



Traffic Control Systems

From a monolithic Architecture to a distributed IoT Infrastructure with the help of OSGi

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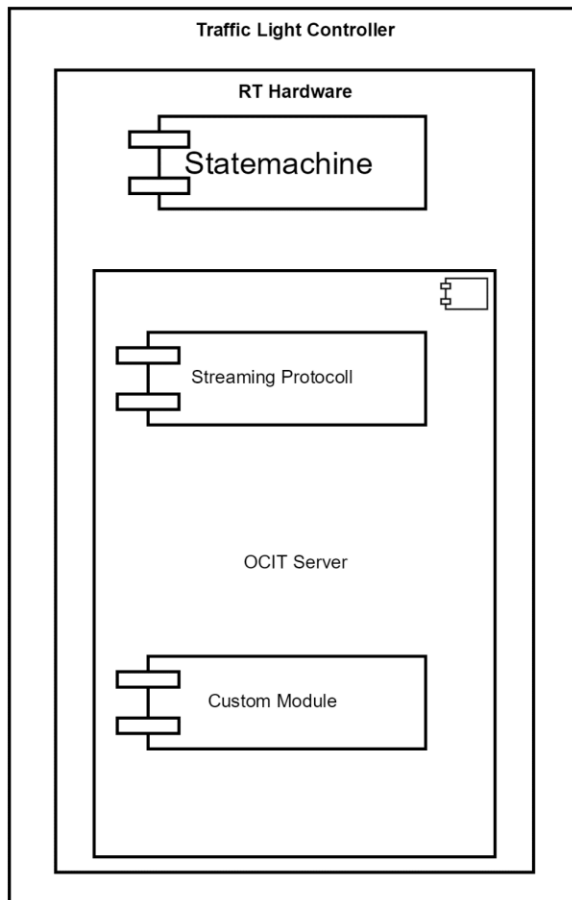
- Founded in 2010
- Located in Jena/Thuringia - Germany
- OSGi Contributing Associate Member
- Independent RnD
- OSGi and MDSD Technologies





- Traffic Control System
- Previous Tomcat as Gateway/Broker between Traffic Light Units and Frontends
- Replaced by JEE Server, that is not suited to the task
- Customer currently migrates to a smarter modular Infrastructure by leveraging the power of OSGi



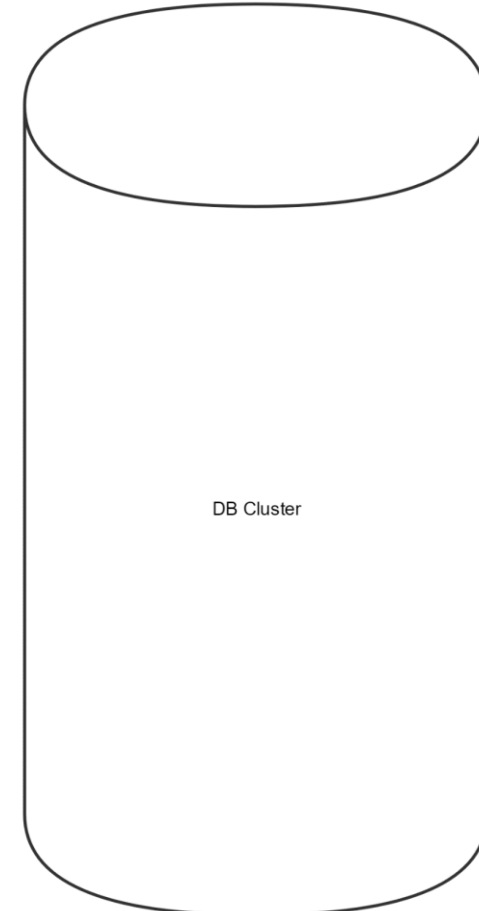
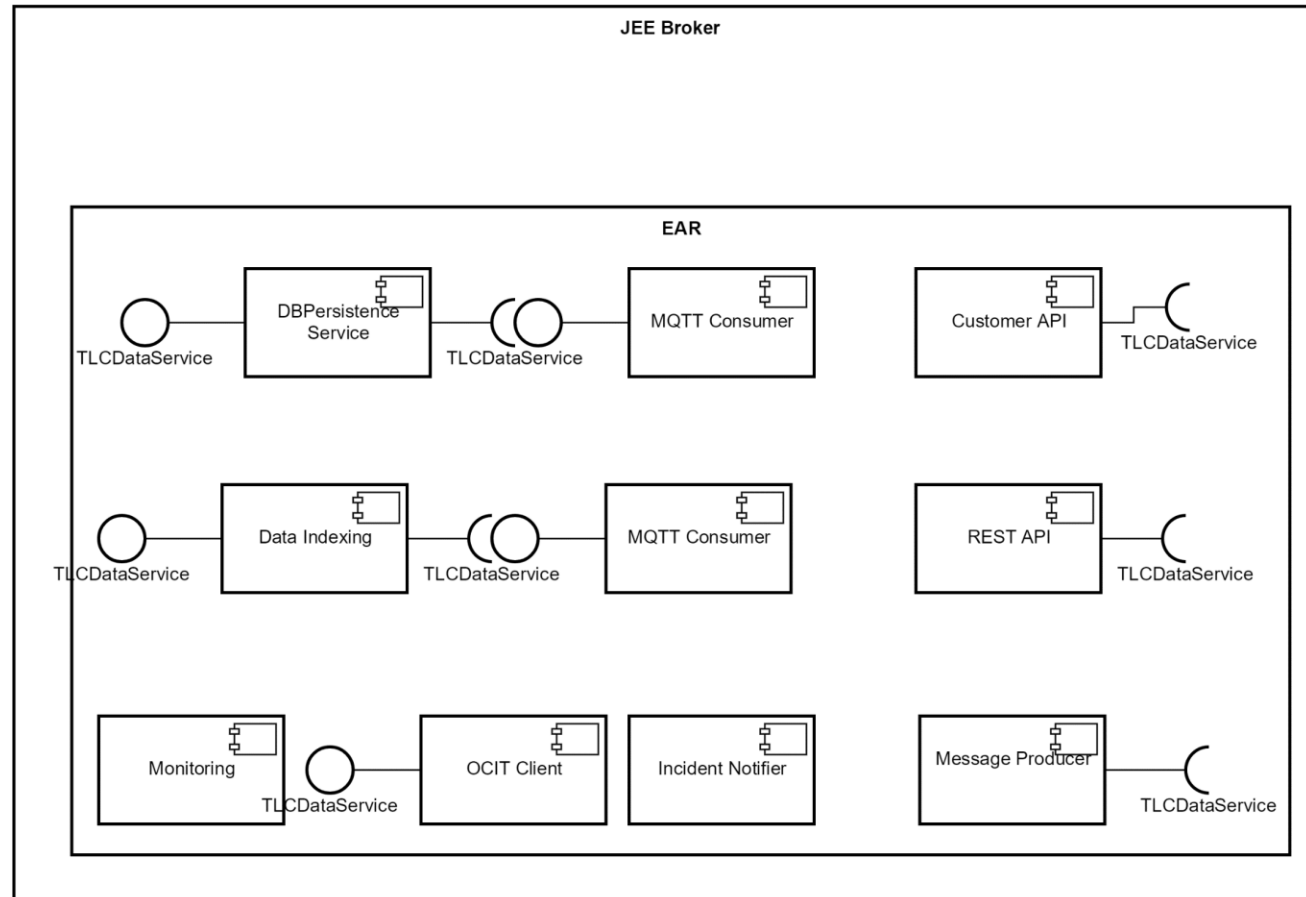


- A lot constrains dictated by law
- Realtime OS
- State machine controlling traffic lights and detectors
- Updates secured by EPROM changes
- Third Party Software (Interfaces etc.) use the same resources (deployed as monolithic artefact)
- No zero-downtime Software updates possible

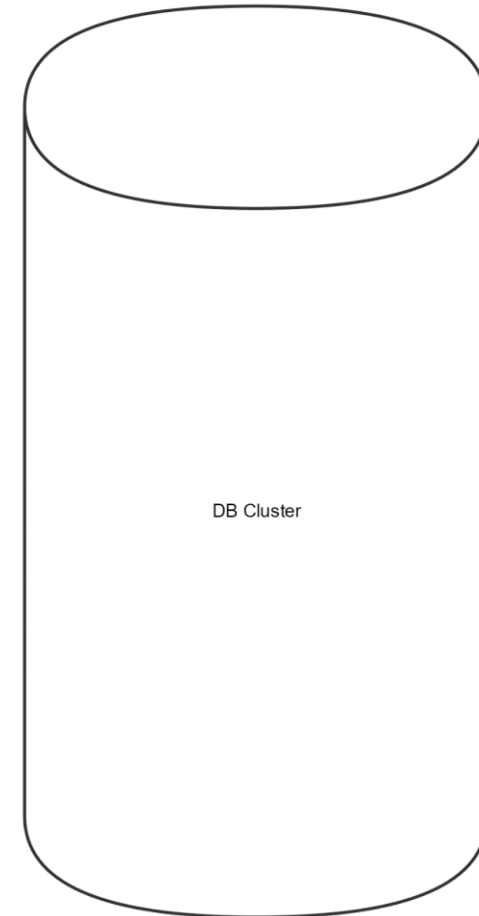
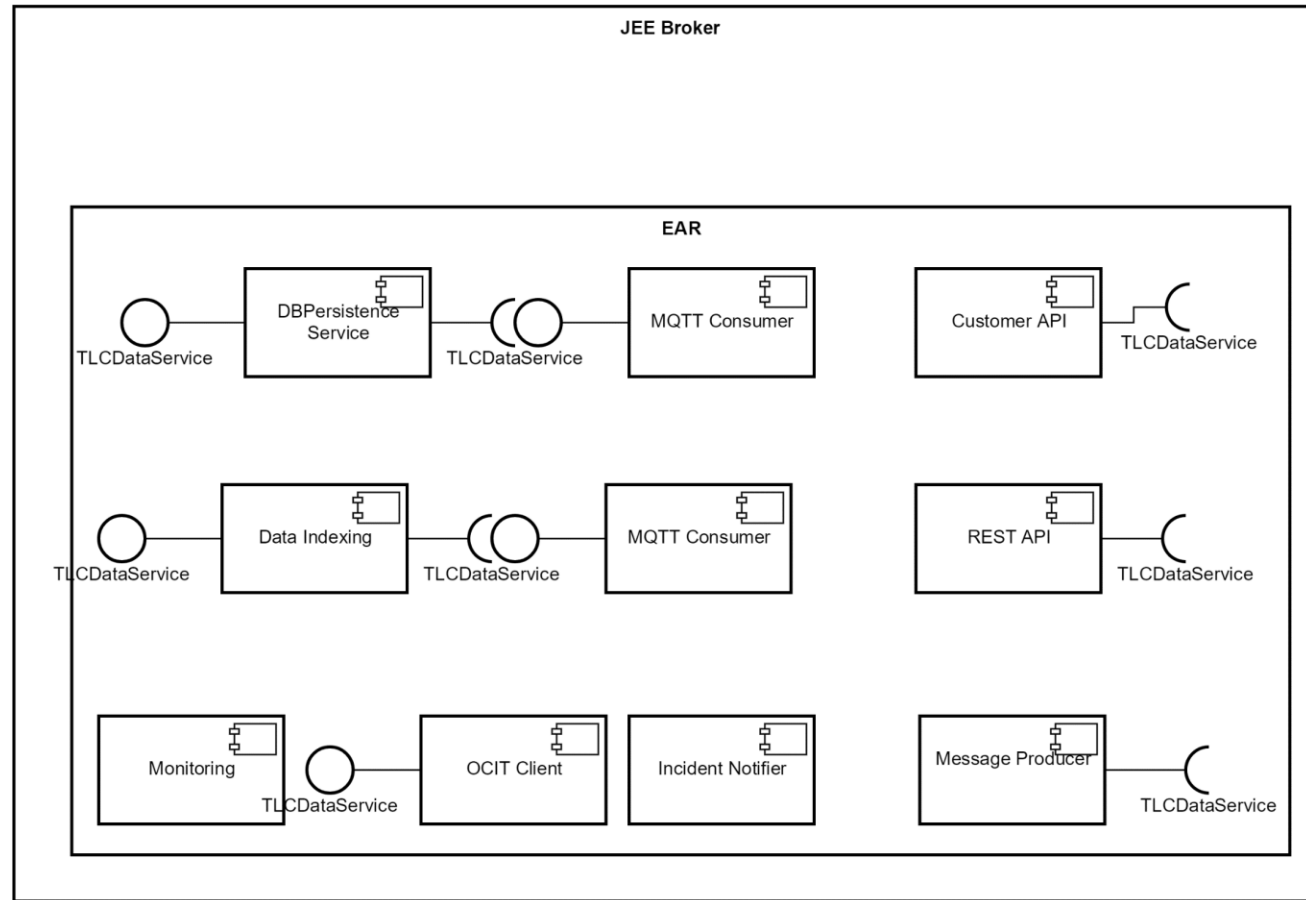
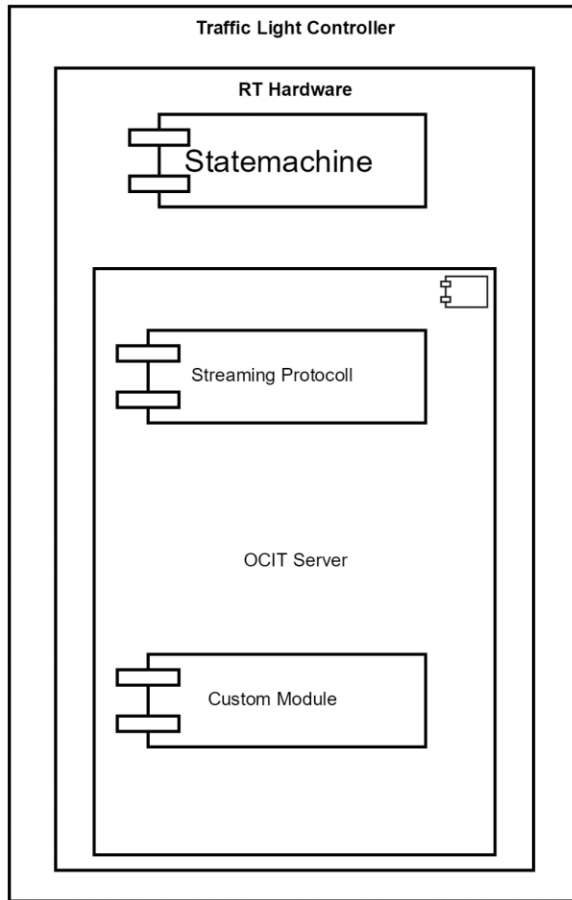
The Case



- JEE Application
- Monitoring of TLCs
- Multi protocol Data retrieval
- Mostly Pull based Data retrieval
- Data Transformation and Persistence
- Interfaces to Third-Party Systems
- Interfaces to UIs

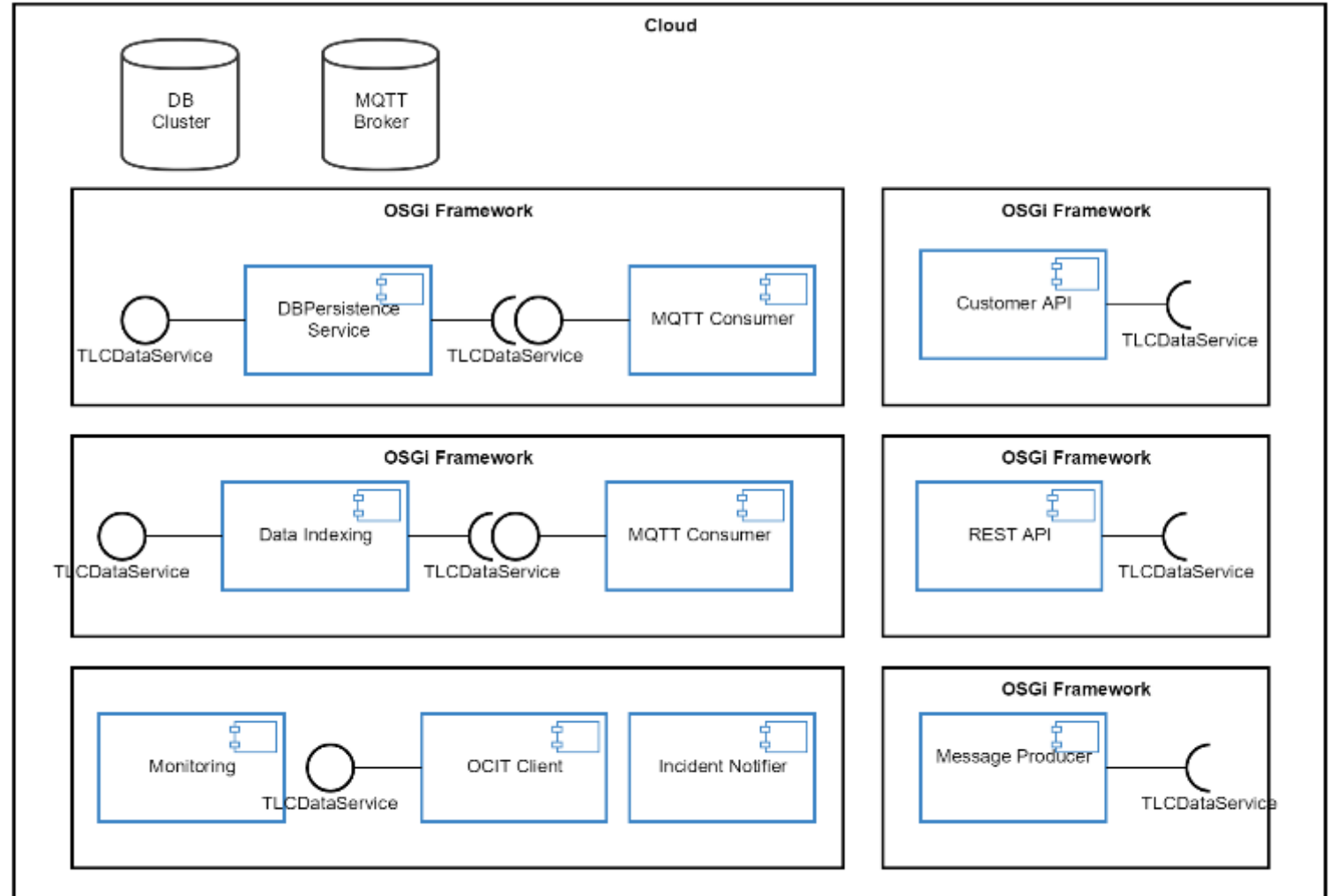
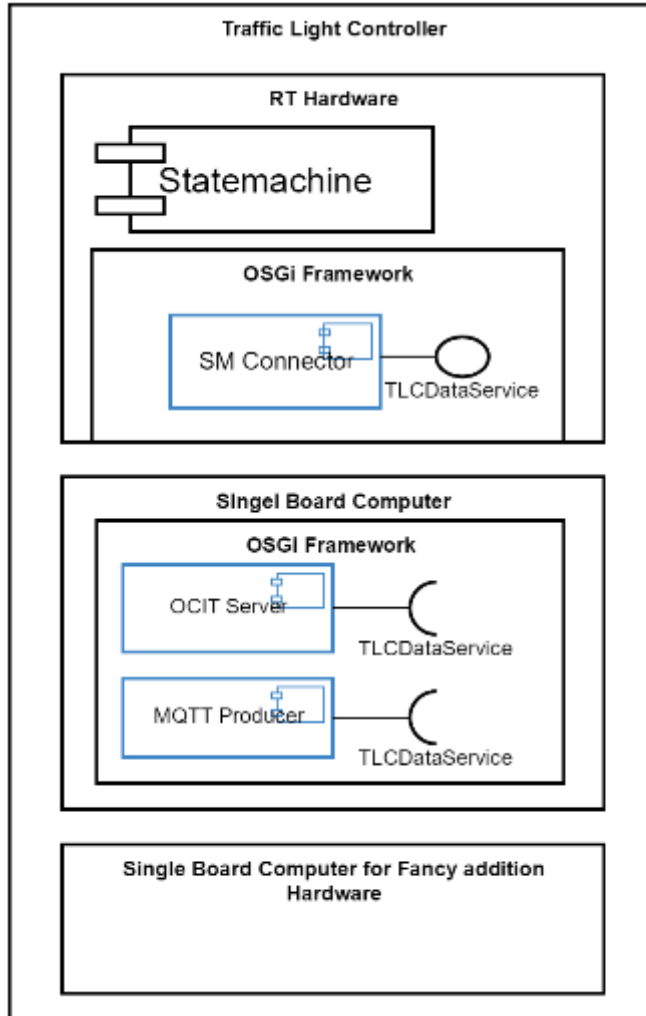


The Case





The Vision we are working on





The Business Value of using OSGi

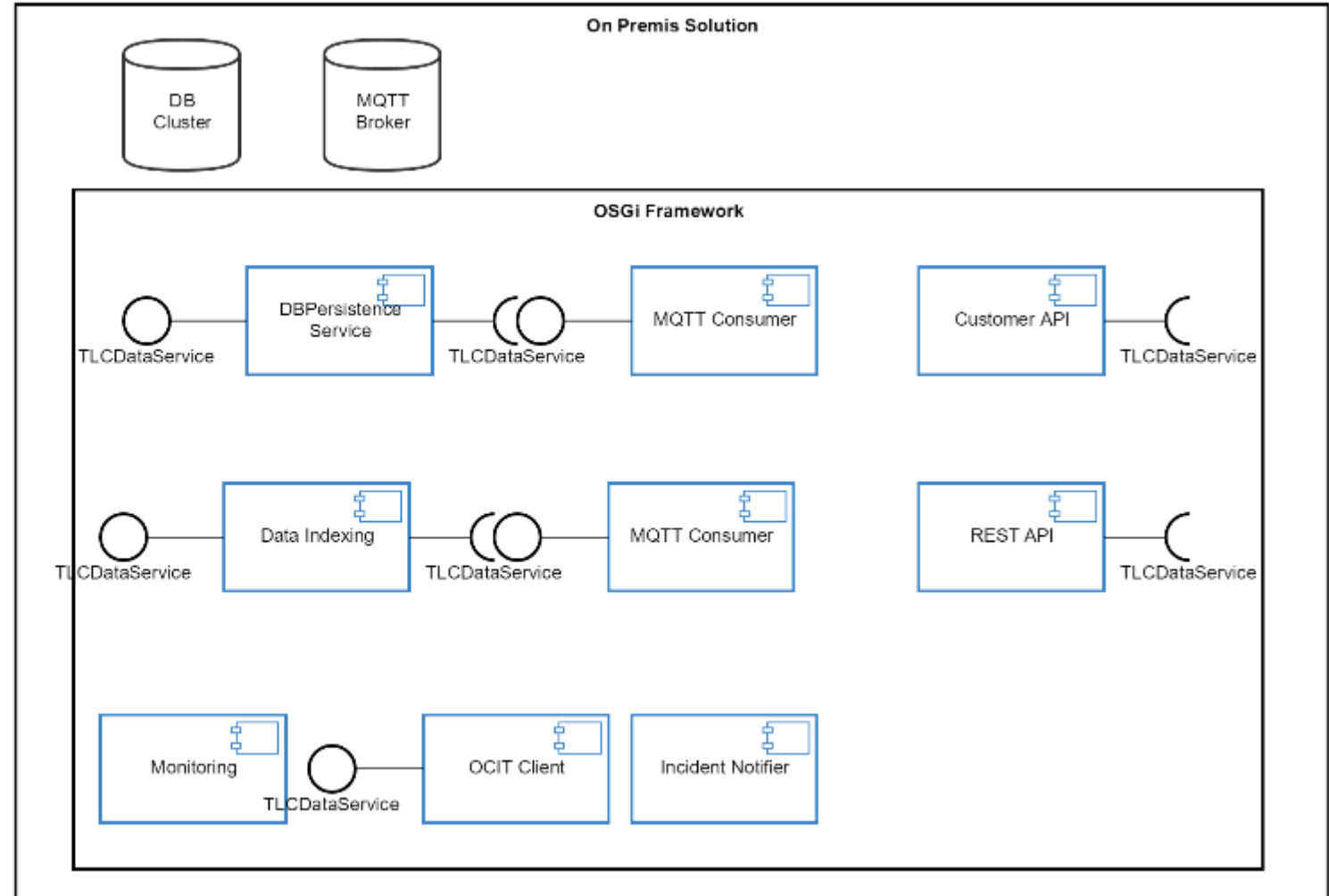
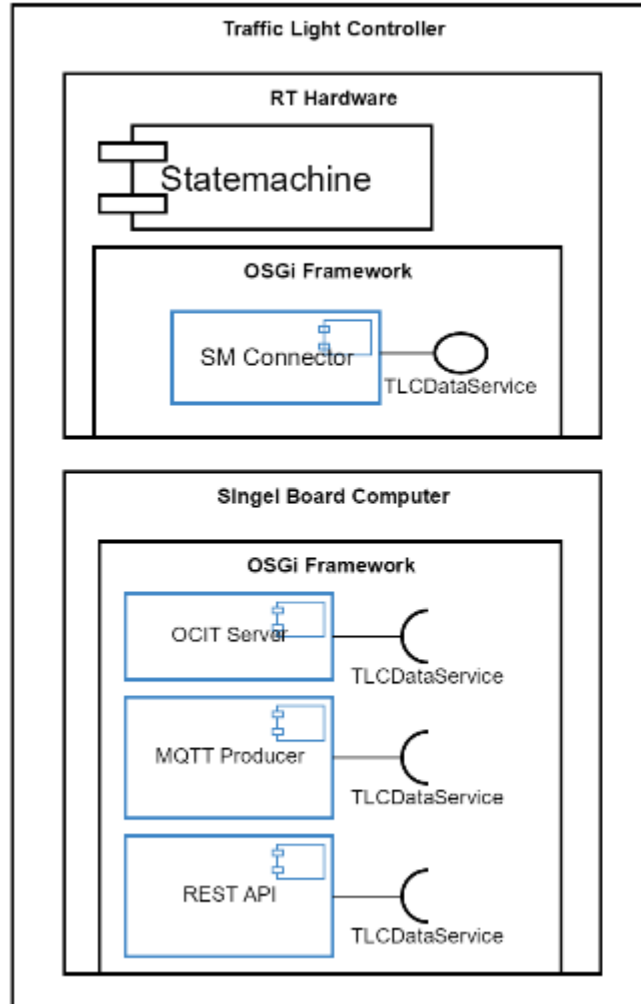


- Reduction of Code by half (Less Code -> less error prone) by using Bundles and Services
- Easy to maintain Software Components with clear and understandable Contract (API)
- Functionality can evolve independently because the System can handle multiple Versions of the same Bundle at Runtime
 - OOTB OTA Updates of individual OSGi Bundles (Cloud, Edge or at Customers Server Center)
- Customer specific Assembly of Solutions



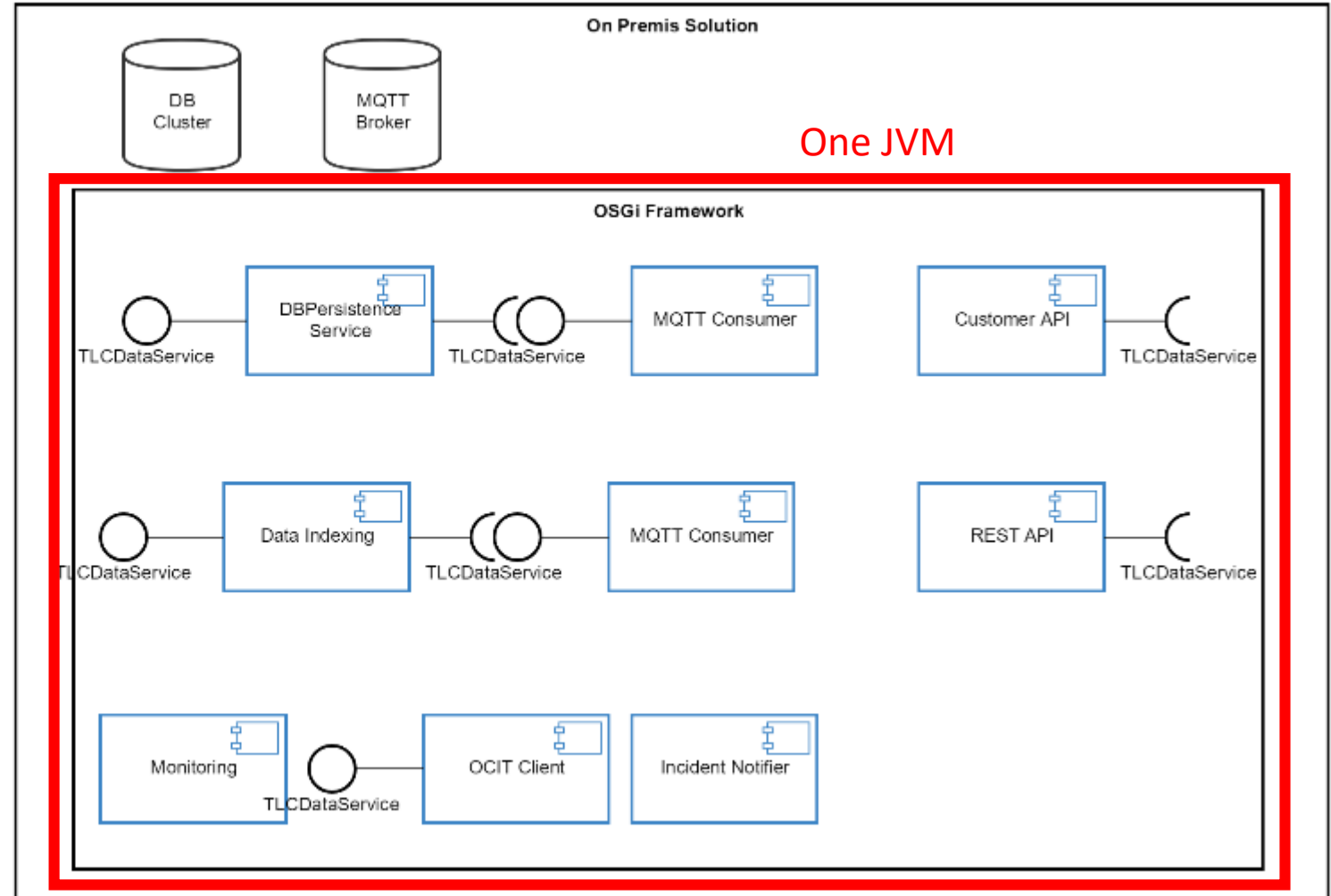
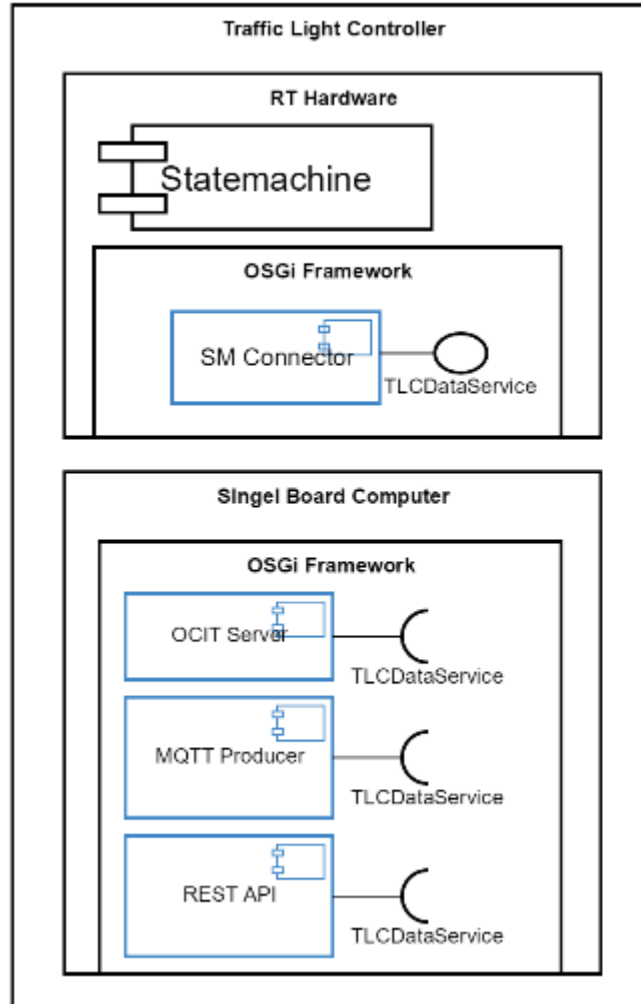


Customer specific Assembly of Solutions



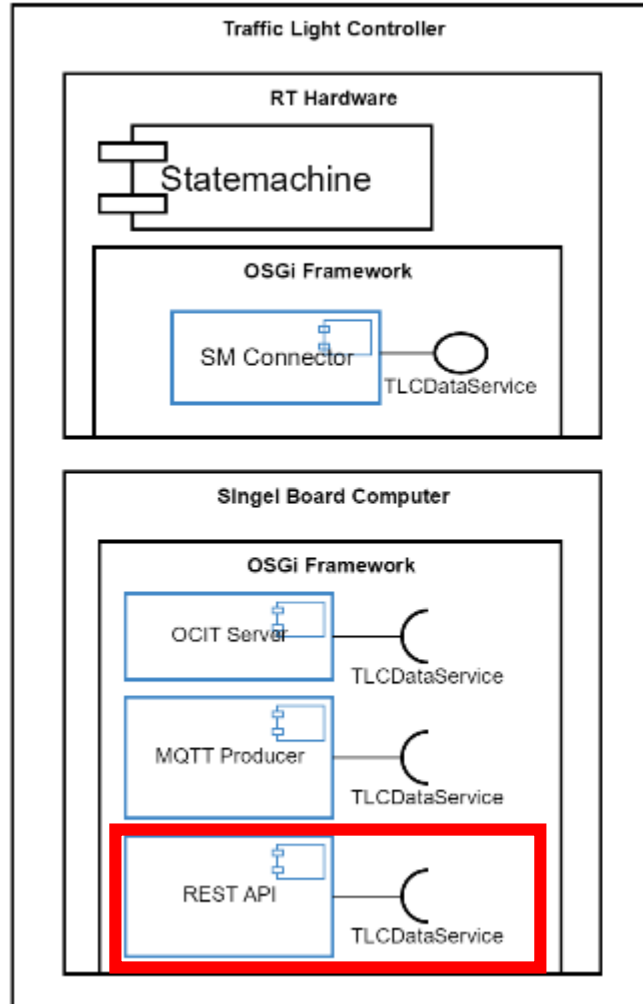


Customer specific Assembly of Solutions

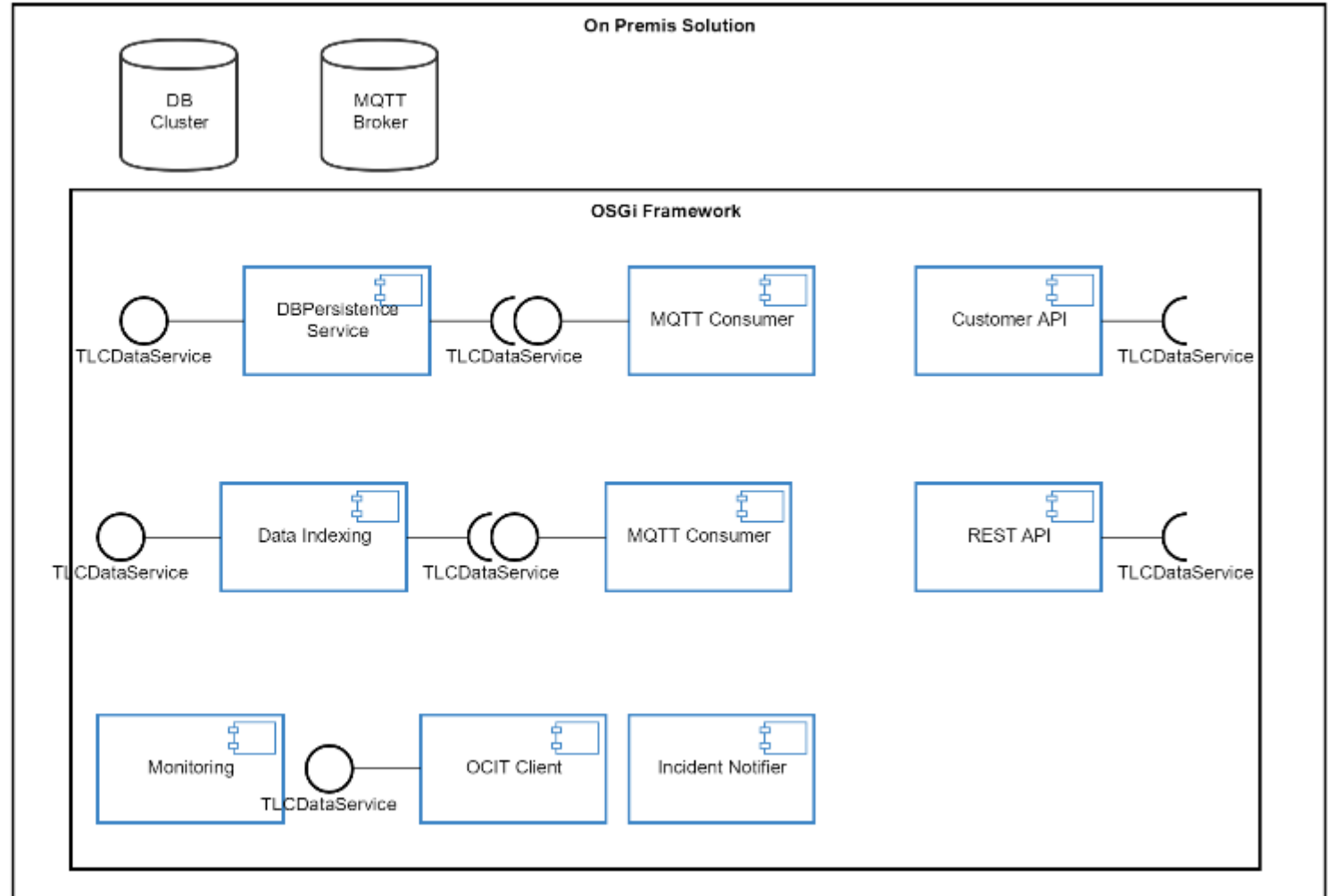




Customer specific Assembly of Solutions

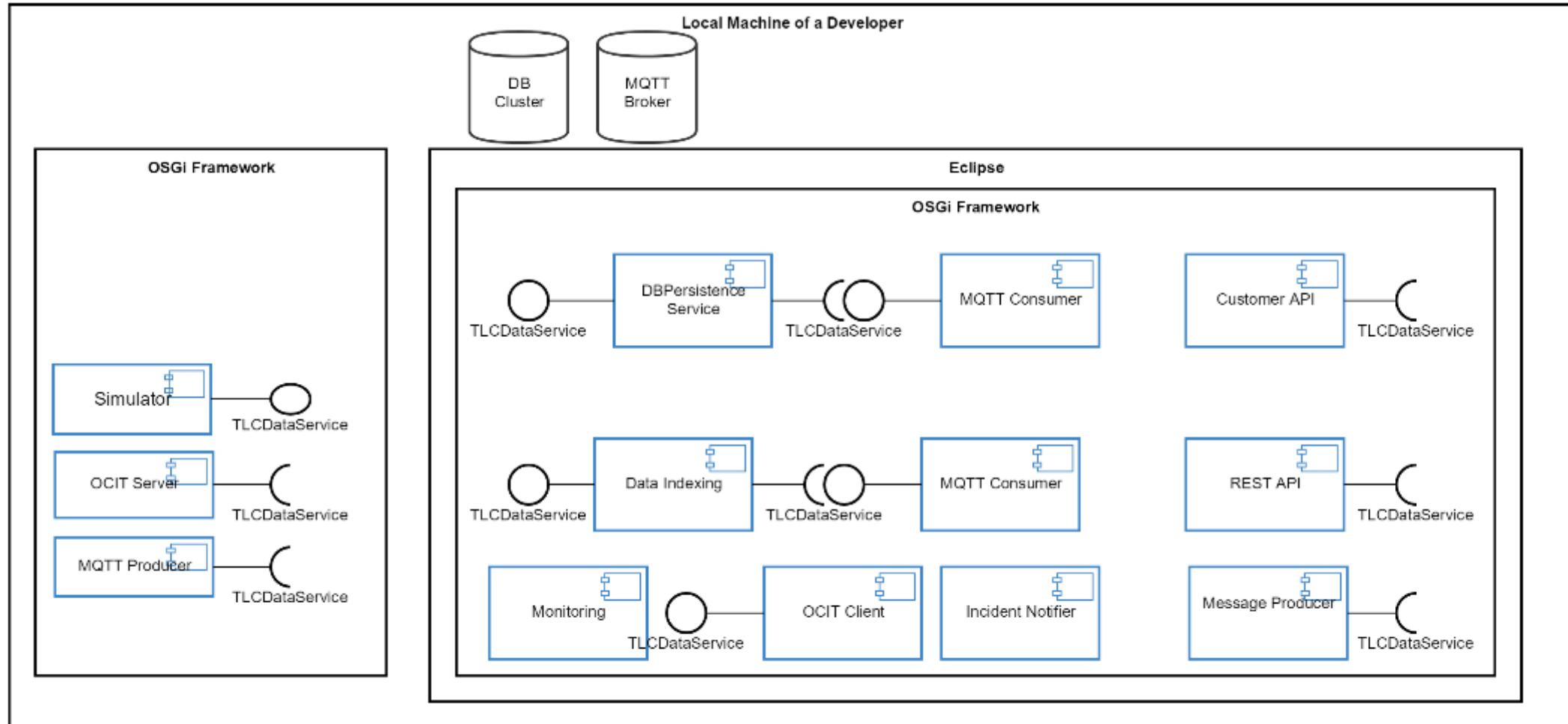


Server Bundle on Edge Device





Development close to the real world





Questions?

