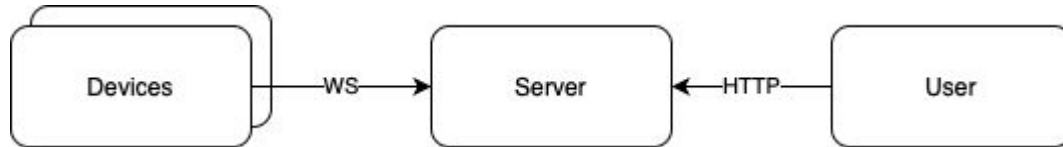# Server and device interaction

LEGO IIoT interview

Central server

- User interacts with server
- Devices connect to the server
 - Devices shouldn't and can't expose themselves on the network

Server API

Express based HTTP API for managing IIoT devices

- `GET    /devices`
  - Returns list of connected devices along with the latest telemetry data
- `POST   /devices/:id/upgrade`
  - Send command to specific device to self-upgrade to `targetVersion`

Device communication

WebSocket based for fast two way communication

- `ID` - Device identifies itself to the server
- `TELEMETRY` - Device periodically sends telemetry data to the server
- `UPGRADE` - Server tells a specific device to upgrad to a `targetVersion`
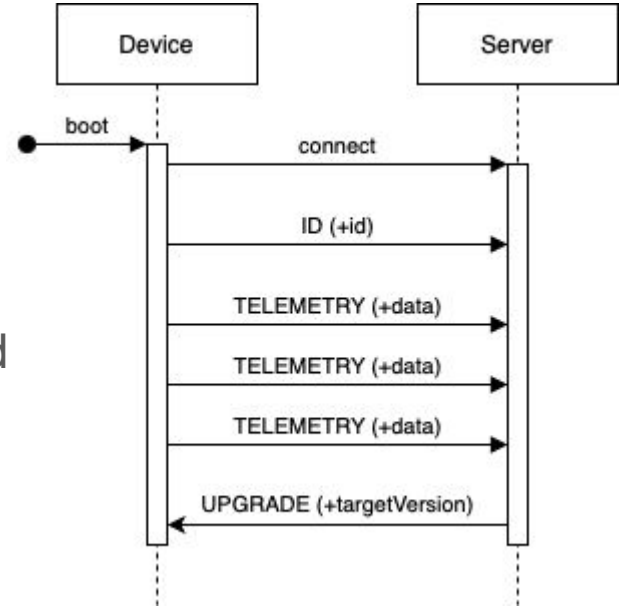
Potential improvements

- Database - for persisting state
- Authorization and authentication
- OpenAPI - input/output validation and documentation
- MQTT - for commands and events instead of WebSockets
- Logging and tracing - for monitoring server
- Tests - unit / integration / e2e