Chitchat Service

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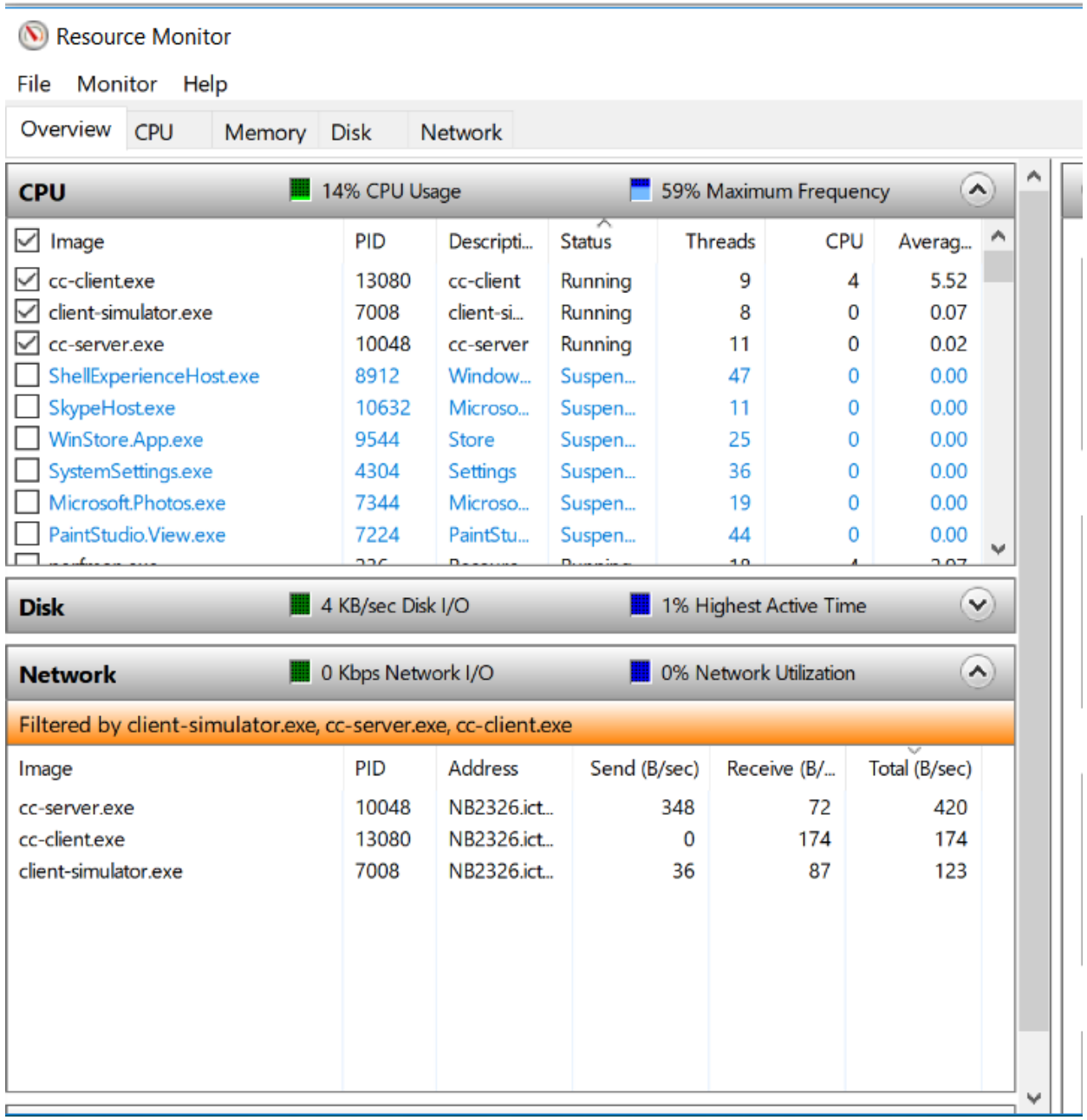
KPI Parameters



Features

Available

- Message Broadcasting.
- Online Buddy List.
- Private Message to any user.
- Browser Based Chat Support using WebSocket.
- JSON based minimalistic protocol.
- Emoticon Smileys.
- Automated Functional Testing.

Planned

- Real Time Whiteboard.
- Login Authentication.
- Search Server through Multi Casting.
- File Sharing.
- QML Desktop client.
- Multiple Chat Rooms.
- MQTT Protocol support.
- Bridging of multiple servers (MQTT).

Implementation Strategy

Performance

- Use a Lightweight Protocol to implement the use cases.
- Handle multiple requests with less resources.

Scalability

- Use a protocol which can be extended for future use cases without changing the design.
- The entire system should be scalable from one to Many with out any design change.

Portability

- The Qt SDK is already portable to multiple platform.
- Do not use any platform specific APIs and features should be enabled/disabled from a Project file level .

Solution & Technology - Components

Chat Service Server

- Qt Core Application which uses TCP Server Socket and Web Socket Server (Optional)
- It supports multiple network Interfaces

Protocol Lib

- The Protocol used by the Client & Servers is encapsulated in this layer
- QTest based Unit tests are also written for demonstration.

Desktop Client

- Qt5 Widget application
- Built in Emoticon support using Qt Resourcing System

Web Client

- Browser Based Chat Client in Javascript
- It needs the Server to support Web sockets

Client Simulator

- To Emulate a Full fledged Chat room the Simulators can be used.
- The Simulator Creates Fake Users and Send “Quotes” to the Other Online Clients on Intervals.
- Can be used to Stress Test the Server.

Qt Creator 4.5.1

Qt 5.10 SDK

C++

JavaScript /HTML/CSS

Windows & Linux(Ubuntu)

Development Tools

Solution Analysis

Pros

- JSON protocol makes system extensible for any use case.
- Written in purely Qt and the solution can be easily ported from Desktop to Embedded systems with less/no changes.

Cons

- Tightly Coupled with Qt Runtime.
- Works on Plain TCP Protocol , Prefer to have a light weight protocol like MQTT

Thank you !