

WebRTC

STRATEGIES

WebRTC – Is it a Game Changer?



WebRTC

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WebRTC Strategies

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WebRTC Strategies

Today's Agenda

Major Trends In IT and Telecom

- Cloud
- Ubiquitous Bandwidth
- Devices

WebRTC and the Webification of Communications

- Overview
- WebRTC Transformation

WebRTC Use Cases

- Enterprise UC
- Cloud Based WebRTC
- Contact Center

Three Big Trends

Cloud

Ubiquitous Bandwidth

Devices



Three Big Trends

Cloud

Ubiquitous Bandwidth

Devices



Devices Everywhere

1

Over 1 device
per human
(2012)

4 Billion

4 BILLION new
Smartphones
in 2016

400 Million

Samsung sold
400M devices
in 2012,
projects 500M
in 2013, 400M
Smartphones

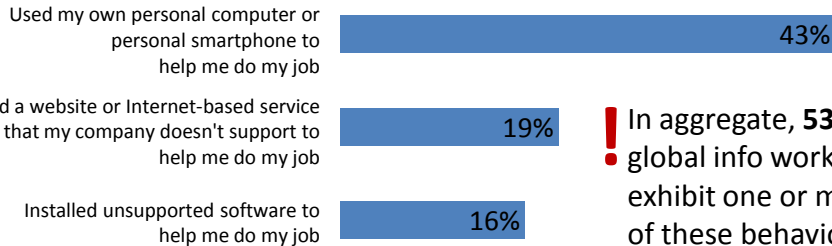
Plethora

A plethora of
endpoints –
smart and
browsing



BYOD/BYOT

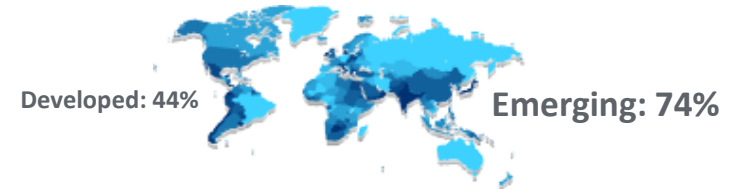
“Which of the following activities, if any, have you done in the past year in your job?”¹



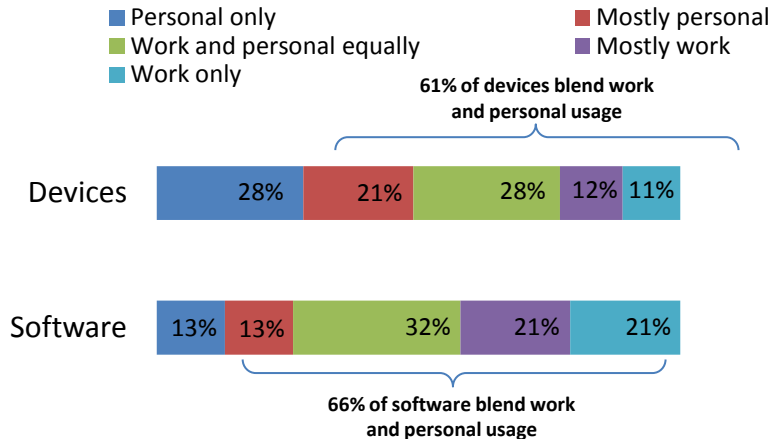
! In aggregate, **53%** of global info workers exhibit one or more of these behaviors.

Percentage paying for at least one device used for work, whether reimbursed or not²

Overall: 55%



“Do you use your software/devices for work or personal purposes?”³



If you **can't** be with the device you love...

.....love the device you are **with!**

1. Base: 9,912 information workers
 2. Base: 9,912 information workers
 3. Base: Weighted average of responses by information workers who use technologies within the categories indicated above
 Source: Forrsights Workforce Employee Survey, Q4 2011, Forrester Research

Three Big Trends

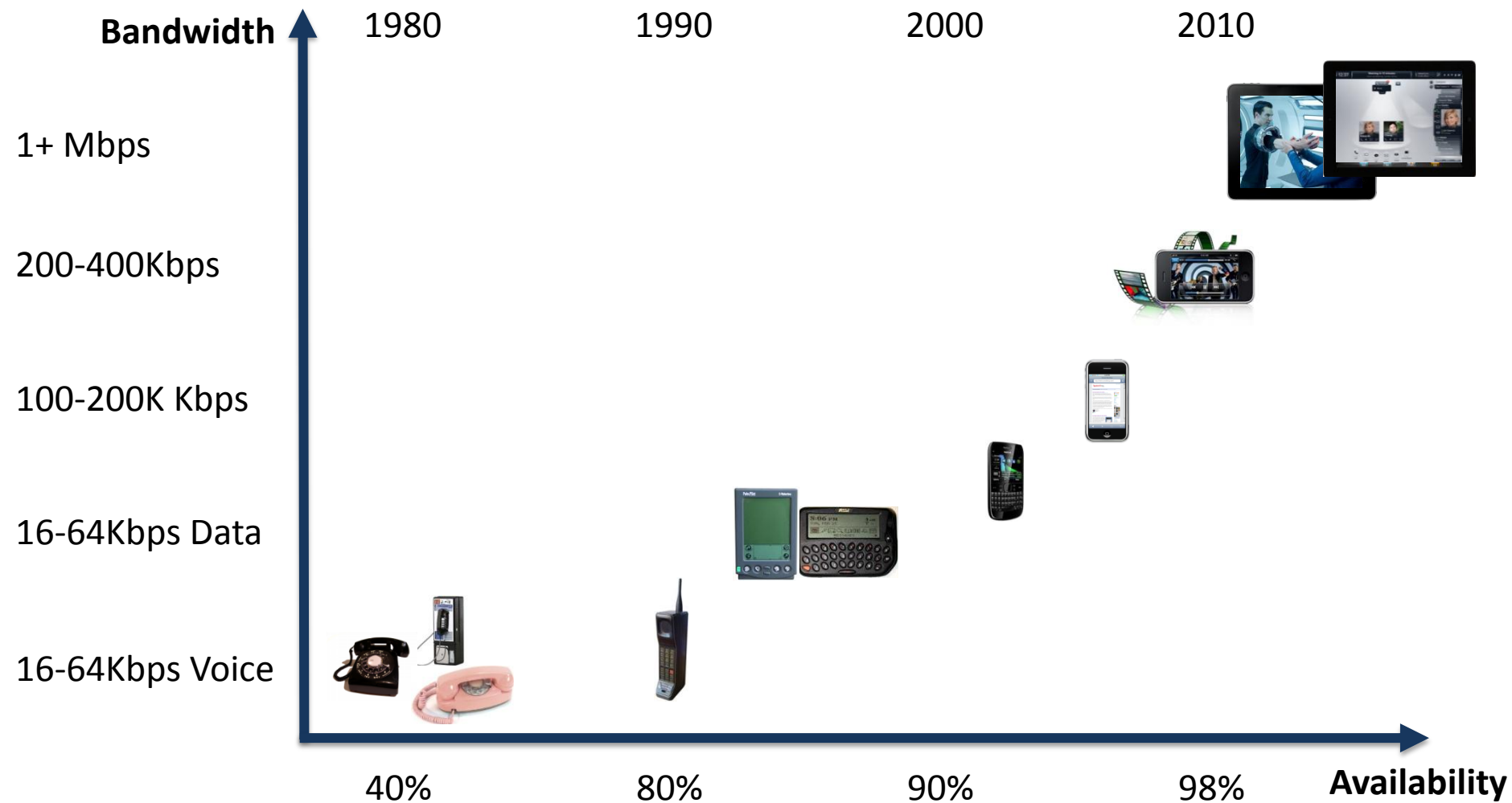
Cloud

Ubiquitous Bandwidth



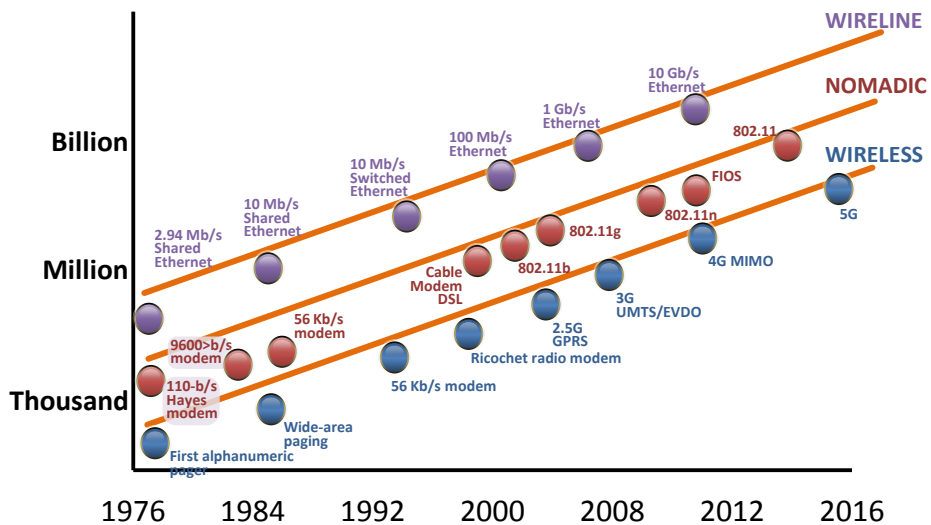
Devices

Moving to Ubiquity



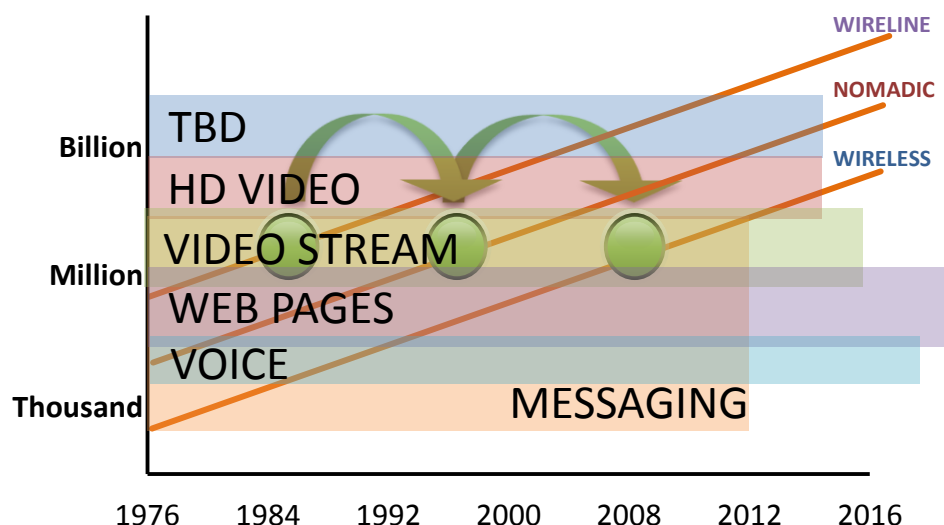
Edholm's Law of Bandwidth

Economic Bandwidth (Exponential Scale) Bits per second



Time

Bandwidth is increasing in all areas in a relatively proportional exponential growth



Time

Bandwidth is increasing in all areas in a relatively proportional exponential growth

Broadband – Anywhere, Anytime

Fixed to Mobile substitution

Move to indoor traffic
2016: Over 80% of wireless traffic generated indoors



Rich ecosystem

My life in any device
New generation of devices and communicating machines



More applications

Fixed broadband life
Massively adopted now and “exportable” to mobile



Growing number of smart phones

2010: 400 per km²
2015: 12,800 per km²



Rise of the millennial(s)

Within 5 years, millennials will spread their “early-adopters” life style into their adult lives & enterprises



The Millennials
Generation born and/or raised with Internet (11-25 years old)

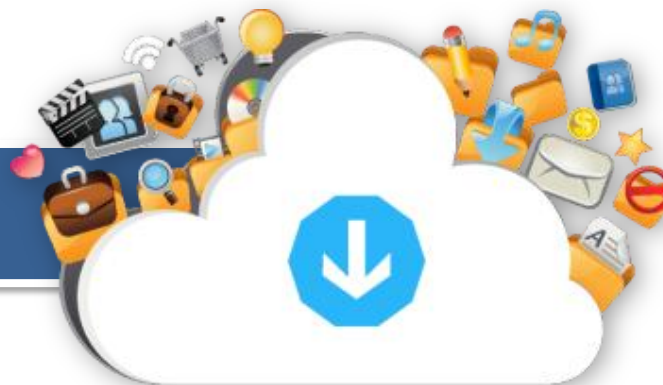


Connected broadband life style

Source: Bell Labs analysis

Three Big Trends

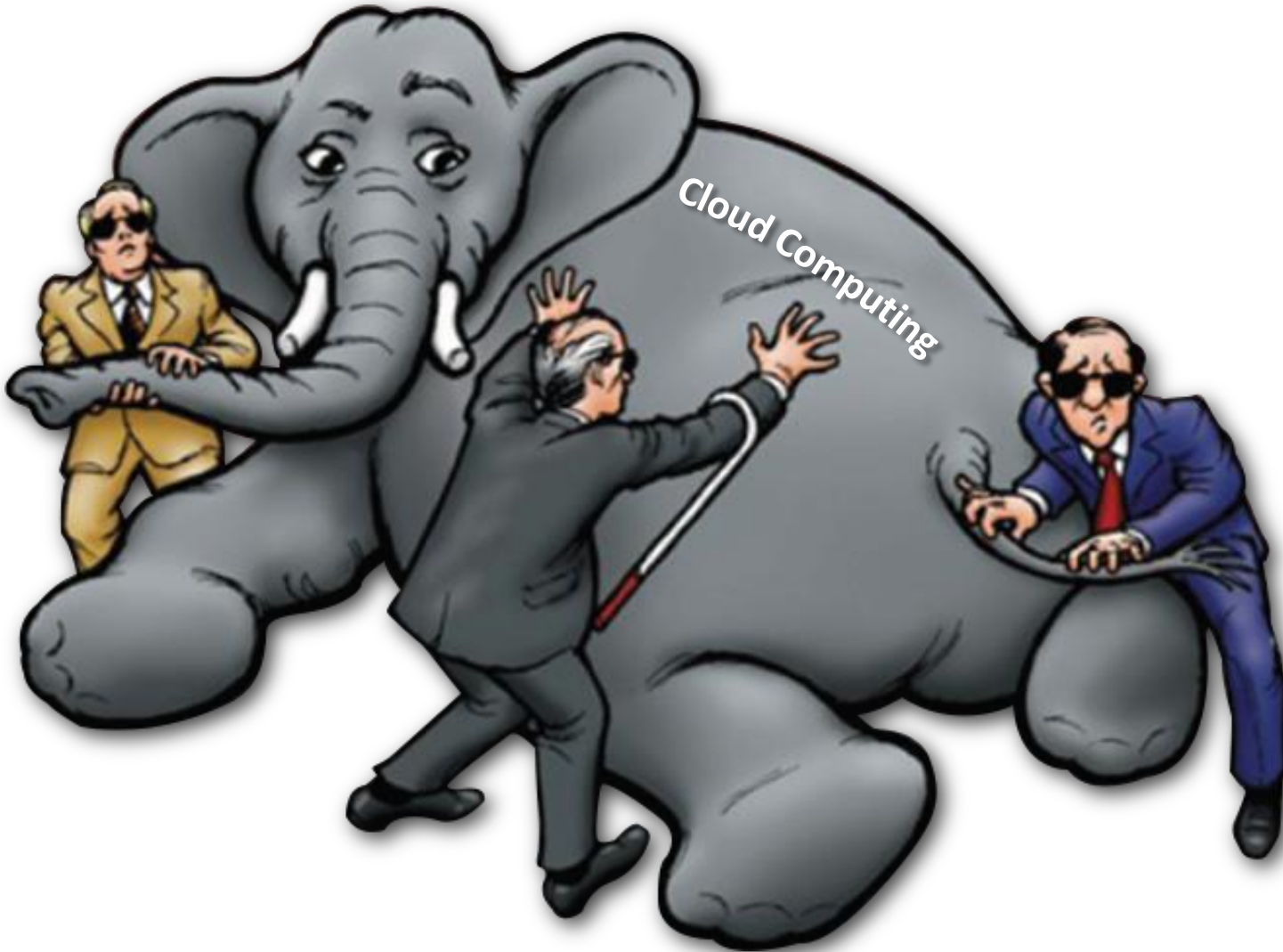
Cloud



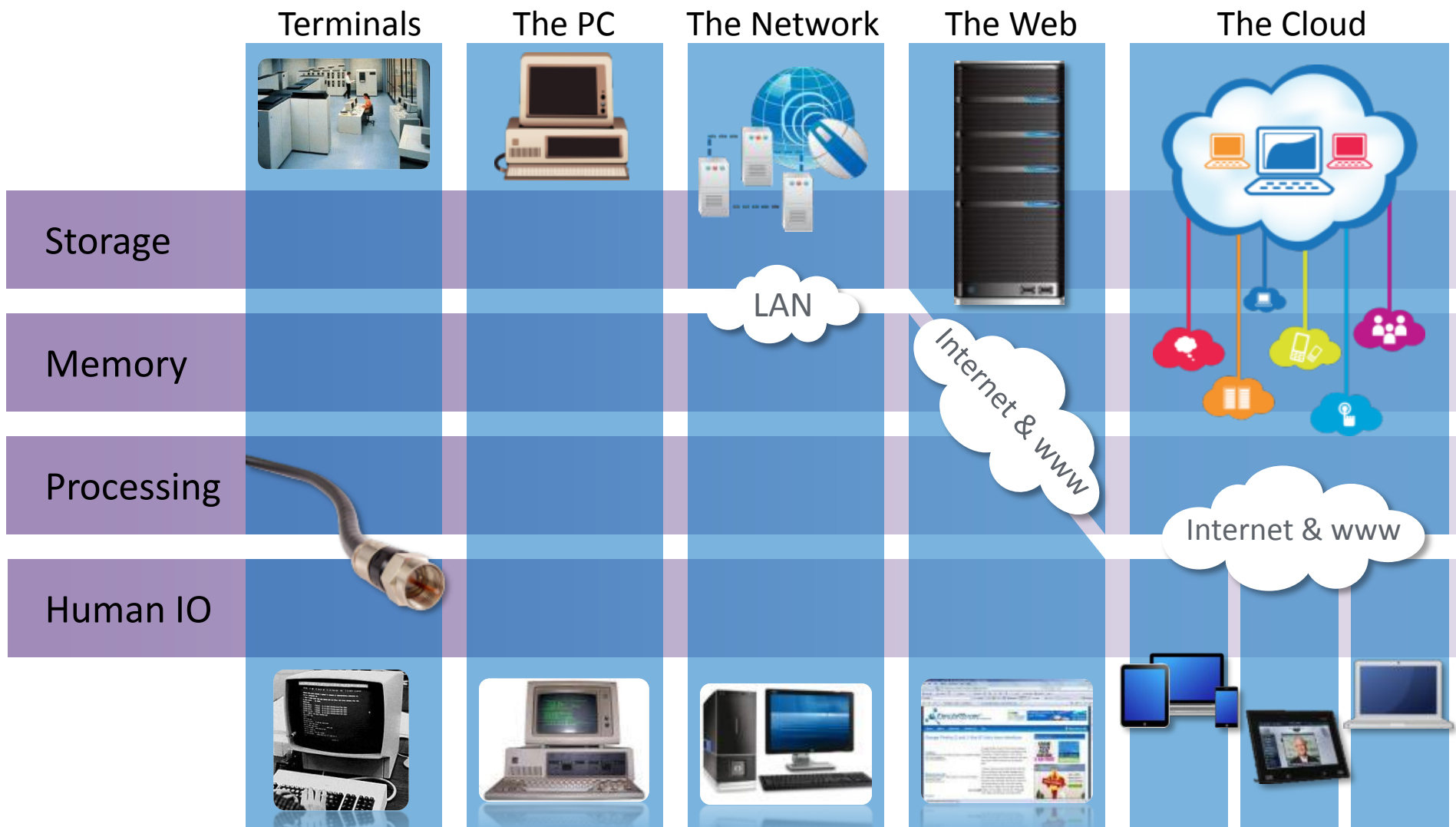
Ubiquitous Bandwidth

Devices

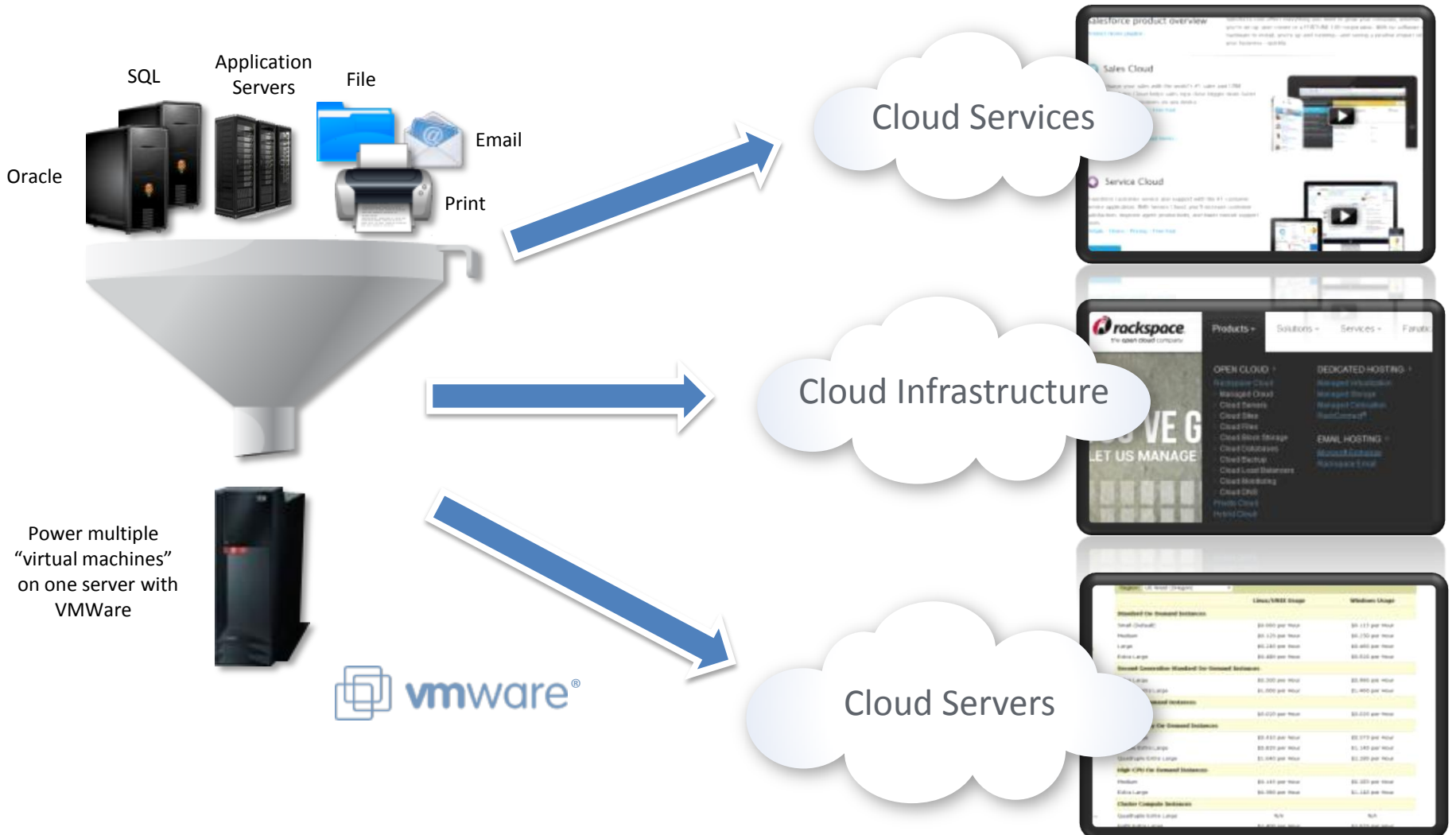
What Is Cloud Computing?



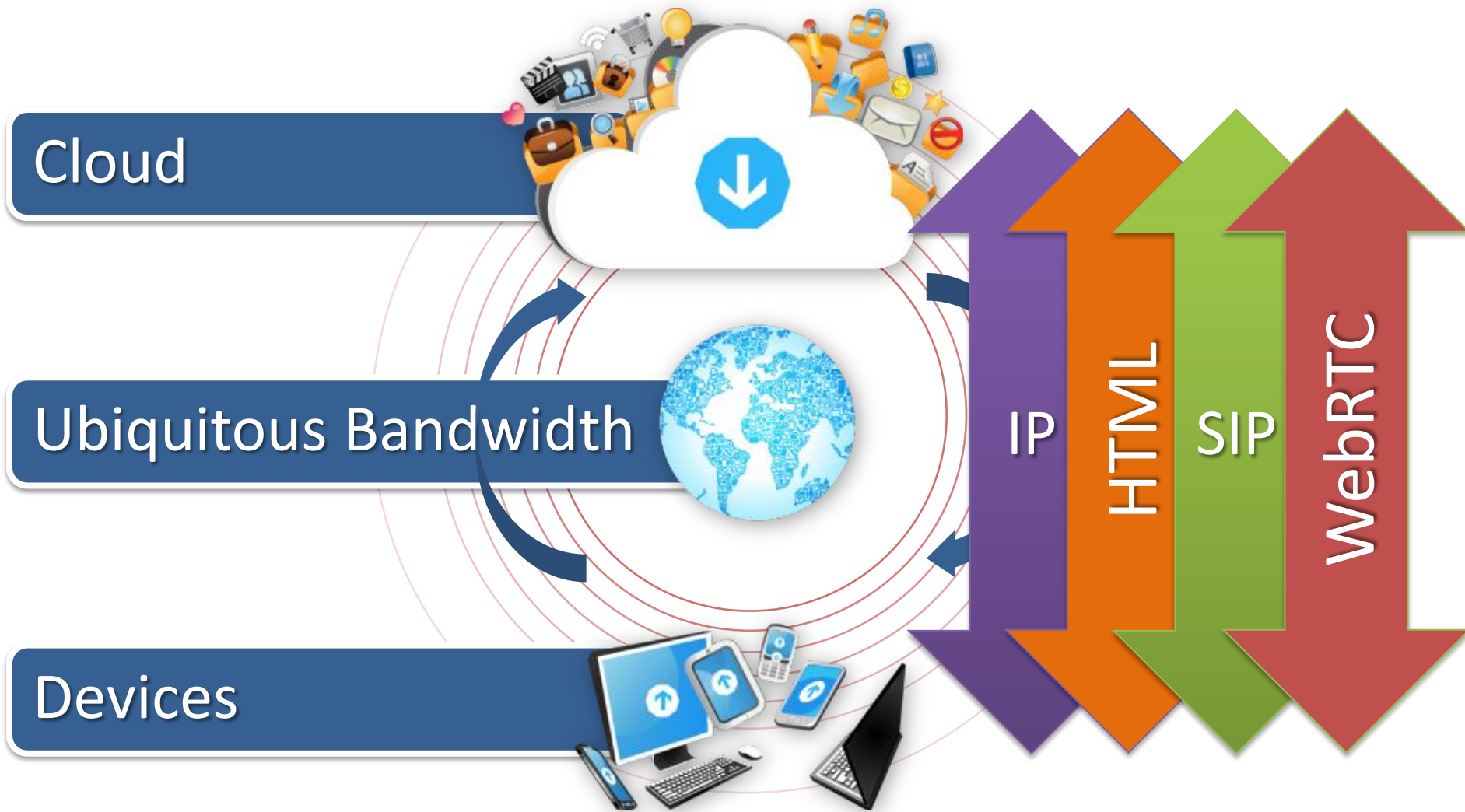
Progression of Computing



Virtualization is a Technology: Cloud is a Business Model



Industry Trends





WebRTC

WebRTC – Game Change?



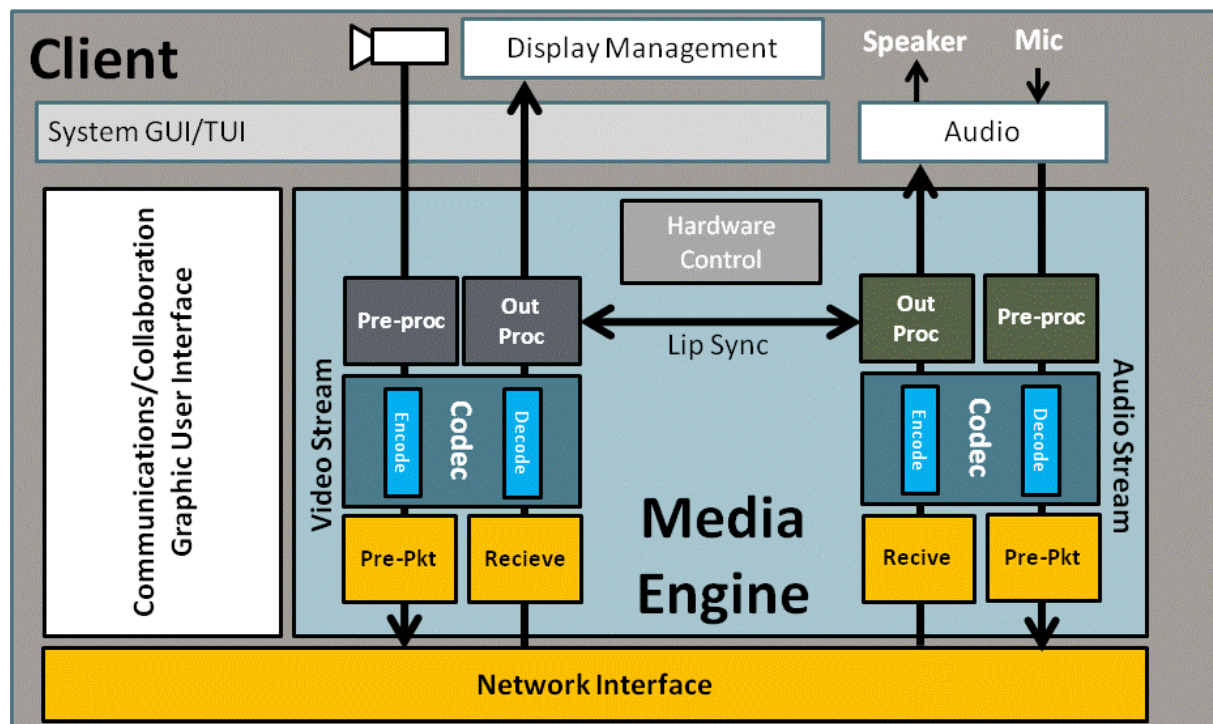
- WebRTC makes a browser into a softclient with a web site defined GUI
- Removes the need for a downloaded client application for communications
- Makes programming much easier
 - JavaScript level programming
 - 10-20M Programmers
- Estimate of 500M to 1.5B WebRTC enabled devices by the end of 2013
-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

Typical 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

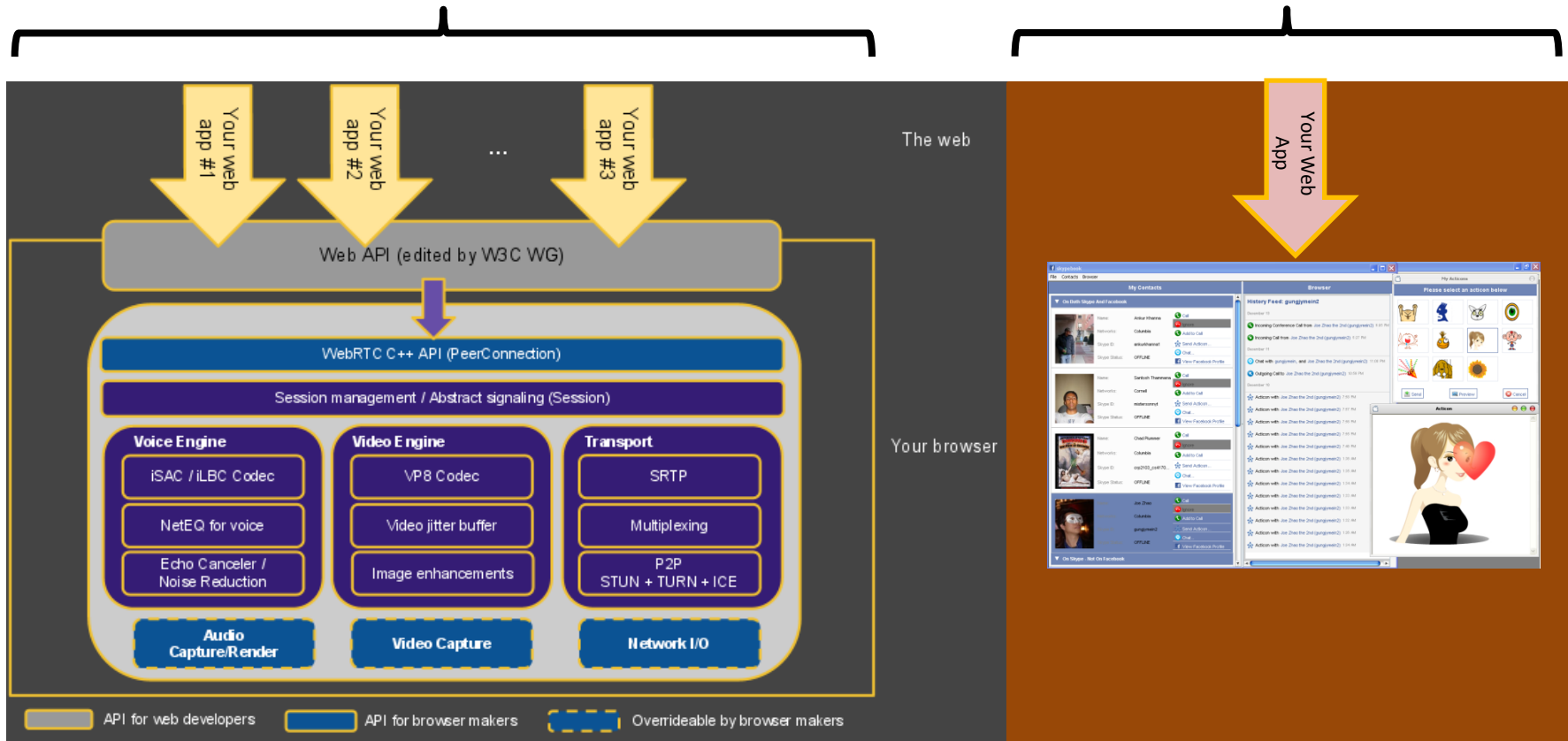
Client/Media Engine Structure



Web RTC Puts the Media Engine into the Browser

WebRTC Media Processing

HTML – HTML5 Visual User Experience



IETF

RTCWEB WG formed after BOF at IETF 80, April 2011

Focus on protocols and interoperability

W3C

W3C WEBRTC WG created May 2011

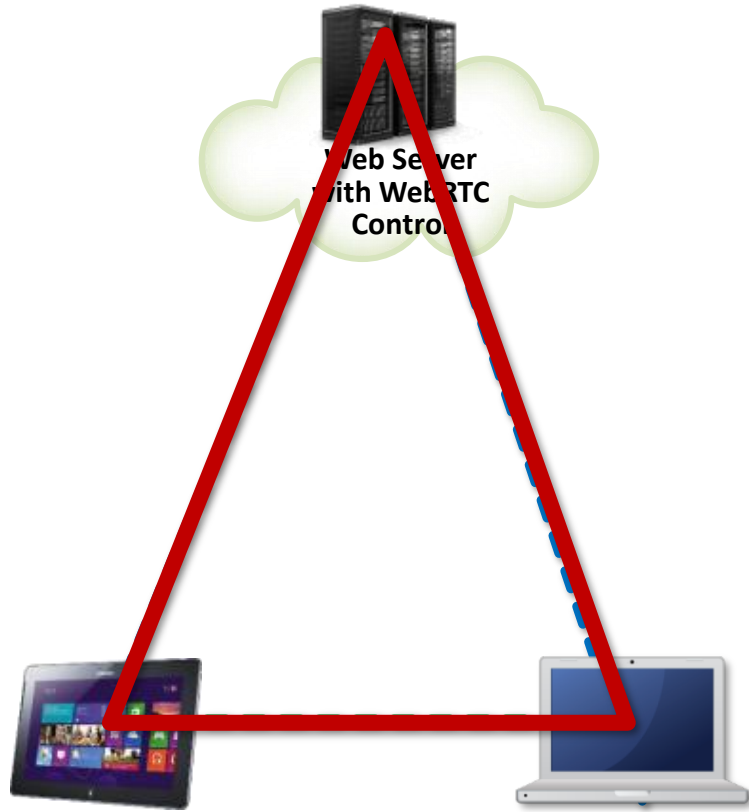
High level APIs and device control (mic, camera, network)

PeerConnection API proposal originally proposed in WHATWG currently being discussed:

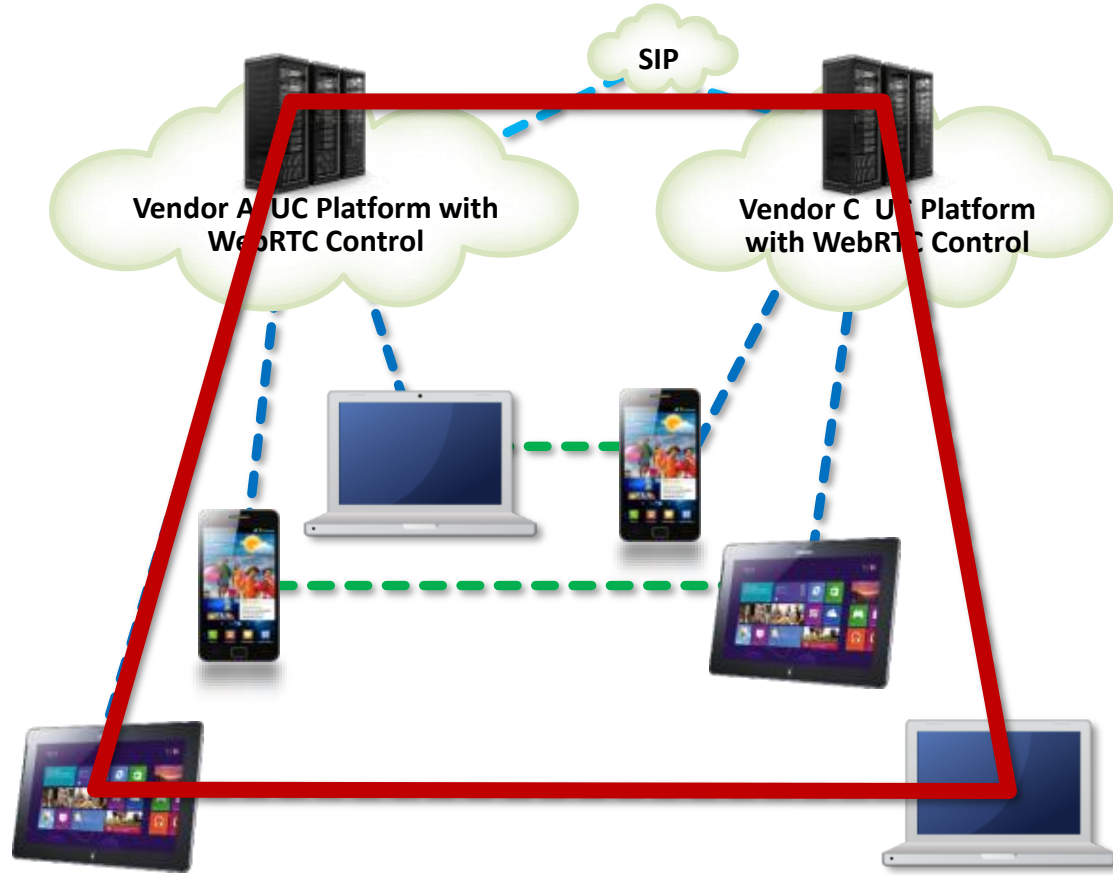
<http://dev.w3.org/2011/webrtc/editor/webrtc.html>

WebRTC Implementations

Adding WebRTC to Any Web Server



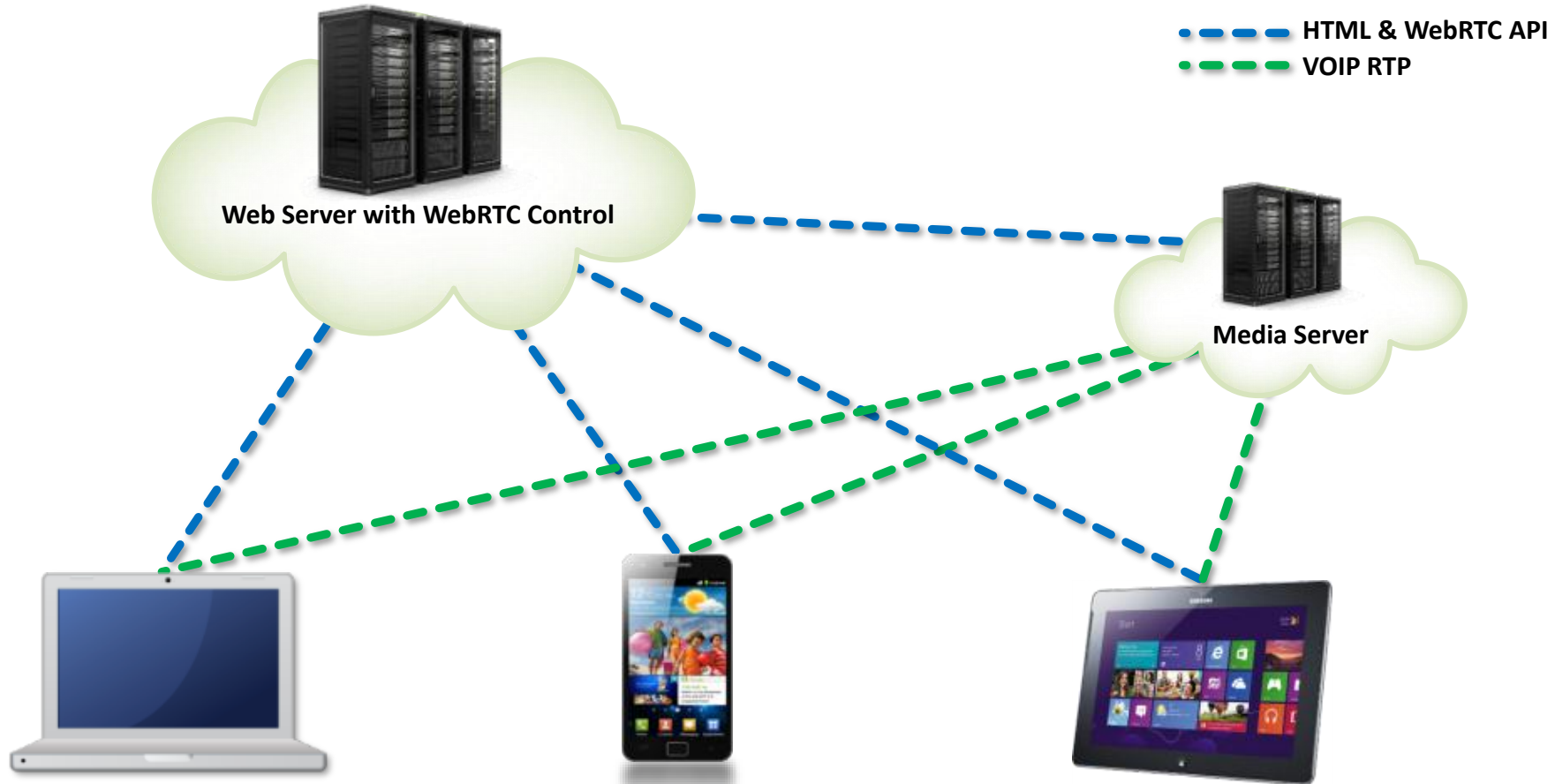
WebRTC as an extension to existing networks of servers (Carriers)



- HTML & WebRTC API
- VOIP RTP
- SIP Signaling

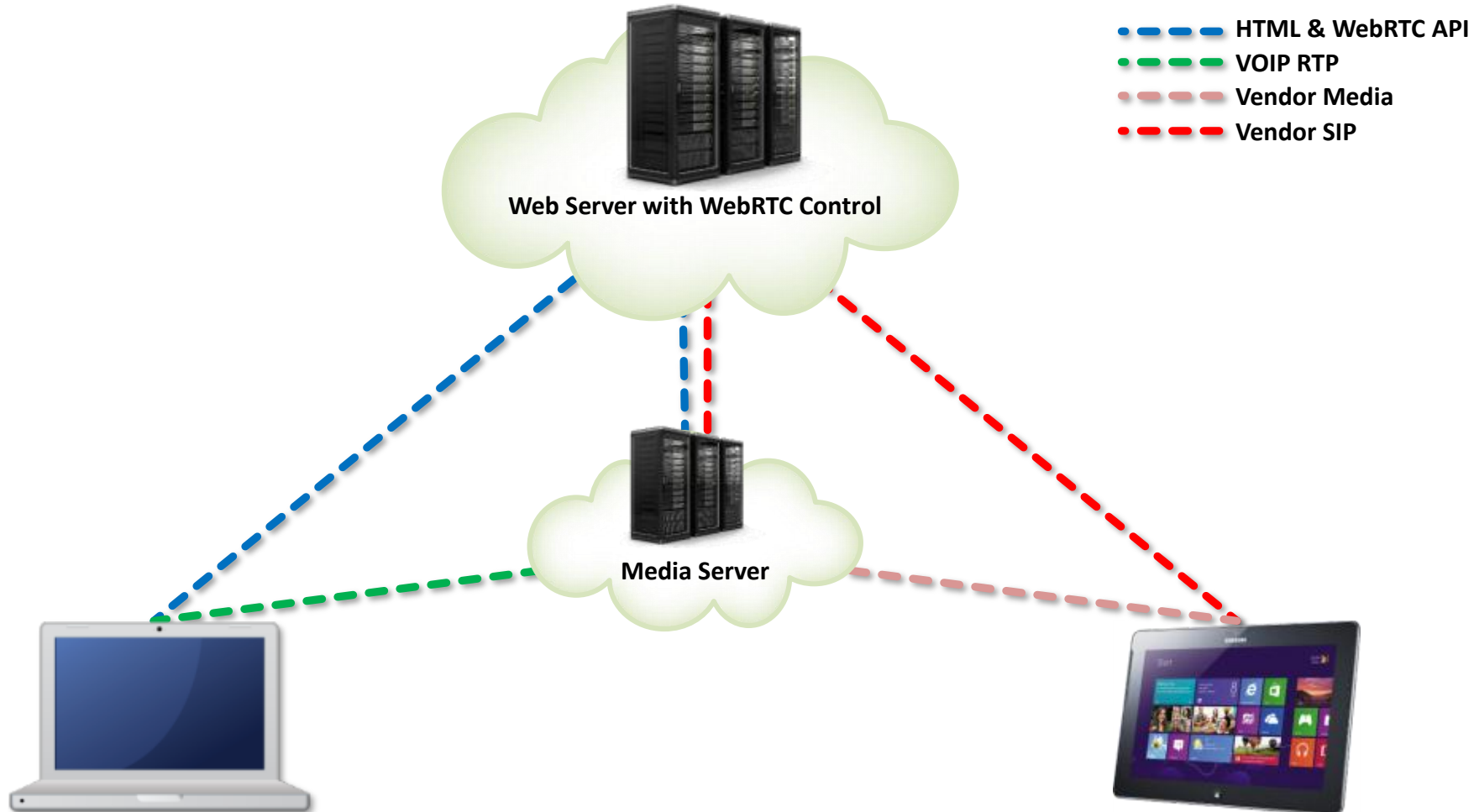
Other WebRTC Enterprise Integrations

Integrating a Media Server with WebRTC



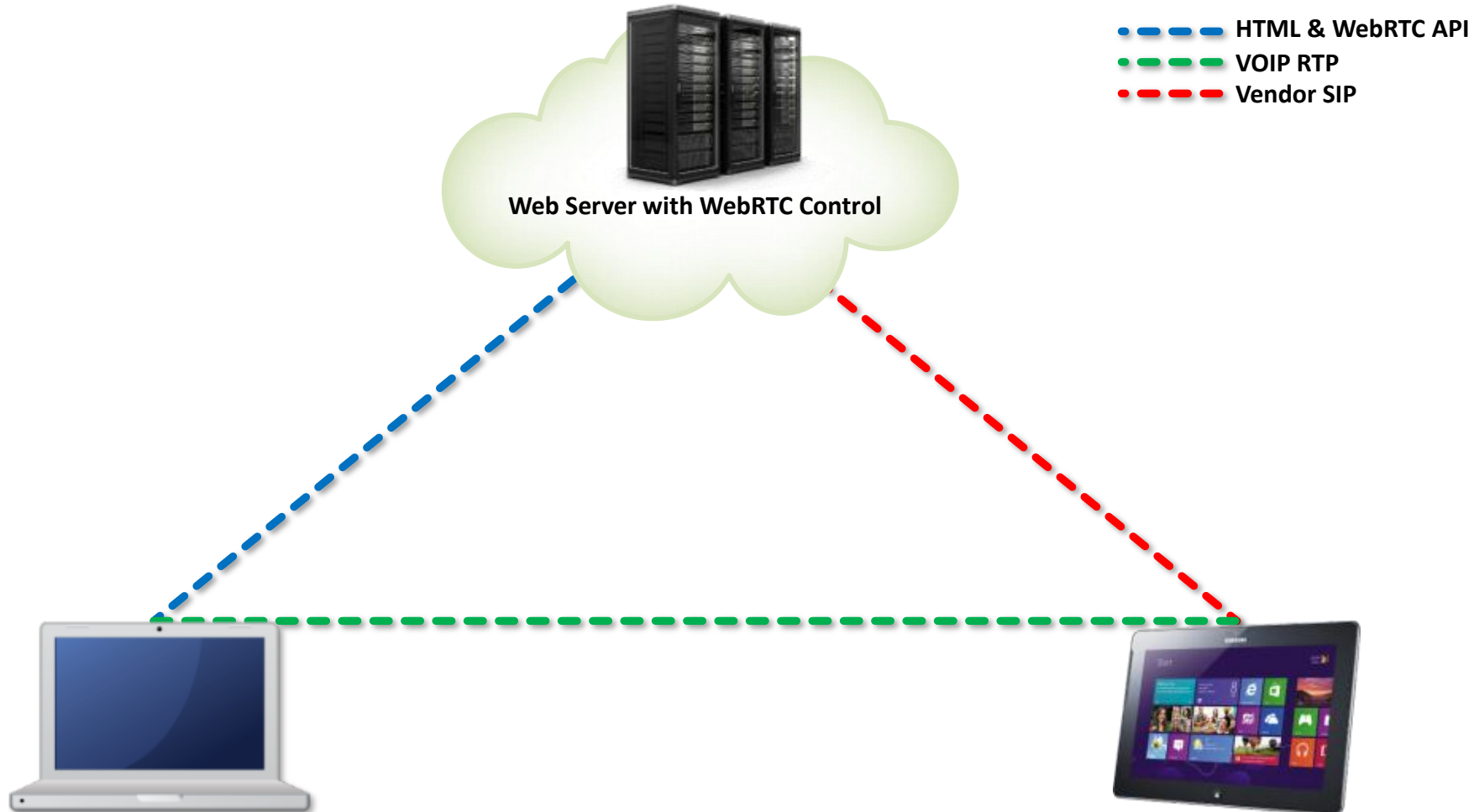
Other WebRTC Enterprise Integrations

WebRTC and SIP Clients with Media Gateway



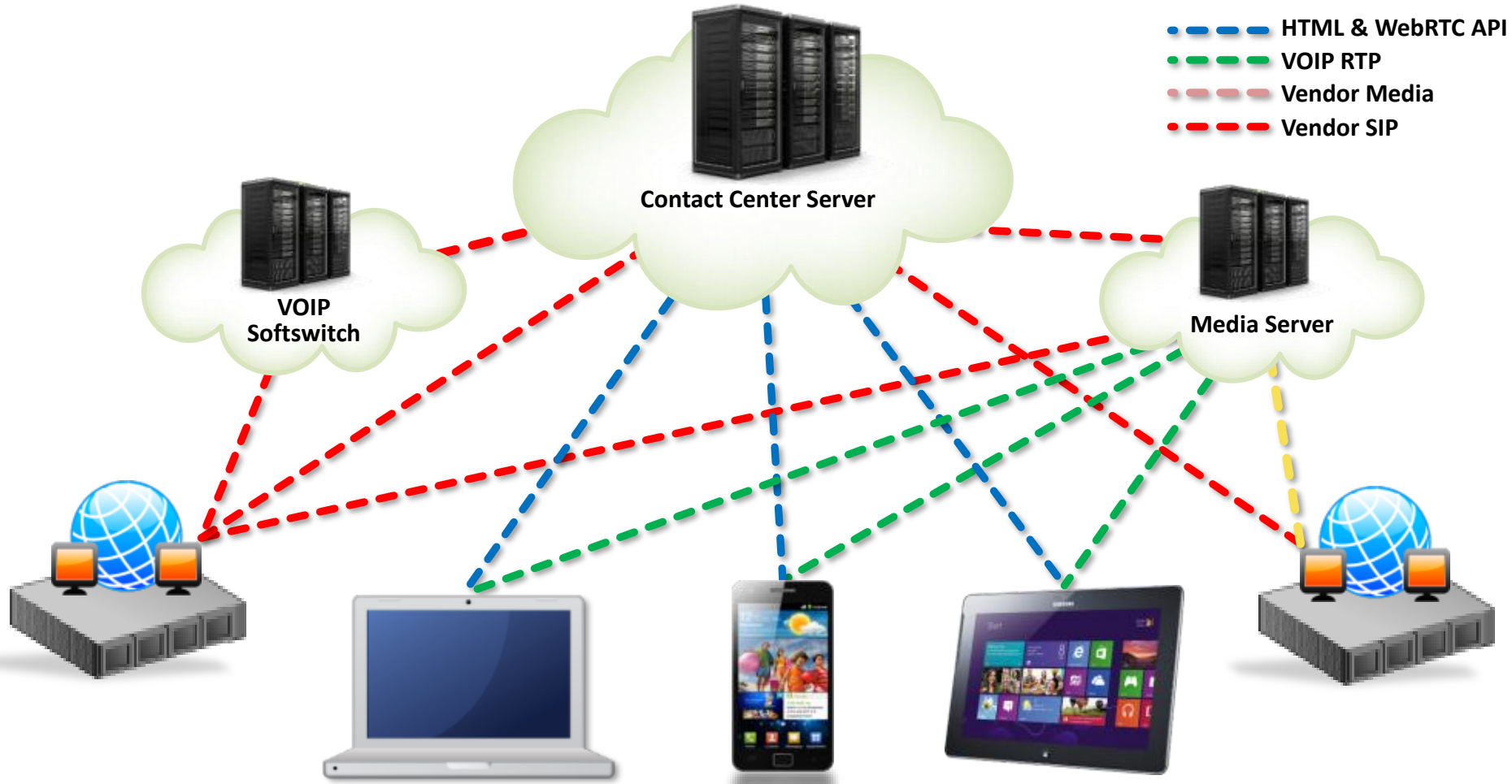
Other WebRTC Enterprise Integrations

SIP Integration with RTP



Other WebRTC Enterprise Integrations

Enabling an Existing Contact Center product with 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

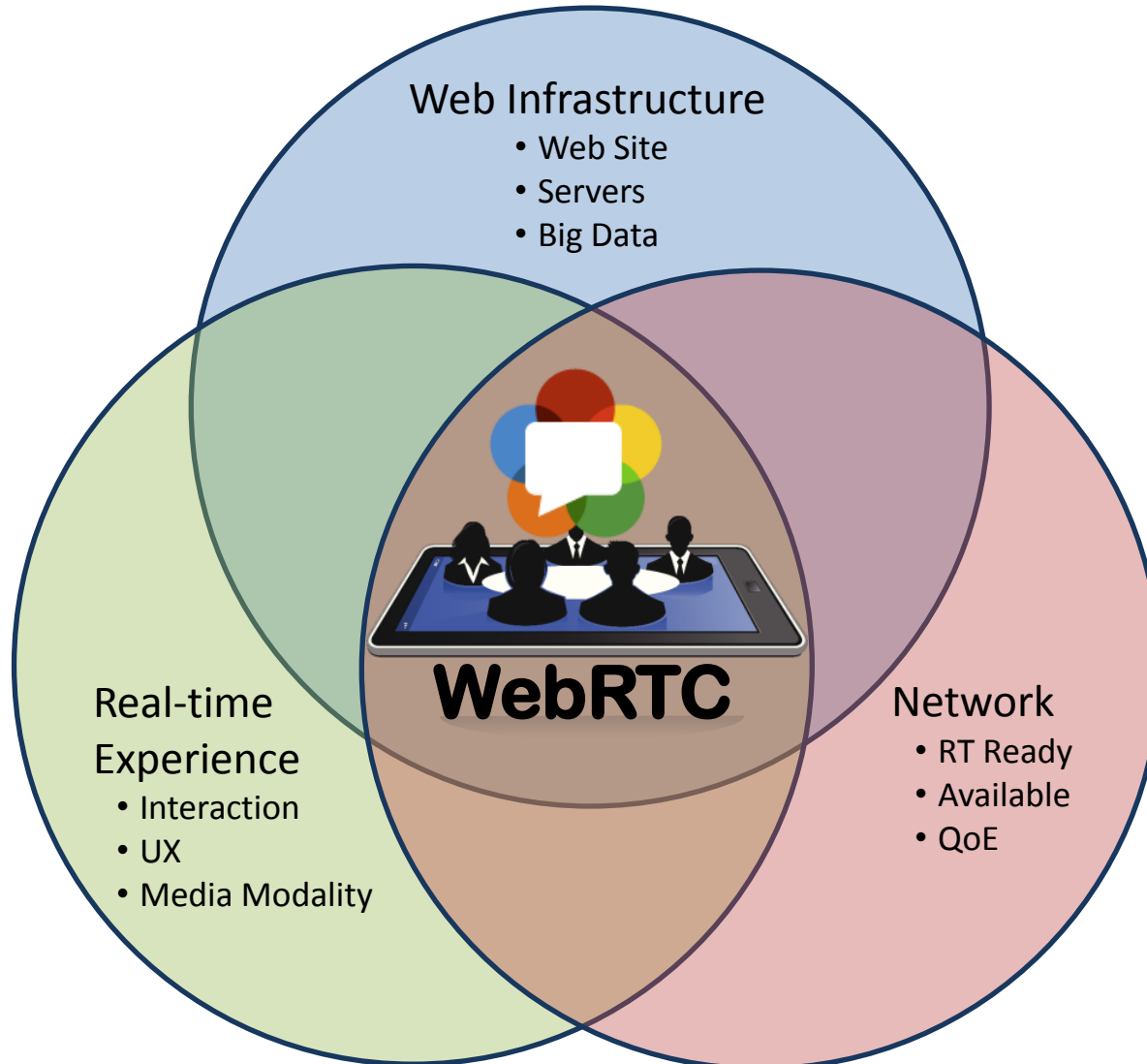
- Complete
- Accessible



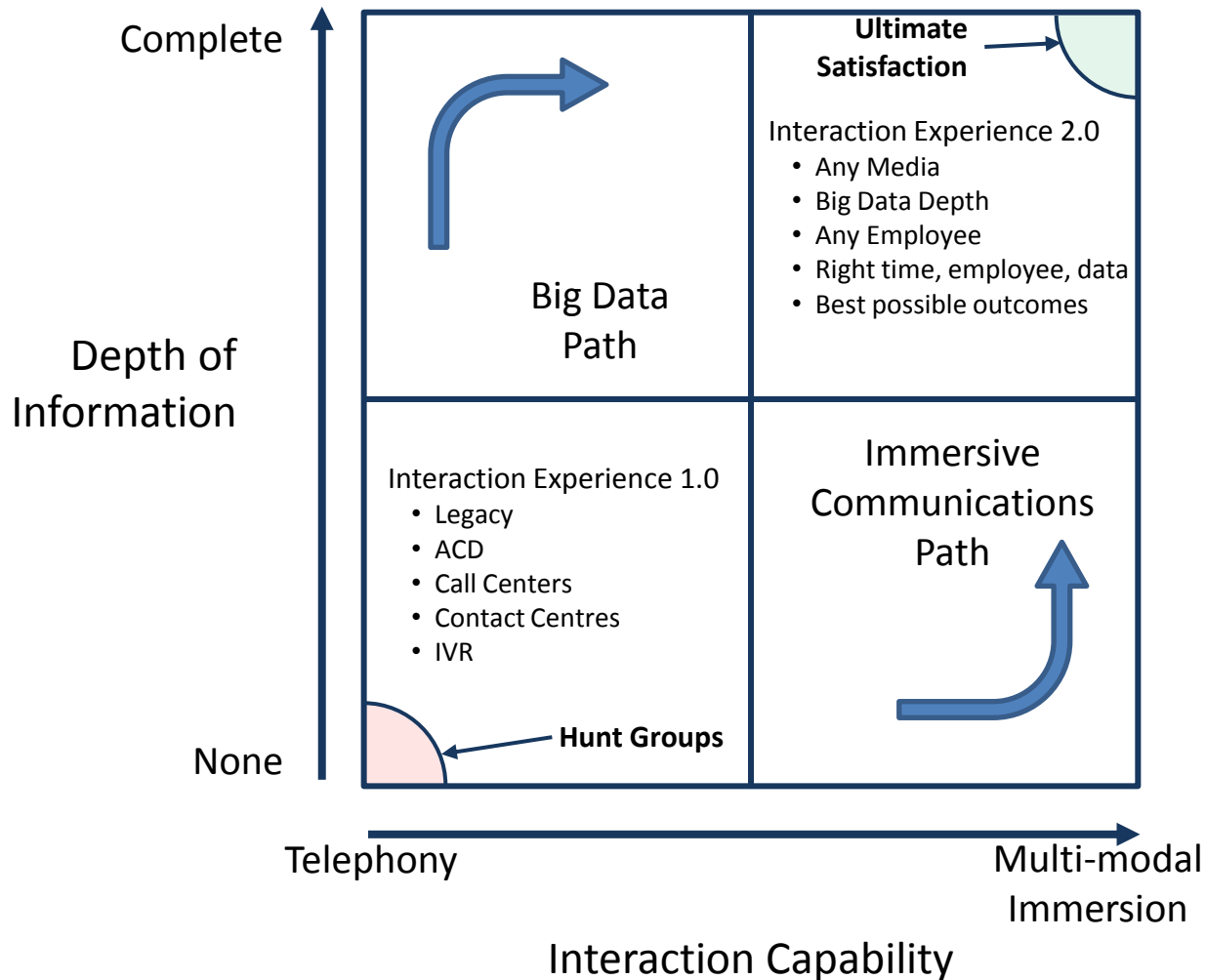
Having the right communications modality the best possible experience

- Optimized
- Empathetic

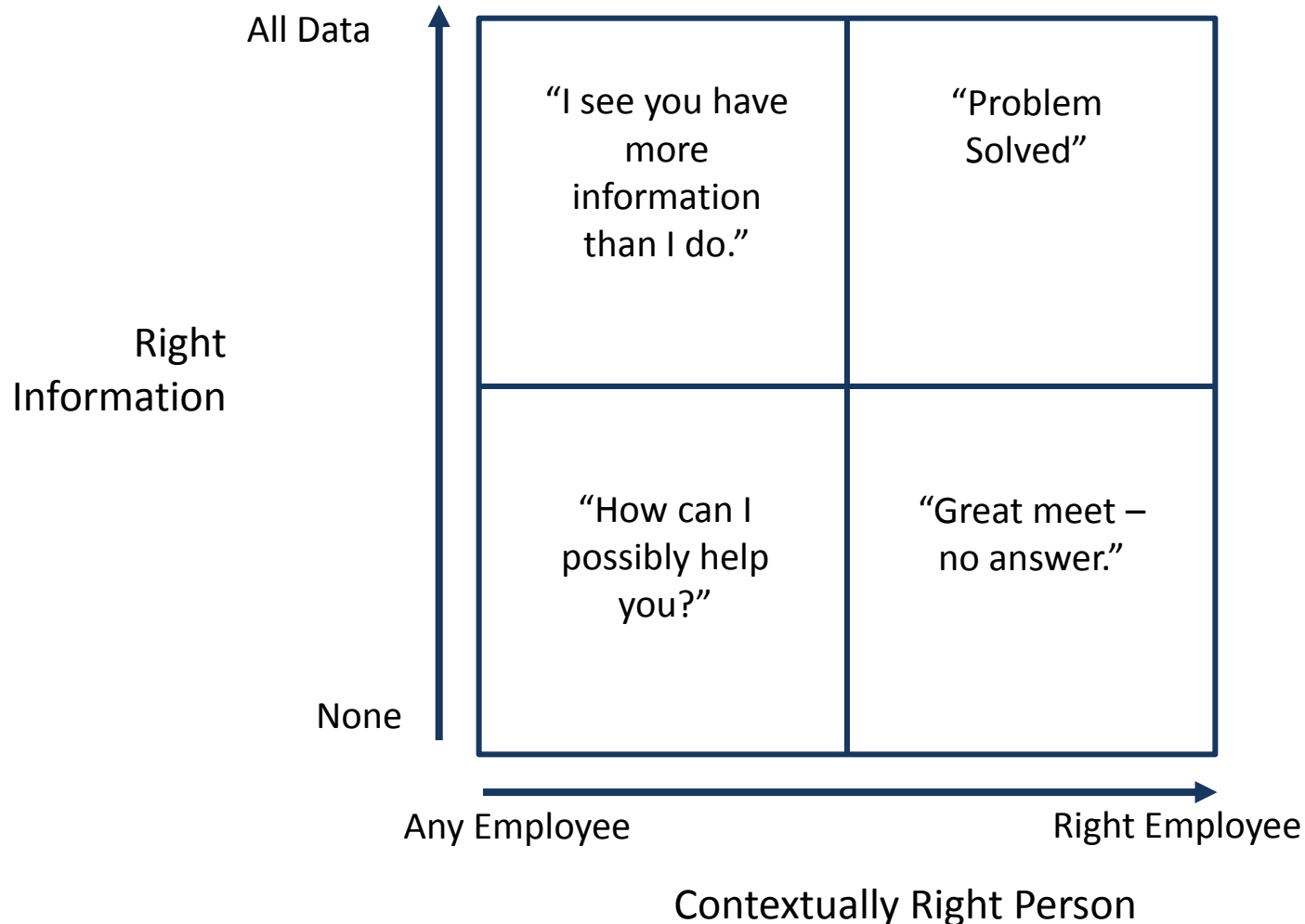
Components of Interaction Experience 2.0



Path to Interaction Experience 2.0

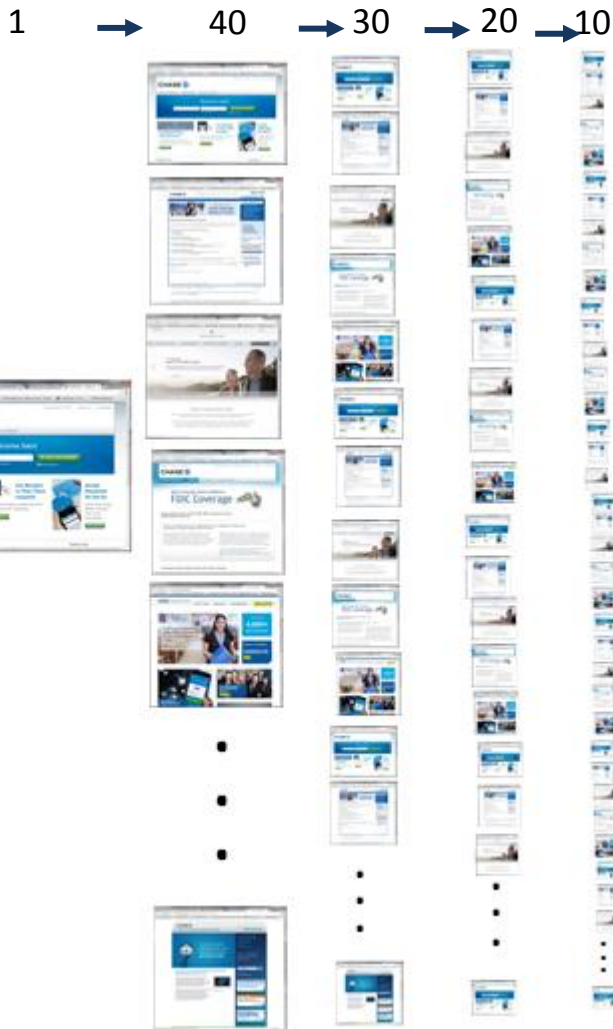


Big Data as part of Interaction Experience 2.0



The Web Disconnect

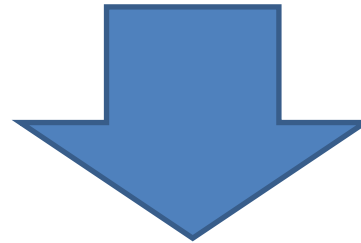
Typical Fortune 1000 Web Site



240,000
Discrete
Contextual
Links

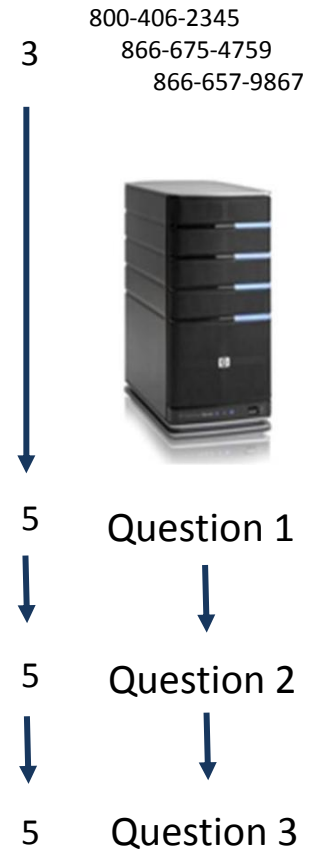


375
Discrete
Contact
Routes

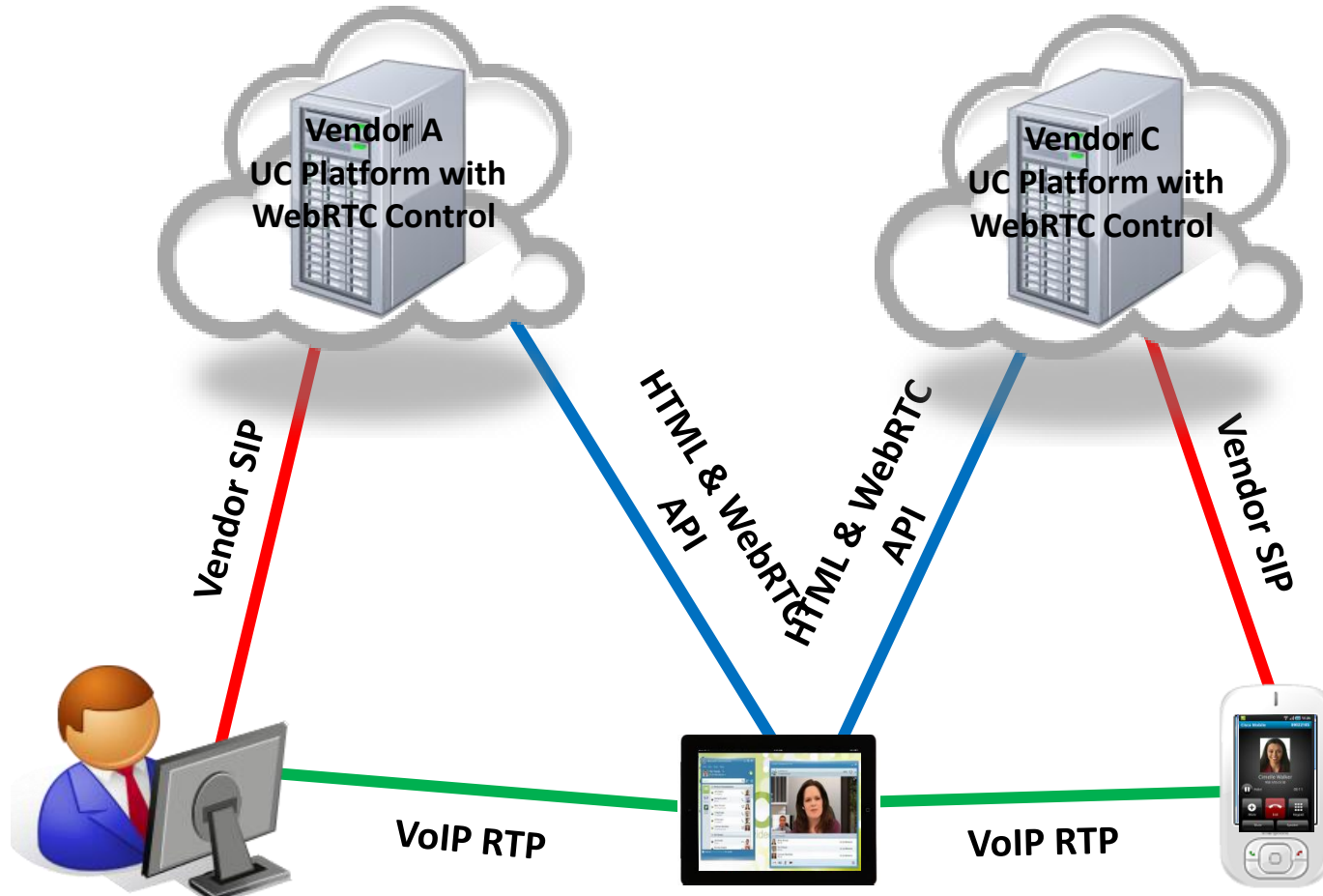


The challenge is
mapping to the
current systems
LIMITED resources

Typical Fortune 1000
Contact Centre/IVR

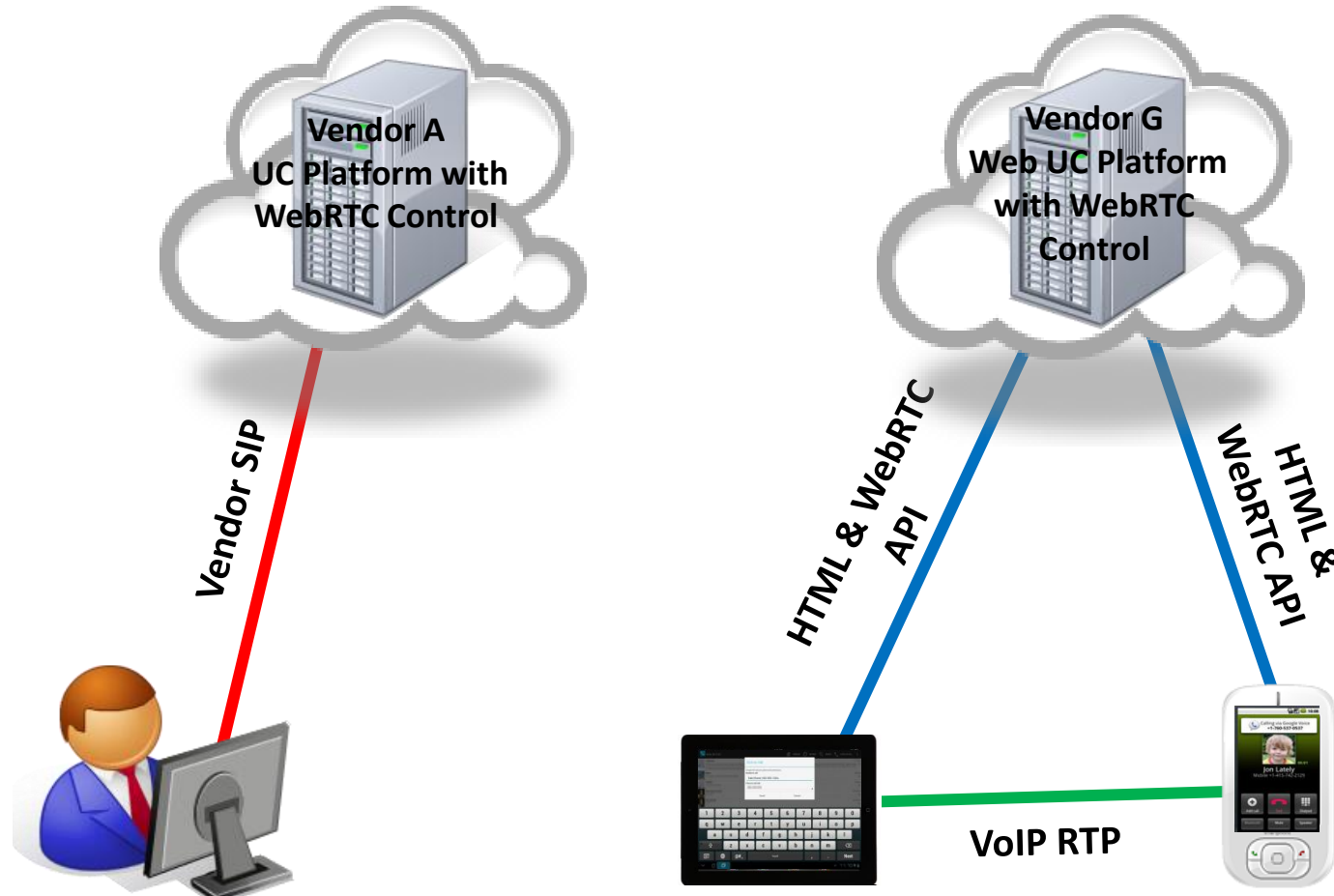


Guest Portals: The Webification of Real-Time?



www.comcast.com/portal/rtc

Guest Portals: The Webification of Real-Time?

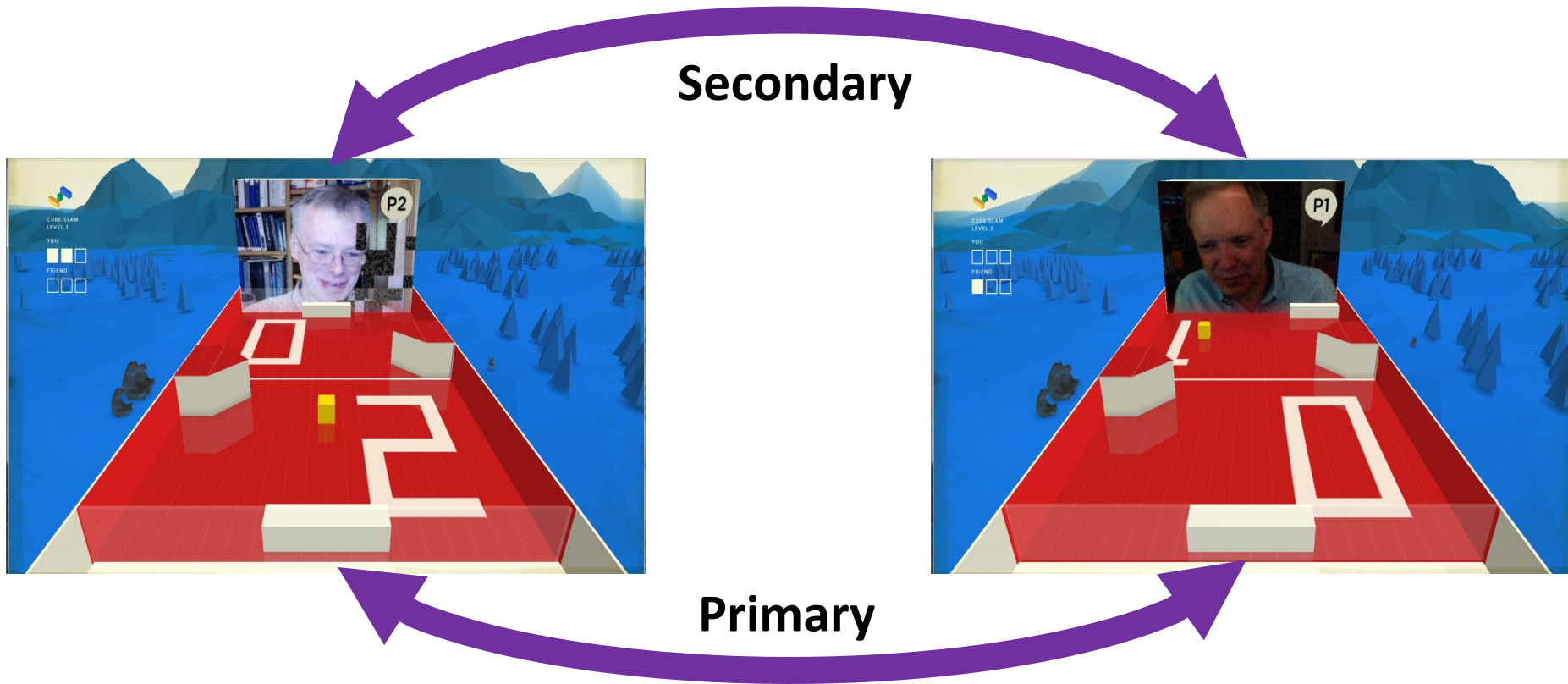


www.giantweb.com/portal/larryp

- Enables Real-Time Data to be sent between Peers
- UDP
- File Protocols
- Great for:
 - Gaming
 - Sensors
 - UC – Chat/Files/App Sharing
 -

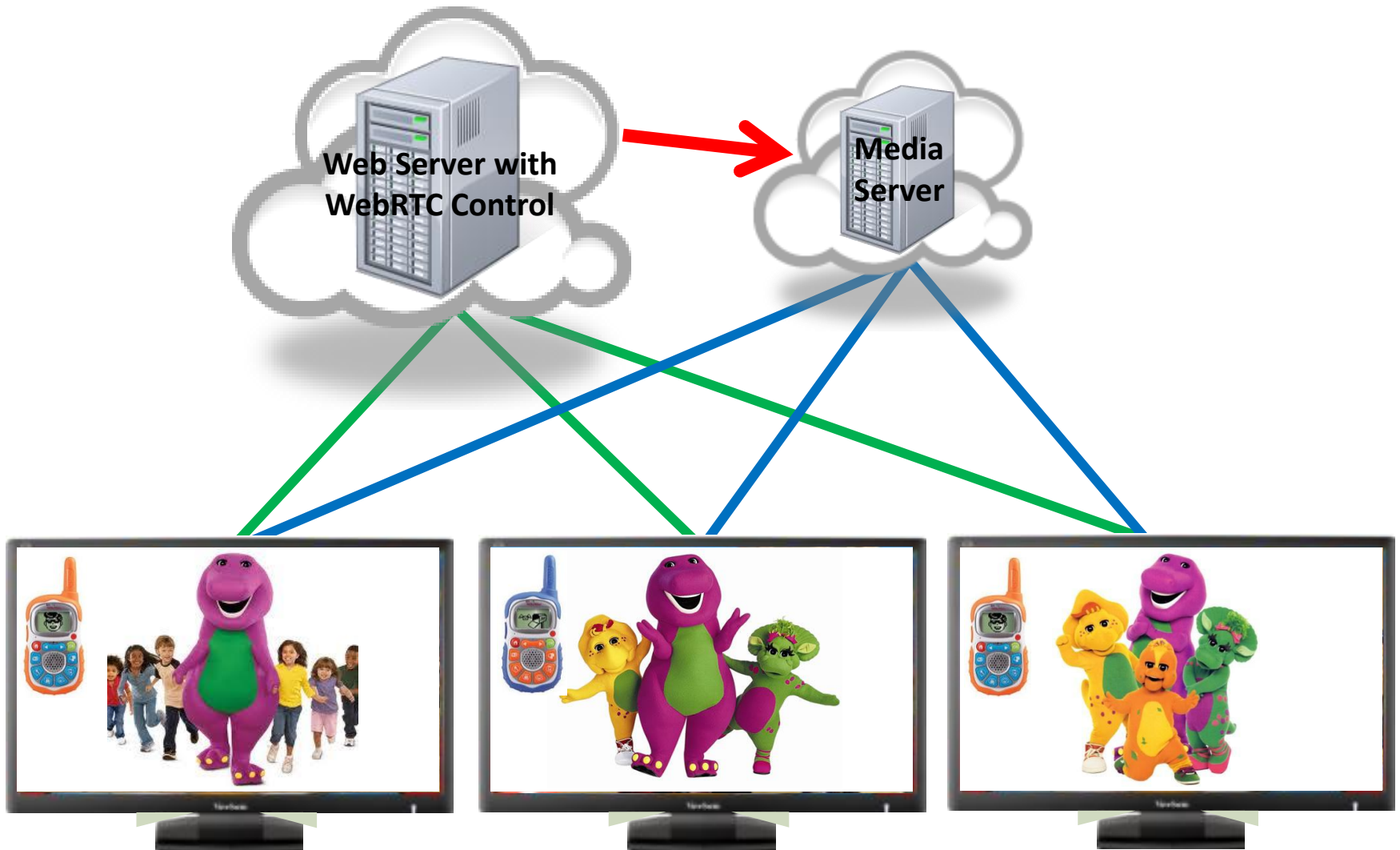
Additive Communications

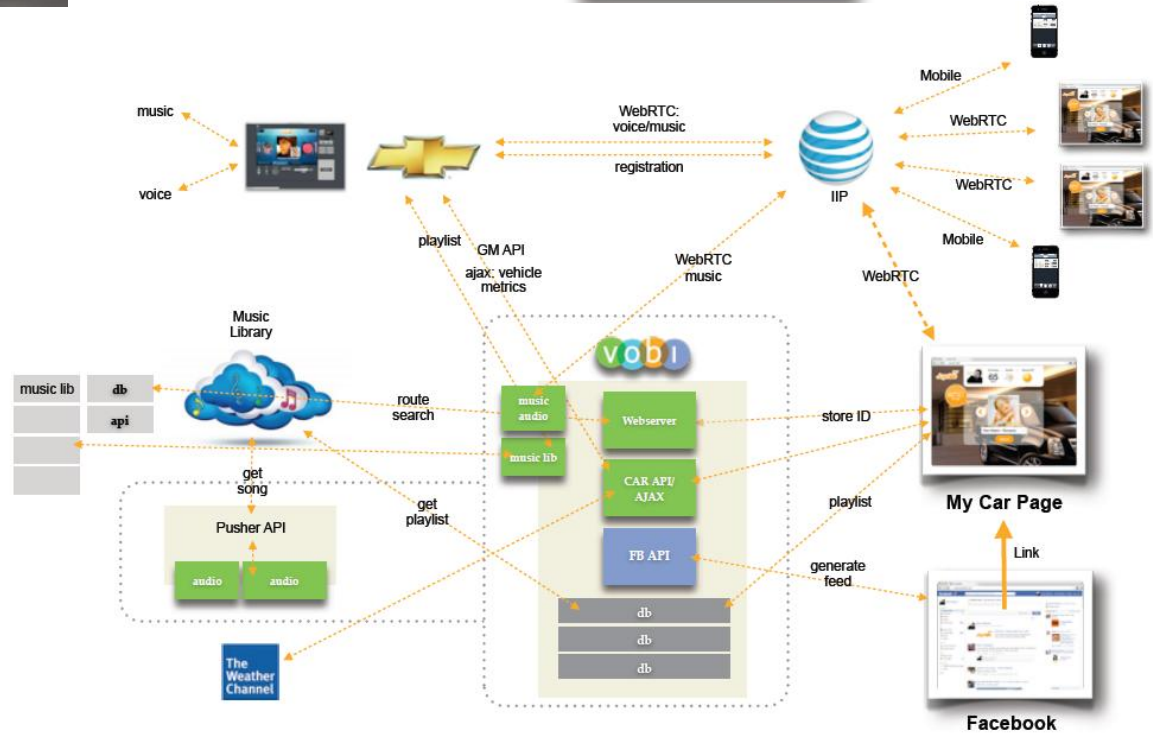
Is Cube Slam Cute or A Subversive Plot?



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

Enabling Media Servers for Other Real Time Applications





WebRTC and the Web

Replacing What
Exists or
Augmenting it



Real-time as
adjunct to an
activity



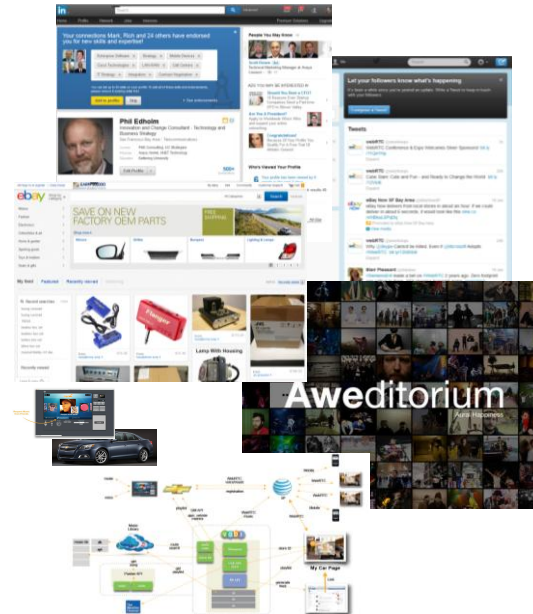
Playing Cube Slam against Bob the Diversionary Bear

PubNub

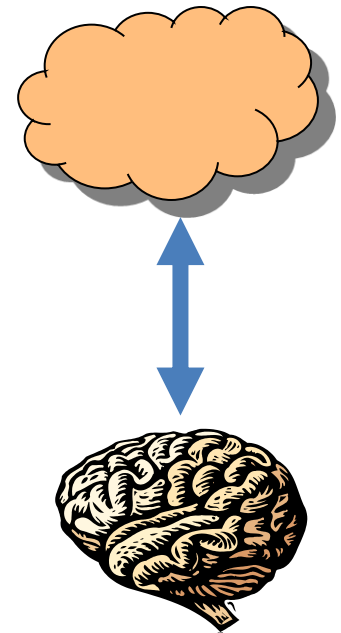


Chess Cam by Spacegoo

Real-time as
extension of an
interaction or app



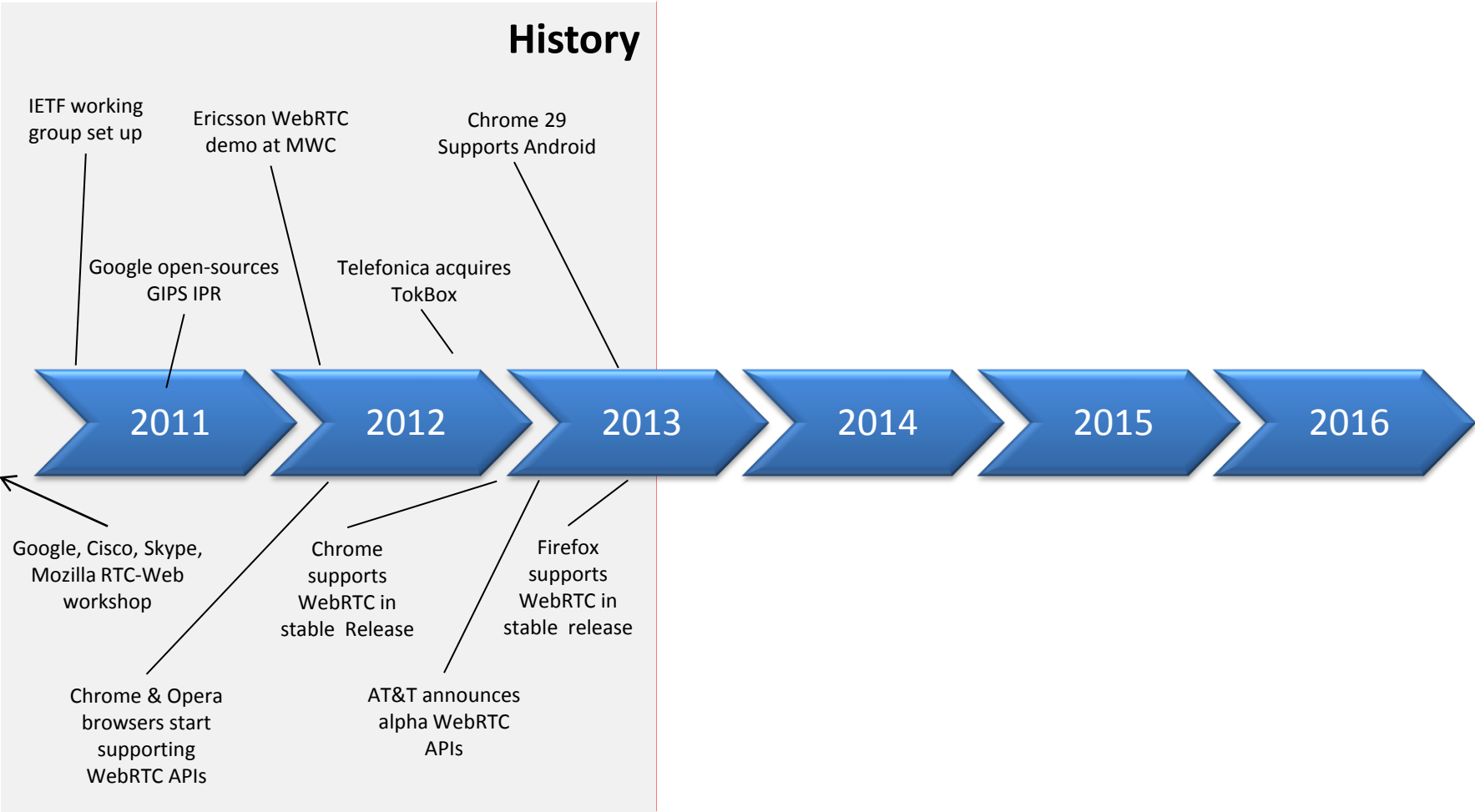
Real-time
all the time



The Real-Time Web



WebRTC Timeline Q3 2013

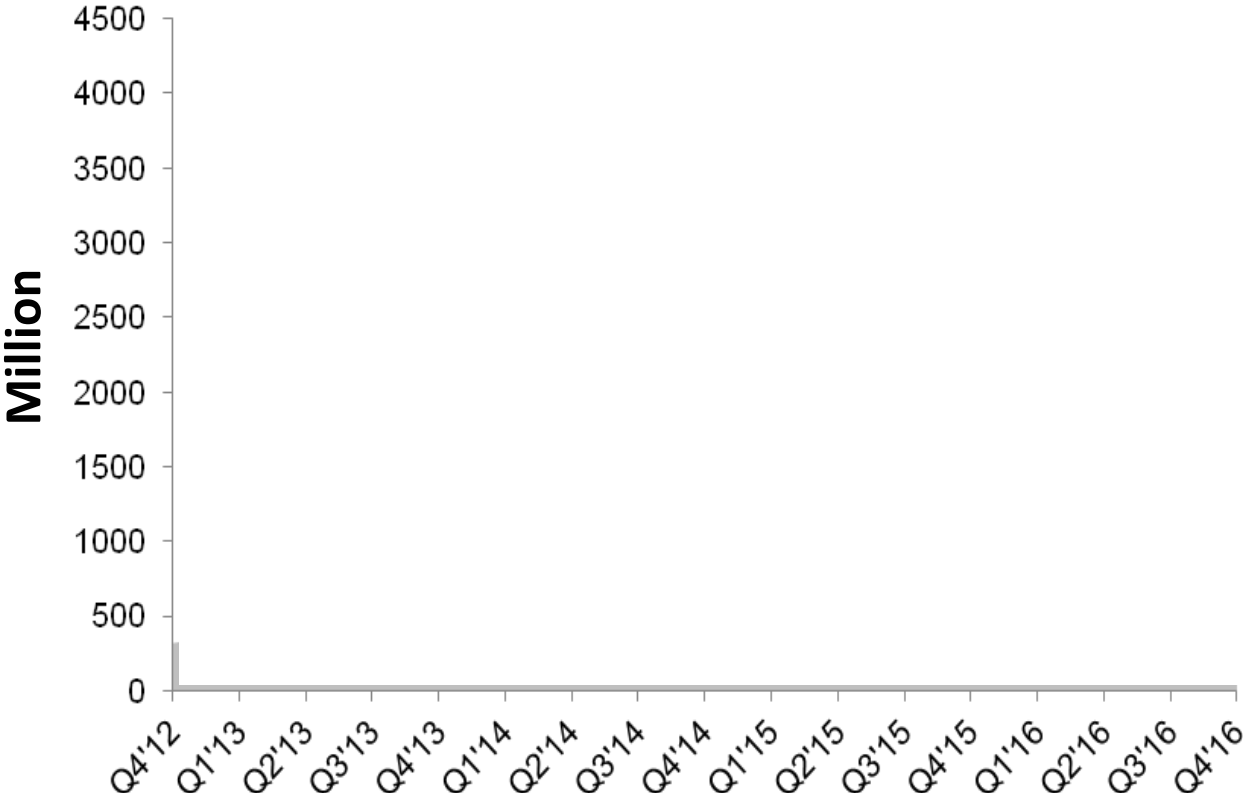


Source: Disruptive Analysis WebRTC Strategy Report, June 2013
Assumptions - See disruptive-analysis.com for details

WebRTC forecasts: 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

Promoters



Uncommitted
/Following



Telcos



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 Services
Provider

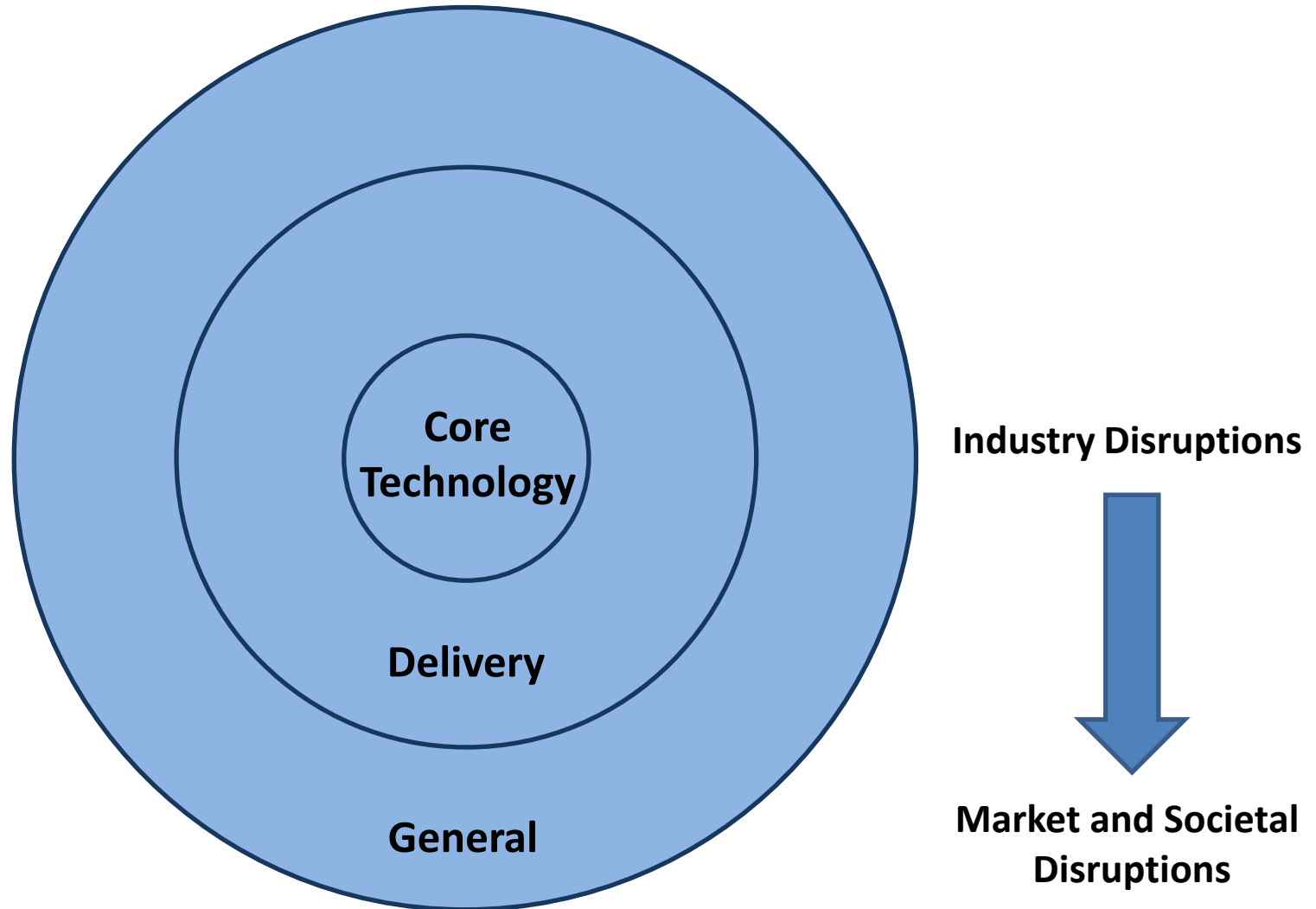
WebRTC enables any web server to deliver a unique real time communications experience, with simplicity and reliability, without dependence on service providers or other services.

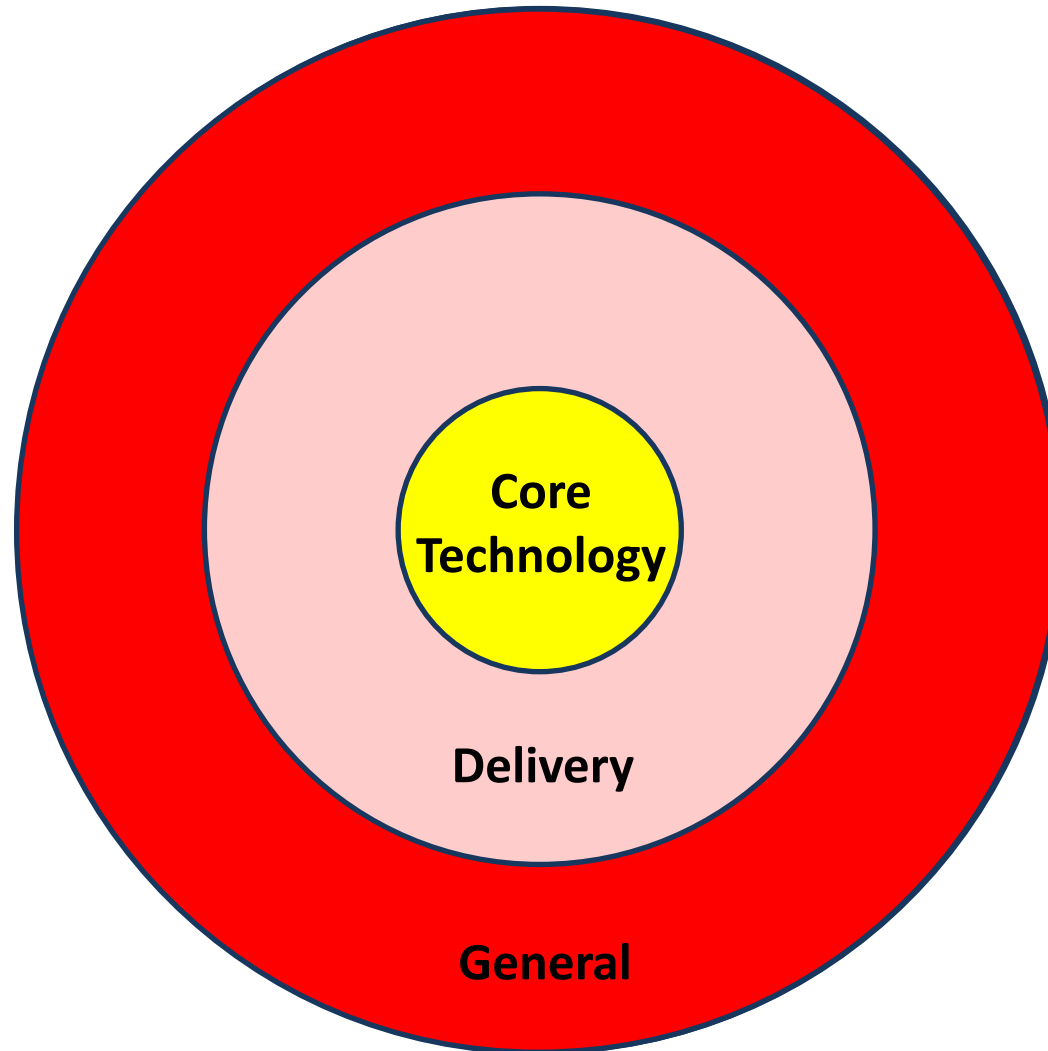


WebRTC Services
Consumer

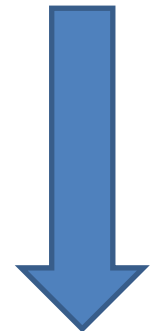
WebRTC enables users to participate in a communications experience as delivered by any web site without downloads, registration or general cost.

Game Changer, Disrupter, Transformer?

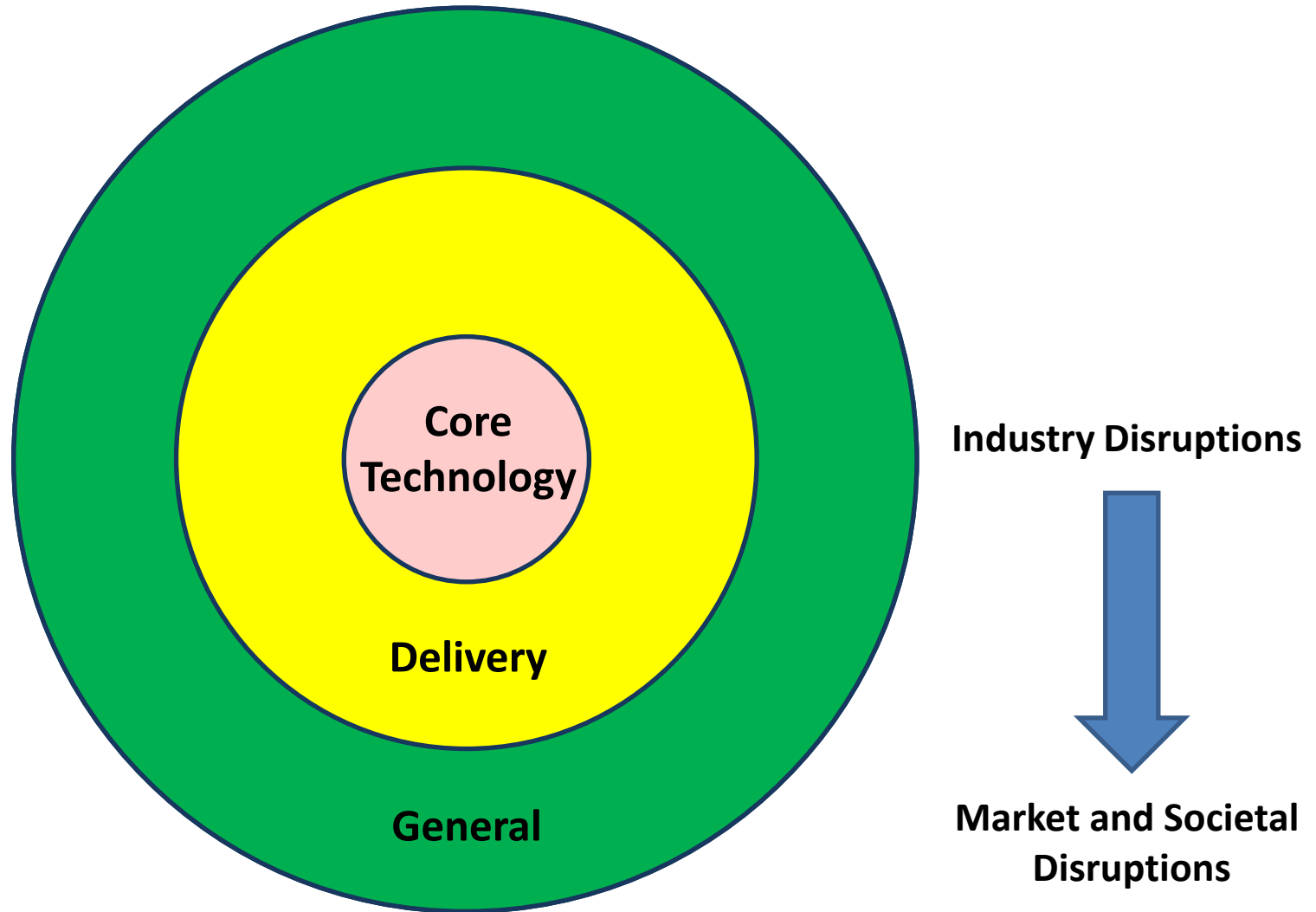


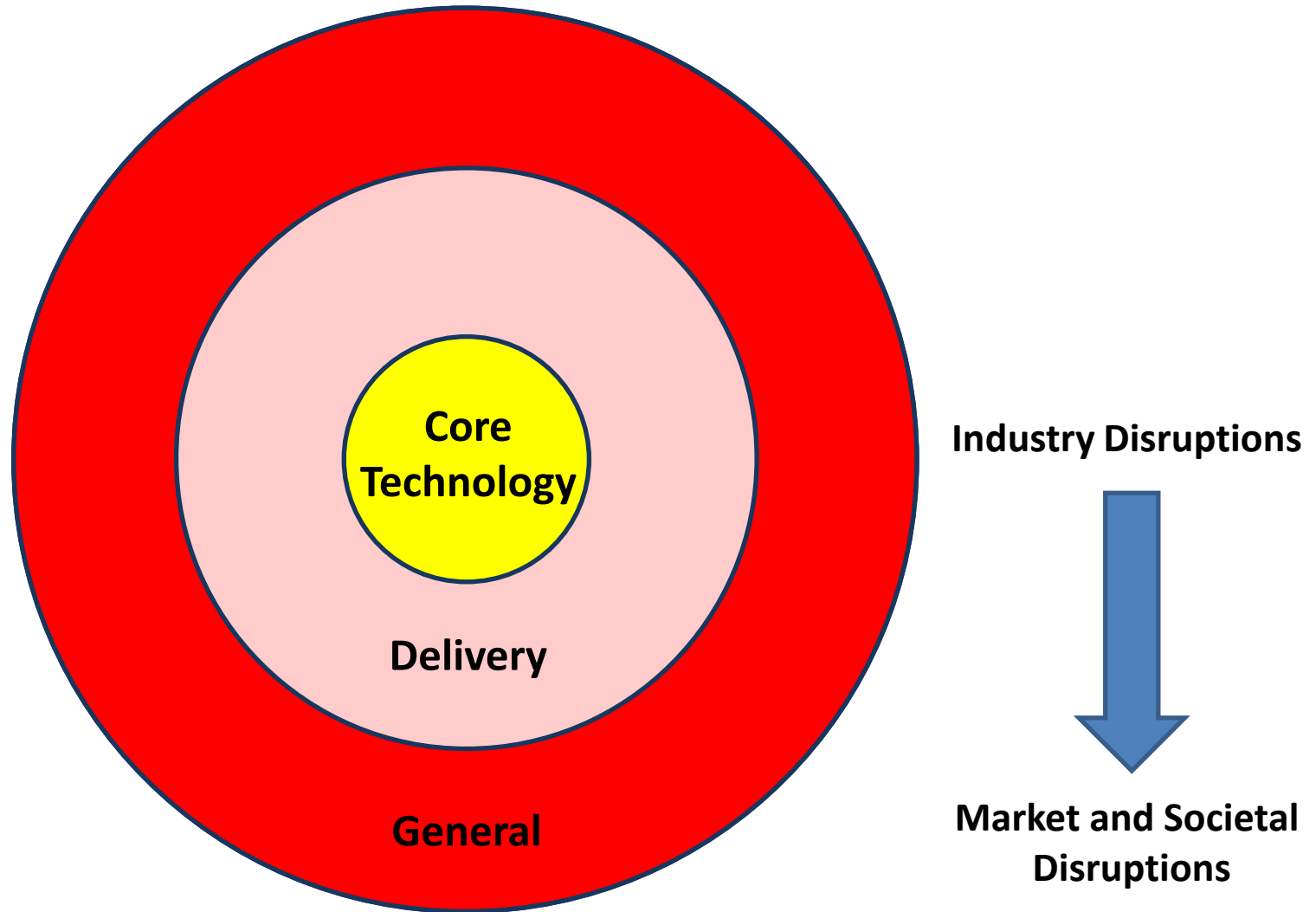


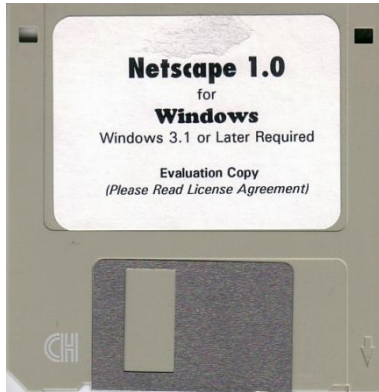
Industry Disruptions



Market and Societal
Disruptions







....and the world changed

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

Web  **RTC**



WebRTC: A New Architecture for Communications

Chris Vitek
President
WebRTC Strategies, Inc.
cvitek@webrtcstrategies.com

WebRTC

STRATEGIES

ENTERPRISE USE-CASES

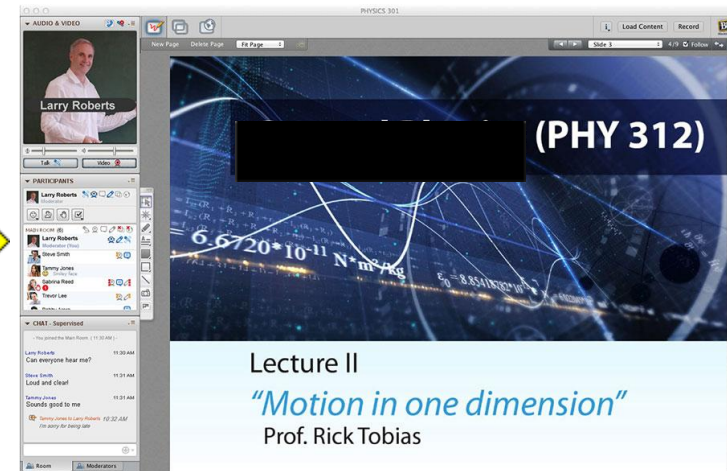
Immediate Opportunities:

- PBX Elimination
- Patient Collaboration Interface
- Large Financial – Customer Collaboration Interface
- Enterprise Software with Embedded Collaboration
- Global Toll-Free Access Without a Carrier
- Global Wireless Roaming on Data Connections

SIP Encapsulation Within SDP



SIP Service
Media Service
Web Service



Desk-Phone Elimination

PSTN Elimination

Work-at-home

Text

Directories

Presence

Desk-top Video

Micro-broadcasting

Audio

SIP Features

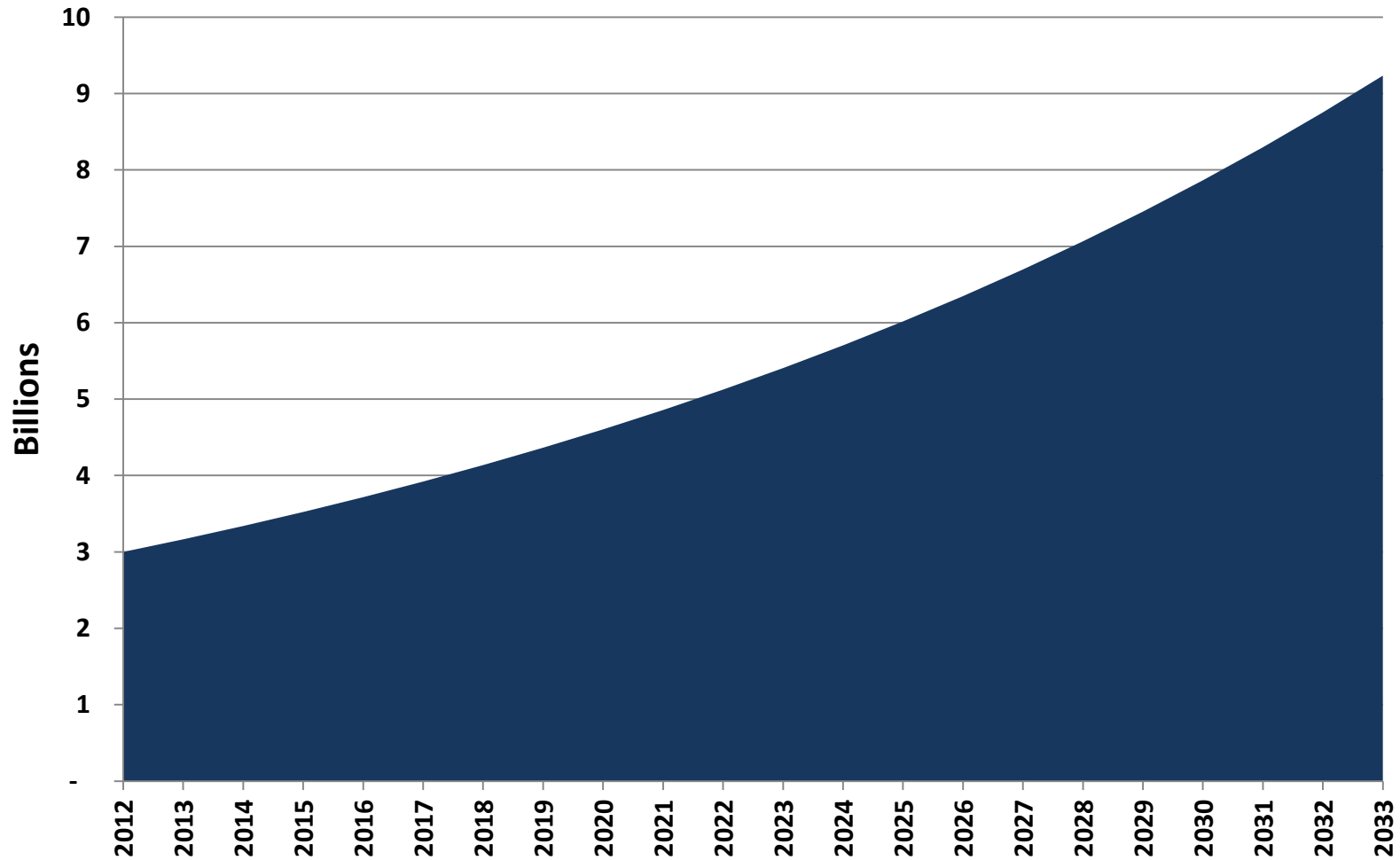
WebRTC

STRATEGIES

The Future of the Contact Centre

INTERACTION EXPERIENCE 2.0

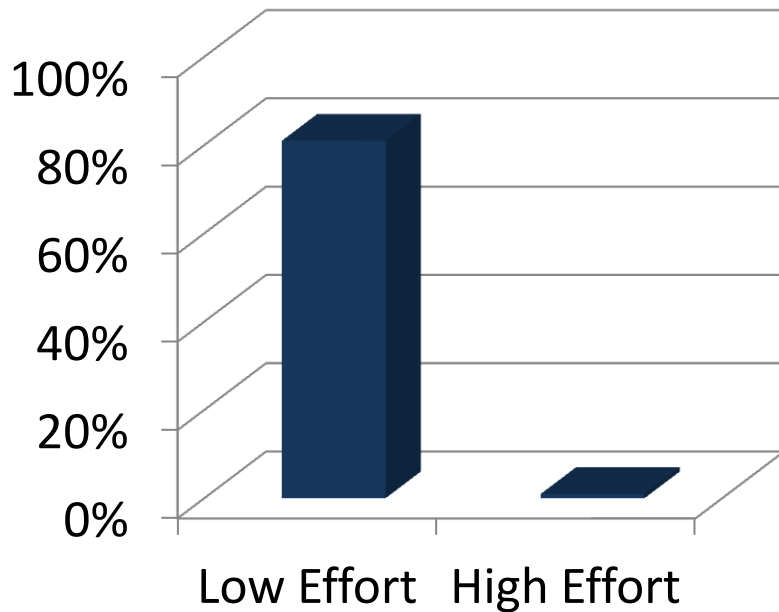
Global Consumers Exploding



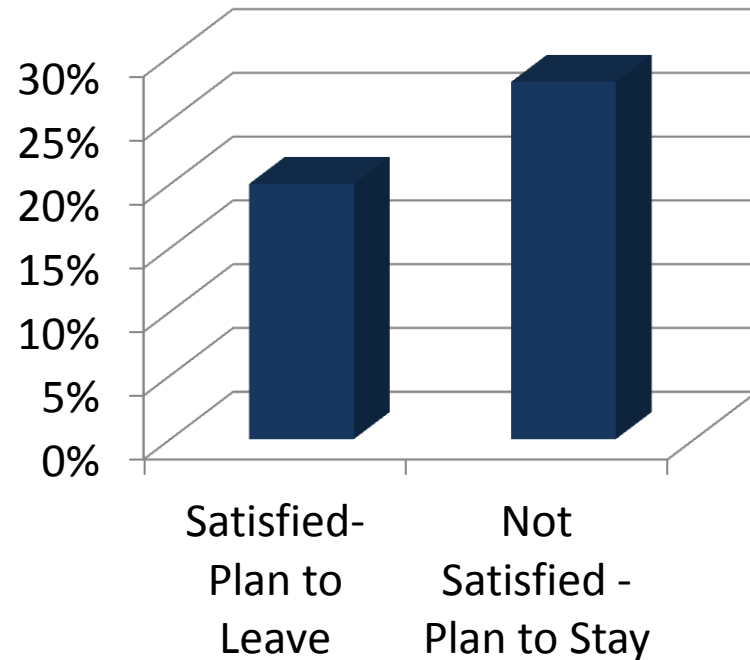
SAP, 2011

Contact Center: Loyalty Vs. Satisfaction

Loyalty



Satisfaction



Corporate Executive Board, 2008

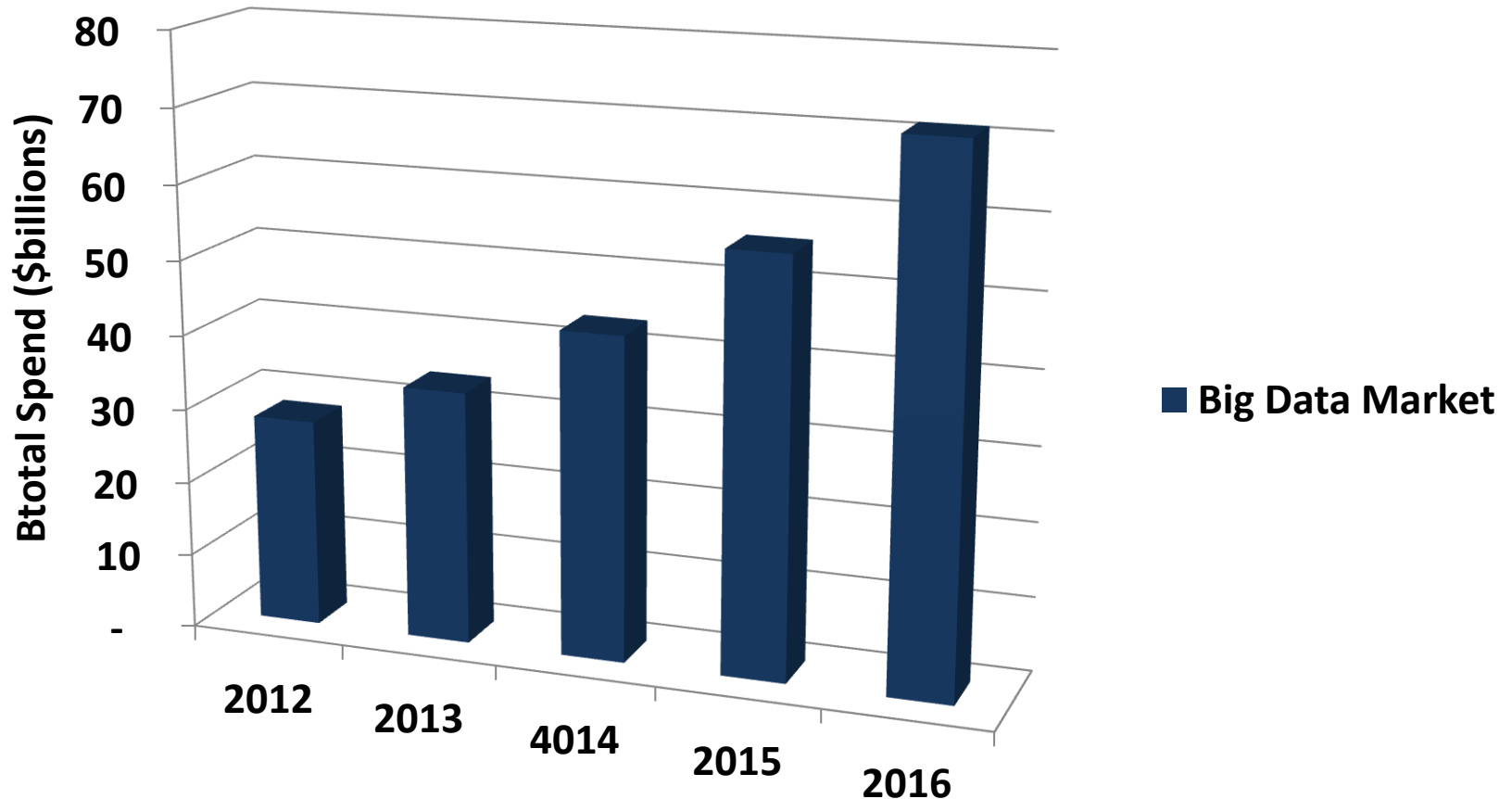
WebRTC Strategies 2013

- 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

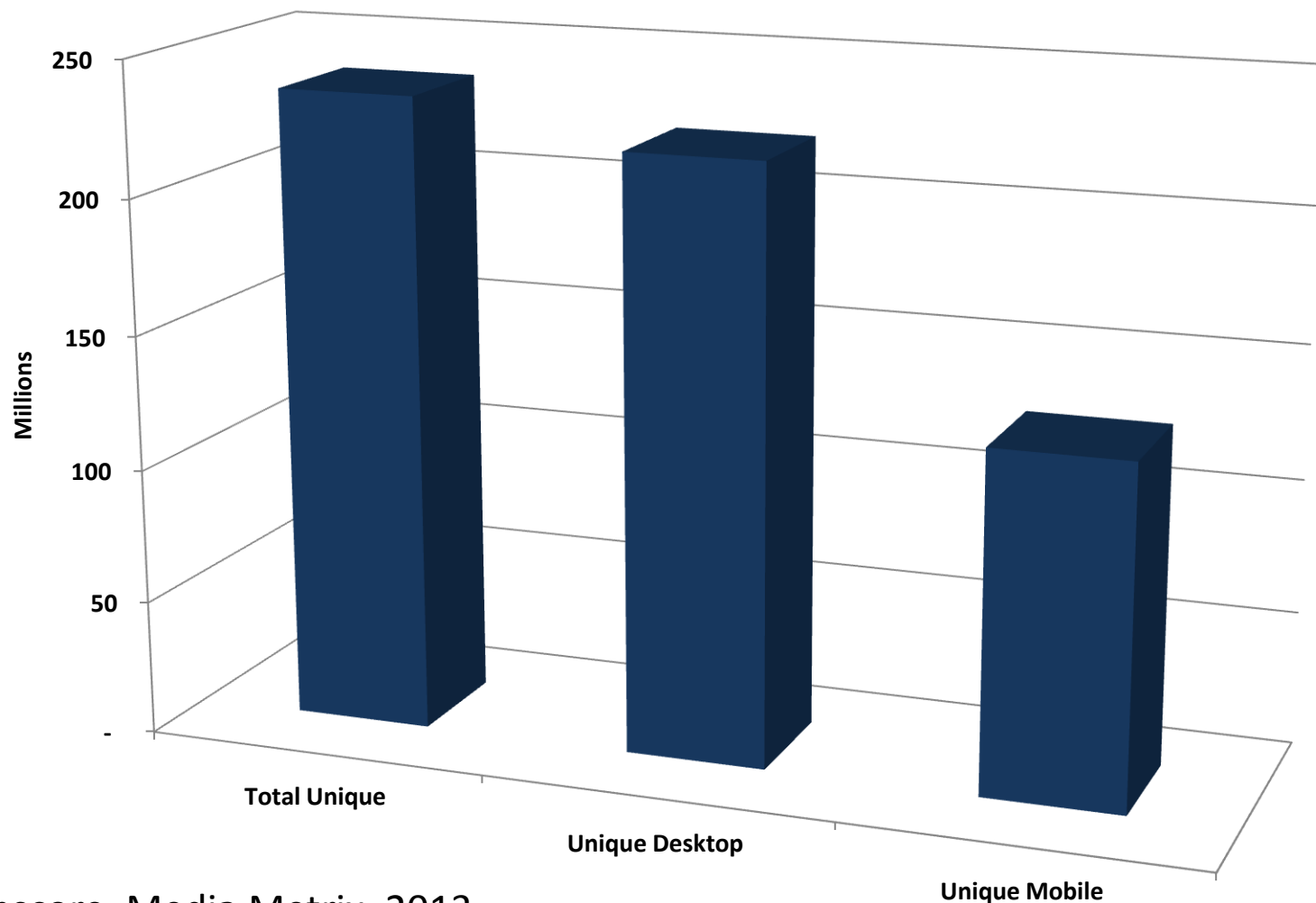
Big Data Adoption and Growth

Big Data Market



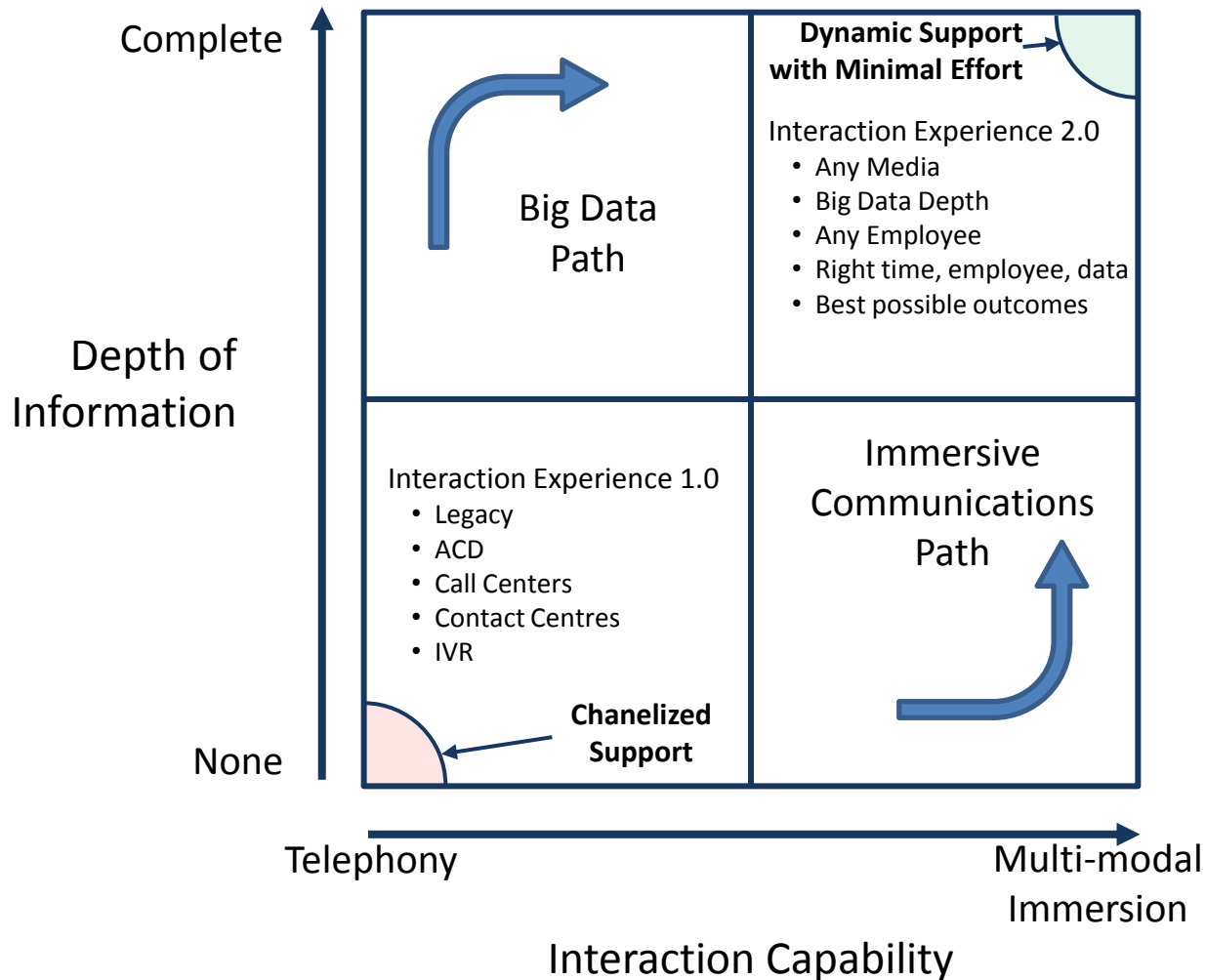
Gartner, 2012

Digital Media Consumers in US

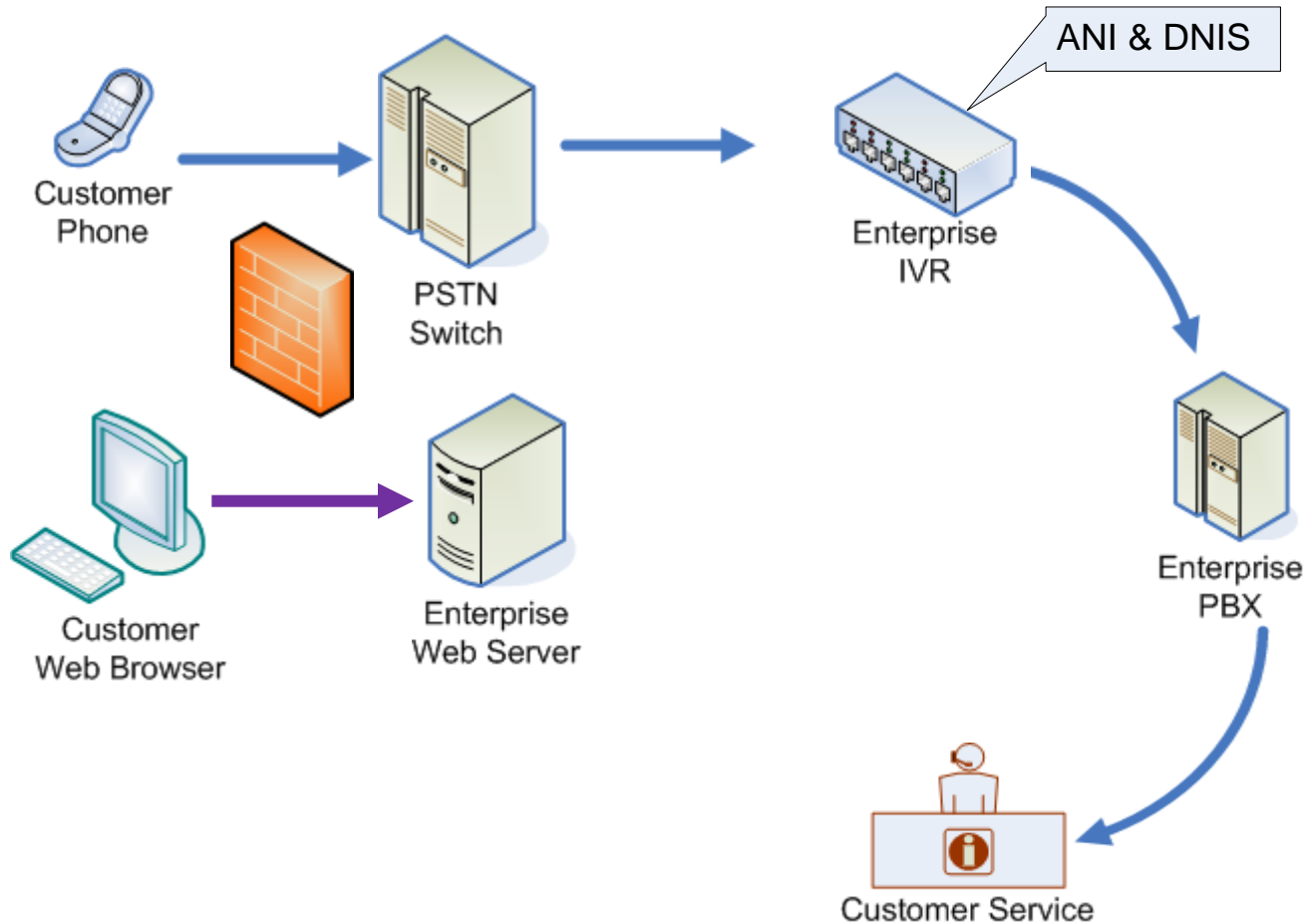


Comscore, Media Metrix, 2013

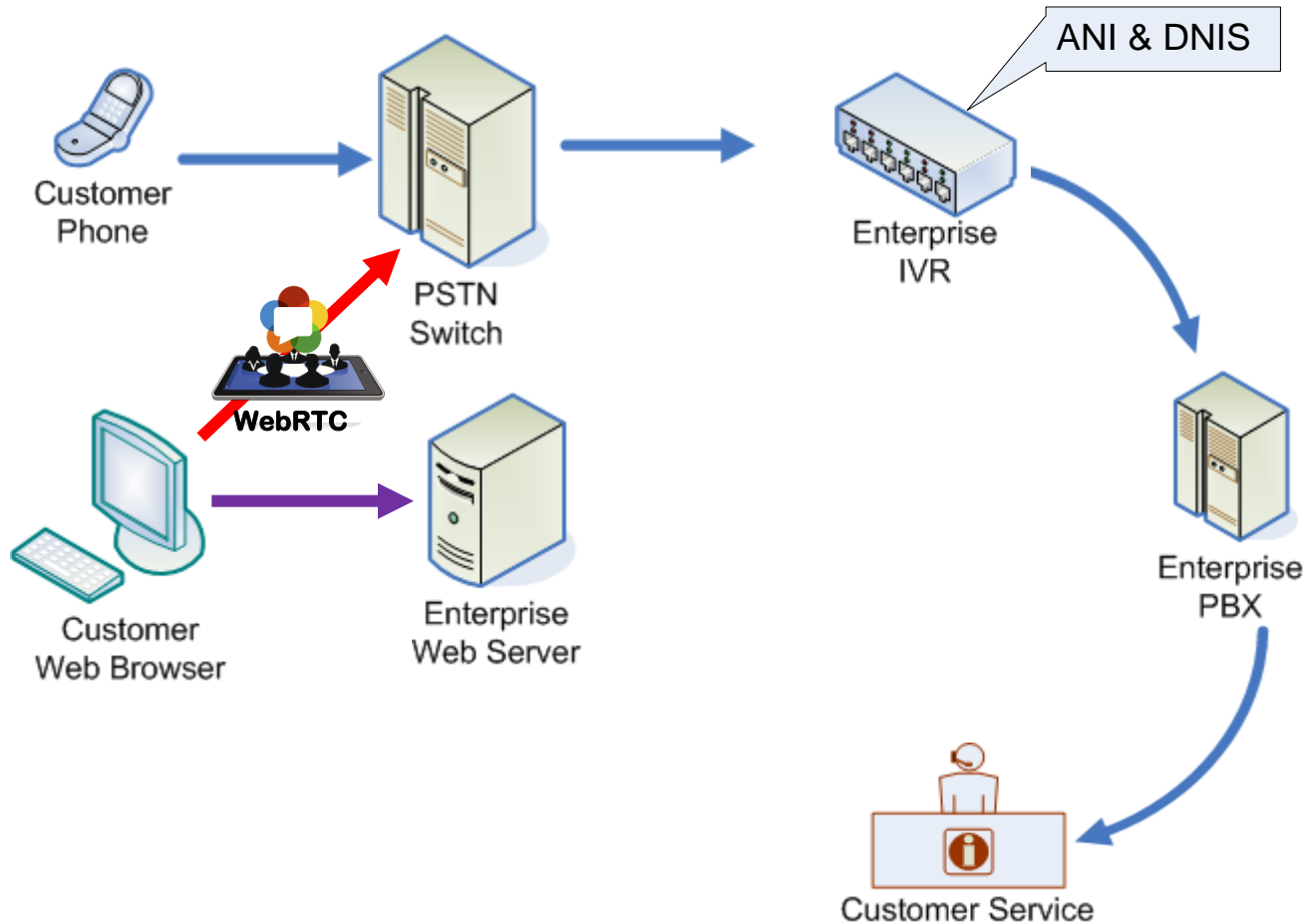
Path to Interaction Experience 2.0



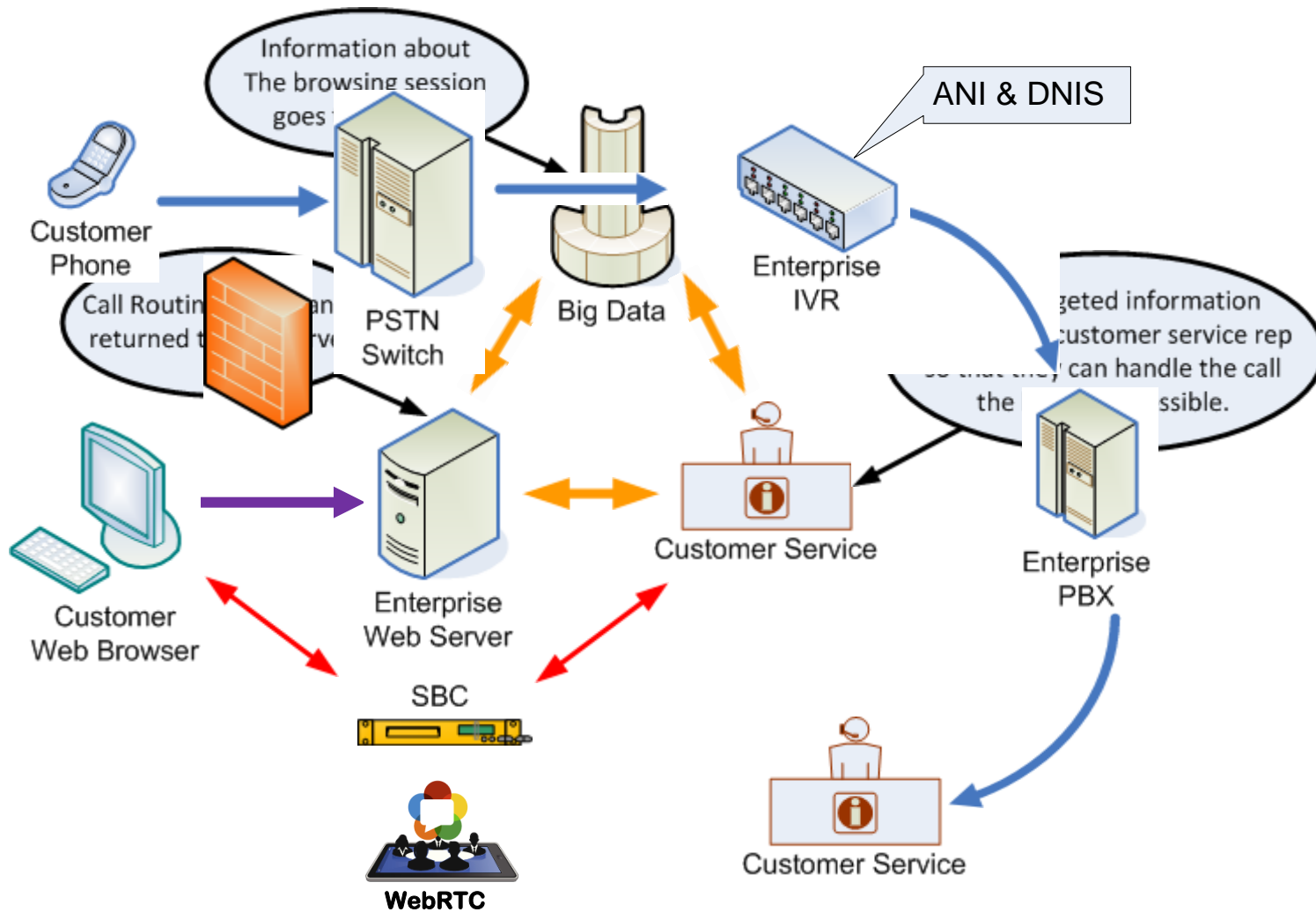
Legacy Customer Service



WebRTC Enhancement



Interaction Experience 2.0



Results:

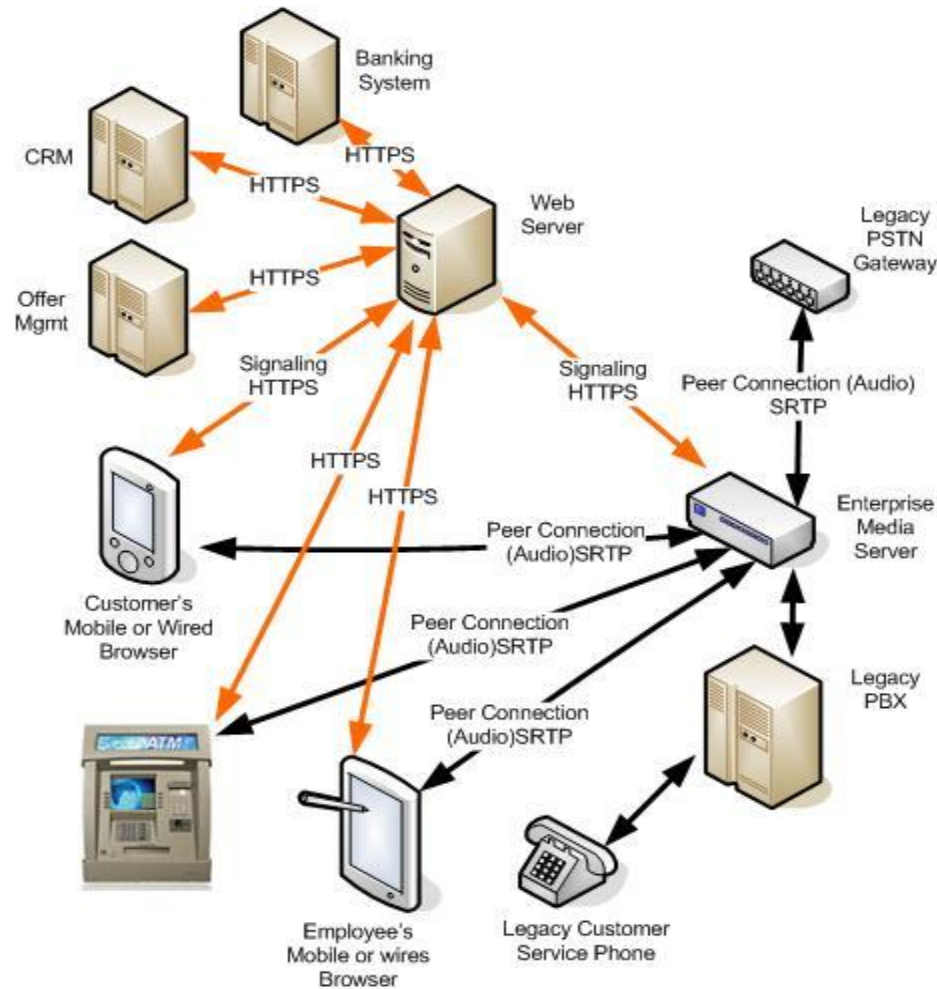
- Customer Effort 
- IVR 
- Micro Targeting 
- Call Duration 
- CC Labor 
- PSTN Cost 
- Customer Loyalty 
- Marketing Spend 

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).

Architecture - Banking



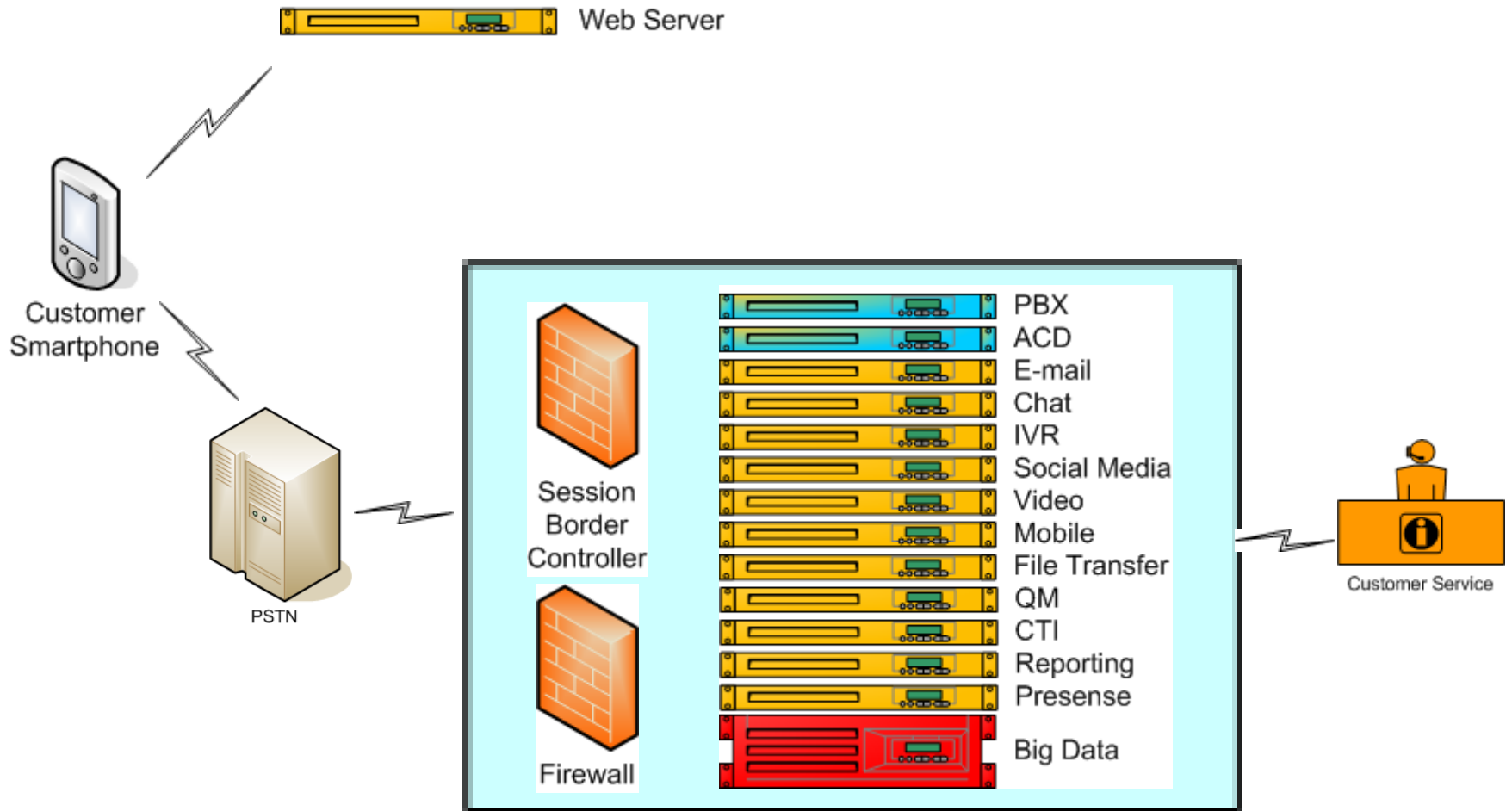
WebRTC

STRATEGIES

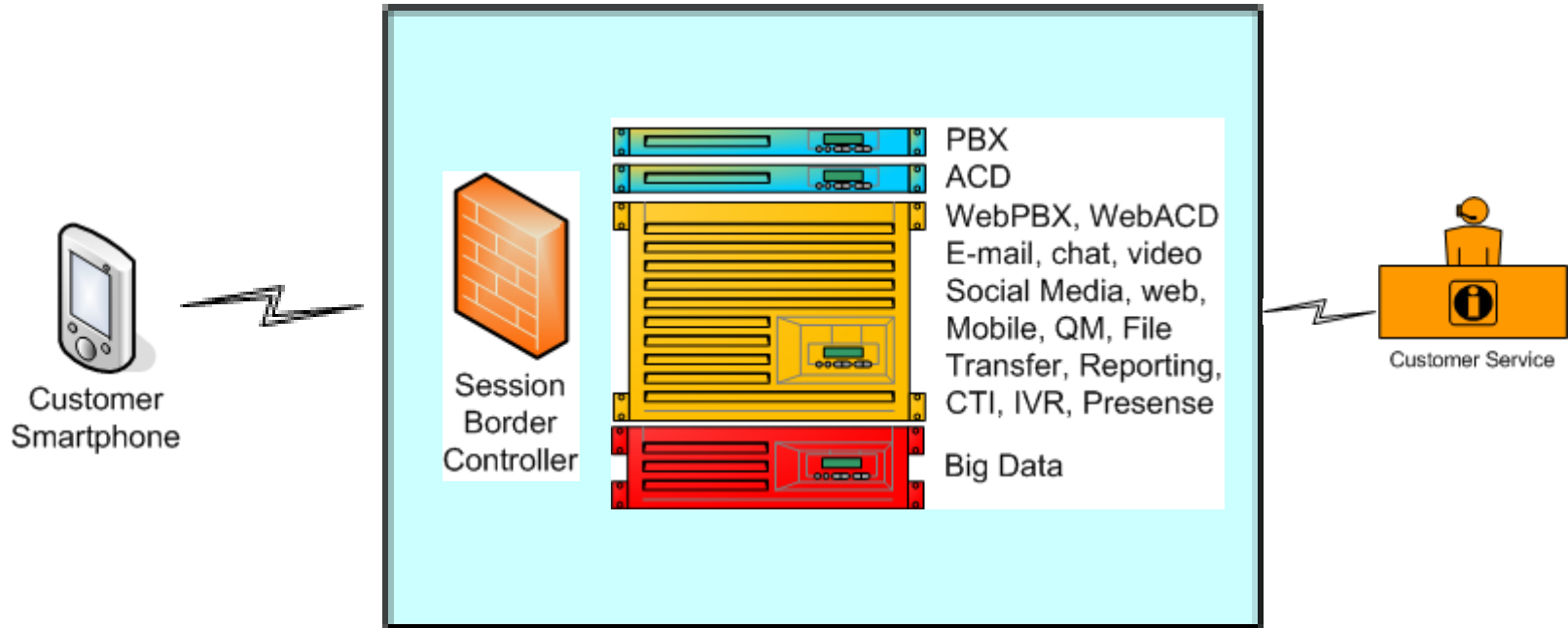
Technology

INTERACTION EXPERIENCE 2.0

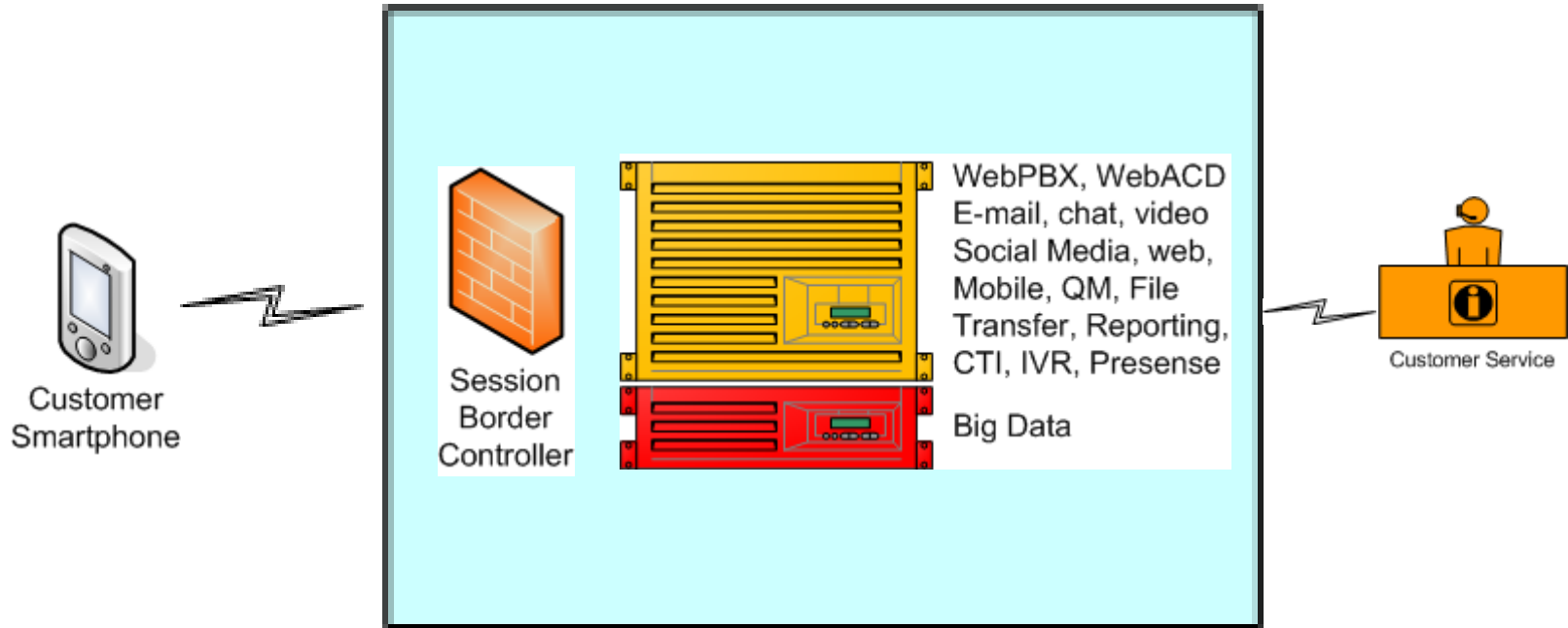
Legacy Complexity



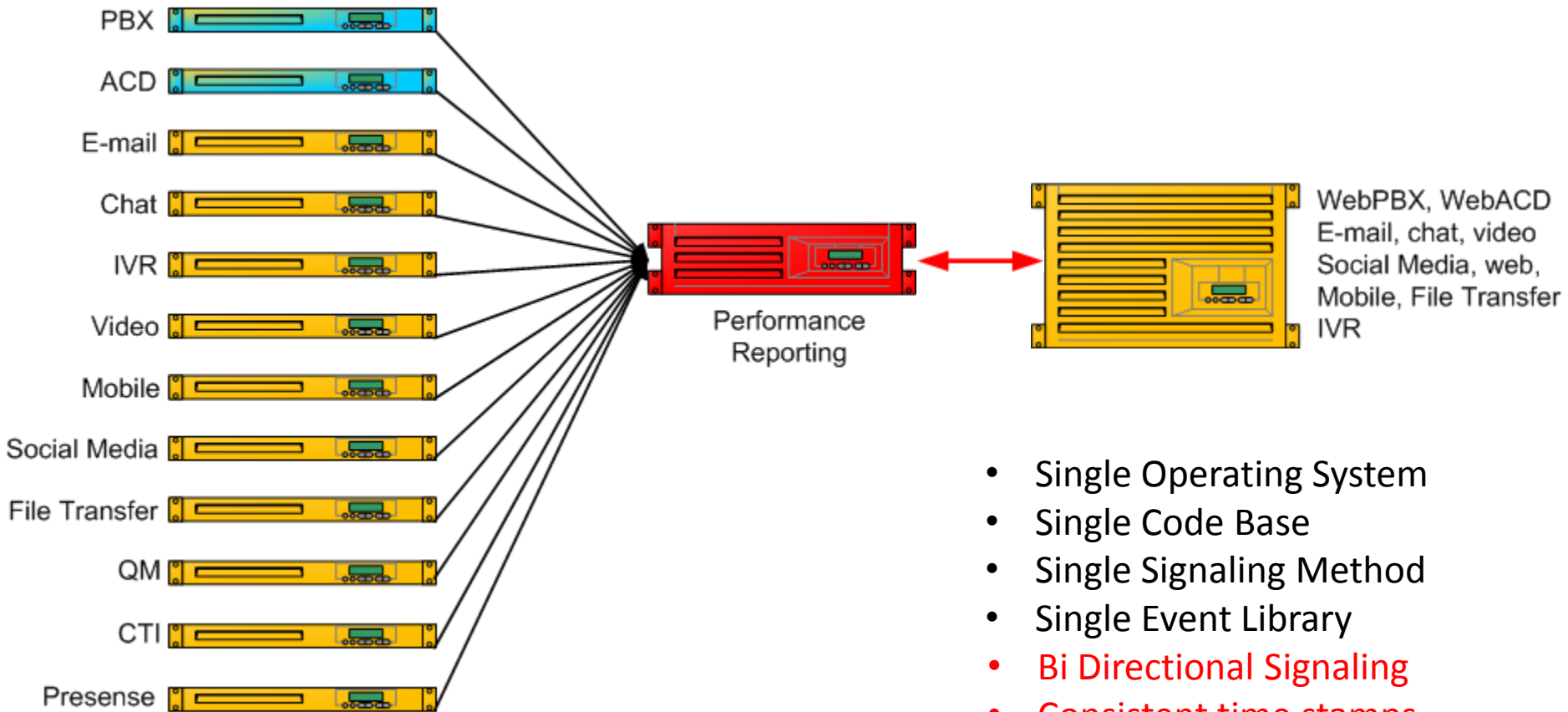
Integration With Legacy



Interaction Experience 2.0



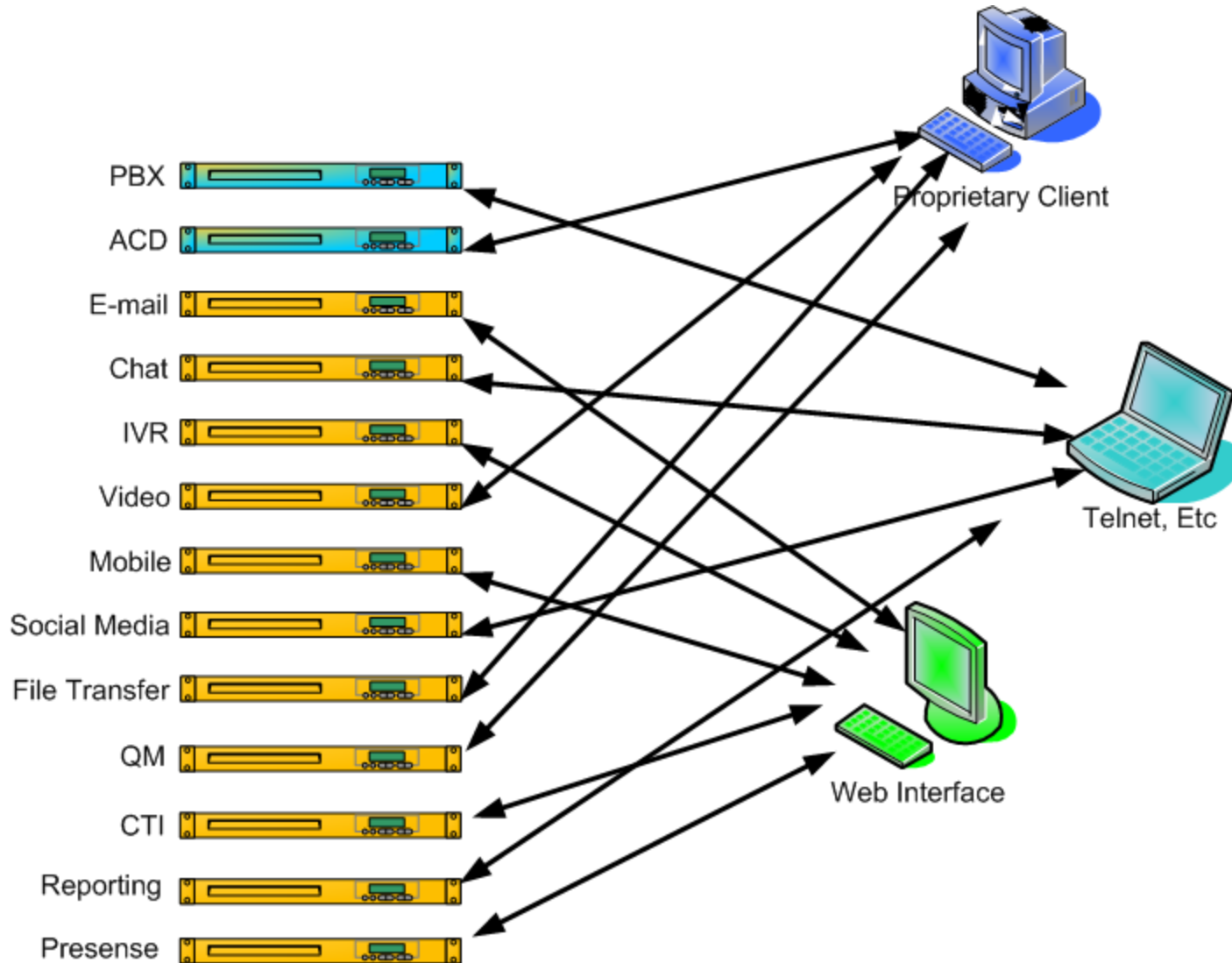
Performance Reporting:



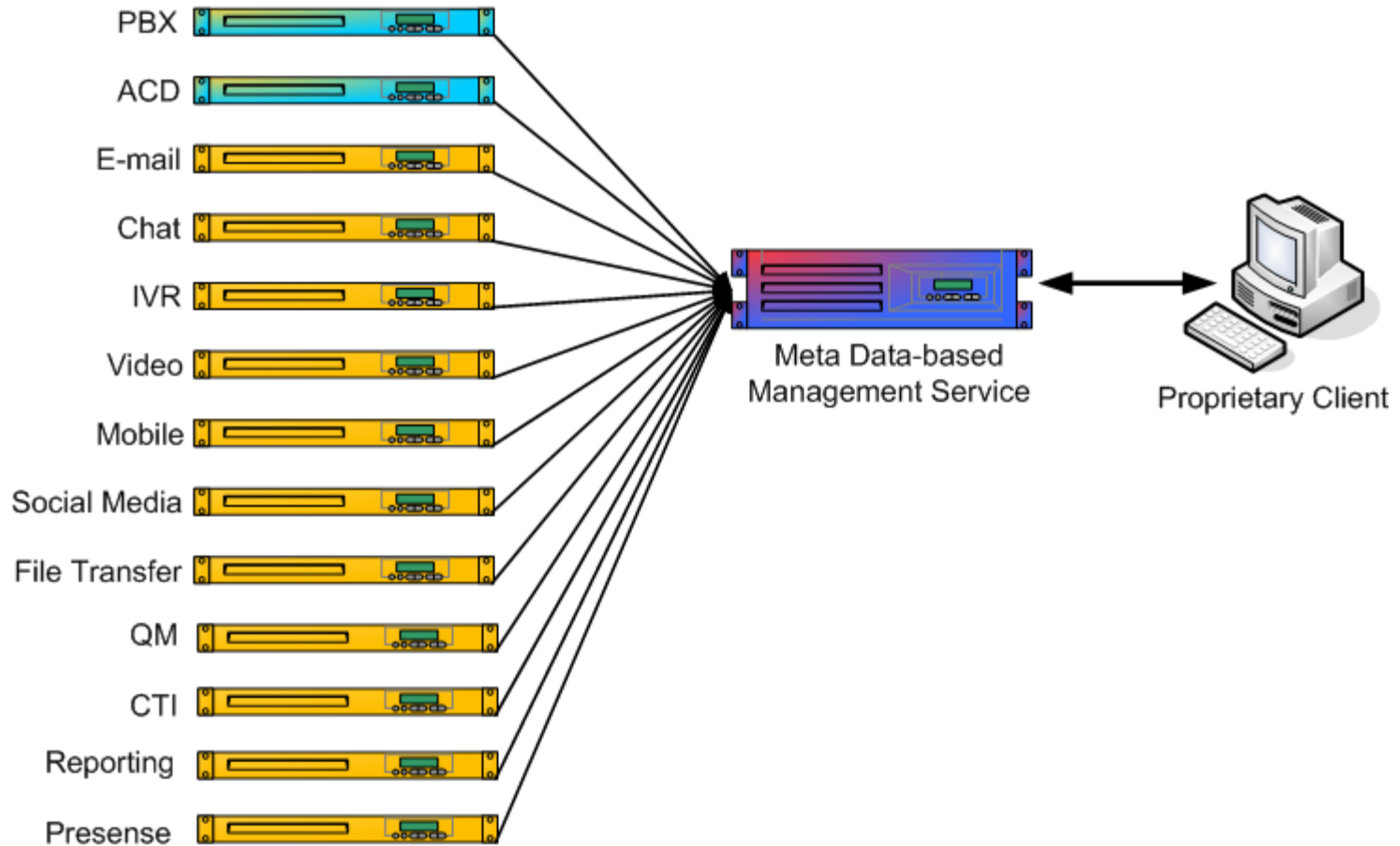
- Multiple Operating Systems
- Multiple Code Bases
- Multiple Signaling Methods
- Multiple Event Libraries

- Single Operating System
- Single Code Base
- Single Signaling Method
- Single Event Library
- **Bi Directional Signaling**
- **Consistent time stamps**
- **Expanded Occupancy Metrics**
- **True Multi-Media Reporting**

Legacy Management Interfaces

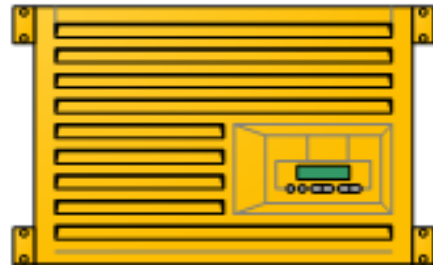


Management Interface:



WebRTC - Based Management Interface

WebPBX, WebACD
E-mail, chat, video
Social Media, web,
Mobile, File Transfer
IVR



Web Interface

- Single Operating System
- Single Code Base
- Single Signaling Method
- Single Event Library

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

- **Silicon Valley**

- November 19-21

- Santa Clara Convention Center

Use code **SIPTOWRTC** when registering
to get a 50% Discount from TMC

Thank You
and
Questions