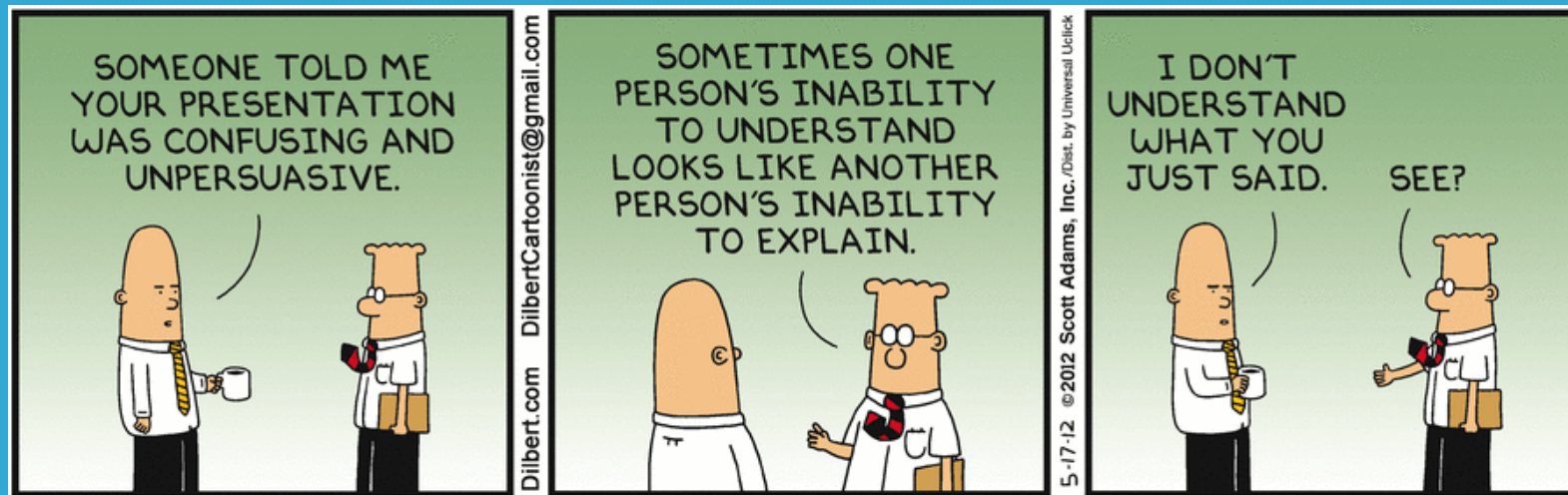


Web Real Time Commutations – Voice, Video, and Data Communication



Anton Yuste – Optare Solutions
Douglas Tait - Oracle Communications
May 2015

Communications



Complex



Expensive



Proprietary

Should be simple, easy and accessible to everyone



*Communications must be affordable
more important
Accessible by everyone!*

Required:

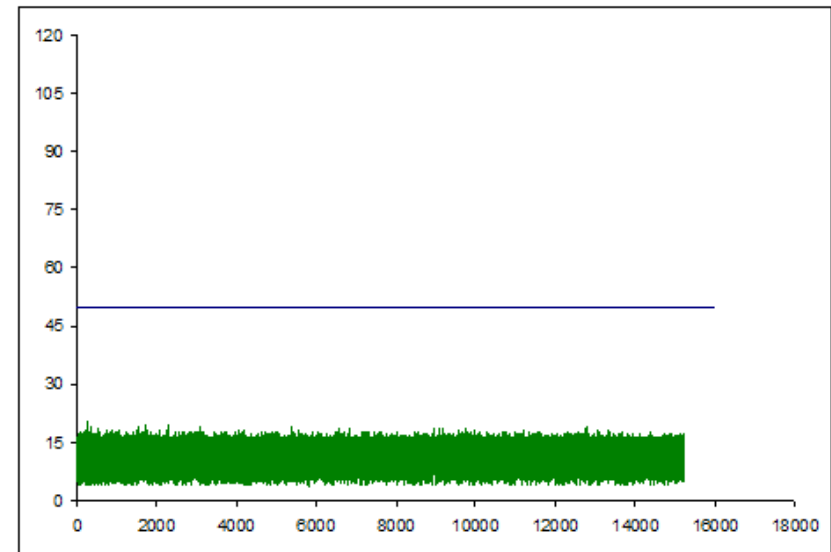
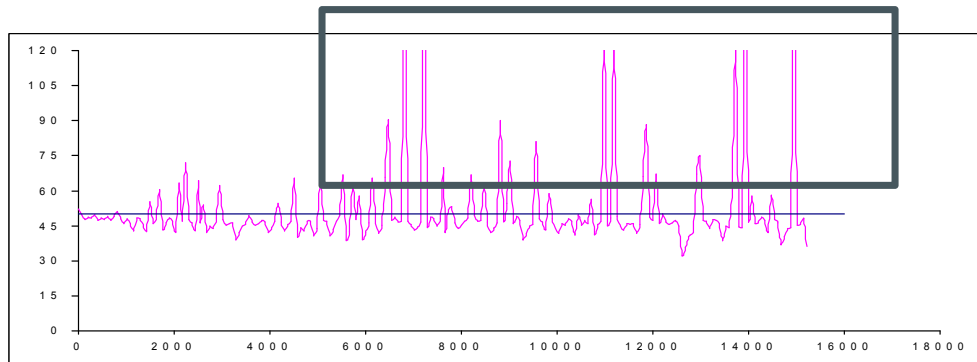
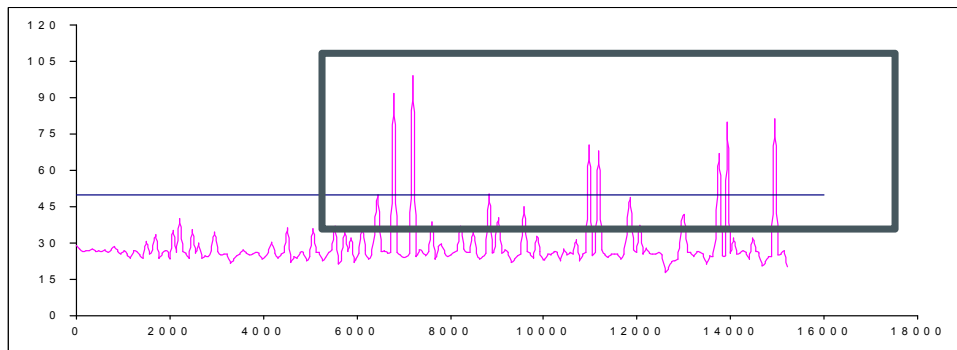
- More service agility to be innovative
- Faster, more flexible service development is needed to have a competitive edge
- Engage innovation without losing control

Java is not suited for Telecoms



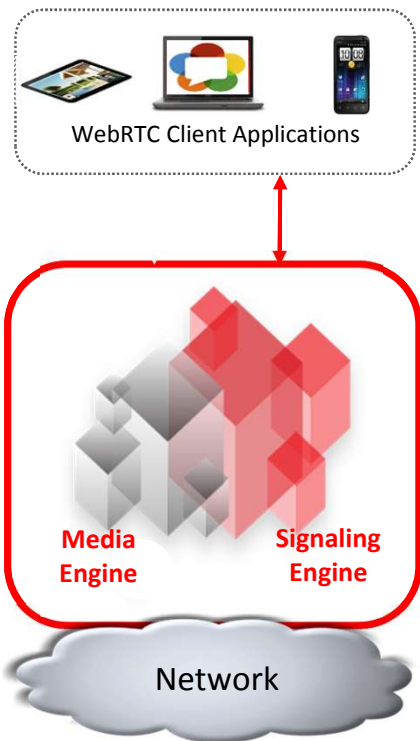
Guess what? We are!

Managing latency in a telco environment

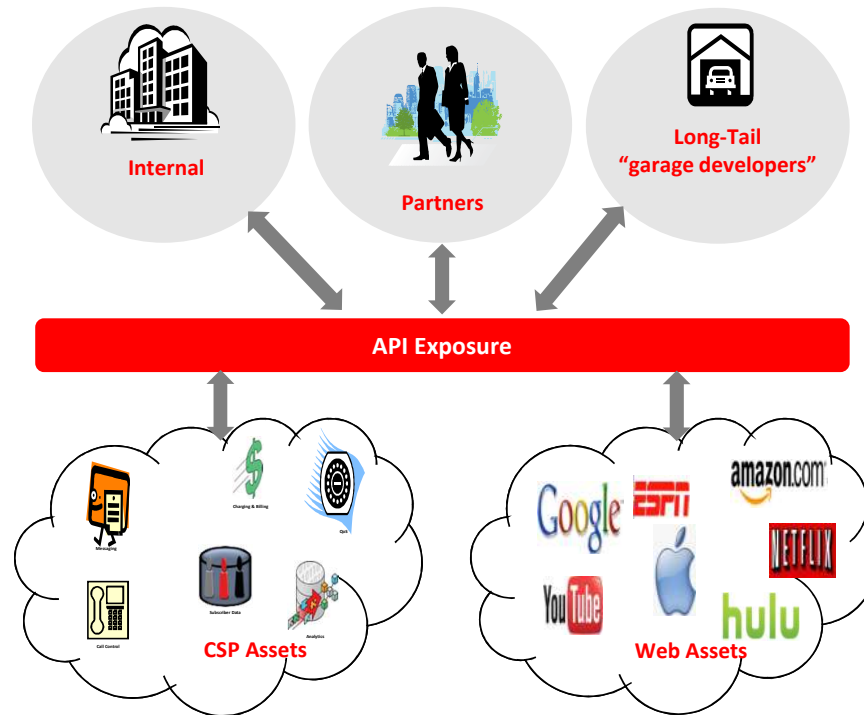


Latest Hotspots makes garbage collection *deterministic*. Target pause times allows configuration & scaling for the guarantee of SLAs.

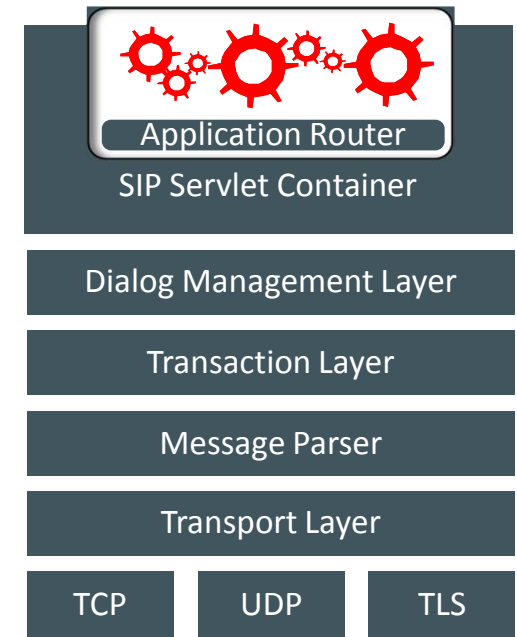
WebRTC Session Control



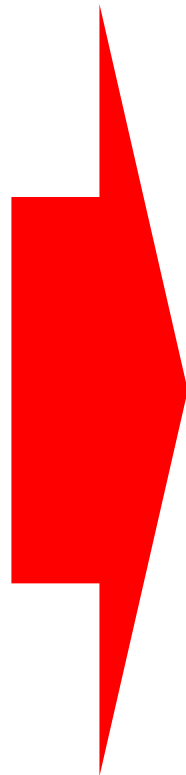
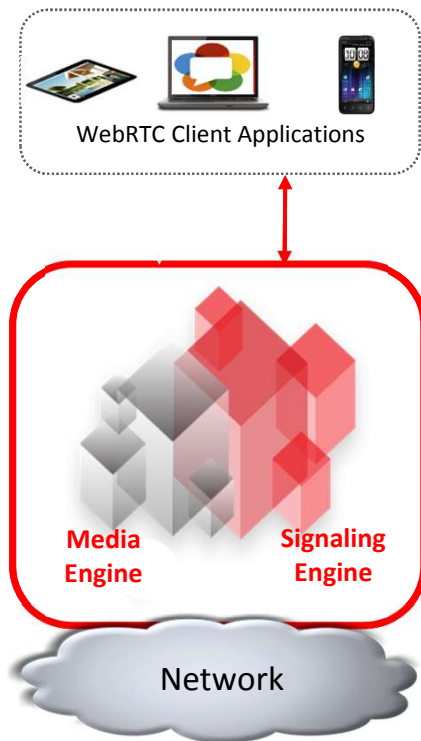
Network Access



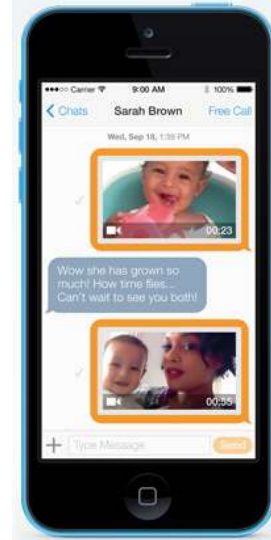
Communications programming



WebRTC Services



Video Calling



Video Messaging



Esurance Video Appraisal



WebRTC – Technically Speaking

- **Real Time Contextual Communication**

- Audio
- Video
- Data Sharing



- **Standards Based**

- JavaScript API
- Protocols and Codecs



- **Browser Based**

- Media Engine
- Peer to Peer

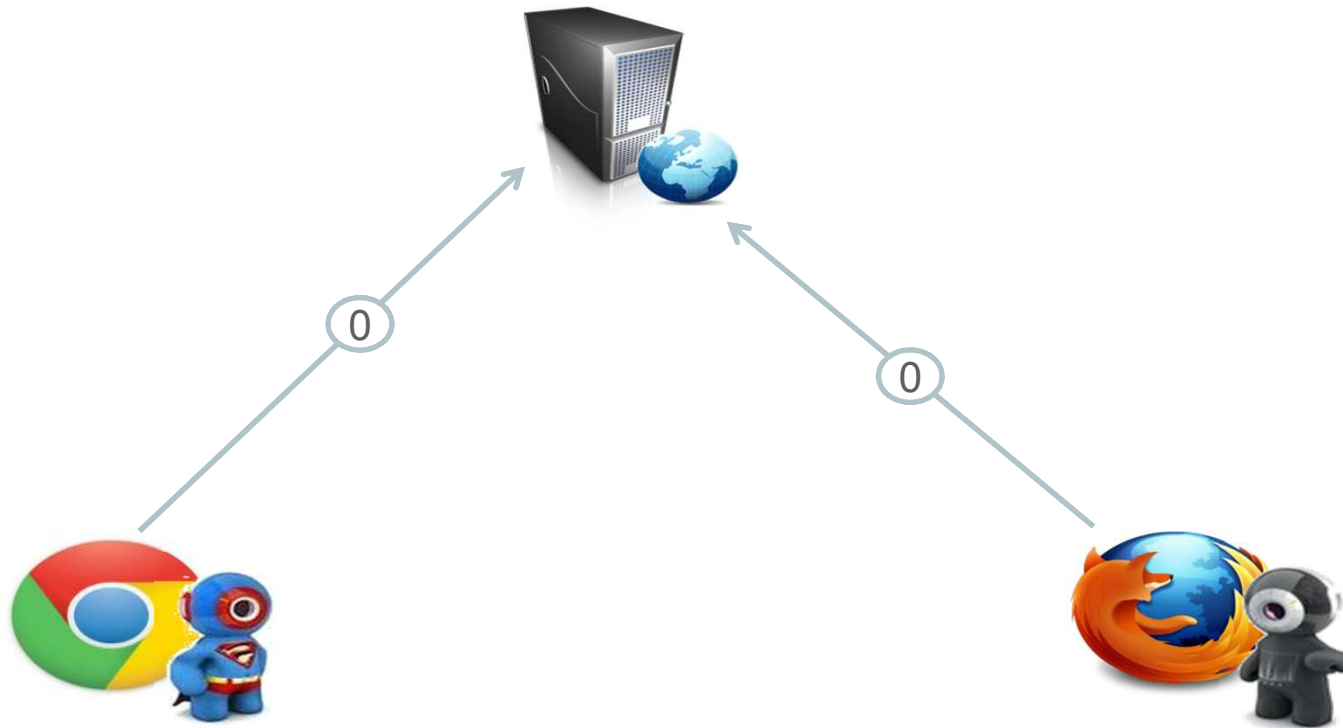


- **Large Development Community**

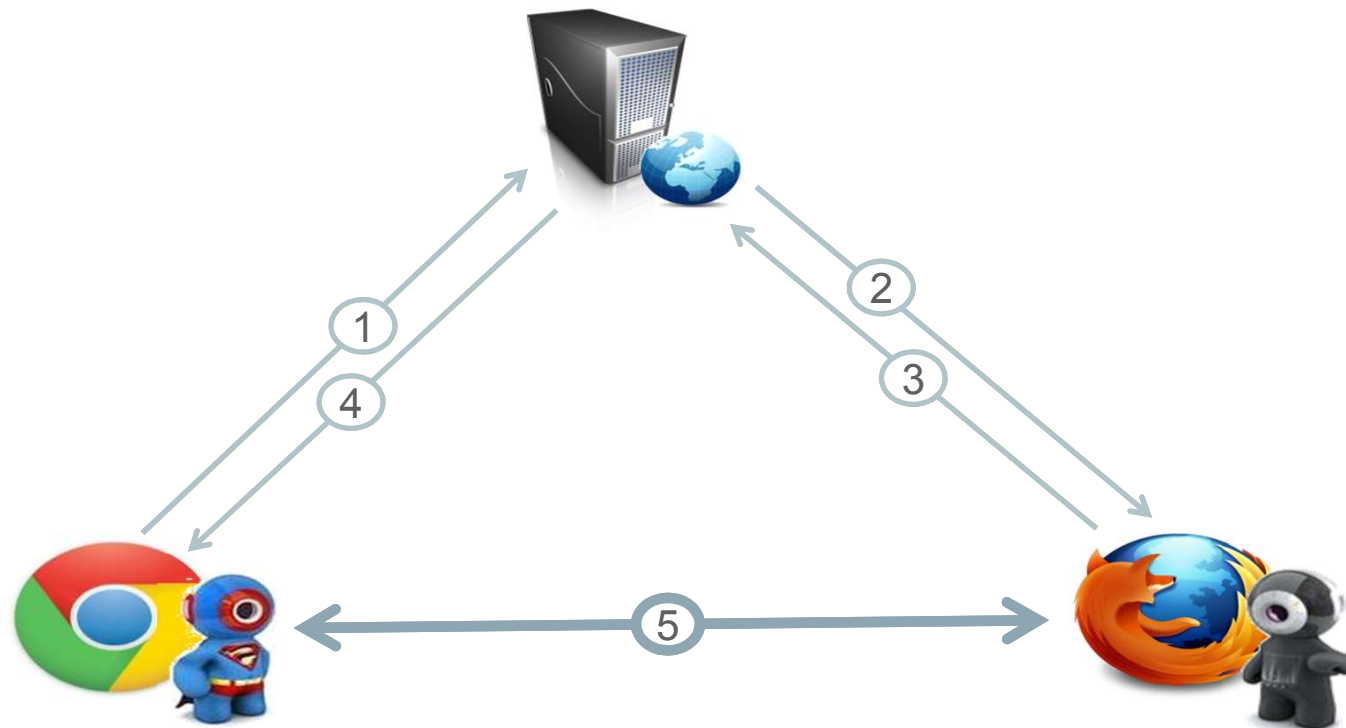
- HTML 5/CSS
- JavaScript



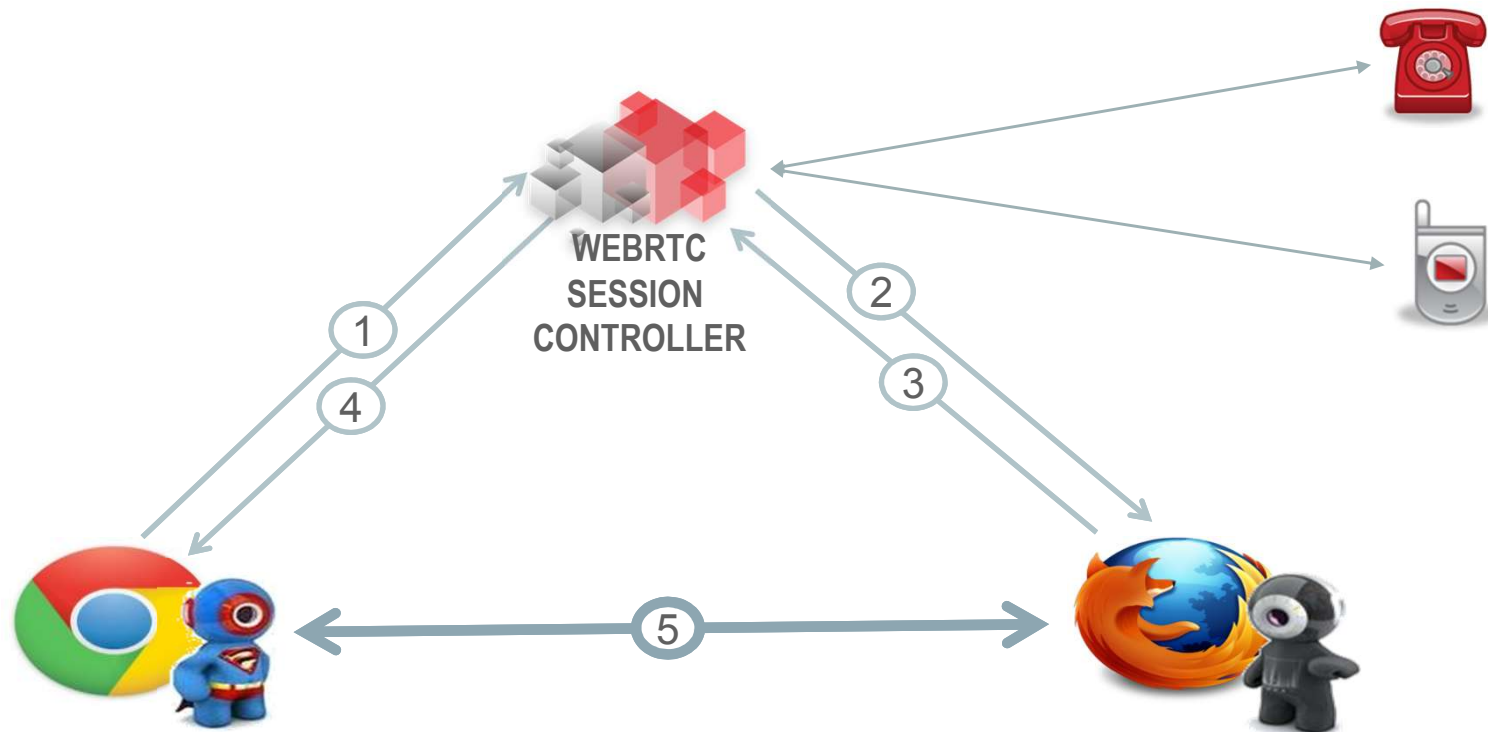
How are Calls Made with WebRTC? Please login!



How are Calls Made with WebRTC?



How are Web and Voip Calls Made with WebRTC?



JavaScript API

Example: Make a call



- Create a Session

```
var wsUri = "ws://example.com:7001/ws/webrtc/xyz";  
var session = new wsc.Session("alice@example.com", wsUri, ...);
```

- Invoke the package

```
var callPackage = new wsc.CallPackage(session);
```

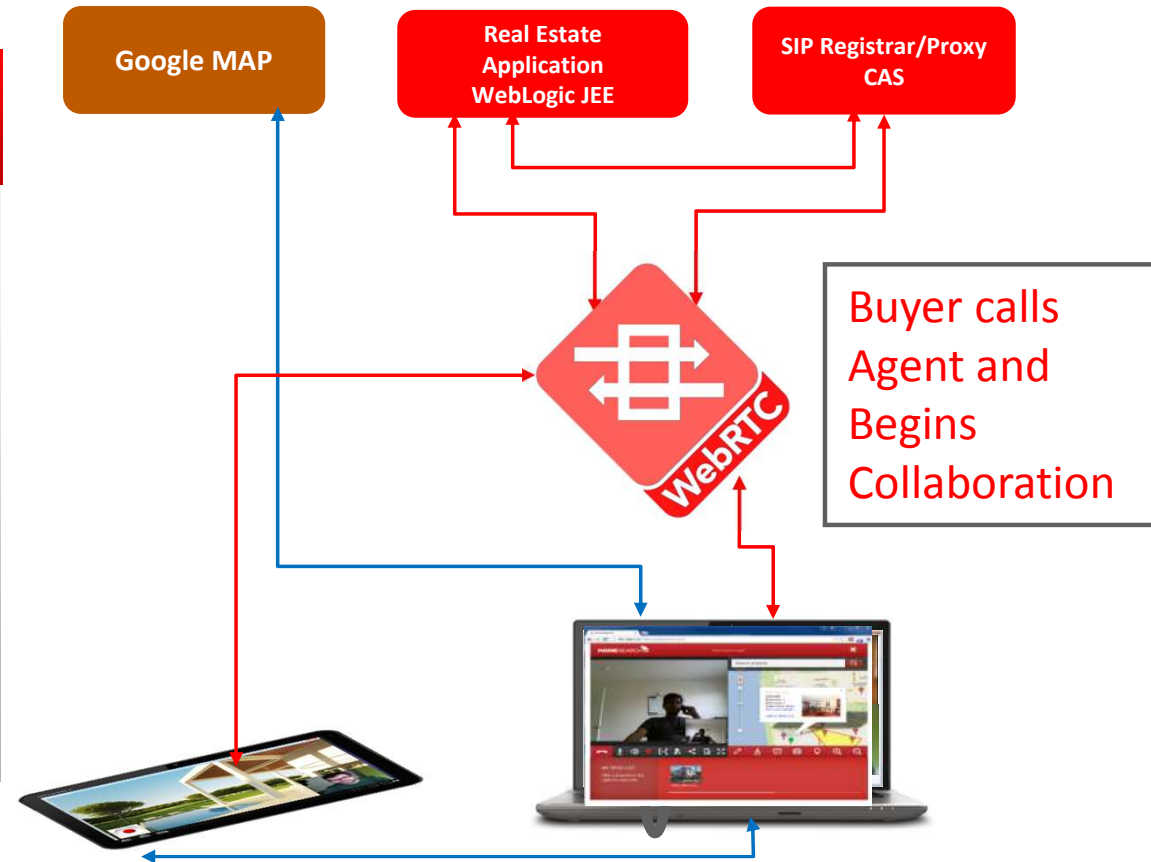
- Call the API

```
var call = callPackage.create("bob@example.com", new wsc.CallConfig(wsc.MEDIADIRECTION.SENDRCV),  
onError);  
call.start();
```

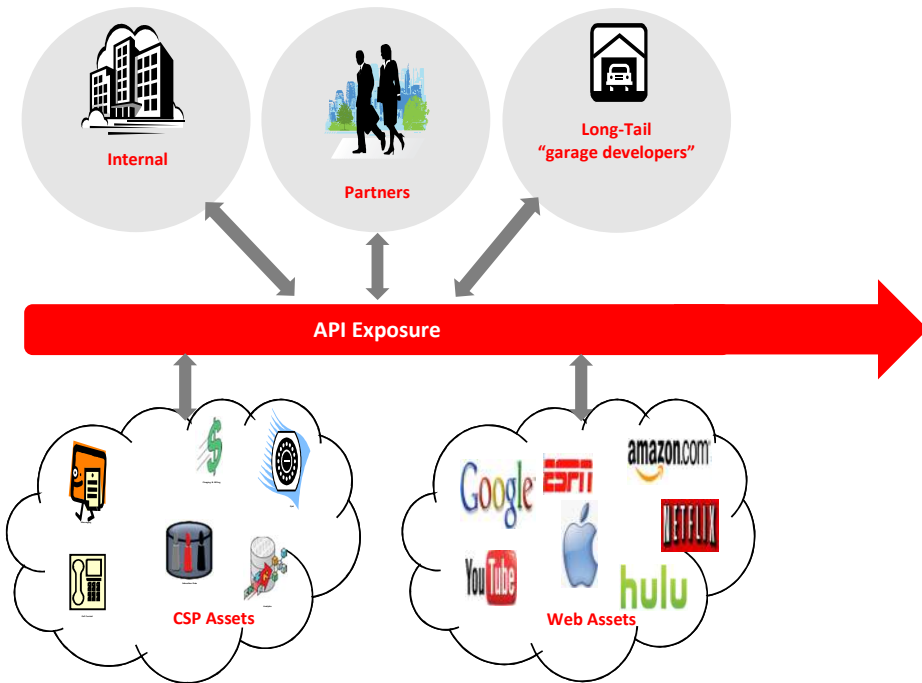
Interoperability: Web + Media + Devices + Data...

Application Integration

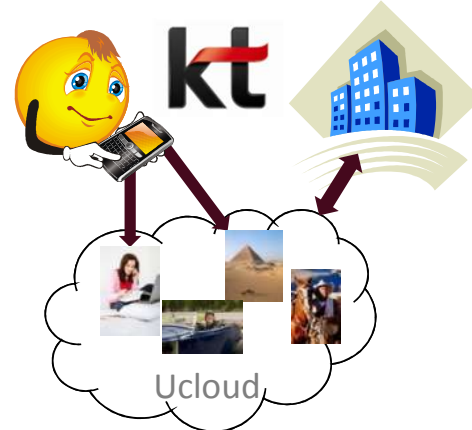
- Web Mash-up
- Media Processing
- Data – whiteboard, files, txt
- Web-centric Signaling
- Embed Communications



Network Access

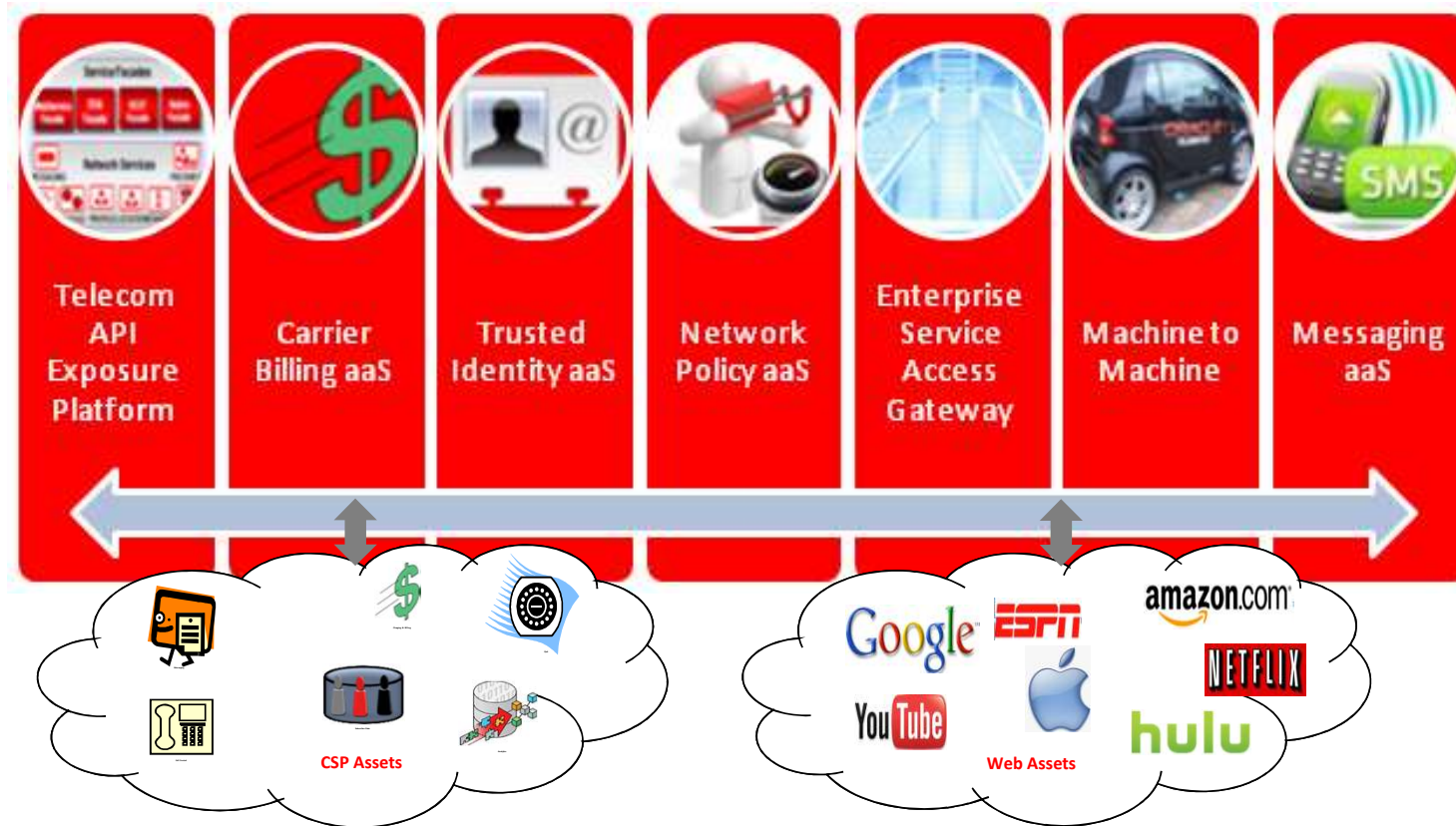


Telco assets for 3rd party service development



API solutions

Communications Access



Communications Programming



Time Warner Cable

JEFFREY JACKSON
818-555-1212

SEL SEND TO VOICEMAIL DO NOT DISTURB

Voicezone – Caller ID

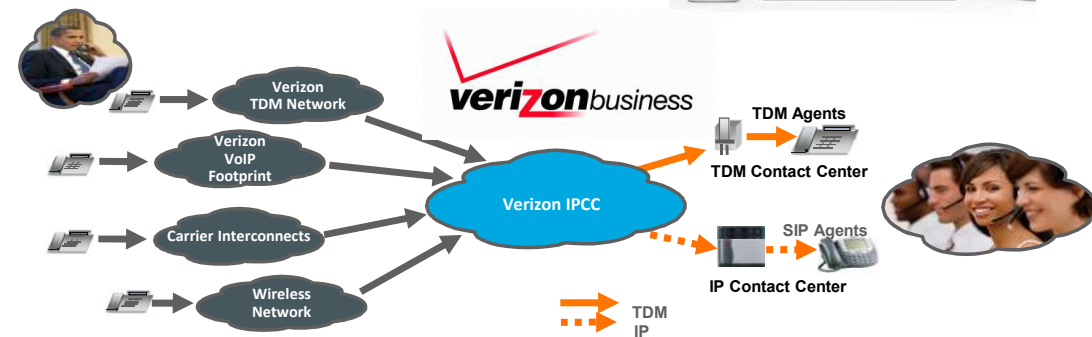
- View incoming calls as a popup
- Choose to receive call or send to vmail
- Set TV to Do Not Disturb

InterCall

ACME CO
UNIFIED MEETING* 5

CONNECTING...

Now Available with **Multipoint** Video



Convergence of IT and Communications

JEE

- Open, standards-based
- Virtualized - cloud
- Portable
- Multi-threaded
- Container
- Rapid time to market



Converged Application Server

Comms App Servers

- Reliable
- Scalable
- Interoperable
- Protocol driven
- Managed sessions
- Highly adaptable



SIP Servlets

vs

Java SIP

SIP Servlet 1.0 (HTTP Servlet Model)

```
public class SimpleSIPServlet extends SipServlet {
    protected void doMessage(SipServletRequest req)
        throws ServletException, IOException
    {
        SipServletResponse res = req.createResponse(200);
        res.send();
    }
}
```

SIP Servlet 2.0 (Annotated POJOs)

```
@SipServlet
public class FooPOJO {
    @Invite
    public void incomingCall(SipServletRequest request) {
        //...
    }
}
```

```
try {
    Properties properties = new Properties();
    properties.setProperty("javax.sip.IP_ADDRESS",
        "129.6.55.181");
    properties.setProperty("javax.sip.OUTBOUND_PROXY",
        "129.6.55.182:5070/UDP");
    // .....// Other initialization properties.
    try {
        sipStack = sipFactory.createSipStack(properties);
    } catch (SipException e) {
        System.exit(-1);
    }
}
try {
    SipURI requestURI = addressFactory.createSipURI
    ( toUser, toSipAddress);
    // ... Create other headers
    Request request = messageFactory.createRequest
    (requestURI, Request.INVITE, callIdHeader,
    cSeqHeader, fromHeader, toHeader,
    viaHeaders, maxForwards);
}
try {
    // Create the client transaction
    ClientTransaction inviteTid =
    sipProvider.getNewClientTransaction(request);
    // send the request
    inviteTid.sendRequest();
}
try {
    public void processRequest(RequestEvent
    requestEvent) {
        Request request =
        requestEvent.getRequest();
        ServerTransaction st =
        requestEvent.getServerTransaction();
        // do request specific processing here
    }
}
```



Way Cool –
but how do I play?



TADHACK™ 



Learn
Share
Code
Create

\$35K in Prizes!

Telecom Application
Developer Hackathon

13 – 14 June 2015

Lisbon - Chicago – Raleigh- London- Madrid -
New Delhi – Colombo-Jaffna- Israel-Istanbul-
Bangladesh-Jakarta-Melbourne-Buenos Aires-
Dublin ... or from the comfort of your home
office!

ORACLE
COMMUNICATIONS

Go to <http://bit.ly/oraclesandbox>

Enrollment closes June 13th



TADHack Global will run concurrently across **multiple locations**. You will have every opportunity to join in. And even if you are physically not there, TADHack will be live-streamed, enabling teams to compete remotely.

➔ REGISTER

- ★ LISBON
- CHICAGO
- RALEIGH
- LONDON
- DUBLIN
- MADRID
- NEW DELHI
- COLOMBO
- JAFFNA
- ISRAEL
- ISTANBUL
- BANGLADESH
- MELBOURNE
- BUENOS AIRES

★ Lisbon

Europe Hackathon Hub

Instituto Superior Técnico

Campus Taguspark
Avenida Professor Cavaco Silva

ANNOUNCEMENTS, DEVELOPER RESOURCES

Webinar on Oracle Developer Resources for TADHack

APRIL 13, 2015 LEAVE A COMMENT

We ran a webinar on Oracle's developer resources on Thursday 23rd April at 7AM US West Coast / 10AM US East Coast / 3PM UK / 4PM Central European Time, with their partner Optare. Video is shown below. Here are the Oracle developer resources. The line up of capabilities to play with include: WebRTC: Oracle [...]



- OPTARE SOLUTIONS
- ORACLE
- ORACLE COMMUNICATIONS WEBRTC SESSION CONTROLLER
- PAYMENT INTERFACE
- SHORT MESSAGING INTERFACE
- SUPPORT
- TERMINAL LOCATION INTERFACE
- WEBRTC

What does Oracle want in



**From Idea to service to
\$\$**



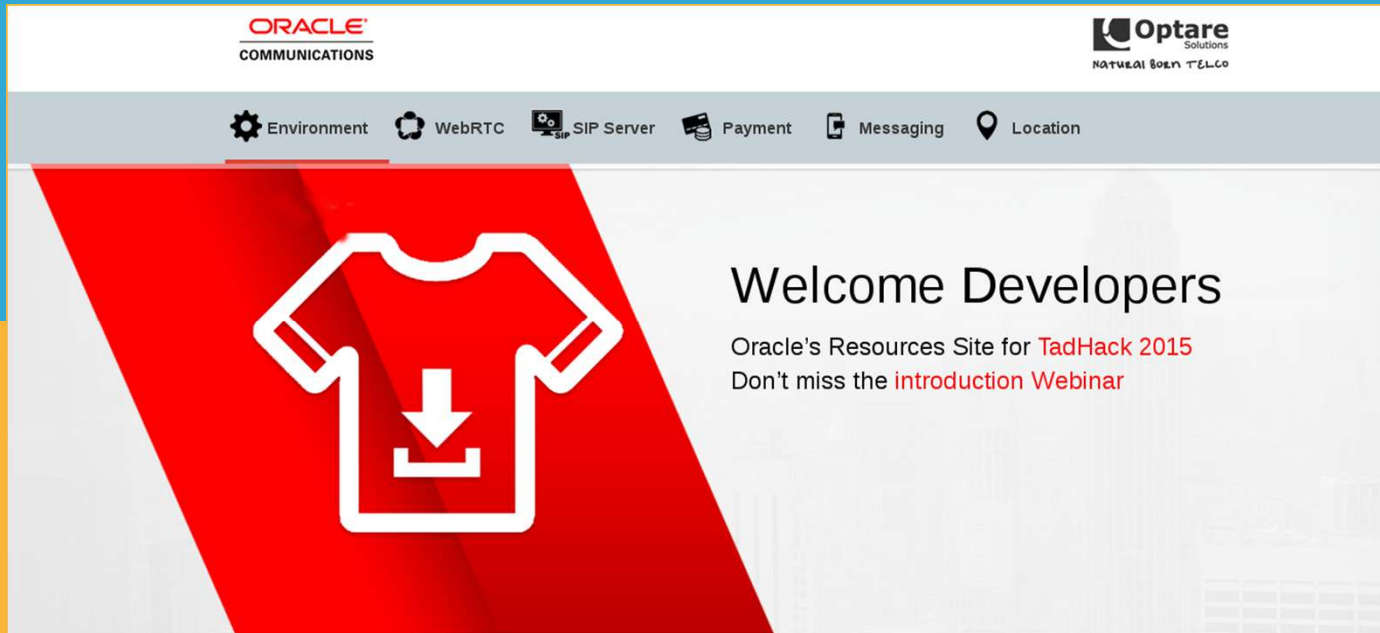
How do I get started?

The screenshot shows a web browser window with the URL `tadhack.optaresolutions.com`. The browser's address bar contains several tabs: `local`, `RealEstate2`, `XMS`, `OCWSC Console`, `Router`, `CWT login`, `SPAN`, and `WSE Real Estate De...`. The website header features the **ORACLE COMMUNICATIONS** logo on the left and the **Optare Solutions** logo on the right. A navigation bar below the header includes icons and labels for `Environment`, `WebRTC`, `Payment`, `Messaging`, `Location`, and `Support`. The main content area has a large red graphic of a t-shirt with a white outline and a download arrow. To the right of the graphic, the text reads: **Welcome Developers**, followed by `Oracle's Resources Site for TadHack 2015` and `Don't miss the introduction Webinar`. Below this is a section titled **Environment Credentials** with the subtext `You'll receive your login credentials within 24 hour`. This section contains a form with input fields for `Name`, `Last name`, `Email`, and `Confirm email`, an `Enterprise` checkbox, and a red `Request` button.



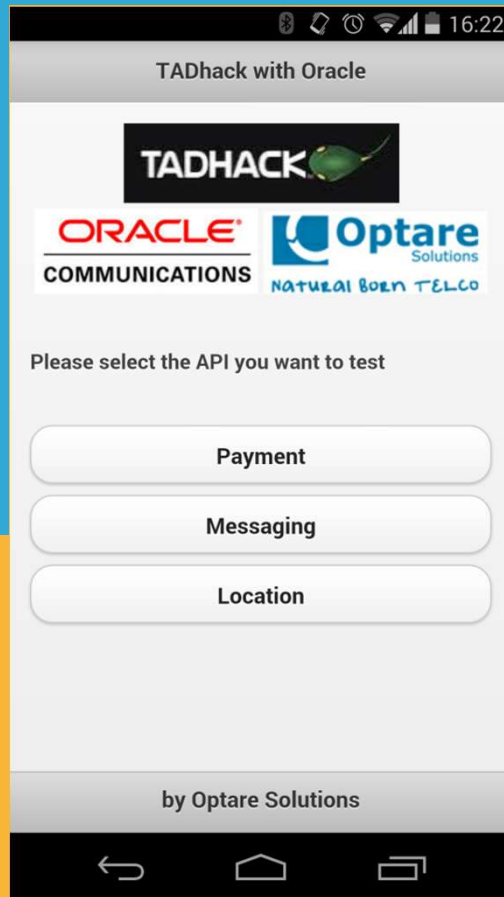


tadhack.optaresolutions.com



The screenshot shows the Oracle Communications website. At the top left is the Oracle Communications logo. At the top right is the Optare Solutions logo with the tagline "NATURAL BORN TELCO". Below the logos is a navigation bar with icons and labels for Environment, WebRTC, SIP Server, Payment, Messaging, and Location. The main content area features a large red graphic of a t-shirt with a white outline and a white arrow pointing down to a white box, symbolizing a download. To the right of the graphic, the text reads "Welcome Developers" followed by "Oracle's Resources Site for TadHack 2015" and "Don't miss the introduction Webinar".





Add easily
telecom services
to your APP



Messaging

#1 April 22nd 2015, 11:49:33 am

VALID

Formatted JSON Data

```
{
  "outboundSMSMessageRequest": {
    "address": "tel:1234",
    "senderAddress": "tel:1111",
    "outboundSMSTextMessage": {
      "message": "Hello world"
    }
  }
}
```



Payment

#2 April 22nd 2015, 11:54:30 am

VALID

Formatted JSON Data

```
{
  "amountTransaction": {
    "endUserId": "tel:1234",
    "paymentAmount": {
      "chargingInformation": {
        "description": "chargeAmount",
        "amount": "1.0",
        "currency": "USD"
      },
      "chargingMetaData": {
        "taxAmount": "0"
      }
    },
    "transactionOperationStatus": "Charged",
    "referenceCode": "REF-12345",
    "clientCorrelator": ""
  }
}
```



Location

The screenshot displays a REST client window titled "Request 1". The interface is divided into several sections:

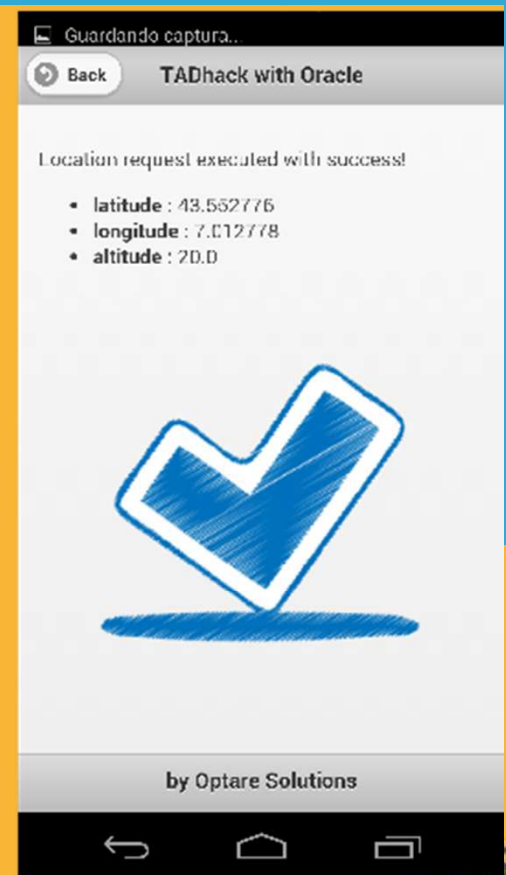
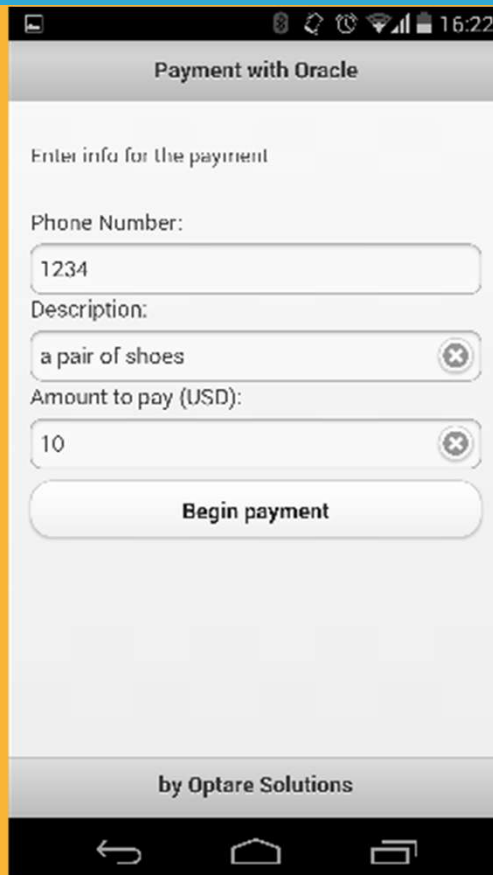
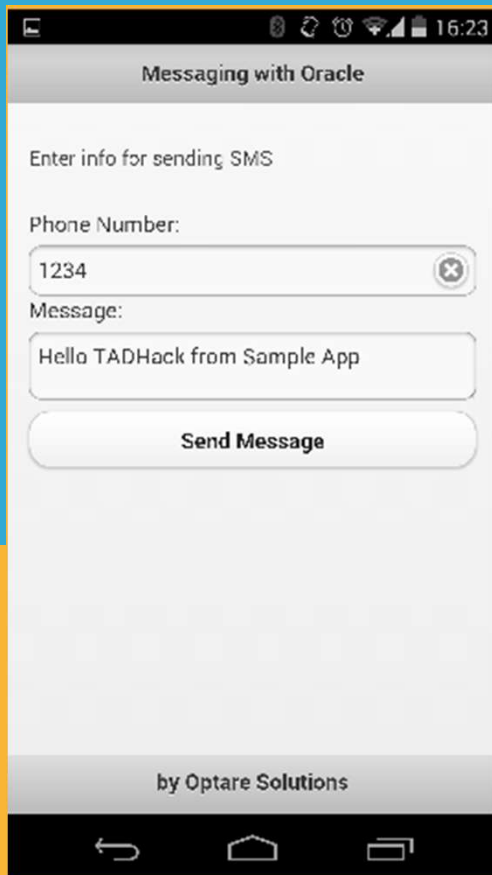
- Method:** GET
- Endpoint:** http://ocsg60.optaresolutions.cor
- Resource:** /oneapi/1/terminallocation/queries/loc
- Parameters:** ?address=tel:1234&requestedAccuracy=...

A table below the parameters section lists the query parameters:

Name	Value	Style	Level
address	tel:1234	QUERY	RESOURCE
requestedAcc...	100	QUERY	RESOURCE

The main content area on the right is currently empty, showing the raw request details. The bottom of the window features a toolbar with various options like "Auth...", "Head...", "Attachm...", "Represent...", "JMS H...", "JMS Prop...", "Headers...", "Attachments...", "SSL I...", "Representation...", "Sche...", and "JMS ...". A zoom level of "1 : 1" is visible in the bottom right corner.

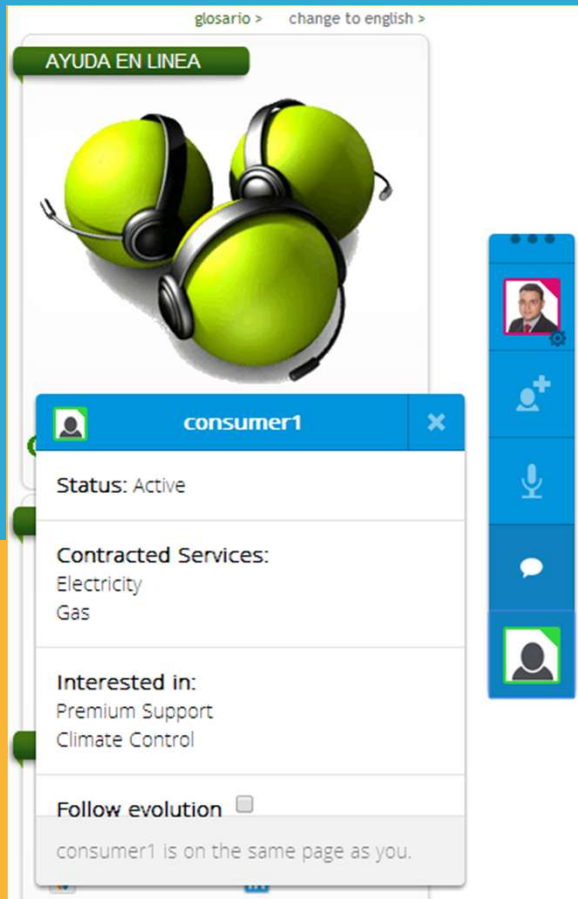






WebRTC: Add audio and video to your app or web





Sample WebRTC App



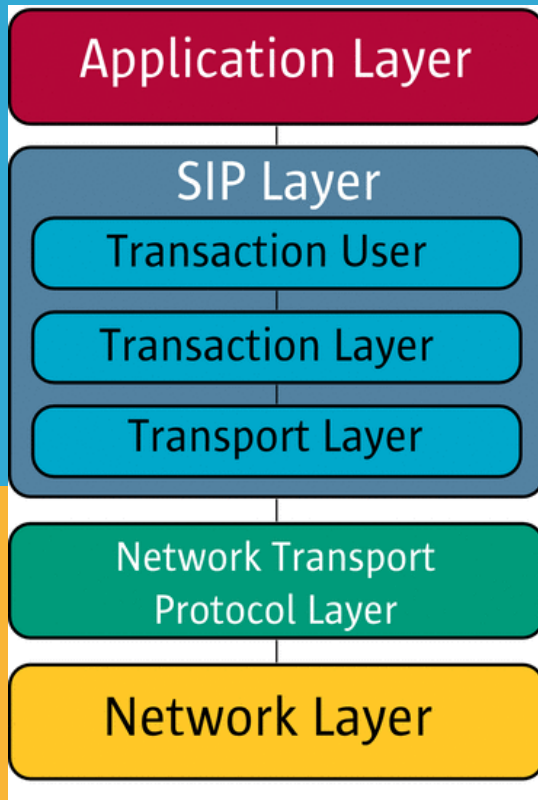
Add the JavaScript snippet

```
<script src="https://tadkhack.optaresolutions.com/togetherjs-min.js"></script>
```

Add the HTML button

```
<button onclick="TogetherJS(this); return false;">Start</button>
```

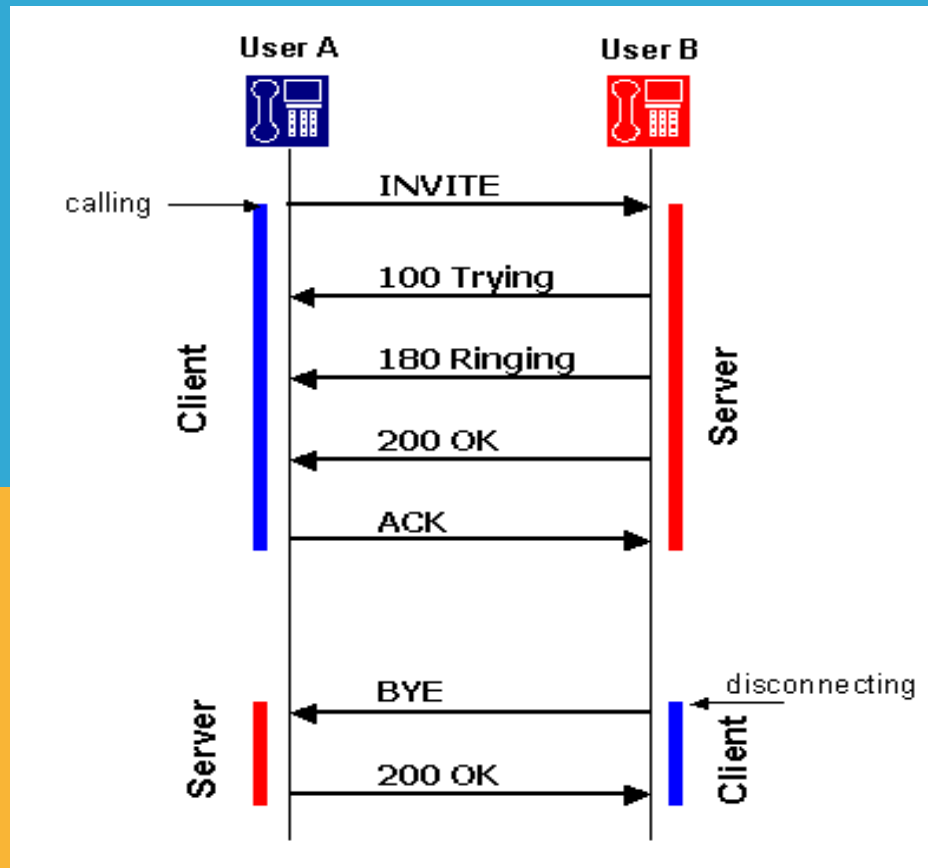




Industry-standard
SIP servlet,
media control,
Java EE, and
IMS



SIPp for testing basic functionality





Example SipServlet

@SipServlet

```
public class B2bTerminatorServlet extends SipServlet {
```

```
...
```

@Override

```
protected void doInvite(SipServletRequest req) throws  
ServletException, IOException {
```

```
    B2buaHelper b2b = req.getB2buaHelper();
```

```
    SipServletRequest other = b2b.createRequest(req, true, null);
```

```
    copyContent(req, other);
```

```
    other.send();
```

```
    log("Initial Invite! " + req.getHeader("Cseq"));
```

```
}
```

```
...
```

```
}
```

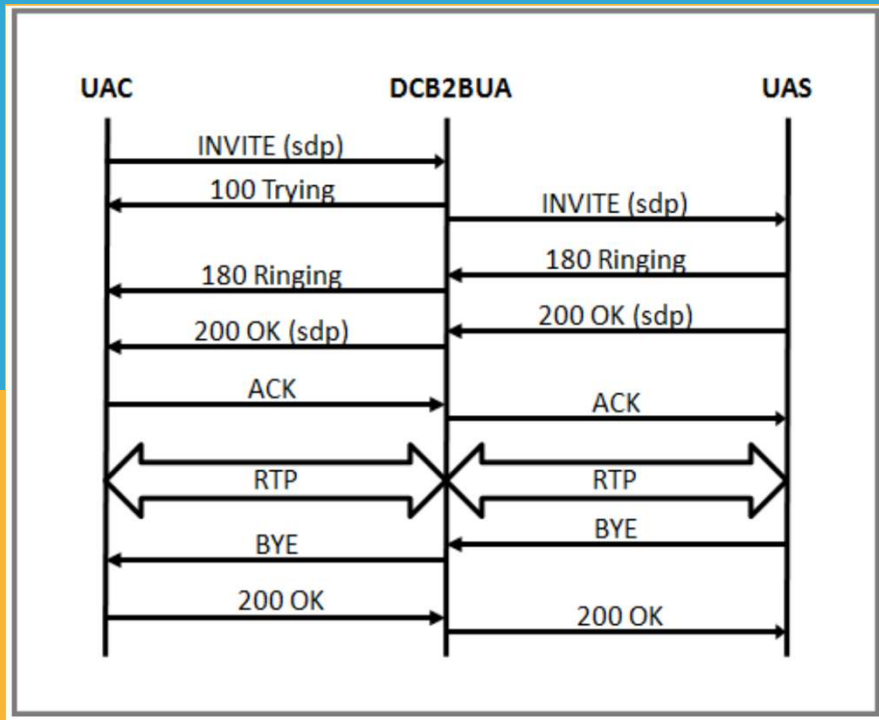


SIP POJO (JSR-359)

```
@SipServlet  
public class FooPOJO {  
  
    @Invite  
    public void incomingCall(SipServletRequest request) {  
        //...  
    }  
  
    @Bye  
    public void disconnectCall(SipServletResponse response) {  
        //...  
    }  
}
```



Sample SIP-Server App



Support



Web Real Time Commutations – Voice, Video, and Data Communication

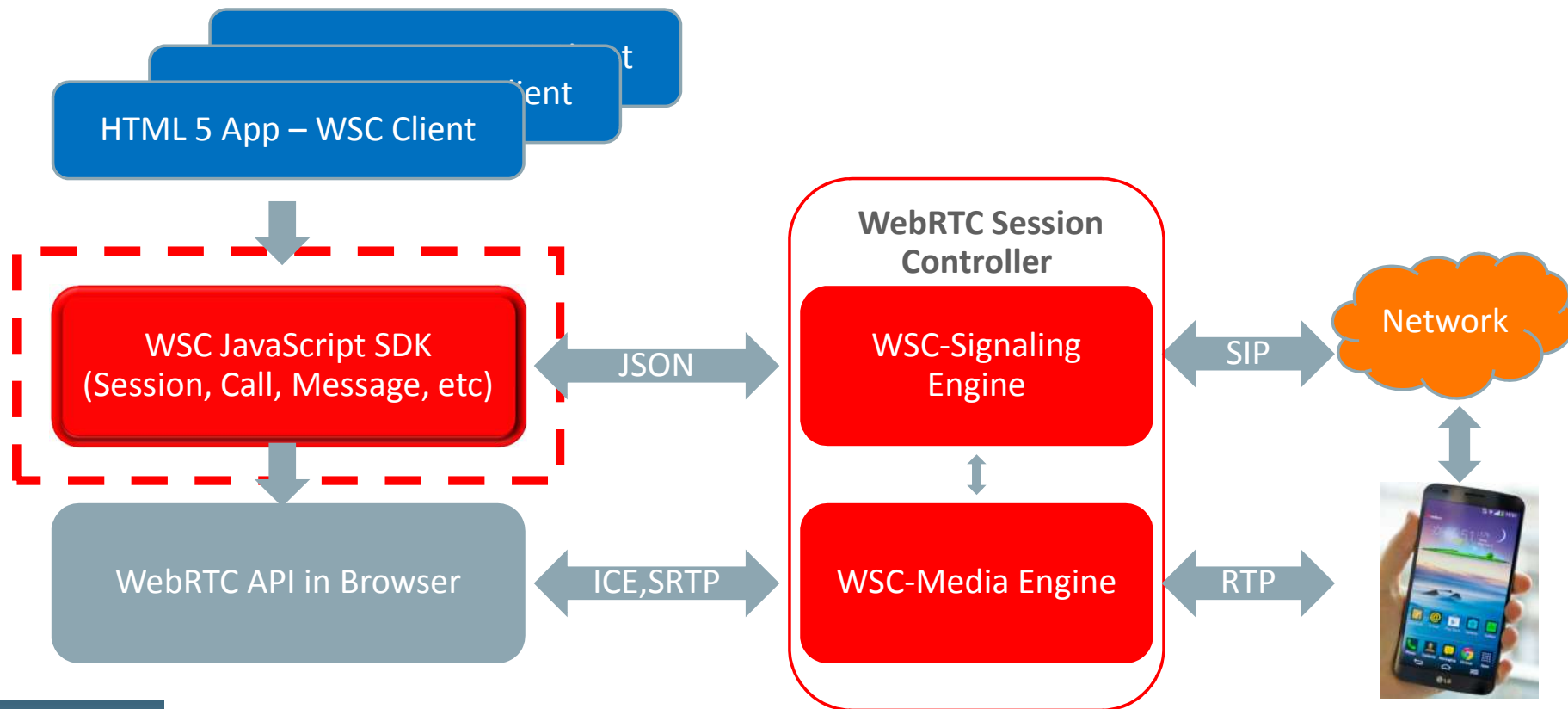


Hardware and Software Engineered to Work Together



WebRTC Session Controller

JavaScript SDK Overview



Client SDK

Accelerate and Simplify WebRTC HTML5 Application Development

- Rapid custom client development
- JavaScript for easy programming
- Cross platform support
- Manages browser compatibility across vendors and versions
- Client authentication
- Session and Connection Management
- Client-server state resynchronization
- Application specific signaling with customization via configuration driven scripting engine

