GIANCARLO GOMEZ - COLDFUSION SUMMIT 2015

REALTIME WITH WEBSOCKETS

WHO AM I?

‣ Proud Father of 3

‣ Web Developer since 1999

‣ Freelance since 2001

‣ South Florida ColdFusion User Group Co-Manager

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

WHAT IS A WEBSOCKET AND WHY?

▸ WebSockets allow a long-held single TCP socket connection to be established between the client and server.

▸ This allows bi-directional, full duplex messaging between both sides with very little overhead resulting in very little latency.

▸ WebSockets can replace existing HTTP Long and/or Short Polling techniques.

HTTP ARCHITECTURE

Request

Response

Half-Duplex Communication
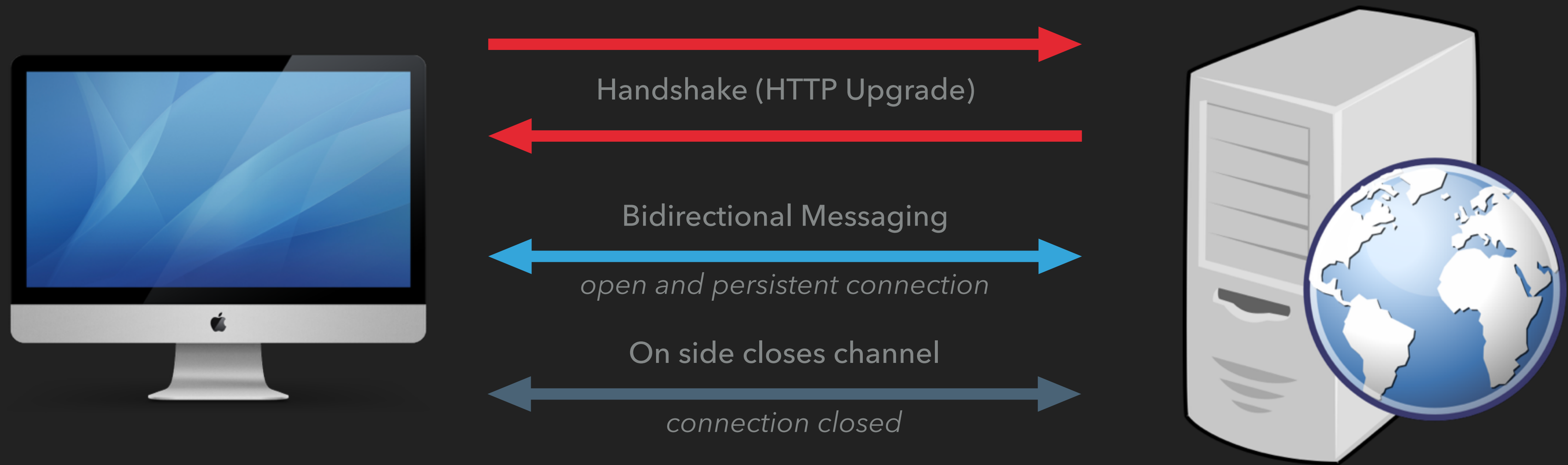
SHORT POLLING

Request

Response

Loop AJAX Request on client side and ask the server for an update

LONG POLLING

Send AJAX request to server, request loops on server until there is a response and then returns to client and processes starts over again.

WEBSOCKETS

Handshake (HTTP Upgrade)

Bidirectional Messaging

open and persistent connection

On side closes channel

connection closed

WEBSOCKETS IN COLDFUSION

▸ Supported as of ColdFusion 10

    ▸ Support over defined port
       Defaults to 8575

    ▸ Flash Fallback
       Port 1243
       Defined in lib/neo-websocket.xml

    ▸ Set Max Data Size (1024 Kb)

    ▸ 100 Connection Limit on Standard
       * Unlimited in Enterprise

▸ Introduced in ColdFusion 11

    ▸ No Connection Limits

    ▸ Proxy Support
       Great when behind a firewall and easier
       when dealing with SSL and multiple
       domains

    ▸ SSL Support
       Most browsers now do not allow for non-
       secure connections if page is secured

    ▸ Cluster Support
       * Enterprise Only

ENABLE WEBSOCKETS IN COLDFUSION

▸ Enable in Admin

   If using Proxy in ColdFusion 11, your web server must support the WebSocket Protocol.
   IIS 8+ with WebSocket Protocol Installed
   Apache 2.2+ compiled with worker module (MPM)

▸ Add 1 Line in your Application.cfc

▸ Use the cfwebsocket tag

▸ Write some JavaScript and get creative

COLDFUSION 10 ADMIN

Server Settings > WebSocket

☑ **Enable WebSocket Server**

Port 8575

The port that the WebSocket server listens to for the request. Restart ColdFusion for the setting to take effect.

Max Data Size 1024 **KB**

The maximum size of the data packet sent/received.

☑ **Start Flash Policy Server**

To enable Flash fallback if there is no native WebSocket support at the client side.

COLDFUSION 11 ADMIN

USING PROXY

STANDARD

ENTERPRISE

Server Settings > WebSocket

☑ **Enable WebSocket Service**

- ◉ **Use Proxy**
  ColdFusion WebSocket requests will be served by WebSocket proxy module configured with an external web server. Restart ColdFusion for the setting to take effect.

- ◯ **Use Built-in WebSocket Server**
  ColdFusion WebSocket requests will be served by the built-in ColdFusion WebSocket server. Restart ColdFusion for the setting to take effect.

  Port 8575
  The port that the WebSocket server listens to for all incoming ColdFusion WebSocket requests. Restart ColdFusion for the setting to take effect.

Server Settings > WebSocket

☑ **Enable WebSocket Service**

- ◯ **Use Proxy**
  ColdFusion WebSocket requests will be served by WebSocket proxy module configured with an external web server. Restart ColdFusion for the setting to take effect.

- ◉ **Use Built-in WebSocket Server**
  ColdFusion WebSocket requests will be served by the built-in ColdFusion WebSocket server. Restart ColdFusion for the setting to take effect.

  Port 8575
  The port that the WebSocket server listens to for all incoming ColdFusion WebSocket requests. Restart ColdFusion for the setting to take effect.

  ☑ **SSL Port** 8543
  The port that the WebSocket server listens to for secure communication (SSL). Restart ColdFusion for the setting to take effect.

  Keystore /Applications/ColdFusion11/mycert.pfx
  Browse Server
  Location of the Keystore. Keystore contains the private key and certificate. The supported type is JKS(Java KeyStore) and pkcs12.

  KeyStore Password ••••••••••••••
  Password used to open the keystore to load public/private key.

  Max Data Size 1024 **KB**
  The maximum size of the data packet sent/received.

  ☐ **Start Flash Policy Server**
  Enables Flash fallback if there is no native WebSocket support at the client side.

Server Settings > WebSocket

☑ **Enable WebSocket Service**

- ◯ **Use Proxy**
  ColdFusion WebSocket requests will be served by WebSocket proxy module configured with an external web server. Restart ColdFusion for the setting to take effect.

- ◉ **Use Built-in WebSocket Server**
  ColdFusion WebSocket requests will be served by the built-in ColdFusion WebSocket server. Restart ColdFusion for the setting to take effect.

  Port 8575
  The port that the WebSocket server listens to for all incoming ColdFusion WebSocket requests. Restart ColdFusion for the setting to take effect.

  ☑ **SSL Port** 8543
  The port that the WebSocket server listens to for secure communication (SSL). Restart ColdFusion for the setting to take effect.

  Keystore /Applications/ColdFusion11/mycert.pfx
  Browse Server
  Location of the Keystore. Keystore contains the private key and certificate. The supported type is JKS(Java KeyStore) and pkcs12.

  KeyStore Password ••••••••••••••
  Password used to open the keystore to load public/private key.

  Max Data Size 1024 **KB**
  The maximum size of the data packet sent/received.

  ☐ **Start Flash Policy Server**
  Enables Flash fallback if there is no native WebSocket support at the client side.

  ☐ **Enable WebSocket cluster**
  Multicast Port 45566
  The port that the WebSocket Cluster will use to broadcast node up/down events. Restart ColdFusion for the setting to take effect.

DEMO 1

SECURE WEBSOCKETS – WSS

▸ Easiest Method, use Proxy. It relies on the SSL certificates defined for the site.

▸ Using Built in WebSocket Server

   ▸ Create JKS (Java KeyStore) or PKCS12 file.
    https://info.ssl.com/how-to-create-a-pfx-p12-certificate-file-using-openssl/

   ▸ JVM Setting
    -Dcom.sun.net.ssl.enableECC=false

   ▸ If using self-assigned certificate

      ▸ Add certificate as a trusted certificate in Java keystore
       this will fix issues with cfhttp calls as well

      ▸ Accept the certificate in local keychain (mac)

REAL TIME WITH WEBSOCKETS

DEMO 2

WEBSOCKET CLUSTERS
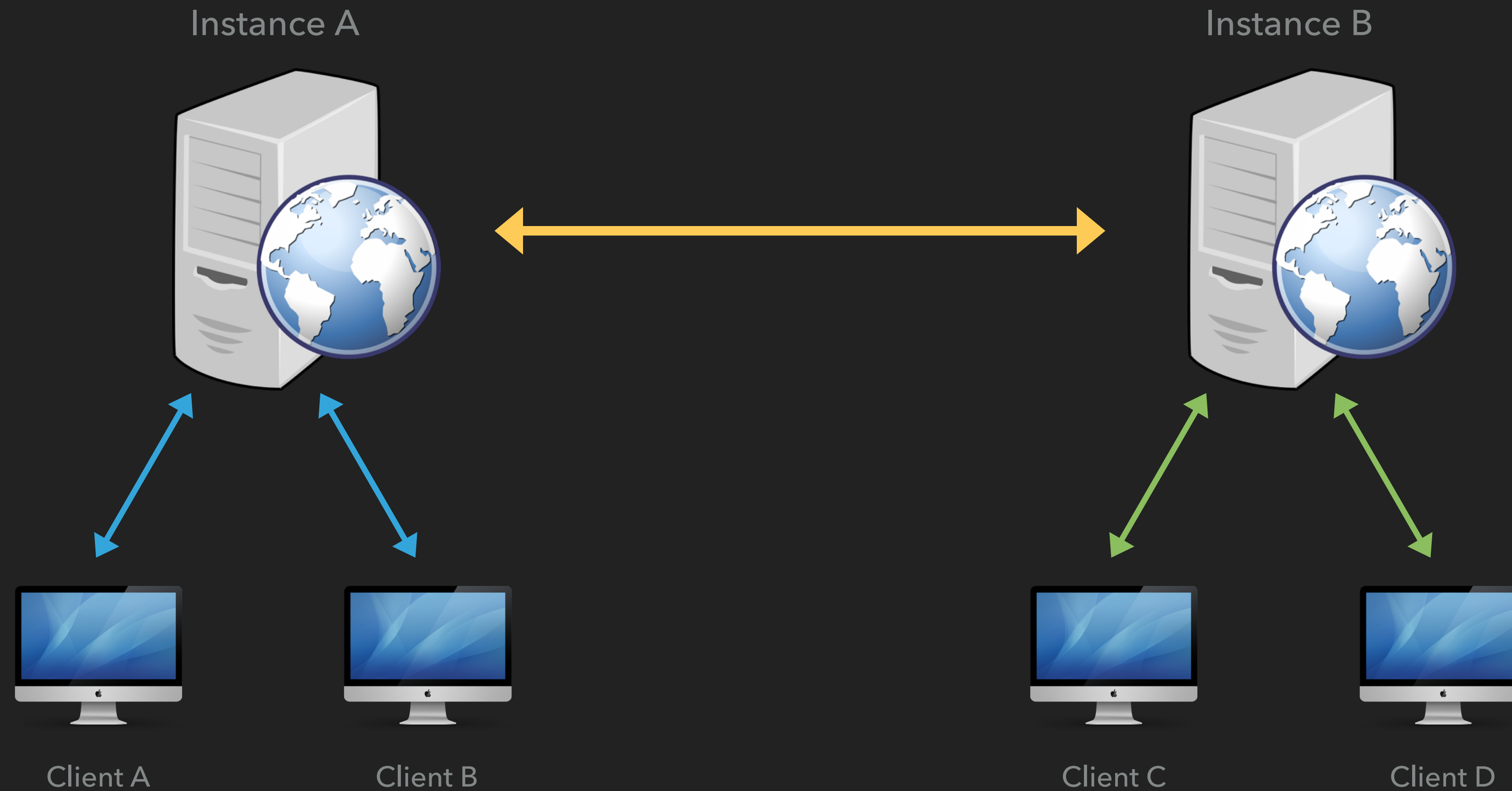
WEBSOCKETS CLUSTERS

▸ Must use built in WebSocket Server (I think)

▸ Create Instances in Instance Manager

▸ Define Cluster

▸ Rebuild Connections

▸ Turn on WebSocket clustering on all instances

▸ Have fun testing ….

DEMO 3

REAL WORLD USES

‣ Dashboards (Stocks, Airlines, …)

‣ Auctions Sites

‣ Chat

‣ Collaboration (ie: Google Docs)

‣ Push Messaging (email, notifications, etc)

‣ Games

‣ Use your imagination … anything is possible

REAL WORLD ISSUES!!!

▸ Network Connections

▸ Application Reloads

▸ Server Uptime

Me and every other Developer

HELLO ADVANCEDSOCKET

▸ Easily integrates with cfwebsocket

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

  ▸ Application Reinit

  ▸ Server Downtime

  ▸ Network Connection

▸ Automatically reconnect to subscribed channels

DEMO 4

Q & A

http://giancarlogomez.com

giancarlo.gomez@gmail.com

@GiancarloGomez

https://github.com/GiancarloGomez