Robert Rademacher December 29, 2020
Revised – March 9, 2021) for Developer

Project:
Develop and install the real-time multi-feeds software to read the data from cryptos exchanges (binance first, then kucoin for 2nd project), written in C/C++ to run on Linux CentOS8 server. Websocketd server (written in C/C++) and websocket client (written in C/C++) are used for accessing to scyllaDB server to allow for requests for data via JSON. We can accept better suggestions, as long as the performance, quality, and less server resources are considered. Quality results are important.

General Details:

- C/C++ with source code (well-comments is required for review/feedback for improvements), along with the instructions on how to compile it and install it for all applications (real-time data feed, websocketd server and websocket client) on the DB server (not elsewhere such as your virtual or PC computer).

- Both Data feeds and webserverd services need to run 24 hours/day on DB server.

  Update: Datafeed services is currently running. The C code needs improvement for more robustness and better coding /documentation is needed. There are 2 sets of C code: read and write.

- Multi-data feeds using advanced C++, multithreading, with scyllaDB connection pool (see flowchart at bottom).

  Update: Completed. The code needs more work for reliable services.

- Websocketd server (written in C/C++, well-commented source code, can use seastar) running on scyllaDB server for Websocketd clients to access to scyllaDB that will have the real-time data streaming/historical data download based on our own custom REST API requests based on binance API. It will need to be ,multithreading, scyllaDB connection pool for multi-requests. See here:
  https://github.com/eidheim/Simple-WebSocket-Server
  https://github.com/thomascrmbz/cpp-websocket
  Update: This websocket server project needs to be developed. See API Project specifications for details.

- Websocket client based on C/C++ (well-commented source code) and running on other dedicated servers (from my network), accessing to scyllaDB server, See this one for reference:
  https://github.com/anychart-integrations/websocket-cexio-anystock-demo I'm aware there are websocketd and websocket code available on Github, which would be very helpful. Websocket client will need to be verified by using the web page on other dedicated server to display the updated list, refreshed every minute to display the top 100 list.
  Update: C code is available for read/write to DB. I will show you how it works..and will point out the locations where the code is used for accessing to ScyllabDB server for read/write. Of course, these existing read/write codes need more work.

- Add/update 1 year worth of 1-min timeframe historical data into scyllaDB database, then append the new data (1 minute) streaming to the existing database. Reason: Charts (via websocket client) will need to read the latest OCHLV (Open, Close, High, Low and Volume) data to display on chart based on 1 min, 5 mins, hourly, etc. based on selection. **Reason:** We want at least a year worth of 1-min records to be available for API requests.
  Update: I have 3-5 years worth of data that needs to be imported into ScyllabDB server. C code available for writing the data to ScyllabDB server – will show you where the files are located.

- Documentation on installing, compiling, and maintaining the applications. (real time data feed webconnectors, websocketd server and websocket client).
  Update: Needs documentation to be written for everything.

The reason for the websocketd server and websocket client to be included as part of this project is to be able to access to data from client side via API Rest to allow for validation of data access in real time without any issues. We can use the websocket client to dump data via text for validating the results based on API REST commands. See API Project specifications for details.

Development Details:
- Multi-feeds Services App running on scyllaDB Server (**Completed,** but the code needs more improvements to allow for redundancy purpose)
- Websocketd Server App – running on scyllaDB server
- Websocket client app – used for accessing to Websocket Server from other internal servers for accessing to data via API Rest (develop our own, similar to binance/kucoion/cexio). Needs to test it on same server (to make sure it works, and then test it on other dedicated server.

Notes:
1) www.scyllaDB.com for details. (Seastar examples: https://github.com/scylladb/seastar)
2) scyllaDB is already installed and running on dedicated DB server (192GB RAM, dual XEON CPUs – 32 cores, RAID1 & RAID10 SSD drives), ready for use.
3) DB server uses CentOS8 with latest installed libraries and development tools.
4) No docker, framework or virtual services can be used on dedicated server. Code and files must be 100% native, running on DB server.
5) My company owns all dedicated servers. Please treat these servers with care.
Payment: Final payment will be paid after the documentation and source code, plus the validation (compiling, list of libraries, etc.) to make sure that everything is working as specified, including the walk-through settings, testing, and web client verification.

Deadline: End of March 2021 (can extend as needed)

Revision: Dec 29, 2020
Robert Rademacher
TB System Design

DB Server

1) Store real-time data (1-minute OCHLV records) in ScyllaDB time-series database to be available for Jarvis and front-end web servers. Datafeed app running to handle the data feeds 24/hours/day.
2) Rest API/Socket server multi-threading/pool app - to stream data on request from client side running on other servers (Jarvis/Front End Web).