Internet and Web Applications, Übung 9

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Aufgabe 1: Evaluating XMPP

Following are the benefits or advantages of XMPP protocol:

- Extensible: It can be customized to individual user requirements.
- Messaging: Short messages are used for fast communication between user and server.
- Presence: It is reactive to presence of user and his/her status.
- Protocol: It is an open platform which is constantly evolving.
- Secured: It uses TLS and SASL to provide secured end to end connection.

Following are the drawbacks or disadvantages of XMPP protocol:

- It does not have QoS mechanism as used by MQTT protocol.
- Streaming XML has overhead due to text based communication compare to binary based communication.
- XML content transports asynchronously.
- Server may overload with presence and instant messaging.

(https://www.rfwireless-world.com/Terminology/Advantages-and-Disadvantages-of-XMPP-protocol.html)

XMPP is based on a decentralized client-server architecture. In this architecture, clients don't communicate directly with each other; instead, there's a decentralized server acting as the intermediary between them. XMPP network shares a similar architectural design with email servers - there's no central master server, and anyone can run their own XMPP server. (https://ably.com/periodic-table-of-realtime/xmpp)

Aufgabe 2: Serverless Messaging

Mein Client startet einen Daemon, der DNS-based Service Discovery und Multicast DNS unterstützt. Daemon veröffentlicht unter der Multicast DNS Adresse 224.0.0.251 (FF02::FB für IPv6) unter anderem IP und Port des XMPP Clients (kann noch mit mehr Informationen in einem DNS TXT Record angereichert werden). Andere Chatteilnehmer senden Multicast DNS Query und finden mich.

Aufgabe 3: Jingle

In XMPP wird ein Channel aufgebaut (außerhalb von XMPP) in dem Daten mittels RTP gesendet werden. (https://en.wikipedia.org/wiki/Jingle_(protocol))