**SERVER**

Chttp2\_server.cc

GRPCAPI:

**Server\_add\_port():**

* **Tcp\_server\_create ():** Add params before server creation
* **Tcp\_addport()** :Creates Socket, prepares it.
  + **AddSocketToServer():** Register Server as IOCP Socket, for polling.
* **addListener(severlistener, serverdestroy)** – server.cc: Adds Listeners to server.
  + **ServerListerner** 
    - **Grpc\_tcp\_server\_start** : Starts the tcp server and calls **start\_accept\_locked** on all listeners
    - **Start\_accept\_locked**: creates new socket for next incoming connection, and calls AcceptEx for asynchronous accepts and later notifies IOCP port to read.
      * **grpc\_socket\_notify\_on\_read** (**on\_accept**): It checks if there is any pending IOCP, if yes executes **on\_accept** closure else adds it as a pending operation
    - **on\_accept:** Retrieves new socket created by **start\_accept\_locked** and gets overlapped result then creates an endpoint by calling **grpc\_tcp\_create**(with new socket after adding it to IOCP).
      * **Grpc\_tcp\_create –** tcp\_windows: Creates a TCP endpoint and returns endpoint to perform operations using this endpoint.
    - If the endpoint is created without any errors now creates a acceptor which calls **on\_accept** callback of http2 transport function.
* **On\_accept**: Creates Pollset, and calls **DoHandshake()**
  + **DoHandshake():** to exchange args, endpoint and user\_data, later calls **on\_handshake\_done** callback
  + **On\_Handshake\_done**: After handshake is creates transport and calls transport functions.
    - **grpc\_create\_chttp2\_transport**: Creates http2 transport
    - **grpc\_server\_setup\_transport:** creates channel, adds channel stack filter and calls **grpc\_transport\_perform\_op**
    - **grpc\_transport\_start\_reading**: calls read functions to read.

**CLIENT – CLIENT\_CHANNEL**

**CreateChannel:** Creates a channel by initializing channel arguments

* After channel creation calls RPC through stub, which in turn triggers a call.

**Call:**

* This call calls **StartTRanportStreamOpBatch,** which is a decider on whether to choose load balancing, subchannels and etc..
* Picks Subchannels, then later calls **connect** from http2,
  + **Connect**
    - **Grpc\_tcp\_client\_connect() :** Calls tcp\_connect from tcp\_client\_windows.cc which creates a socket, binds and calls ConnectEx for Asynchronous connect to server end and start listening to it, later calls on\_connect callback
      * **On\_connect():** Gets endpoint and calls GetOverlappedResult on that socket to get pending operations, later creates endpoint for client end by calling grpc\_tcp\_create and calls on\_done callback (chttp2\_connector)
  + **Connected:** After connection is established and endpoint is created, calls **StartHandshakeLocked().**
    - **StartHandShakeLocked():** Adds Pollset and calls DoHandshake() on client end.
      * **DoHandshake():** Performs handshake and calls on\_handshake\_done callback.
    - **OnHandShakeDone():** Creates transport and calls transport\_start\_reading.
* As the transport is now created, it calls perform ops by the call and data is transmitted.