

# Laboratory Work #1 - Checkpoint 1

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## 1 The technologies that will be used

### 1.1 Services

1. ASP.NET Core gRPC API
2. Java + Spring Boot

### 1.2 The Gateway

Java + Spring Cloud Gateway

### 1.3 Cache

Redis - an in-memory data structure store, used as a distributed, in-memory key-value database, cache and message broker.

### 1.4 Service Discovery

Consul - a service networking solution to automate network configurations, discover services, and enable secure connectivity across any cloud or runtime.

### 1.5 Databases

1. MongoDB
2. MySQL

### 1.6 Protocols

1. RPC - internal communication between the services
2. WebSockets - communication between the gateway and the clients
3. HTTP - internal communication between the gateway and some services

### 1.7 Others

Docker - for containerization of the system components.

## 2 System architecture diagram

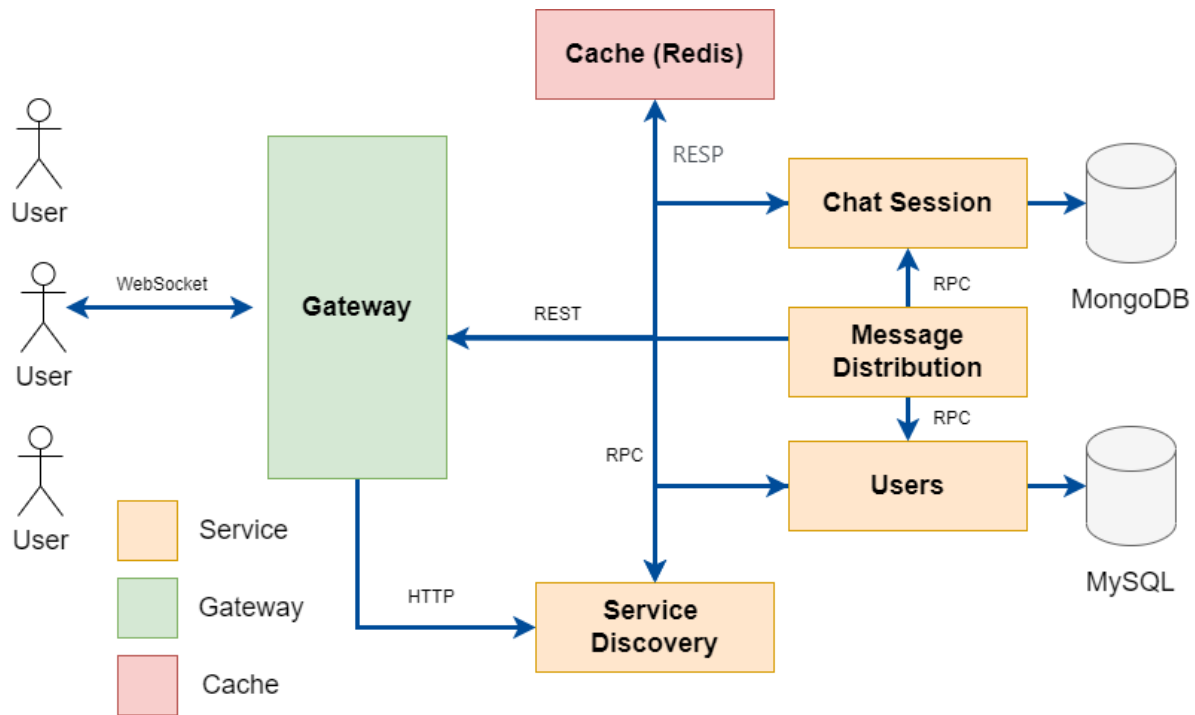


Figure 1: System architecture diagram.

### 2.1 Chat Session Service

- CRUD operations on messages(or chats) between two users
- Will map two users (for example "message\_receiver+message\_sender") and their messages
- Will trigger Message Distribution Service in case of new message

### 2.2 Users service

- Store users into DB
- Updates user's states (available, away)
- Provide user info

### 2.3 Message Distribution Service

- Route message to user \*if available\*.
- Listen for new messages from Chat Session Service and decide if it should be distributed.
- Send message status update to Chat Session Service

### 2.4 Service Discovery

- Register available services and their instances.
- Provide Service location
- Execute service health checks and provide the info to external components.

## References

[1] Git Repo <https://github.com/andycb479/dap>