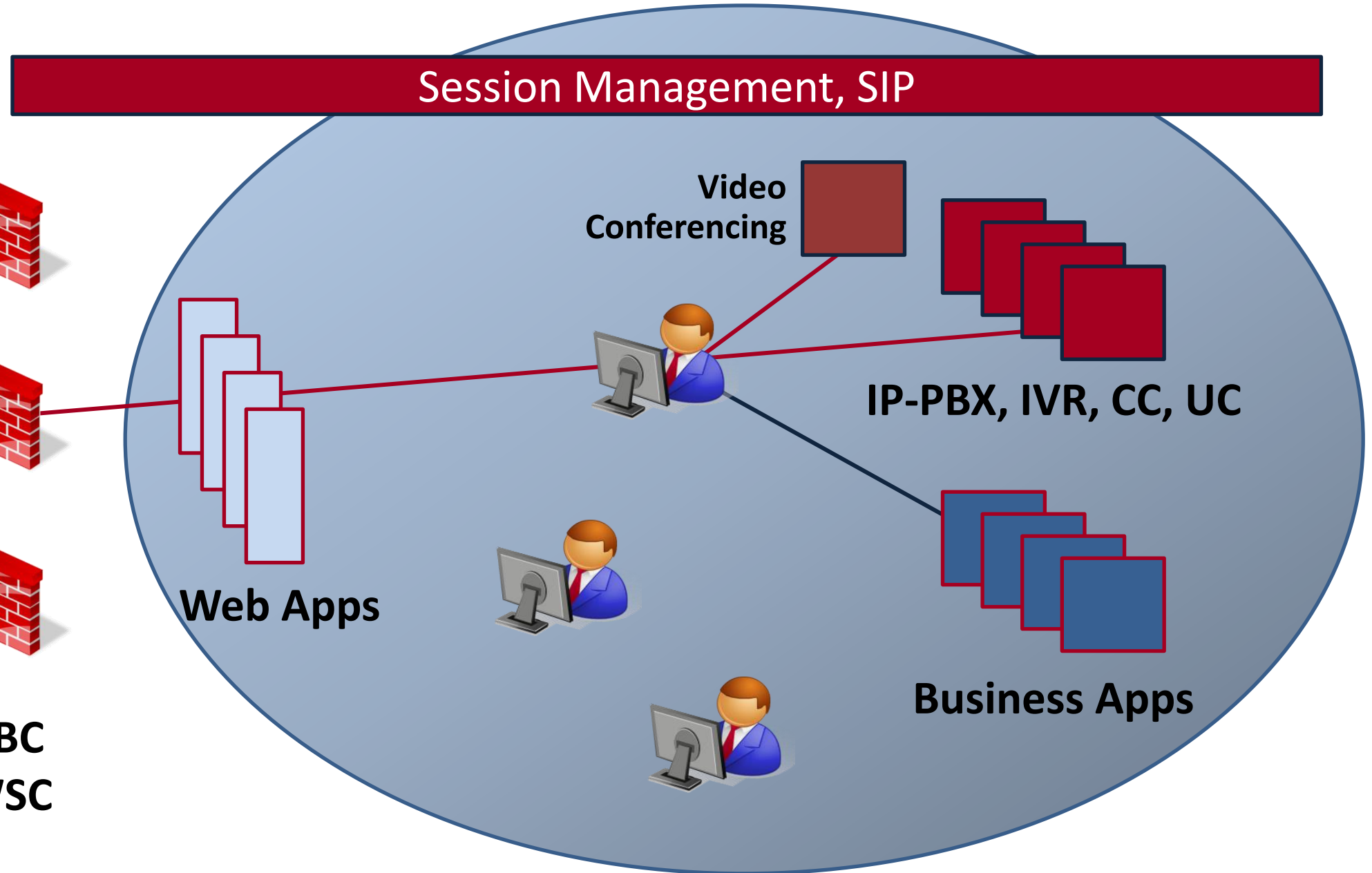
Customers



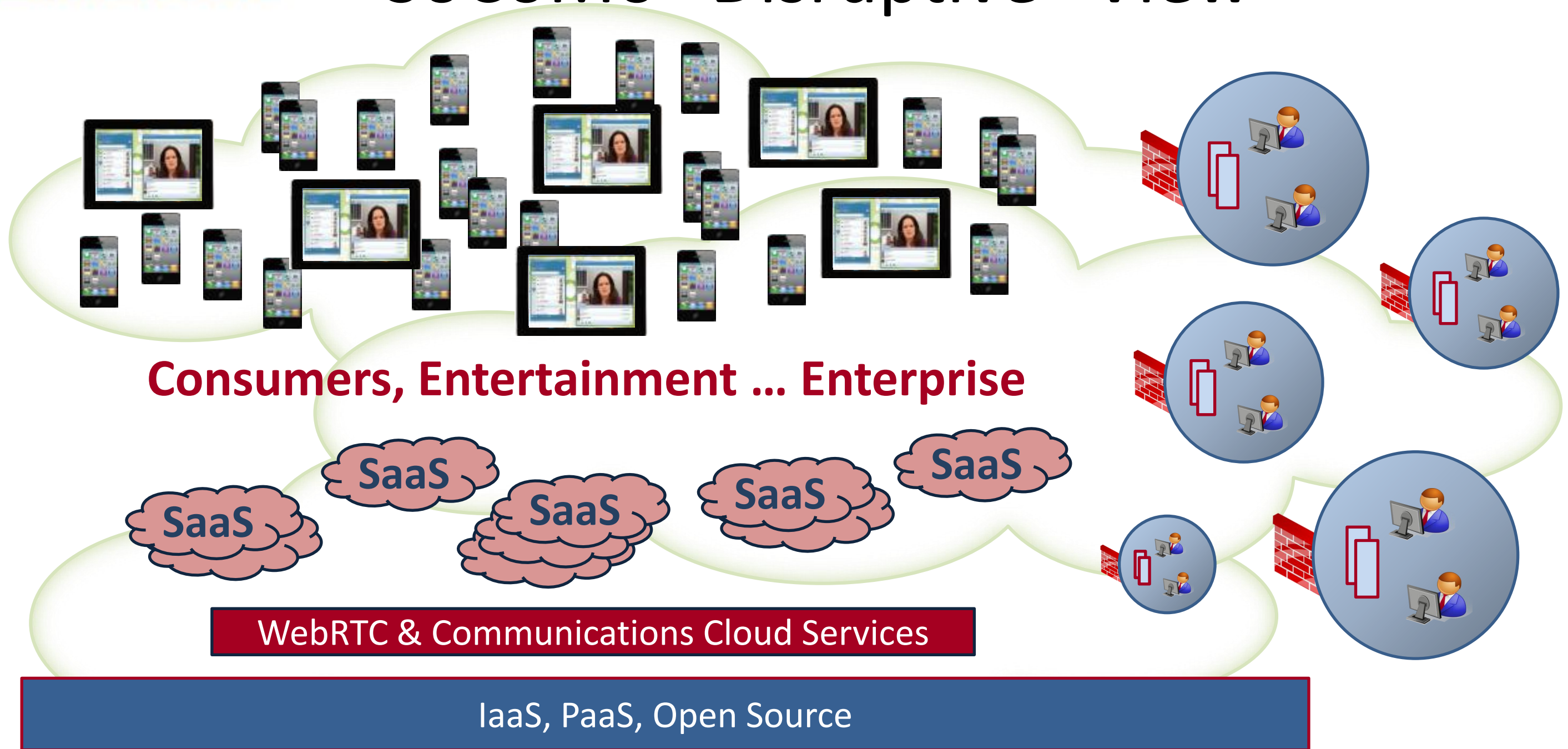
**Mobile Workers
Partners**



**SBC
WSC**



SoCoMo “Disruptive” View



The SoCoMoRT Hordes

WebRTC is the tip of a sharp HTML5 blade mounted on a massive cloud spear

WebRTC
Cloud Communications

20 million web developers

Culture, Community, Sharing, Youth

HTML5, JavaScript, many Dev languages

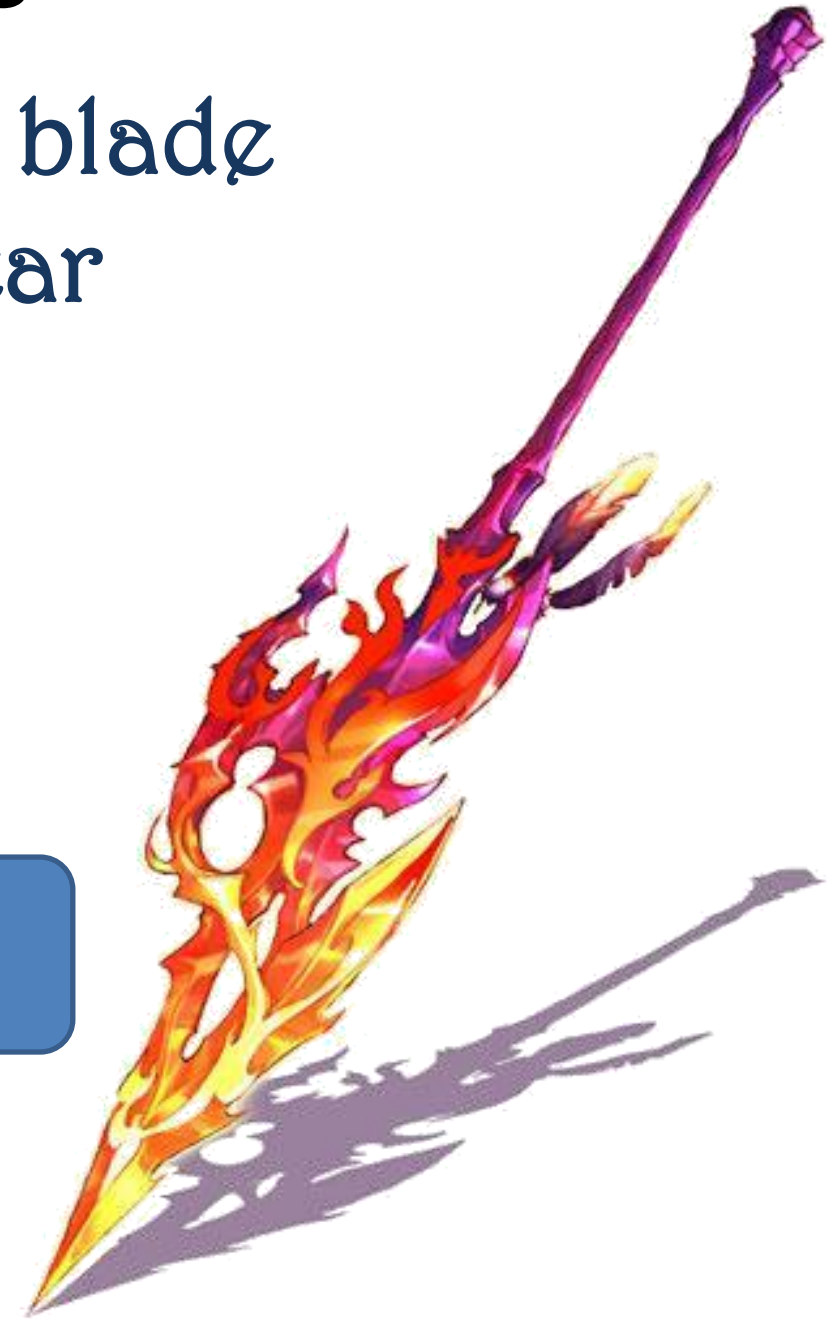
Easy on-demand PaaS services

Ever Expanding Open Source Armory

Shared expertise

Massive IaaS Cloud Power

Unlimited SQL and noSQL Storage



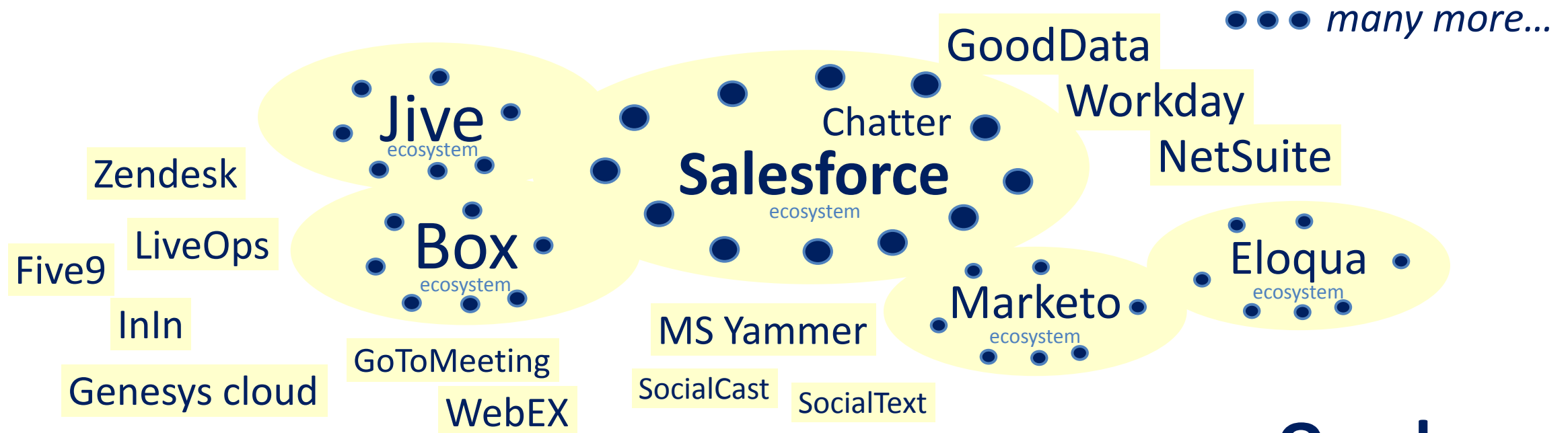
Waves of Market Disruption

The Cloud/Mobile
Hegemony War

Google **Apple** **Amazon** **Microsoft** **Facebook**

New disruptive
open "Cloud
Stack" vendors

[\(Aaron Levie's view\)](#)



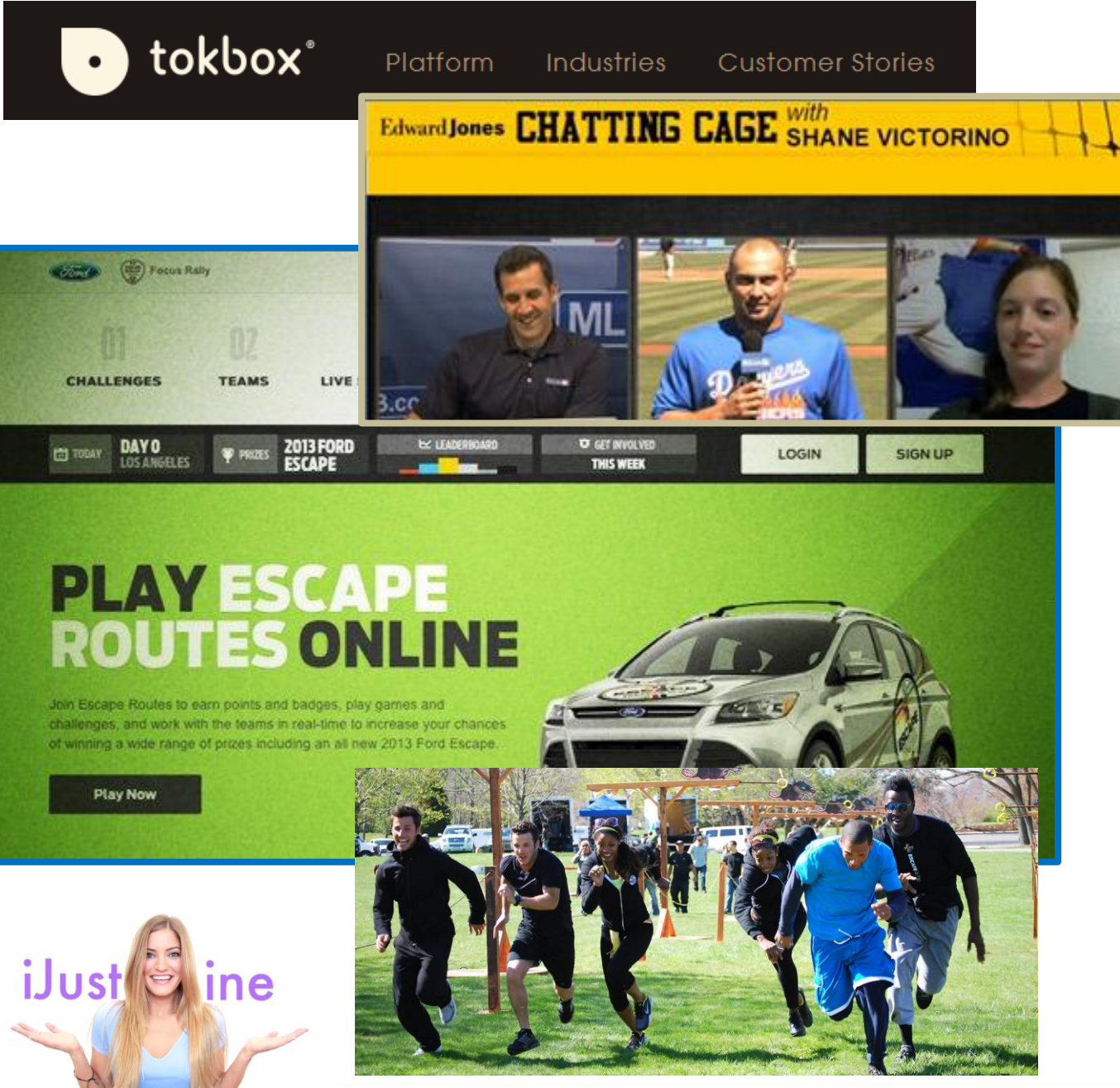
Legacy Enterprise
Application
Providers

Shoretel, Unify, Avaya, **Cisco**, **Microsoft**, **SAP**, **Oracle**
Mitel, Alcatel-Lucent



Contact Center Communications CRM ERP Marketing

Marketing Campaigns



tokbox Platform Industries Customer Stories

Edward Jones **CHATTING CAGE** with SHANE VICTORINO

MLB.com

PLAY ESCAPE ROUTES ONLINE

Join Escape Routes to earn points and badges, play games and challenges, and work with the teams in real-time to increase your chances of winning a wide range of prizes including an all new 2013 Ford Escape.

Play Now

iJustine

Image of people running in a race.

MLB.com Chatting Cage

- ▶ Online video broadcast of sports radio talk show and interviews
- ▶ Fans can now “video in” to ask questions to their baseball heroes

Ford “Escape Routes” NBC show

- ▶ Branded content reality show, teams, competition, games, video
- ▶ Your audience is part of the show – you must be able to see them!

Integrated Customer Experience

Amazon Kindle HDX Mayday

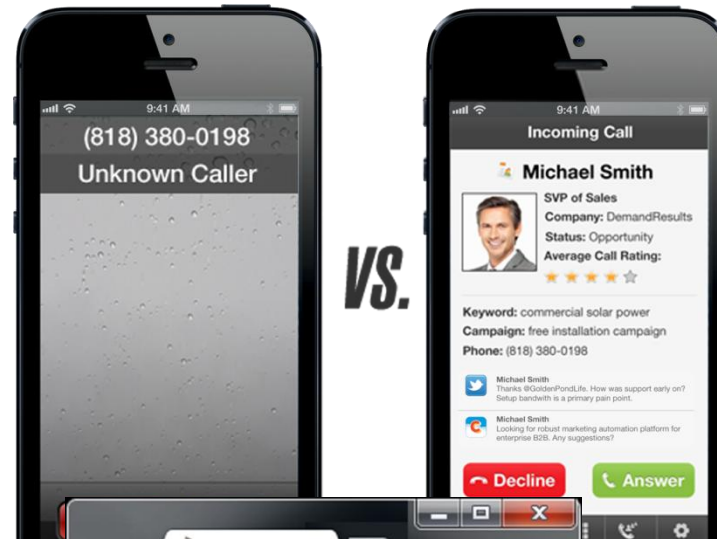


- ▶ Not doing the obvious
- ▶ Targeted to very specific customers
- ▶ Designing the customer experience
- ▶ Video only one way: confidence vs privacy, keep focus on screen
- ▶ Screen annotation: show vs do
- ▶ Screen control if really necessary
- ▶ *(A WebRTC-type use case even if home-built by Amazon)*

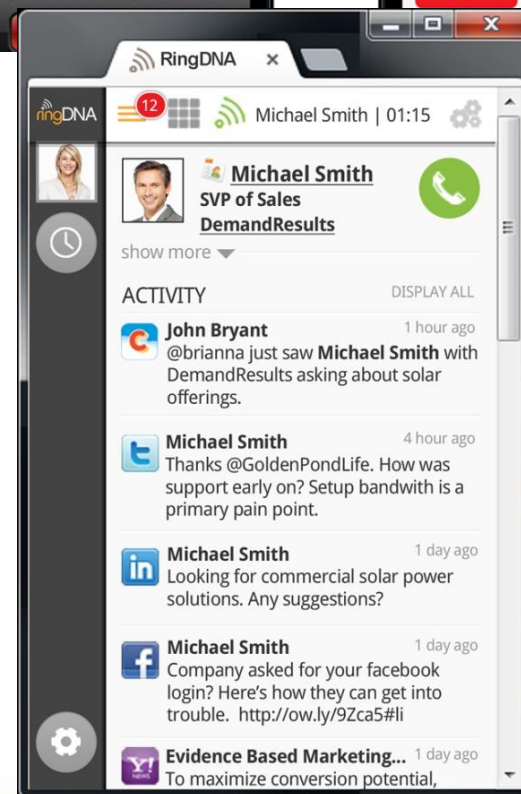


ringDNA

Sales Empowerment



VS.



- ▶ Wrap context around all incoming and outgoing phone calls
- ▶ Capture every call in Salesforce.com
- ▶ Create new #s for ad-words, online & offline marketing and capture response metrics
- ▶ Uses **Twilio** cloud communications
- ▶ WebRTC for sales clients (voice)
- ▶ Possible future: customer calling interfaces with WebRTC

Collaboration



Überconference

- ▶ Reinventing audio conferences
- ▶ WebRTC for Chrome voice today alongside global PSTN integration

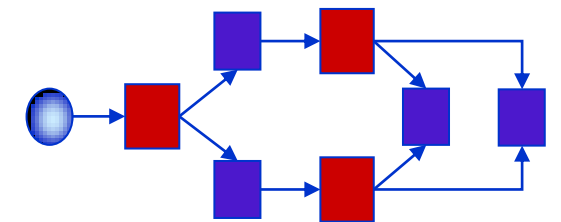
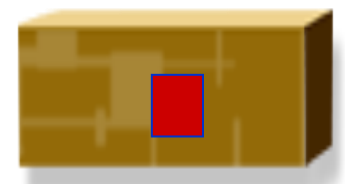
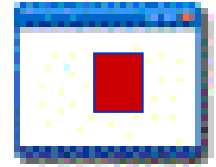
Video calling & conferencing

- ▶ See the many vendors here at WebRTCExpo!
- ▶ Early stages, looking for business models, competing with both traditional and cloud video vendors



Communications Enabled Business Processes

- ▶ Accelerating business processes by embedding communications directly within applications
 - Integrated user interfaces
 - Back-end workflow & application automation
 - Process flow initiated communications, Alerts
- ▶ A dream of communications vendors since ~2005
- ▶ **Start with the domain and process expertise**
- ▶ Lightly add communications = **WebRTC and Cloud!**



Achieving Business Value

- ▶ Business value lies in the acceleration of your processes, people and customers
- ▶ WebRTC is a technology enabler
- ▶ Expect innovation from many directions
 - Disruptive SoCoMoRT vendors
 - Next wave of (cloud) enterprise apps
 - Traditional comms and biz-apps vendors
 - Service Providers
 - **You?**



Interaction Experience 2.0

Chris Vitek

Principal

WebRTC Strategies

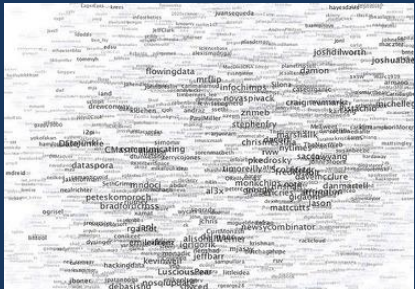


Interaction Experience 2.0



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

- Contextual
- Optimized



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

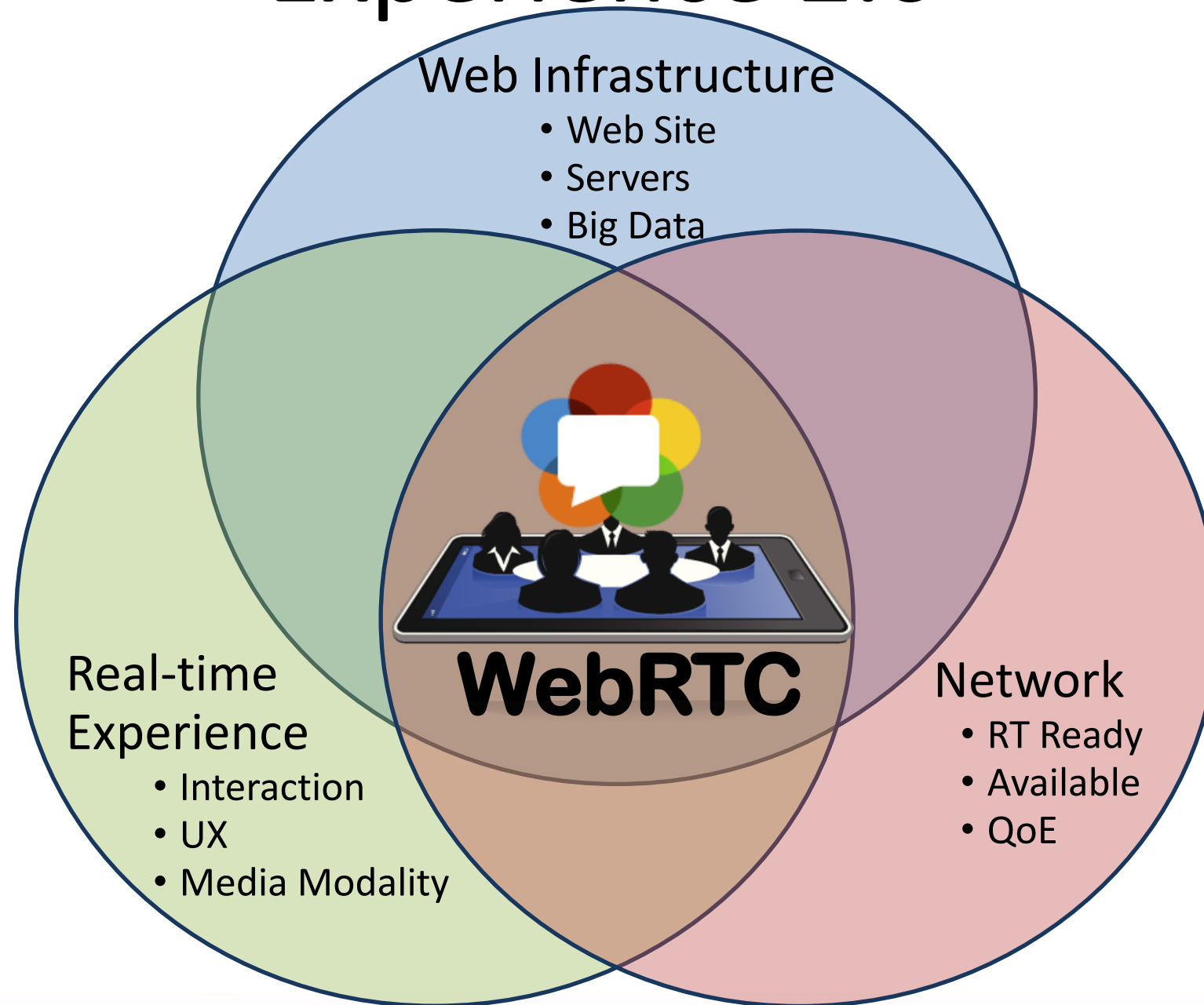
- Complete
- Accessible



Having the right communications modality the best possible experience

- Optimized
- Empathetic

Components of Interaction Experience 2.0



Web Context vs. Telephony Context

Typical Fortune 1000 Web Site

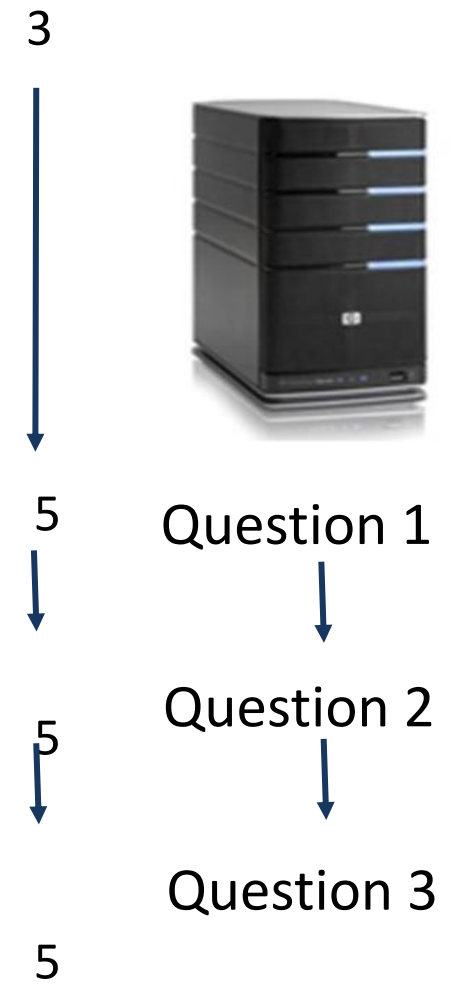


240,000
Discrete
Contextual
Links

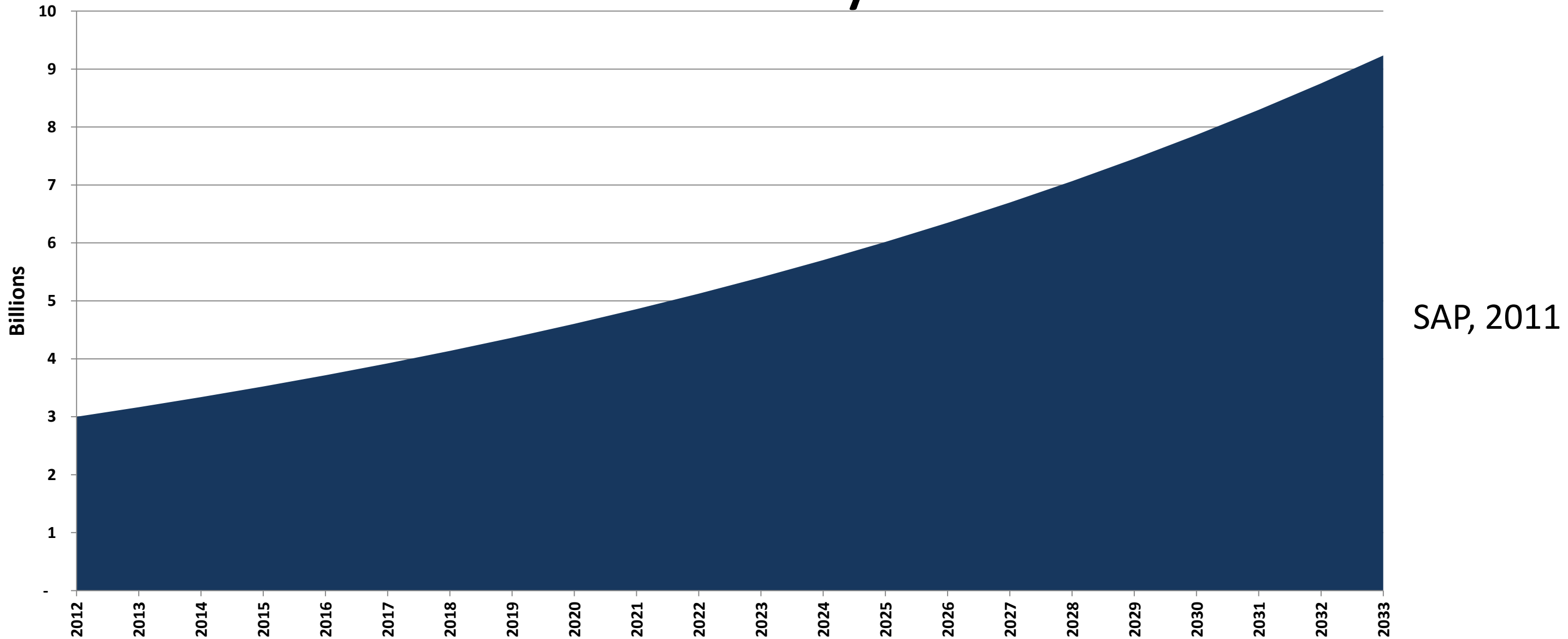


375
Discrete
Contact
Routes

Typical Fortune 1000
Contact Centre/IVR

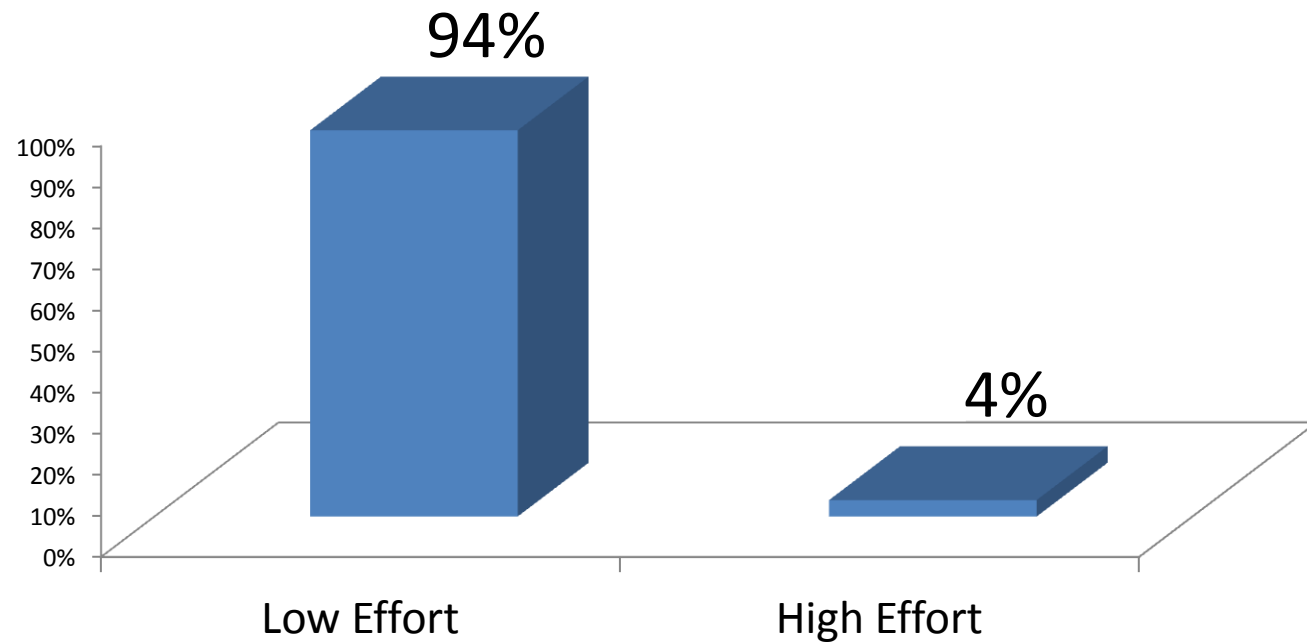


Consumers to Triple in next 20 years

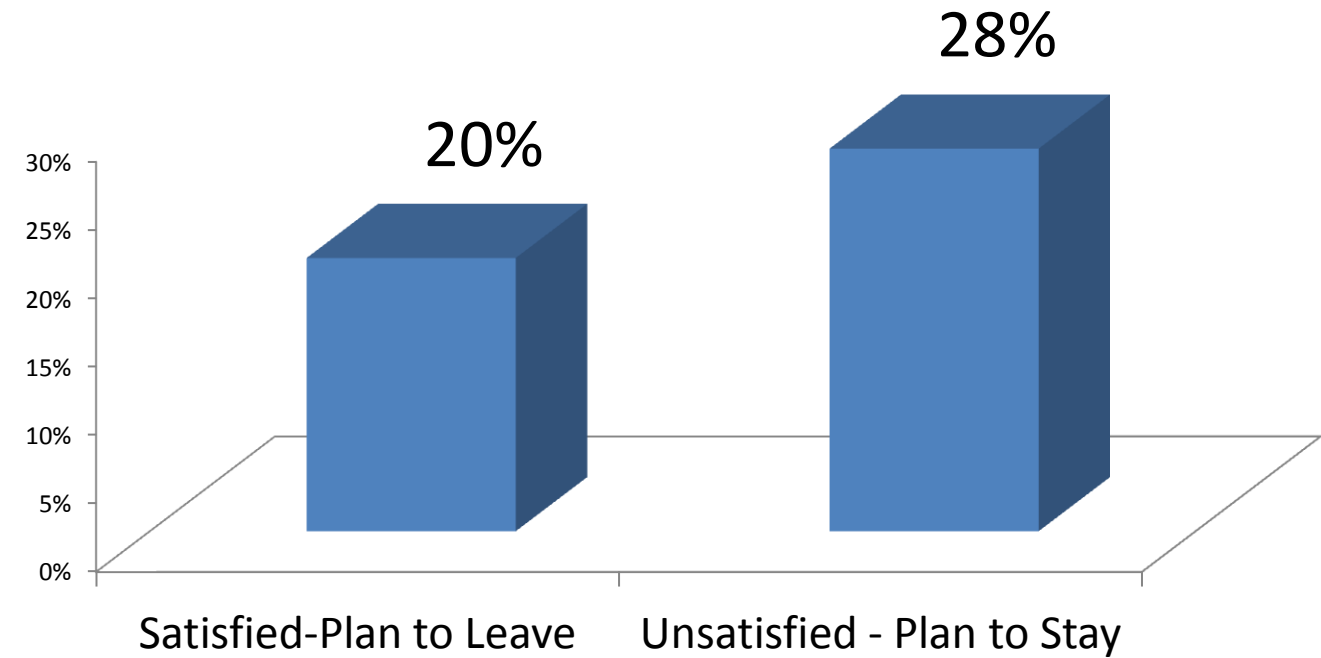


Customer Loyalty & Satisfaction

Customer Effort



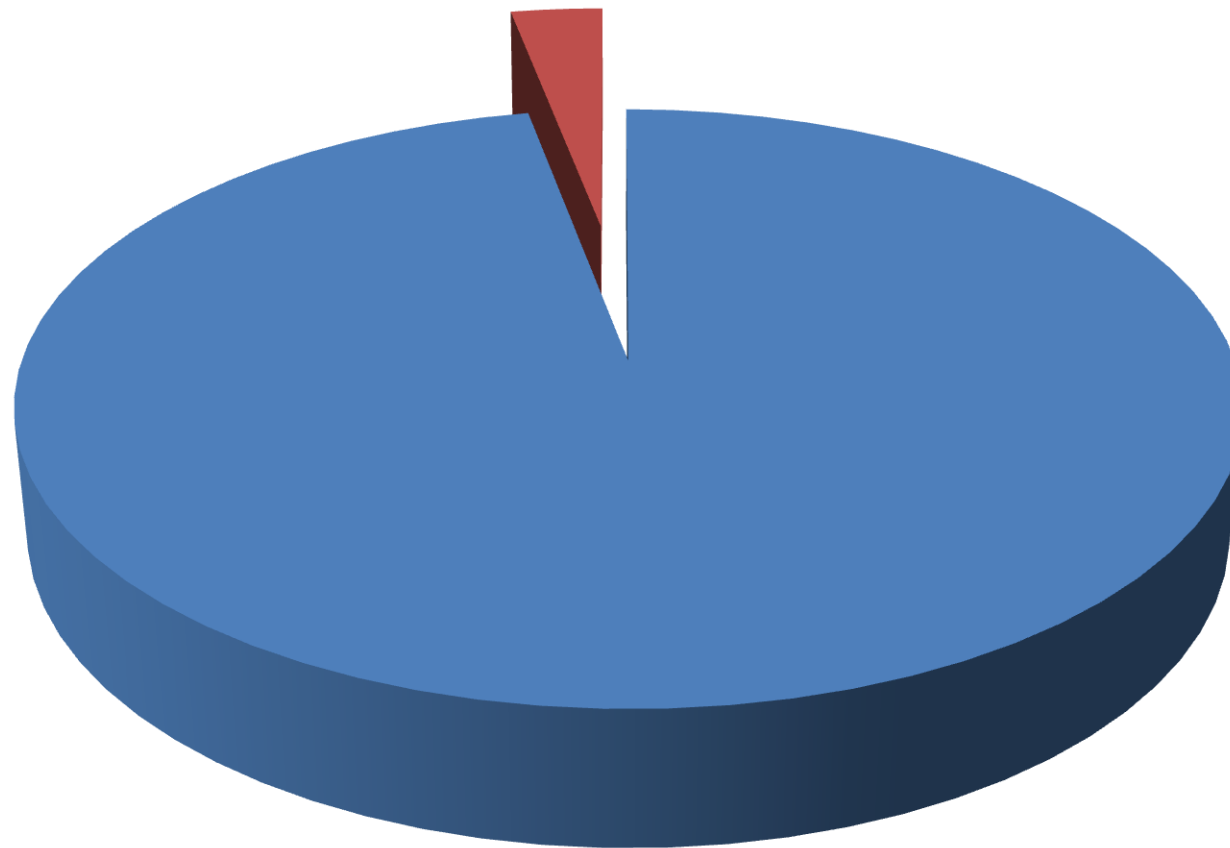
Satisfaction



Plan to Buy Again

Corporate Executive Board, 2008

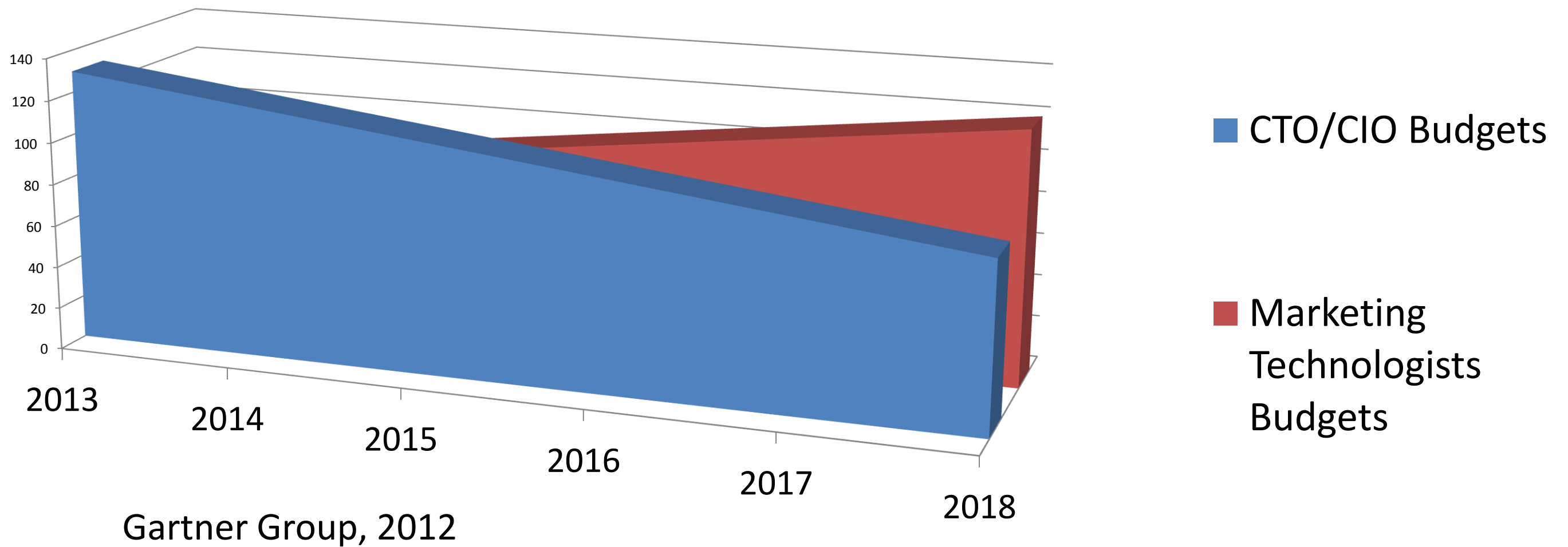
97% of Buyers Visit a Website First



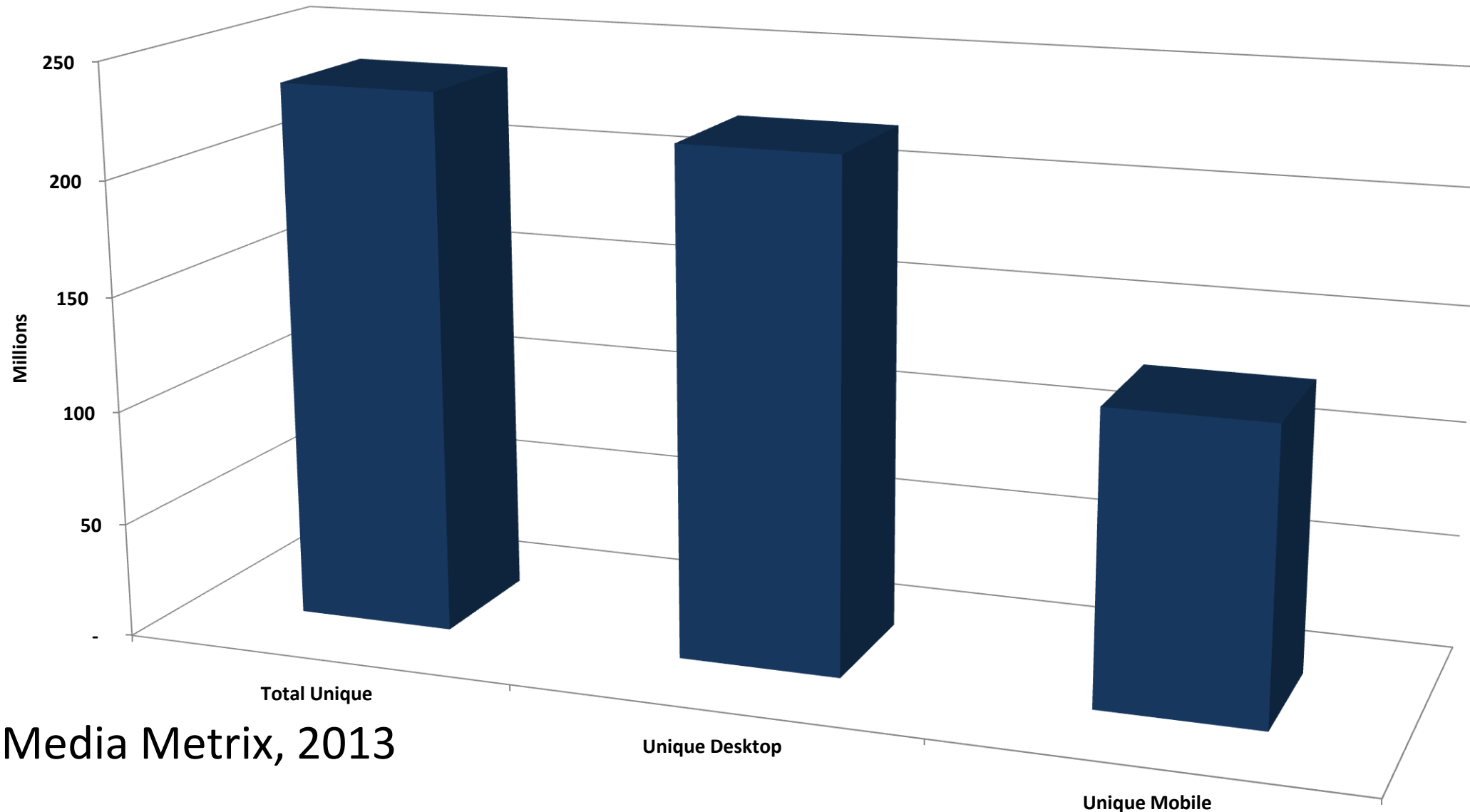
- 97% Buyers Visit Web Site before Purchase
- 3% No Web Access Before Purchase

BIA Kelsey, 2011

Marketing Technology Budgets to Surpass CIO/CTO in 2016

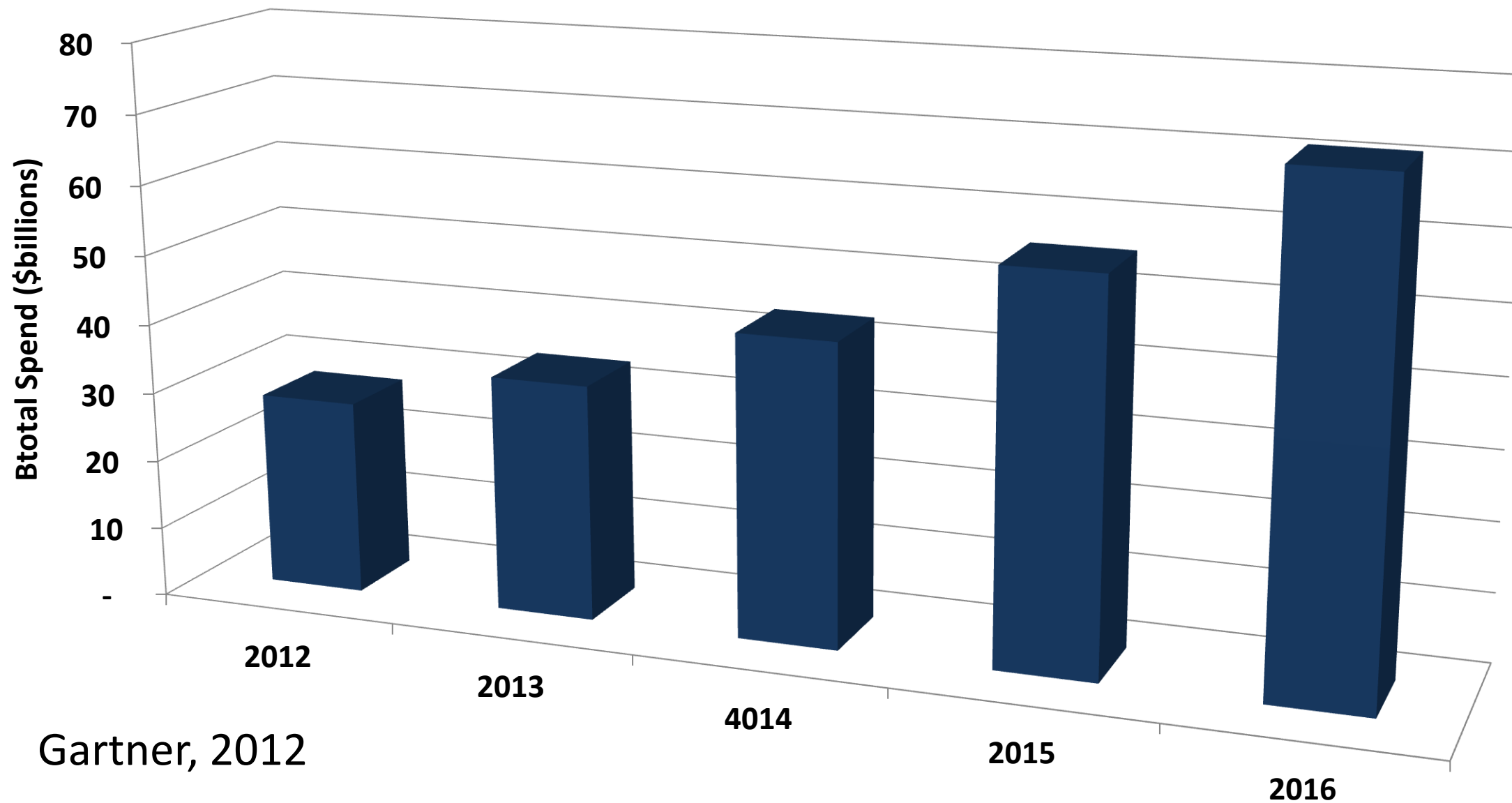


Digital Media Consumers in USA



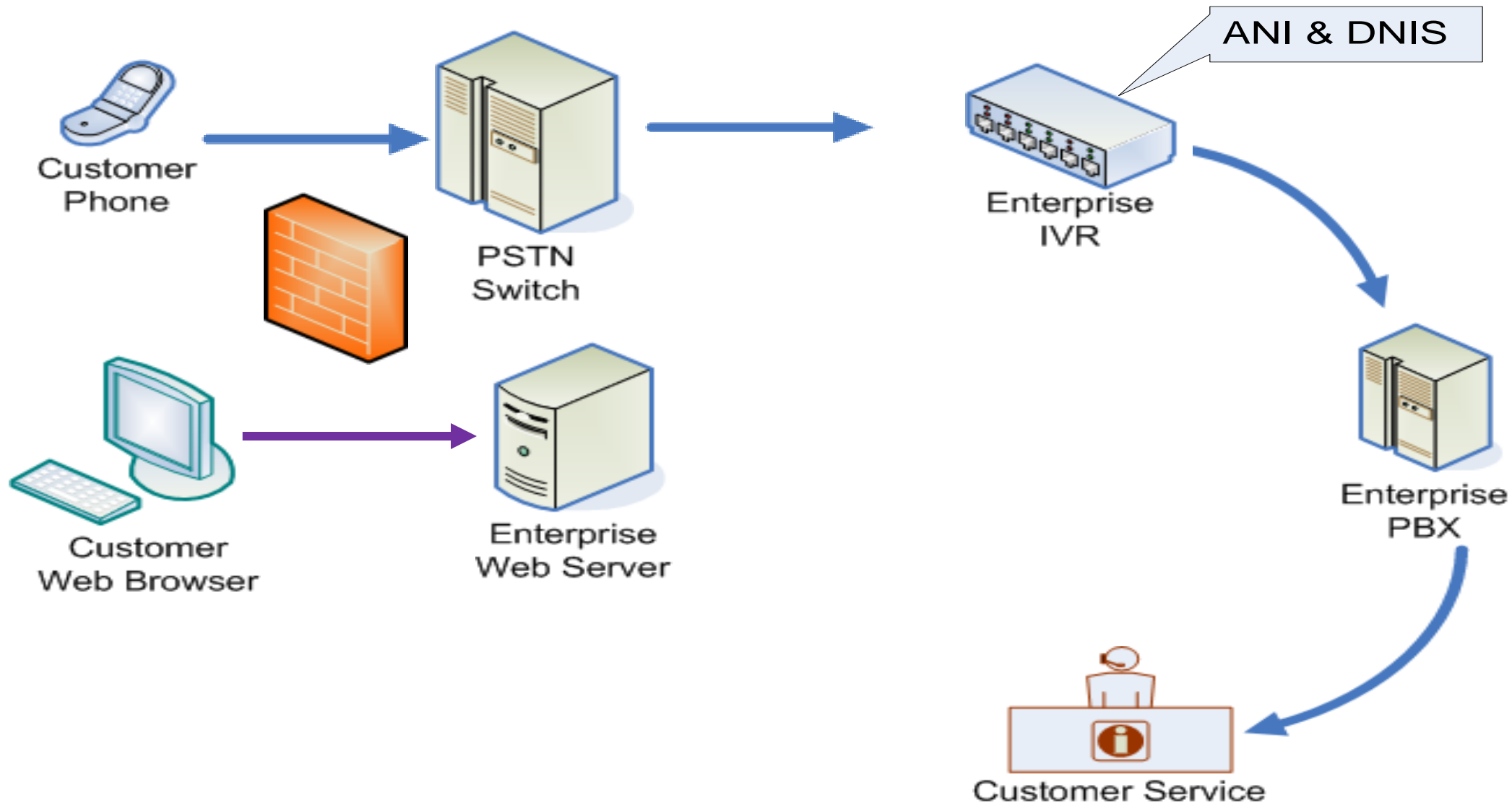
Comscore, Media Metrix, 2013

Big Data Adoption and Market Growth

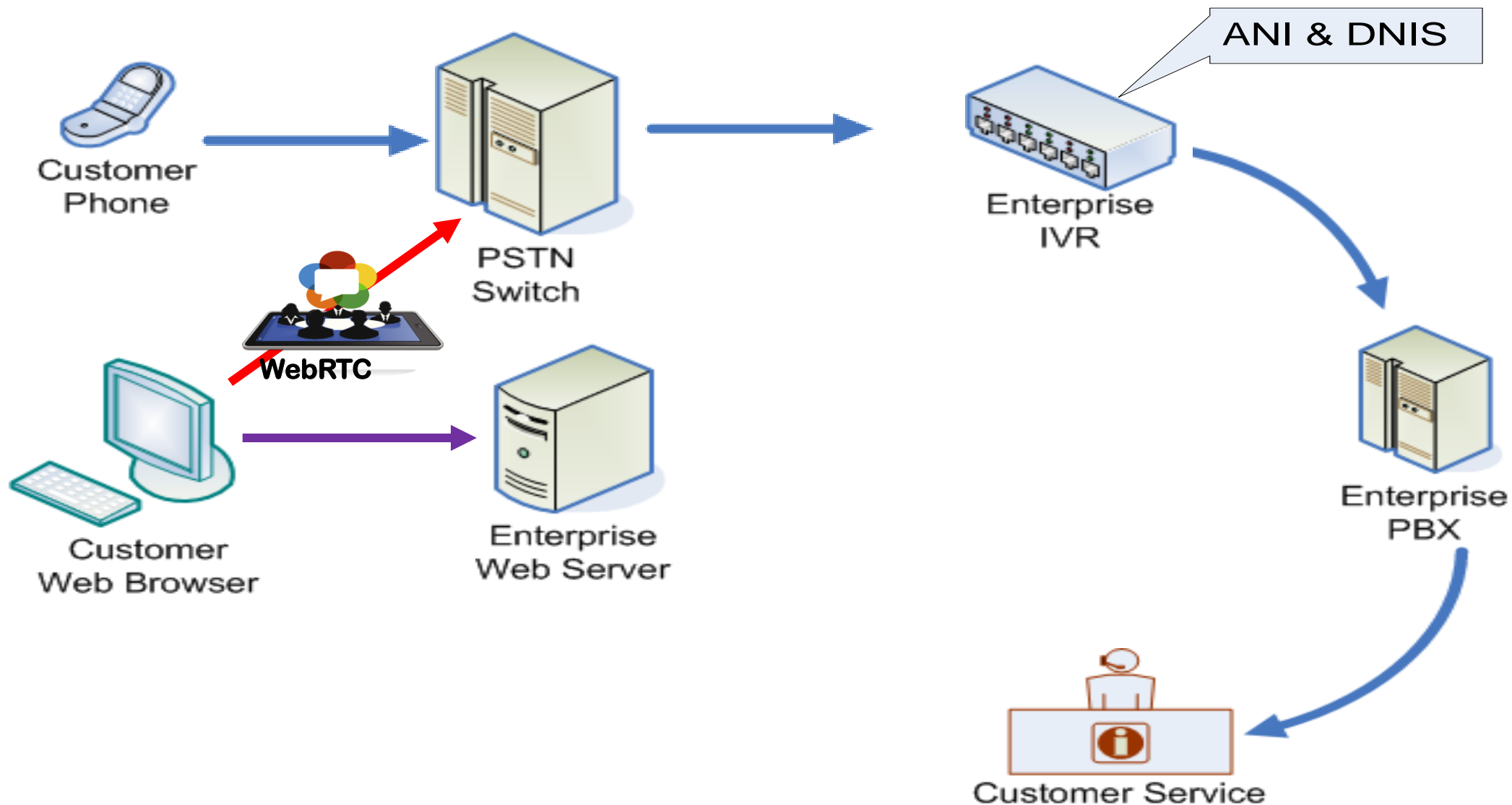


Gartner, 2012

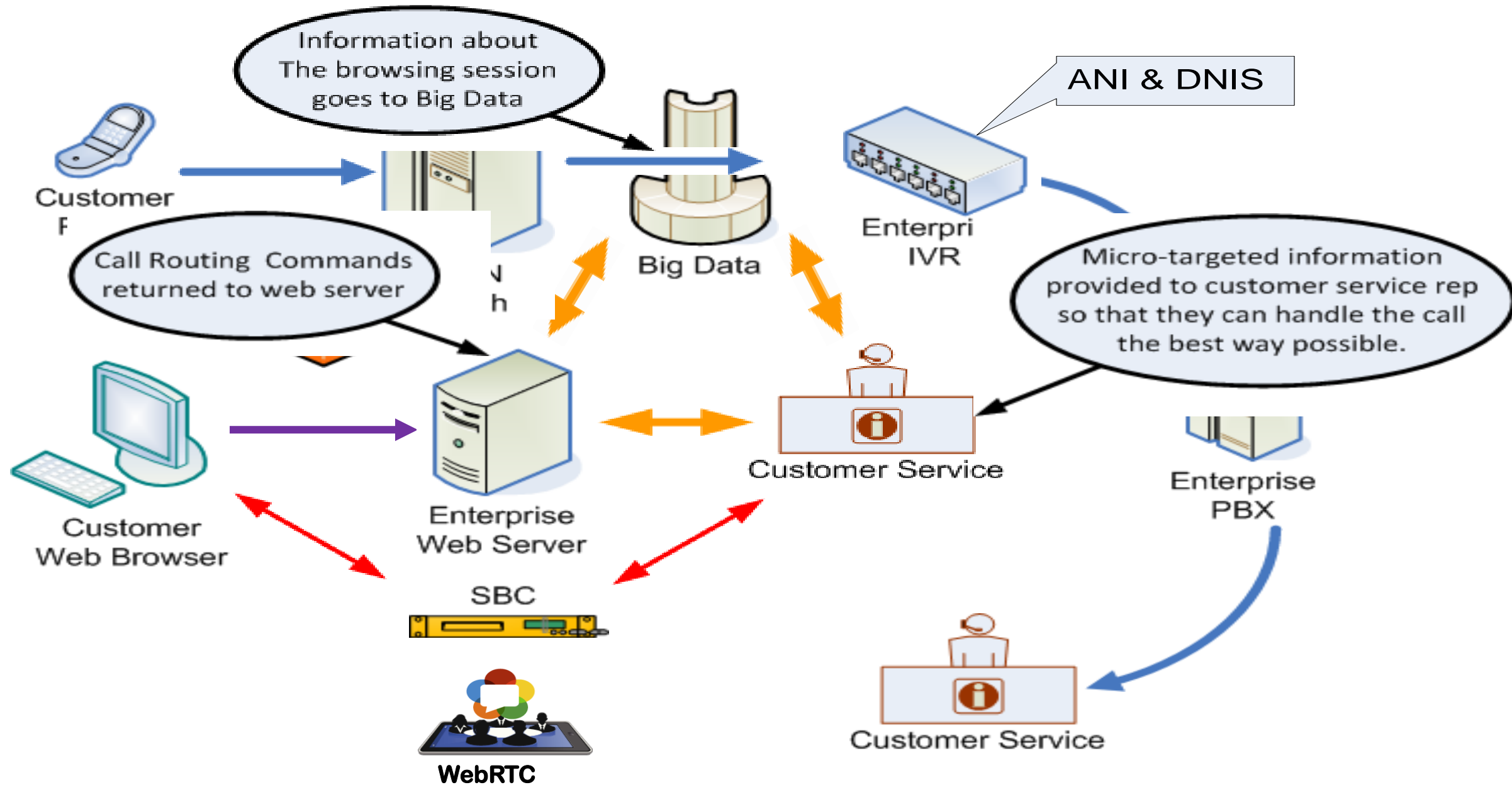
Legacy Contact Center Technology



WebRTC Bridges the Web-to-Telephony Barrier



Interaction Experience 2.0



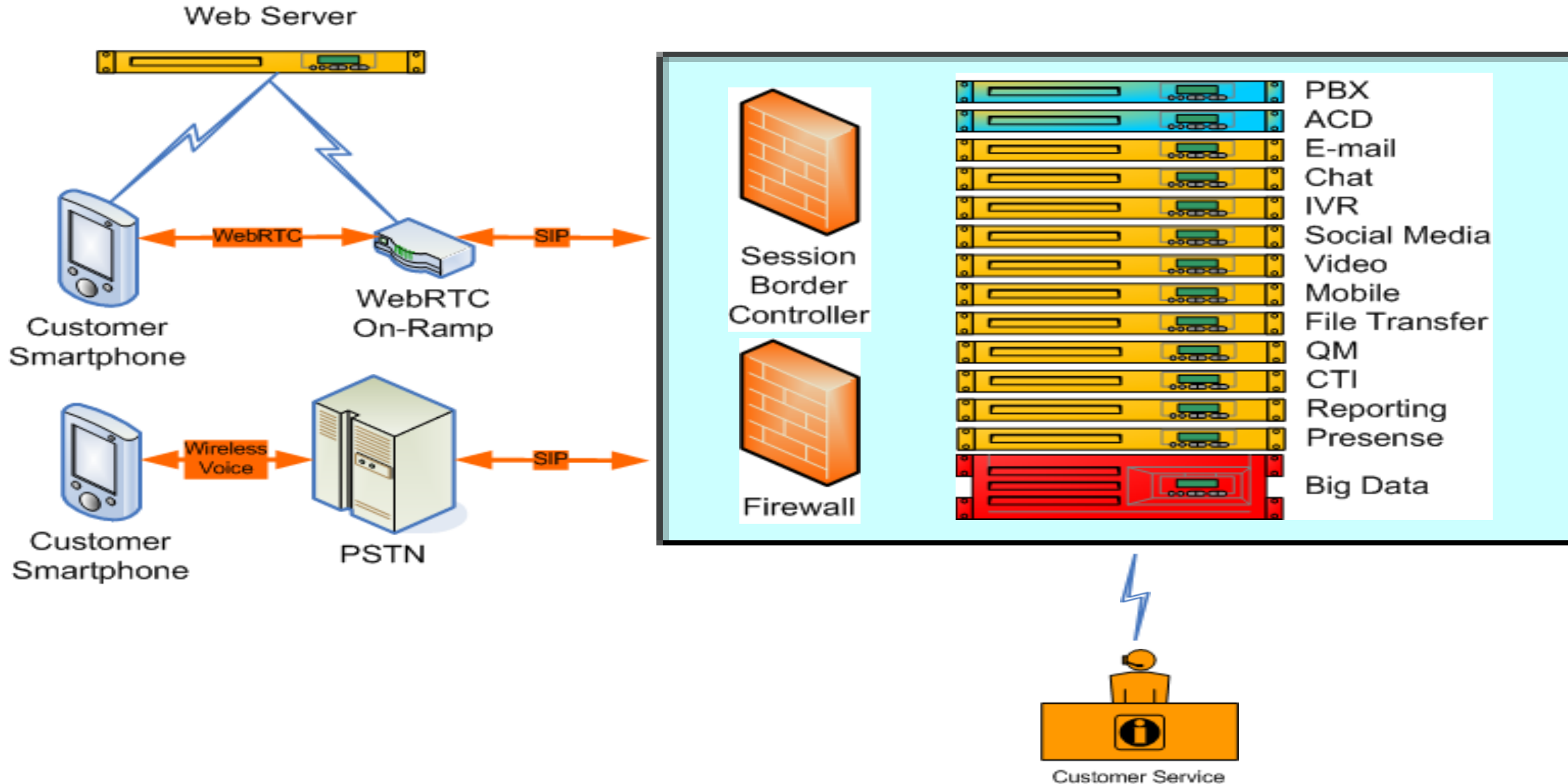
Business Impact of Interaction Experience 2.0

- Customer Effort 
- IVR 
- Micro Targeting 
- Call Duration 
- CC Labor 
- PSTN Cost 
- Customer Loyalty 
- Marketing Spend 

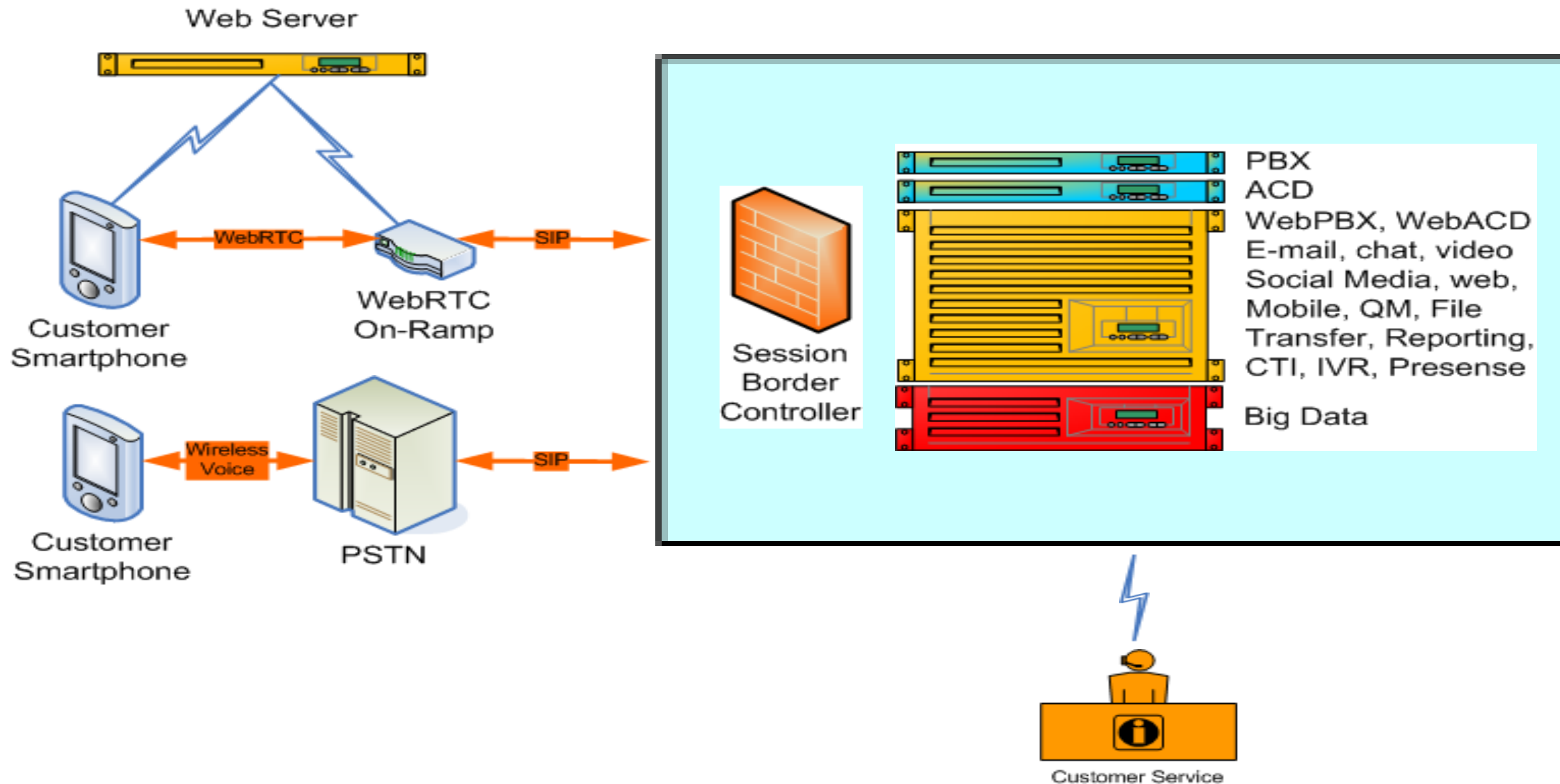
Benefits for 1,000 Seat Center

- Customer effort is reduced.
- Customer service labor expense reduction \$6.6M/year (15%).
- PSTN reduction or elimination \$800K/year.
- Survivability (Cat-Comms).
- Real-time marketing offers and talking points
- Improved loyalty impact on marketing budget: \$30M/year (10% of marketing budget).

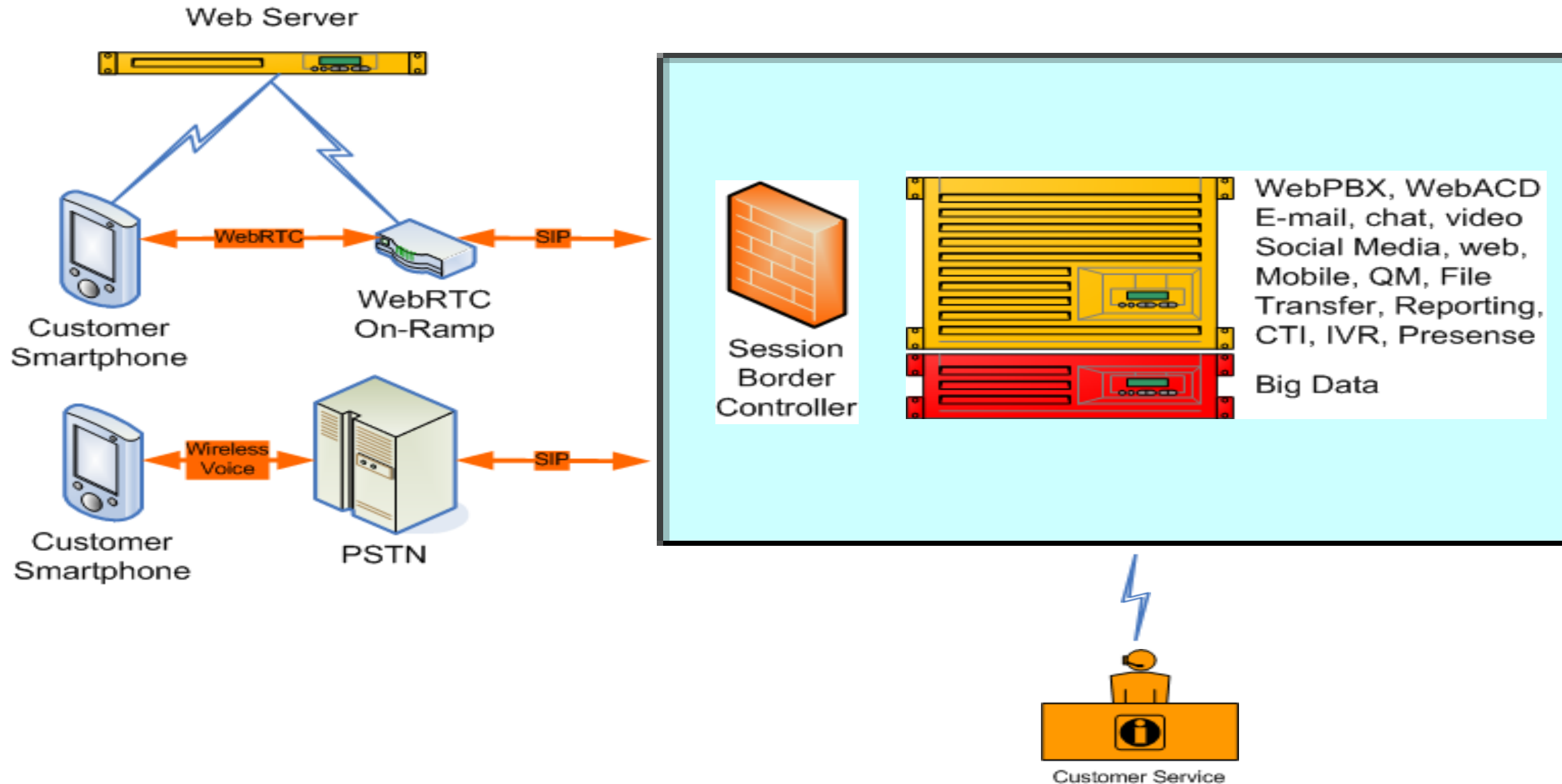
First: The On-Ramp



Then: Application Updates



Then: Full Integration



Summary

- **Ease-Of-Use:**
 - One-Click Access for Customers
 - Simplicity of Service Creation
- **Investment Protection:**
 - Same Codecs in enterprise Use Since 2002
 - All Major Manufacturers Are Supporting
- **Value:**
 - Least Expensive Development Environment
 - Disintermediates the PSTN Carrier
- **Support:**
 - Google and Mozilla Own 81% of Browsers
 - 79% of Smartphones in Q2 Were Android
 - 9 Million JavaScript Programmers

Tsahi Levent-Levi

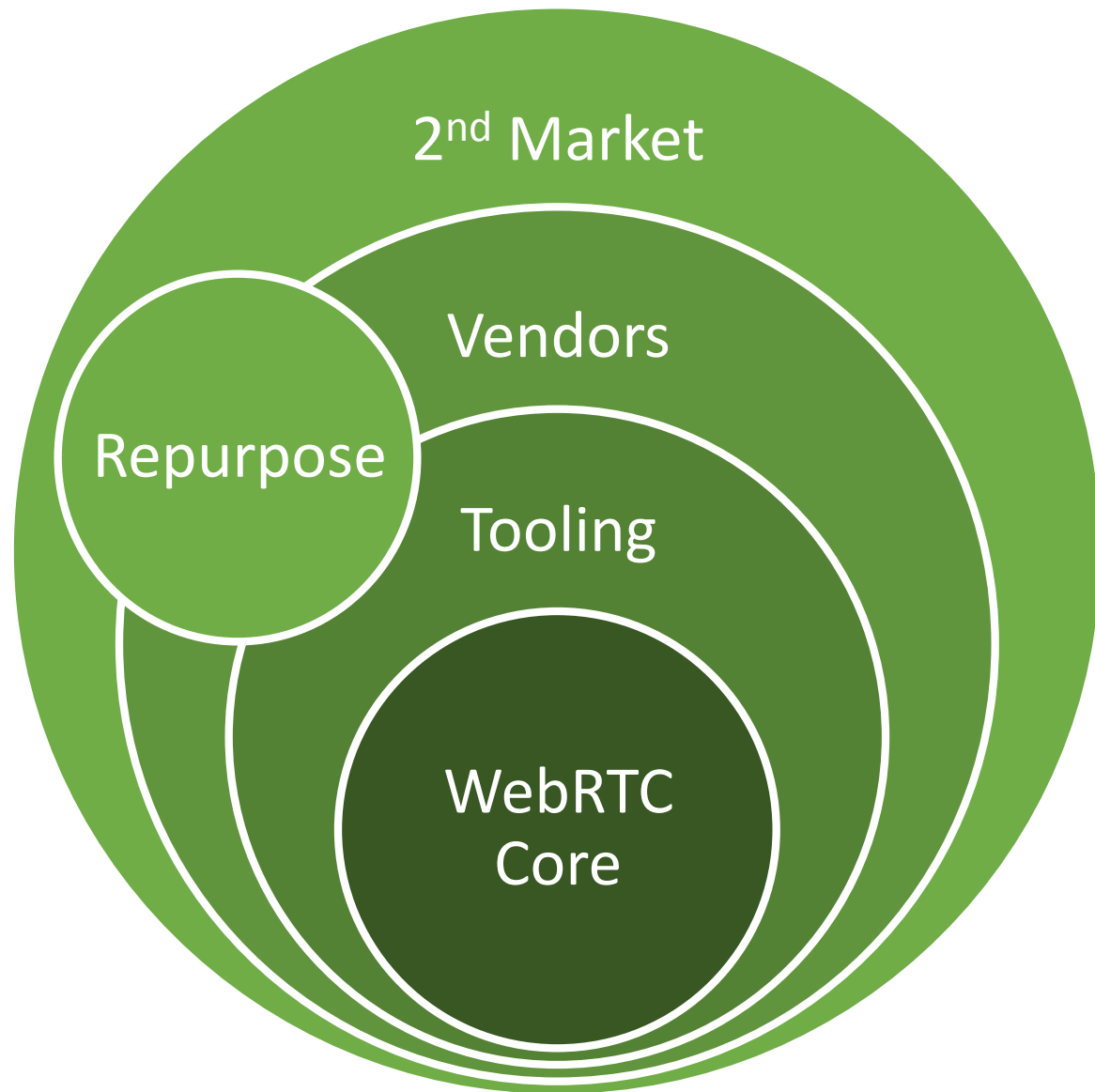
tsahil@bloggeek.me

[@tsahil](#)

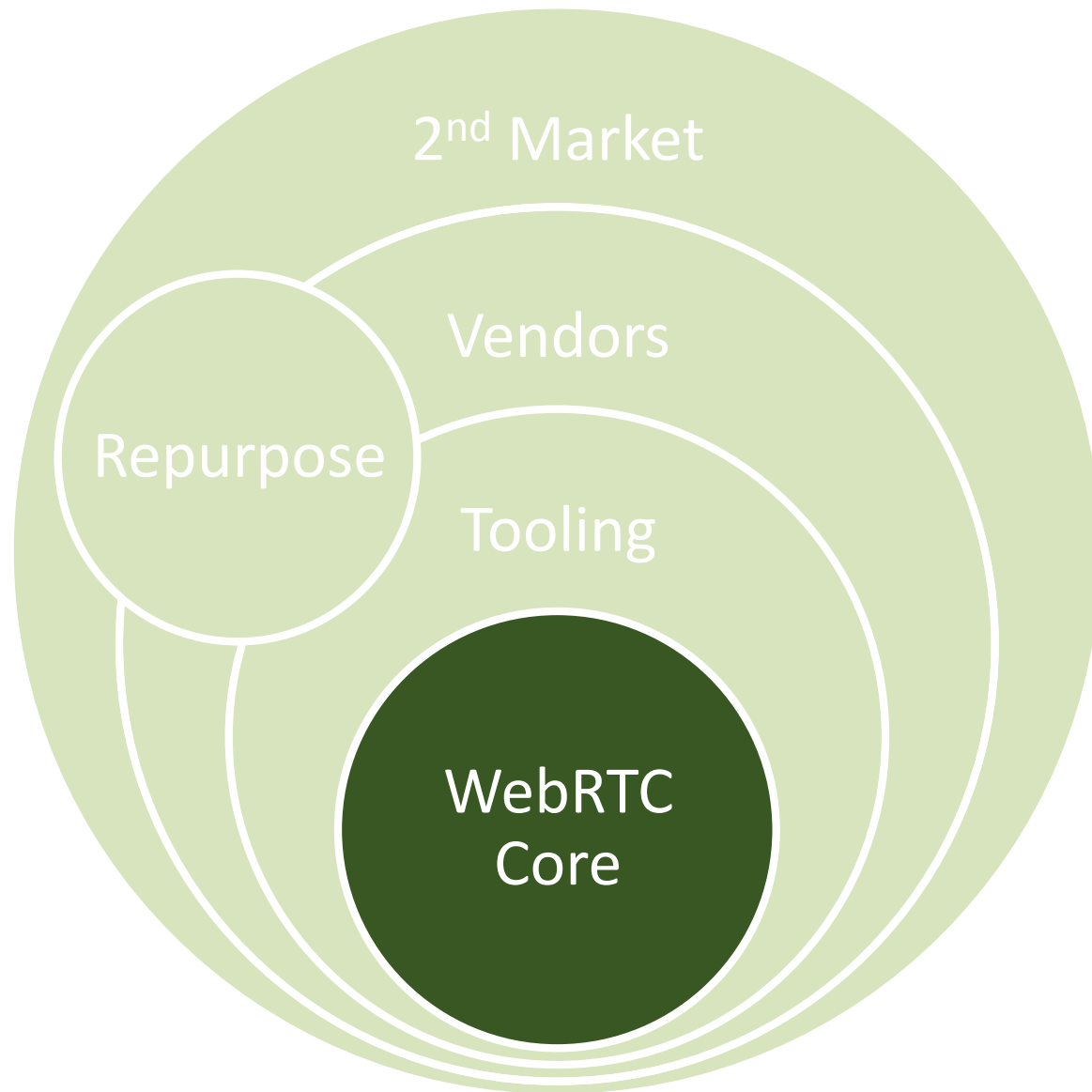
BlogGeek.Me

WEBRTC ECOSYSTEM

Vendor Types in the Ecosystem

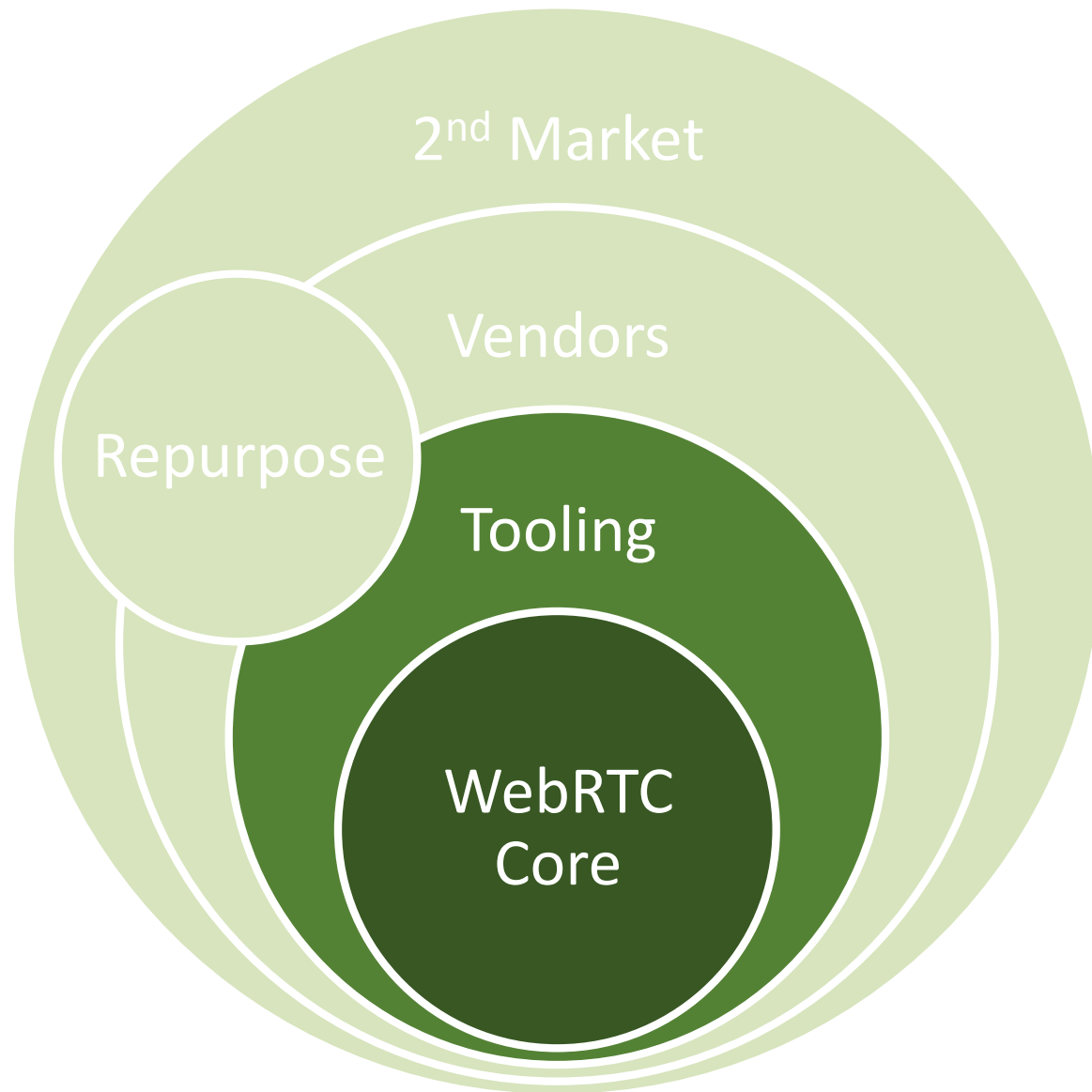


Browser Vendors



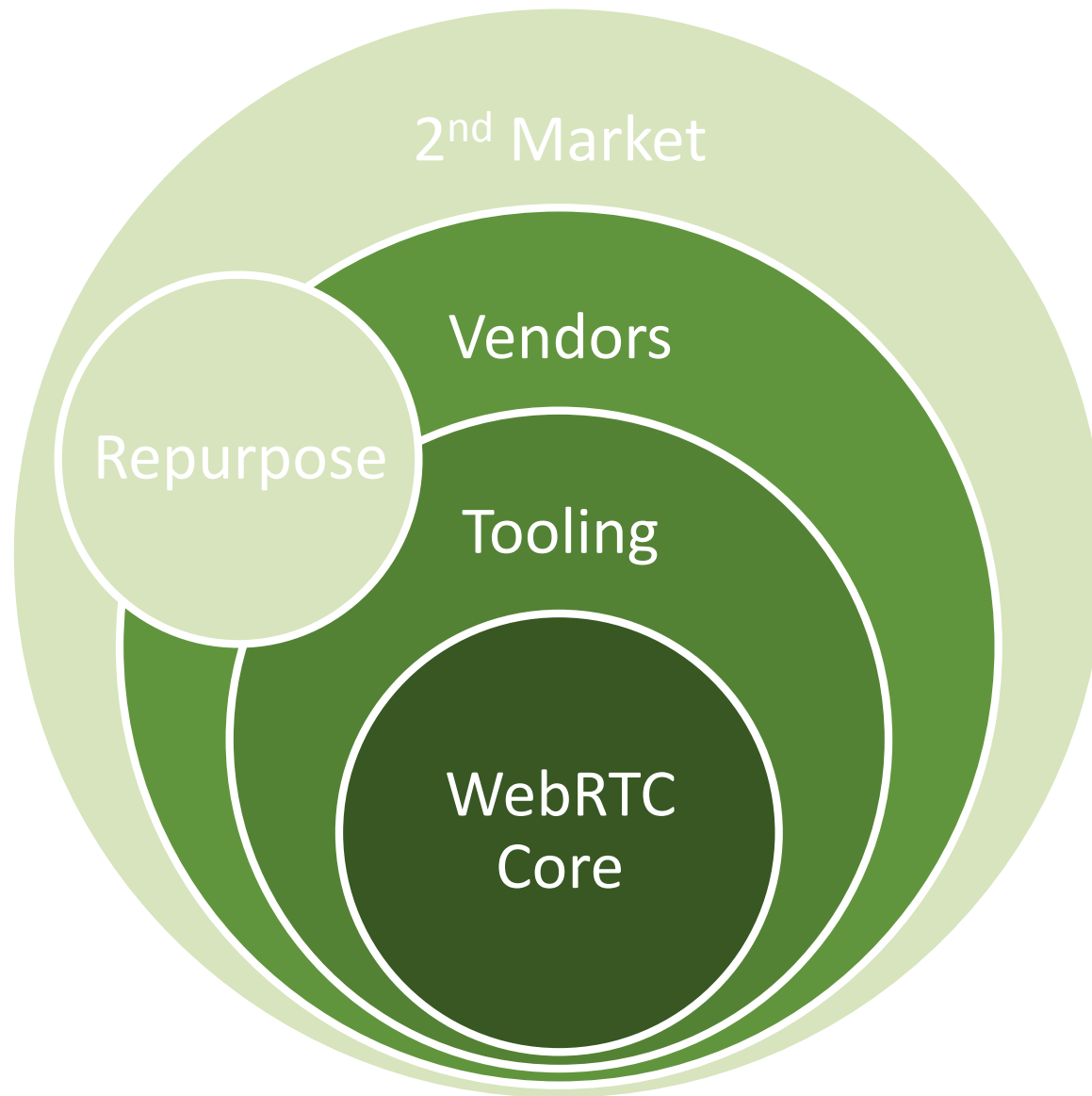
- Google & Mozilla
- But also Vidyo
 - Contributed SVC to the WebRTC ecosystem
- & Cisco...
 - OpenH264 for WebRTC
- Microsoft & Apple missing
 - How does it affect WebRTC's future?
 - How does it affect IE & Safari market share?

Tooling Vendors



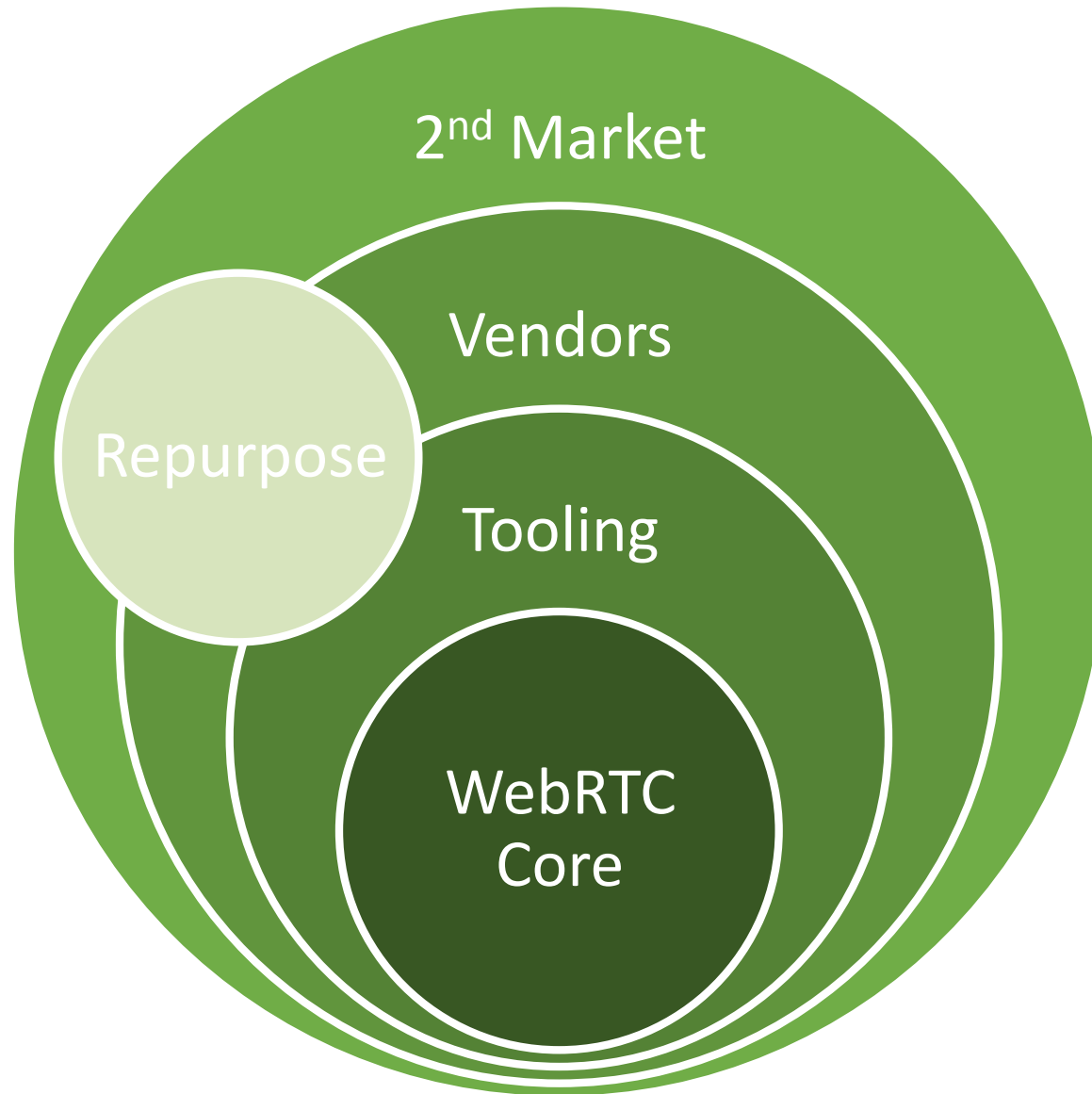
- Providing infrastructure and “shortcuts” for developers
- WebRTC API vendors: Tropo, AddLive, TokBox, Priologic, OpenClove, ...
- Services vendors: XirSys, PubNub, ...
- Infrastructure vendors: GENBAND, Dialogic, ...
- SDK vendors: Digium, Eyeball Networks, ...

“The Vendors”



- Providing services based on WebRTC
- Develop either directly on top of WebRTC or via tooling vendors
- Target the end users via a multitude of use cases

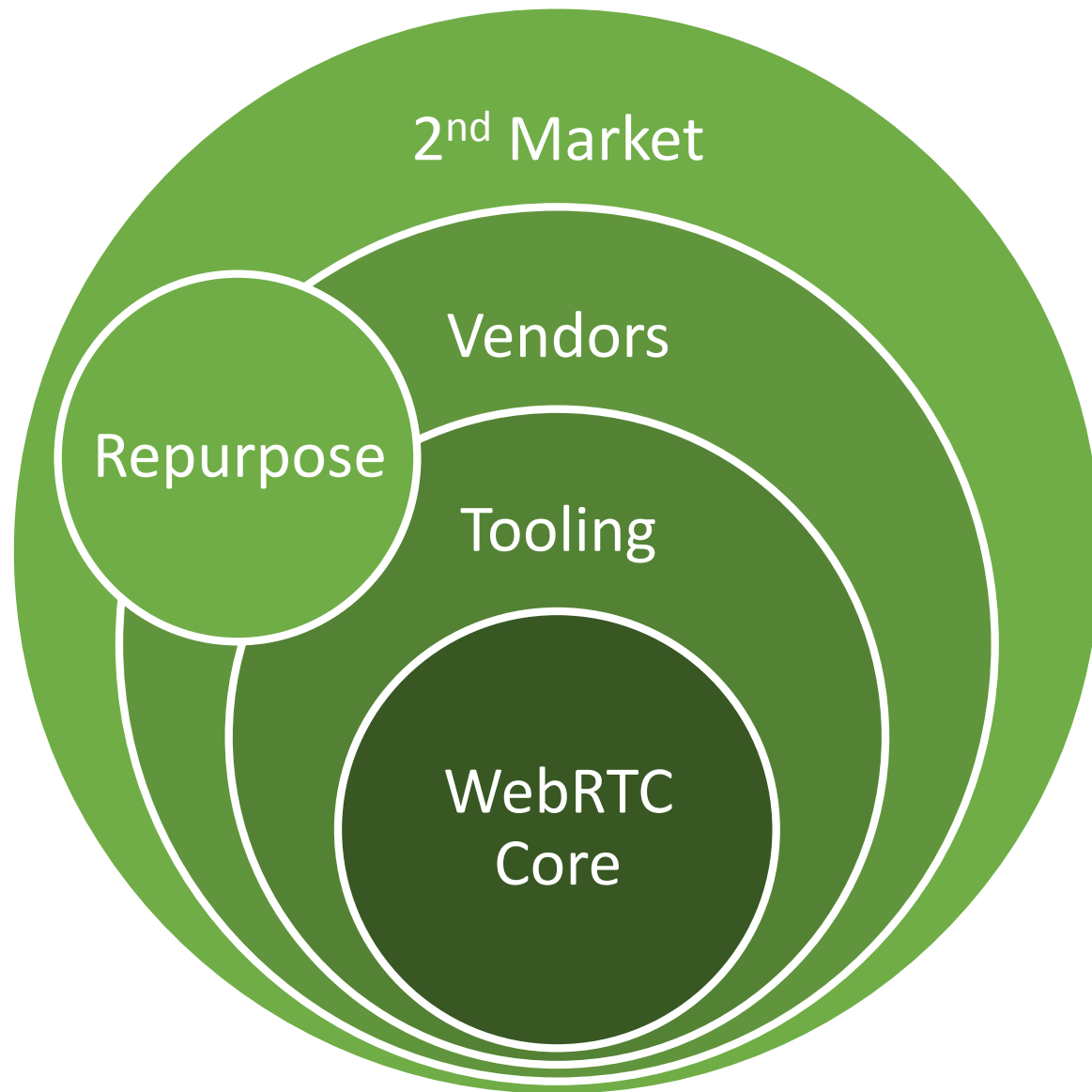
2nd Market



- Vendors adopting other vendor's end user solutions
- TNW Academy's story

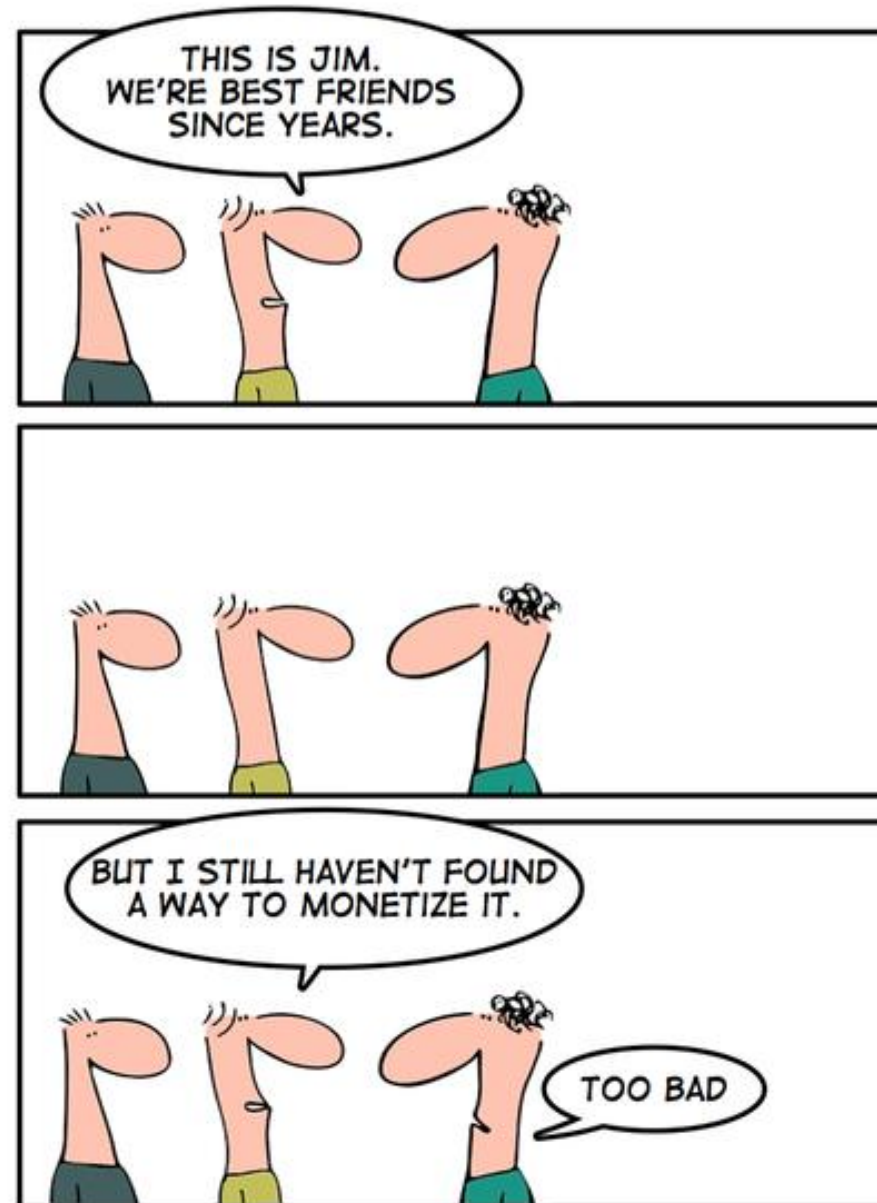


Repurposing WebRTC



- Reusing WebRTC's components to fit in other places, treating it as a pure media engine
- Vonage – going mobile with an OTT app
- M5T – Client SDK for developers

Where are
we now?



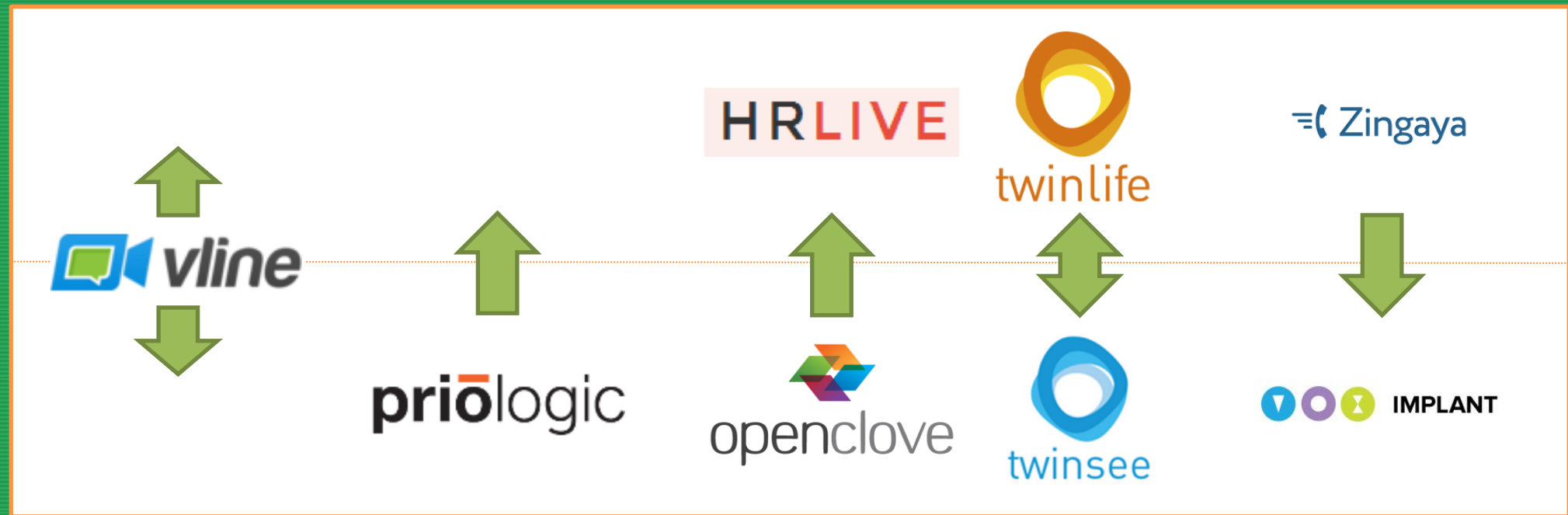
*MONETIZING A SOCIAL GRAPH
IS NOT TOO EASY*

geek and poke

Shifts in the Ecosystem

Customer-facing
Services

Tooling
Vendors



Source: BlogGeek.Me

Brent Kelly

President/Principal Analyst

KelCor, Inc.

bkelly@kelcor.com

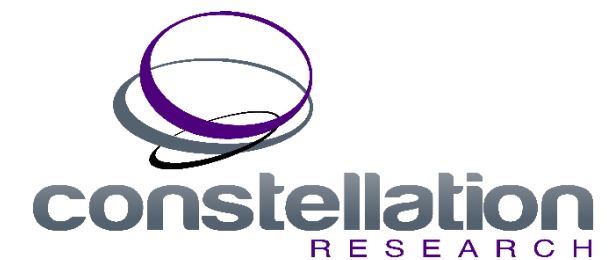
Twitter: @ebkell

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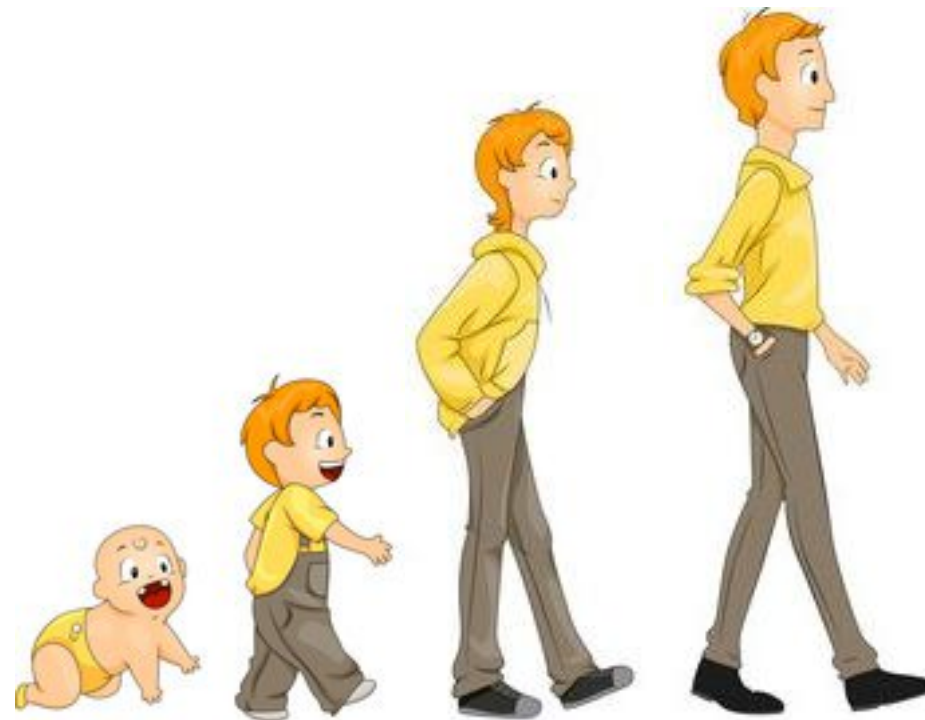
blog: [uccinsider@blogspot.com](http://uccinsider.blogspot.com)



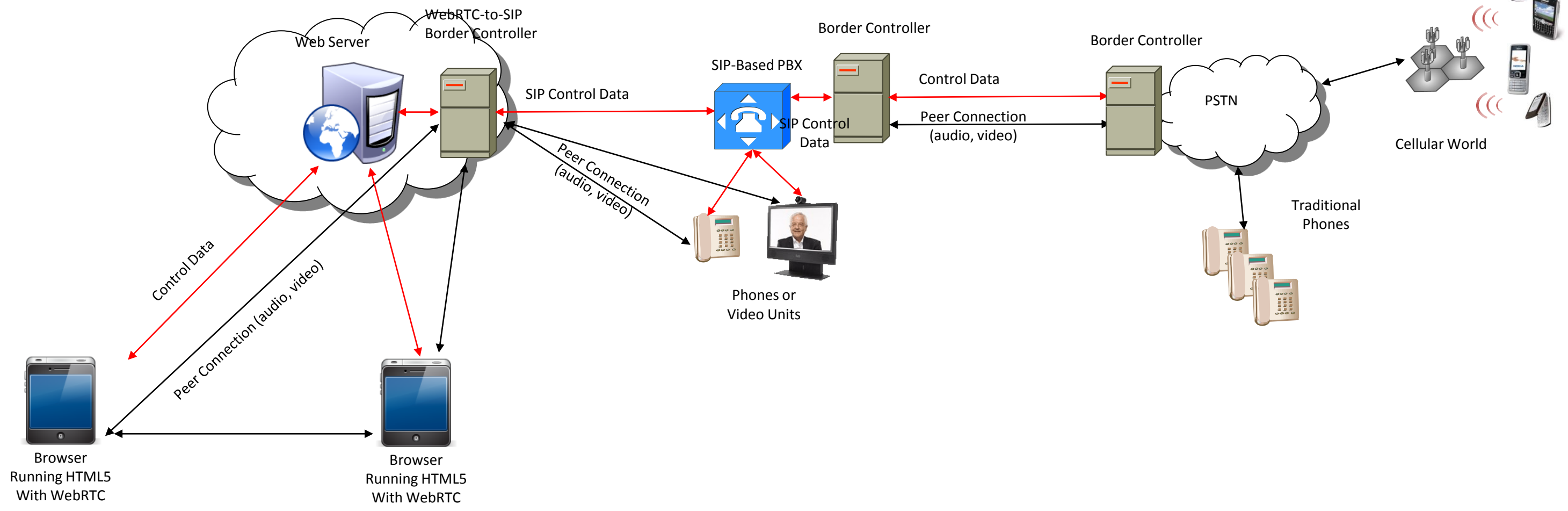
AN ANALYST'S VIEW

“Adult Thinking” with respect to WebRTC

Practical thoughts from the
enterprise marketplace



The Enterprise View of WebRTC... Think Integration

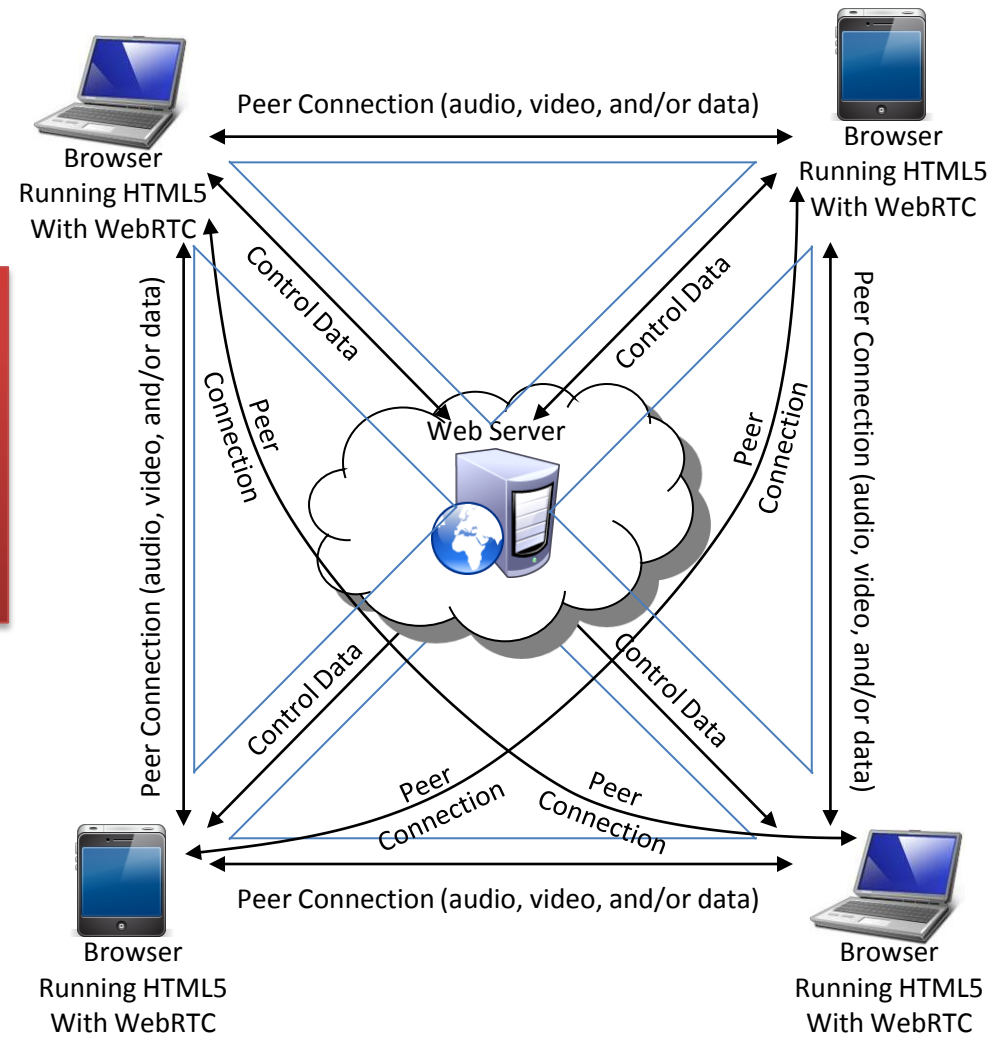


For any enterprises, WebRTC will often need to integrate with existing infrastructure.

The Enterprise View of WebRTC Point Capabilities

Generally, Enterprises will not pay for

- IM/Presence
- Desktop video



Enterprises will pay for

- Voice
- Group video & infrastructure
- Audio conferencing
- Web conferencing

About half like these integrated and half will go best of breed

The Video MTI Codec Morass

- A huge setback for WebRTC
- Video is already convoluted in the market
- Big Issues for the Enterprise
 - No consistent codecs (even Opus and VP8)
 - Intellectual property problems
 - No love from Microsoft and Apple



#Fail

But, There's Still Hope

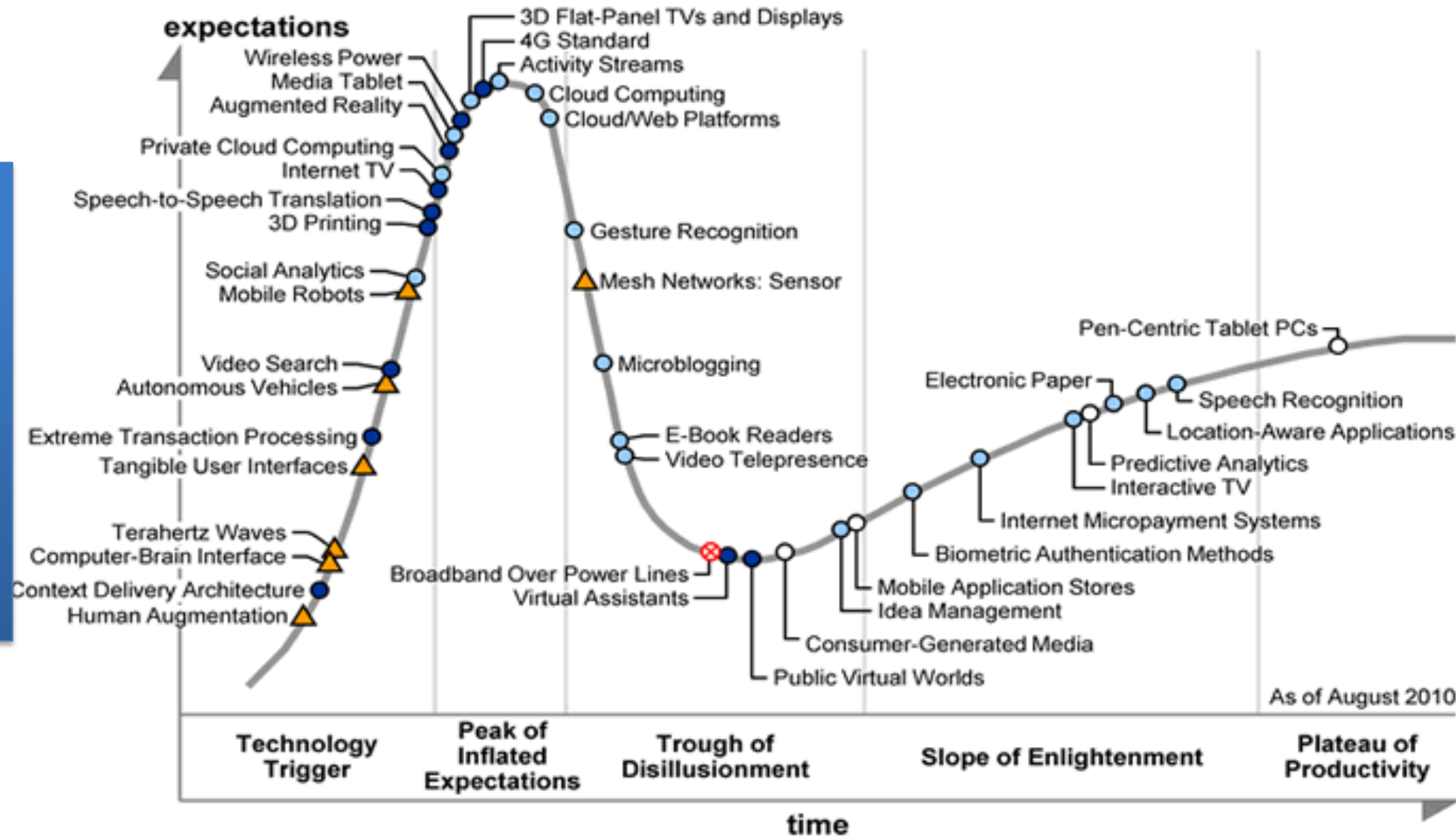


There is still a lot that can be done with the WebRTC voice and data channels!

Maybe we can still bring balance and stability to WebRTC

The Hype Cycle

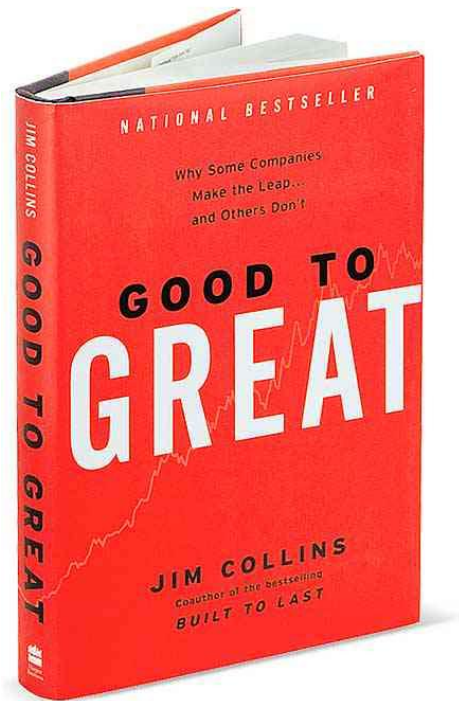
WebRTC is somewhere between the technology trigger and the peak of inflated expectations



Source: Gartner

When Should Organizations Adopt WebRTC?

- When it impacts one or more key drivers
 - What generates the company's revenue
 - What the company is best at
 - What the company is passionate about
- Otherwise, ignore it...
 - Unless your competitors are adopting it, then adopt it to maintain parity



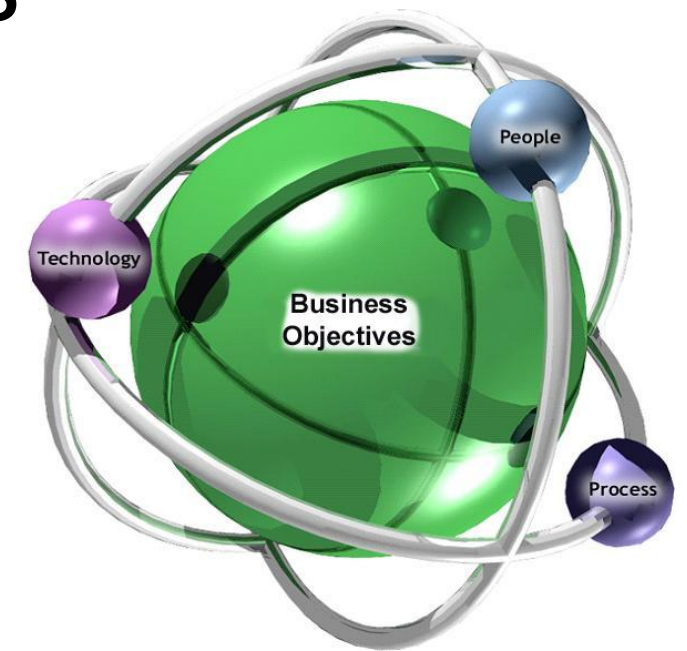
A Word on Communications-Enabled Business Processes (CEBP)



- It is harder than it sounds
- Discussions with many companies confirm
 - Internal processes are very different from company to company, even in the same industry
 - Many companies are trying to work through just getting a good IP telephony solution
 - CEBP is a lower priority that few are really worrying about... for now, until one or more competitors do something
 - Most are maintaining technological parity

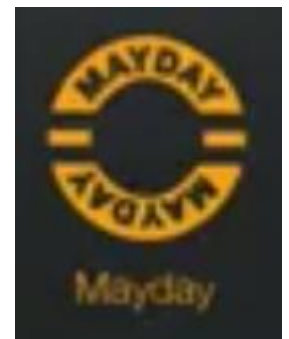
A Recommendation Moving Forward

- Avoid too much focus on WebRTC features and focus on your long term needs
- Tie **any** WebRTC technology solution to your people, your processes, and your technology that you intend to keep
- Use some kind of technology adoption process



Low Hanging Fruit for WebRTC in Enterprises

- Engagement
 - Sales and e-commerce (get the customer to buy or subscribe more easily)
 - Some support applications, particularly voice and data sharing
 - High value/high impact engagement (video)
- Don't count on WebRTC video too much in regular support websites
 - The trend for existing customers is toward self service and away from speaking to an agent (which costs money)



Three Types of Opportunities

- Cost Cutting
 - an enterprise can use WebRTC as a way to cut costs
- New Revenues
 - New business models and customer engagement are possible. These will generate new money
- Infrastructure/Toolkit Manufacturing
 - Even with WebRTC in the browser, there are still needs to interconnect or provide additional application scaffolding



Market Size for WebRTC?

- Even with billions of devices that are “WebRTC-Enabled”, it’s still early days.

Think of WebRTC as you would HTML: what’s the market size for HTML? – Well... generally nothing.

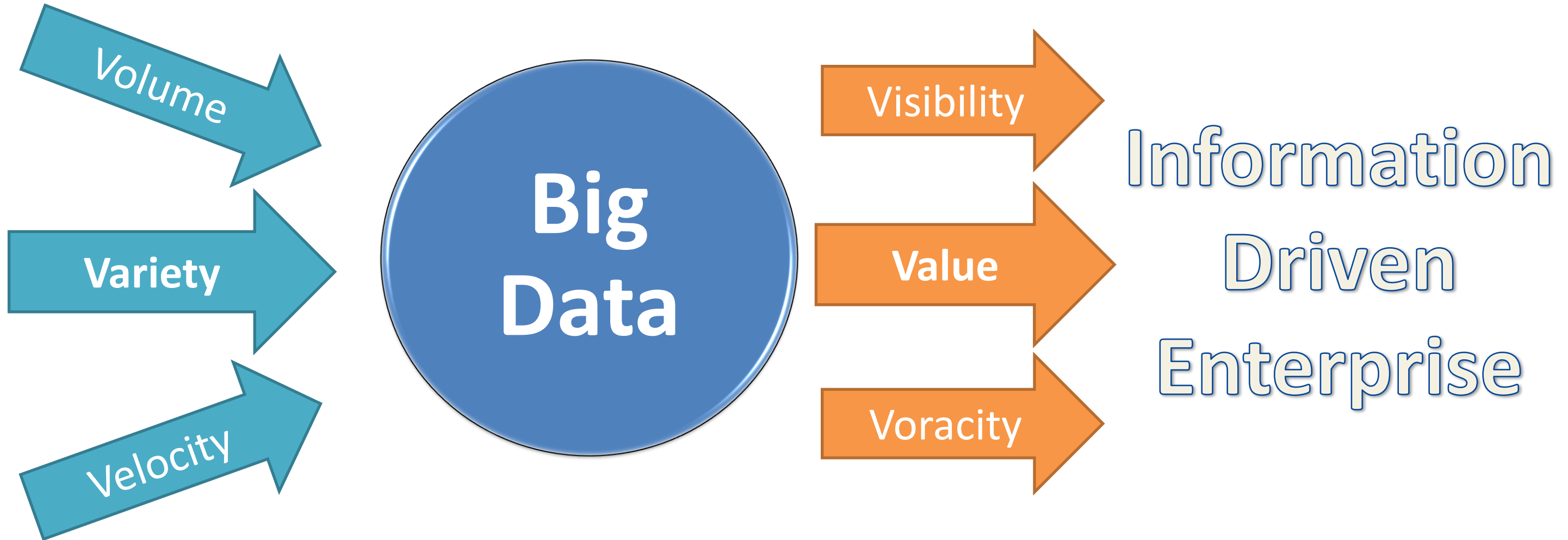
It’s what people do with WebRTC that will generate its value.

John Burke
Nemertes

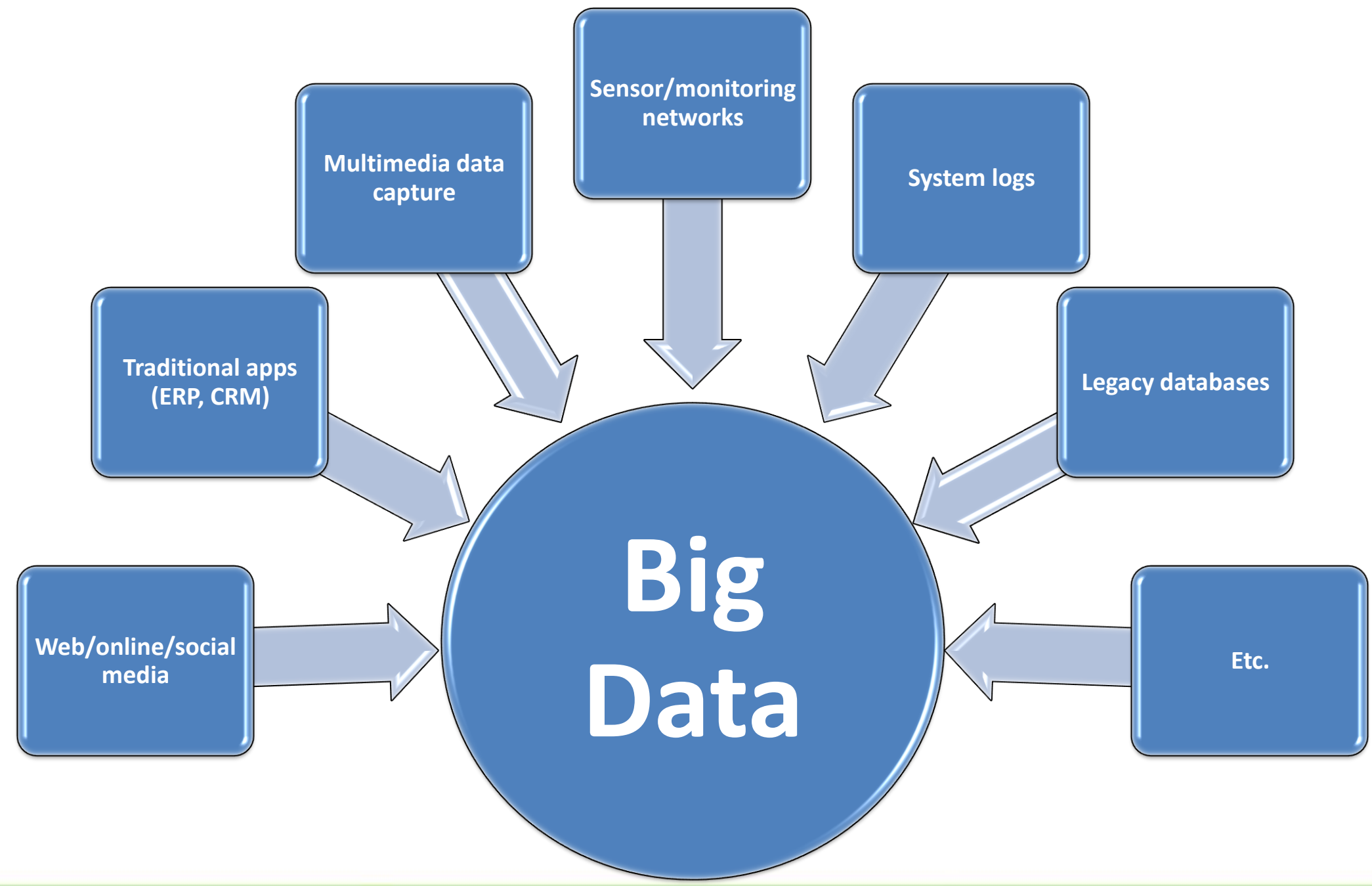


WEBRTC, BIG DATA AND SECURITY

What is Big Data?



Where Does “Big Data” Come From?



WebRTC and Big Data

Where do I get the data

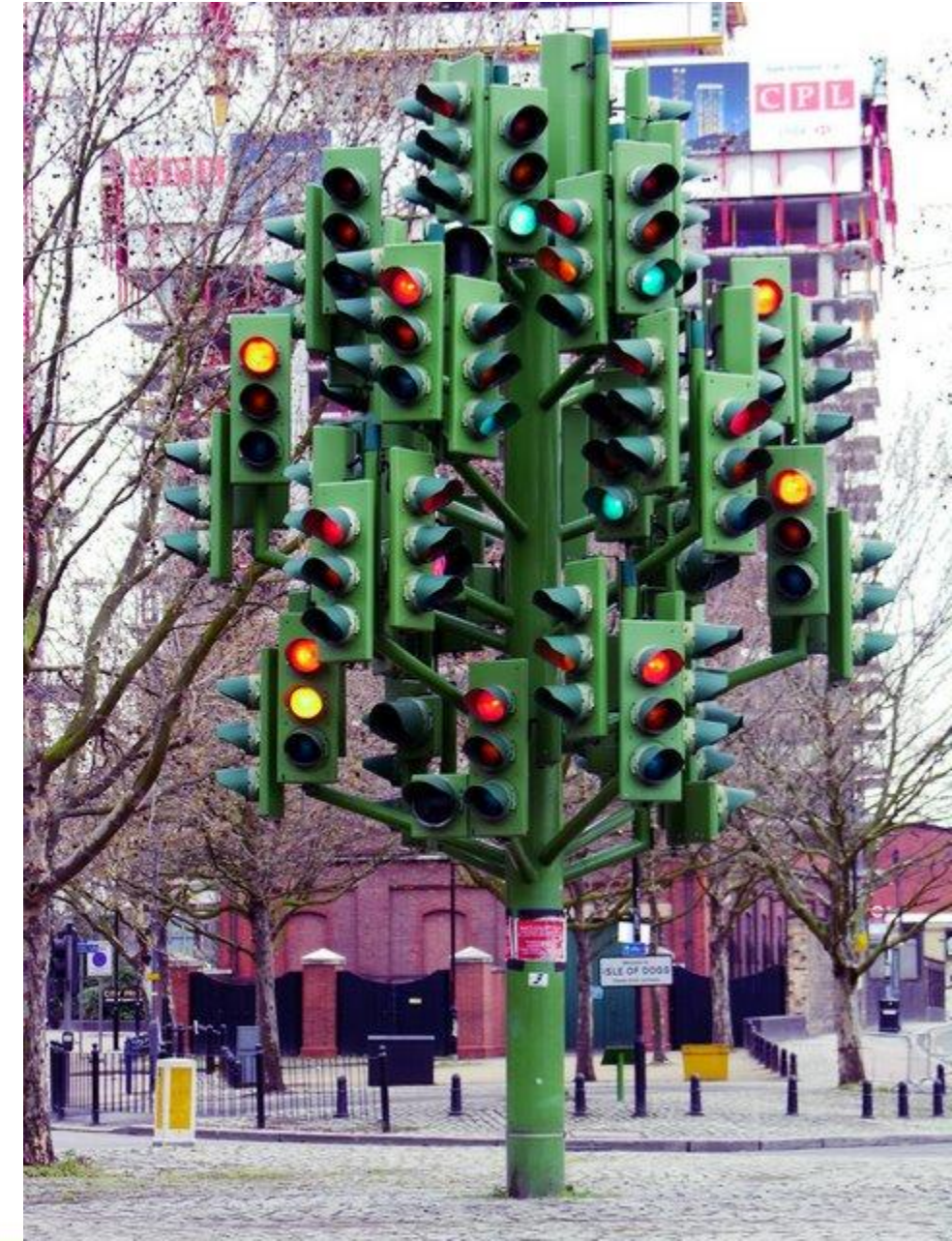
- Sources (IVR, ACD, PBX) transition to what in WebRTC land?
- Browser based? Asymmetric? Permissions?
- Recordings and voice to text

How do I get it?

- Aggregation points?
- Massively distributed collection?
- Impact on WAN, Internet

Security and WebRTC: The Base

- As secure as the browsers...
 - Am I reassured by that?
- As secure as general enterprise in-house app development
 - Really not sure I'm reassured by that
 - Outside IT's control (remember, WebRTC lets ANY Web developer add voice/video to their application)



Security and WebRTC: SPITballs

- SPAM, SPAM, SPAM, SPAM
 - Absent an identity mechanism, whitelist or directory, WebRTC clients are open to unsolicited connection requests
 - WebRTC development efforts support OAuth, OpenID, to validate identify before initiating session
 - Process can support encryption, as well



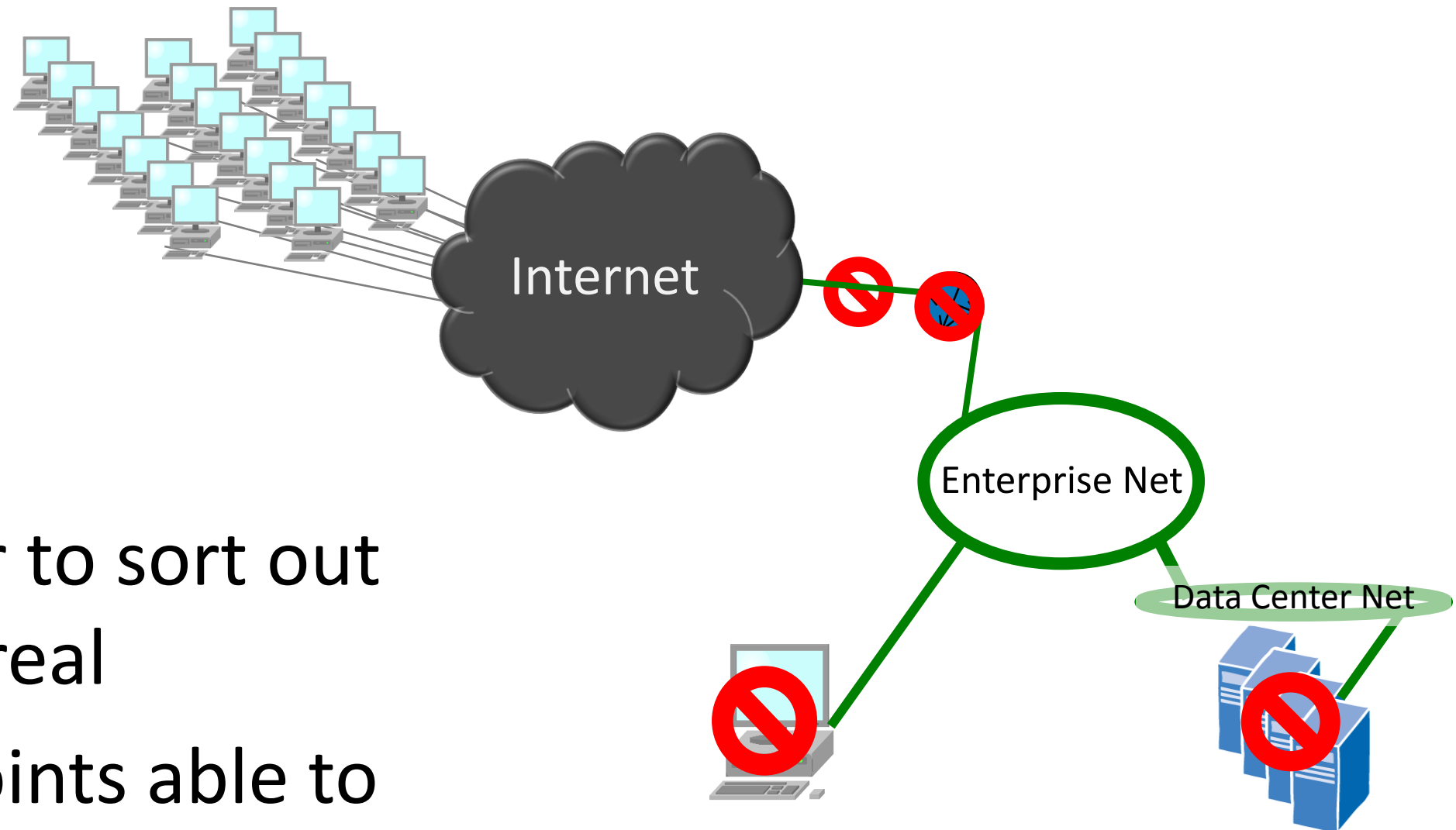
Security and WebRTC: Comply!

- Compliance
 - What you can't monitor CAN hurt you
- Discovery
- CALEA
 - Browser backdoors on the horizon?
 - Every web server a PBX?



Security and WebRTC: The Net

- Peer to peer
 - Vector!
 - Eavesdropping?
- DDoS
 - Harder than ever to sort out bad traffic from real
 - Lots more endpoints able to generate traffic



Questions & Discussion

Questions

1. Where do you think WebRTC will impact first in enterprise?
2. Where in Service Provider?
3. How will money be made in WebRTC?
4. Are the standards mature enough to bet on WebRTC?
5. What is the impact of Microsoft and Apple not announcing WebRTC delivery plans?
6. What should CIOs do about WebRTC today, in 2014?
7. Which companies are you watching for WebRTC?
8. What is the biggest barrier to WebRTC adoption?

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