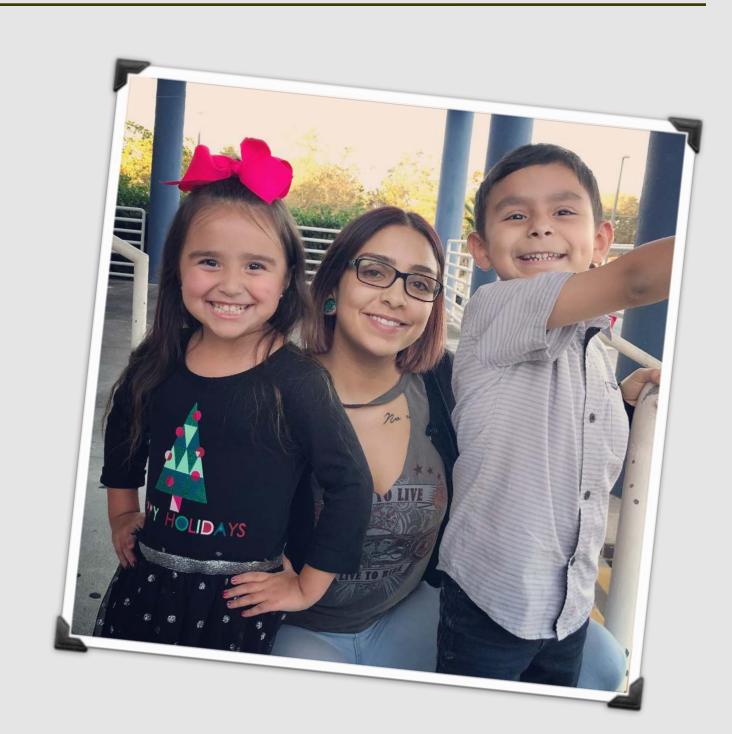GIANCARLO GOMEZ

Refreshing your UI: Modern uses for WebSockets

Who am I?

▸ Proud Father of 3

▸ Web Developer since 1999

▸ Freelance since 2001

▸ Owner of Fuse Developments, Inc. and CrossTrackr, Inc.

▸ Senior Developer at Duty Free Americas, Inc.

▸ South Florida ColdFusion User Group Co-Manager

What WebSockets are …

‣ Full-Duplex communication channels over a single TCP connection

‣ Allows bi-directional communication between client and server

‣ Little Overhead

‣ Very Little Latency

‣ Event Driven Web Programming, not just user initiated.

What WebSockets are not …

PUSH NOTIFICATIONS

Push notifications are messages sent to iOS or Android apps using Apple Push Notification Service (APNs) and Google Cloud Messaging (GCM).

WEB PUSH NOTIFICATIONS

Push notifications are messages sent from a Website via a Push Service.

	WebSockets	Push Notifications
Deliverable to closed application	NO	YES
Latency	Realtime	Usually near-realtime
Frequency (throughput)	High	Low

Let's Play a Game

https://game.fusedev.com

What else can we do?

https://youtu.be/WNAATDDP5-8

Show me the code!

We will return after these important coding examples

Requirements

▸ **Using Built in WebSocket Server**
Required if server does not meet minimum criteria or if working with Clusters

  ▸ Open ports for non-secure and **secure** connections (8575 / 8543)
  Secure connections only supported on ColdFusion 11 and higher

  ▸ Open ports for supporting older browsers using Flash (1243)
  Setting found in lib/neo-websocket.xml

  ▸ Add certificates to a Java Keystore or a pcks12 file

▸ **Using Proxy**
Recommended for ease of use / configuration

  ▸ IIS 8 + with WebSocket Protocol Enabled

  ▸ Apache 2.2+ compiled with worker module not prefork
  Apache MPM Worker

Where are these things you speak of?

‣ CF Admin > Server Settings > WebSocket

‣ CF Admin > Data Services > Flex Integration

‣ {{instance}}/lib/neo-websocket.xml

‣ {{instance}}/bin/wsproxyconfig

‣ IIS Site > cfws

‣ config/wsproxy/{{site}}/bin/config.ini

Things to watch for

▸ Application Pool must have a .NET Framework assigned (4+)
  IIS PROXY MODE - DO NOT SET IT TO UNMANAGED CODE OR .NET 2

▸ Virtual Application must have the same Application Pool assigned
  IIS PROXY MODE - Pre ColdFusion 2018 : /cfusion/bin/wsproxyconfig always sets to Default regardless of parent Application Pool

▸ If it still fails make sure that config.ini has the correct port as defined in the ColdFusion Administrator.
  /config/wsproxy/{{id}}/bin/config.ini

▸ If you add a new TOP level channel, you will need to restart ColdFusion

▸ If using the **PROXY** method make sure that none of your `cfwebsocket` tags have the secure attribute set to true.

▸ Wrap `wsPublish()` in it's own thread .. trust me it's for the best

▸ If you delete a site on IIS without removing the proxy, either do an IIS reset or run wsproxyconfig again.

REAL WORLD ISSUES!!!

‣ Network Connections

‣ Application Reloads

‣ Server Uptime

DISCLAIMER
ColdFusion 2018 now returns false for the isConnected() and
isConnectionOpen() functions "when the server goes offline".
Although this is great … it still does not reconnect you!!!!!

AdvancedSocket to the rescue!!!

▸ Easily integrates with cfwebsocket

▸ Callbacks for connection drops that easily lets you add notifications for users

  ▸ Application Reinit

  ▸ Server Downtime

  ▸ Network Connection

▸ Automatically reconnect to subscribed channels

Say what?!!

Quick demo coming right up …

What if I use ColdFusion as a REST API only?

So if you only use ColdFusion as a REST API to power your Angular, React or Native Apps tread not, there is a way you can still use this technology.

‣ Connect using JavaScript WebSocket API
https://developer.mozilla.org/en-US/docs/Web/API/WebSocket

  ‣ Specific JSON to communicate

‣ You must initiate the ColdFusion app before trying to make a WebSocket Connection

  ‣ Make an Ajax Request on a failed subscription and then try to subscribe on success

  ‣ Using onServerStart feature of ColdFusion

Show me …

Another demo coming right up …

My CFML Engine does not support WebSockets

▸ Other Options

  ▸ Socket.IO (Node Server)
    https://socket.io/

  ▸ ASP.NET Core
    https://docs.microsoft.com/en-us/aspnet/core/fundamentals/websockets?view=aspnetcore-2.1

  ▸ …

▸ Third Party Services

  ▸ Pusher
    https://pusher.com/

  ▸ PubNub
    https://www.pubnub.com/

  ▸ …

Final Demo

One more and we are done!

The Repos

‣ https://github.com/GiancarloGomez/ColdFusion-Modern-uses-for-WebSockets

‣ https://github.com/GiancarloGomez/ColdFusion-Adventures-With-WebSockets

‣ https://github.com/GiancarloGomez/ColdFusion-Realtime-With-WebSockets

‣ https://github.com/GiancarloGomez/ColdFusion-Realtime-With-WebSockets-Demo-Code

‣ https://github.com/GiancarloGomez/ColdFusion-WebSockets-Console

‣ https://github.com/CFUG-SFL/CFUG-2014-06-WS-RAFFLEAPP

‣ https://github.com/GiancarloGomez/AdvancedSocket
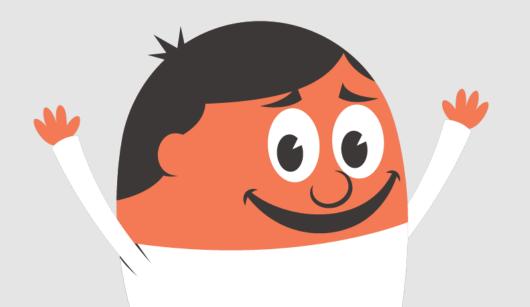   COMING SOON -> https://advancedsocket.com

https://giancarlogomez.com

giancarlo.gomez@gmail.com

@GiancarloGomez

https://github.com/GiancarloGomez

https://www.linkedin.com/in/giancarlogomez

Q & A