



Rural areas in the cloud – Digital transformation beyond cities



Fraunhofer IESE



This Talk

Architecture of a crowd logistics app ecosystem

Event-orientation as key architectural style

Usage of AWS for quick feedback cycles



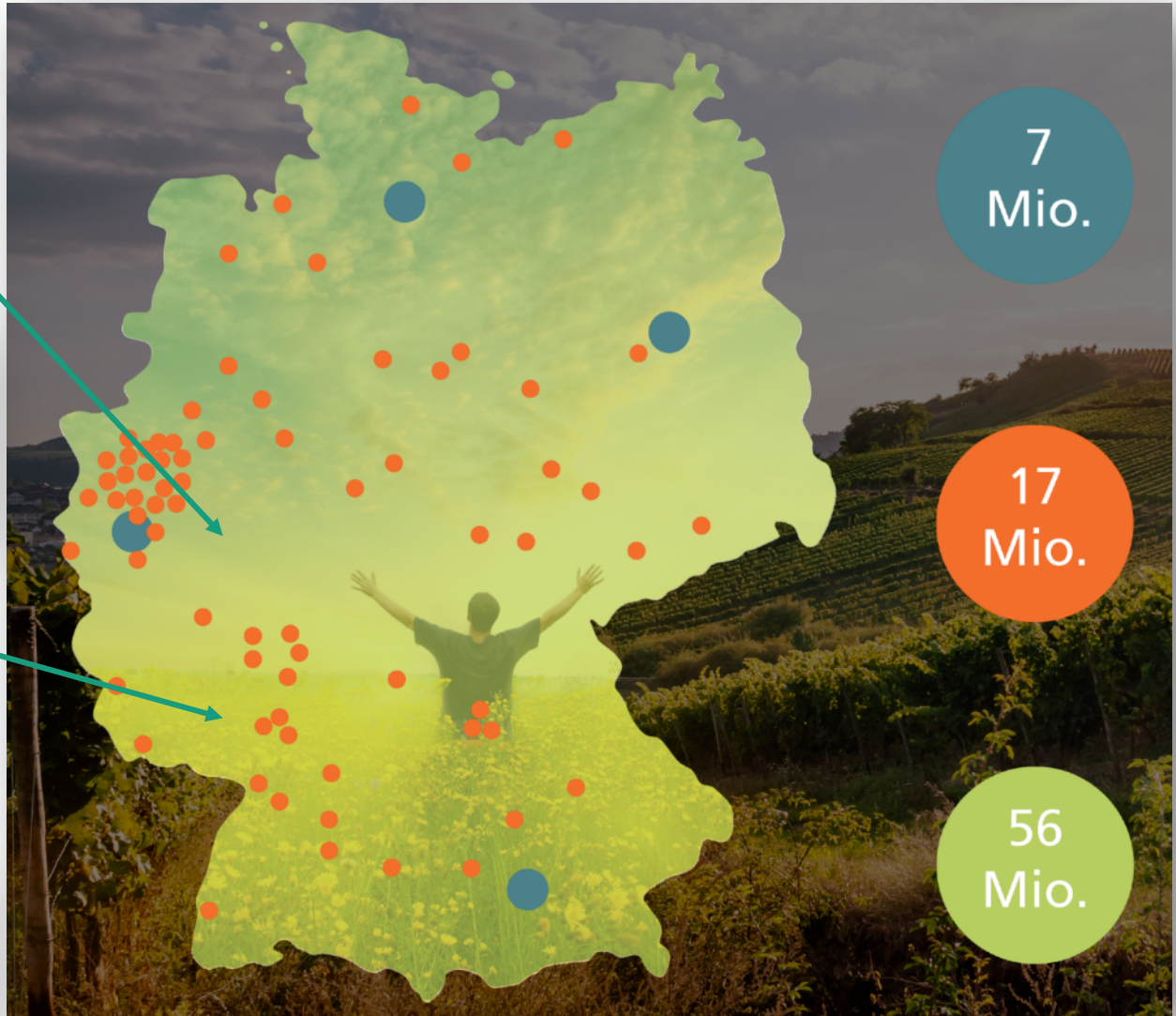
Digitale
Dörfer

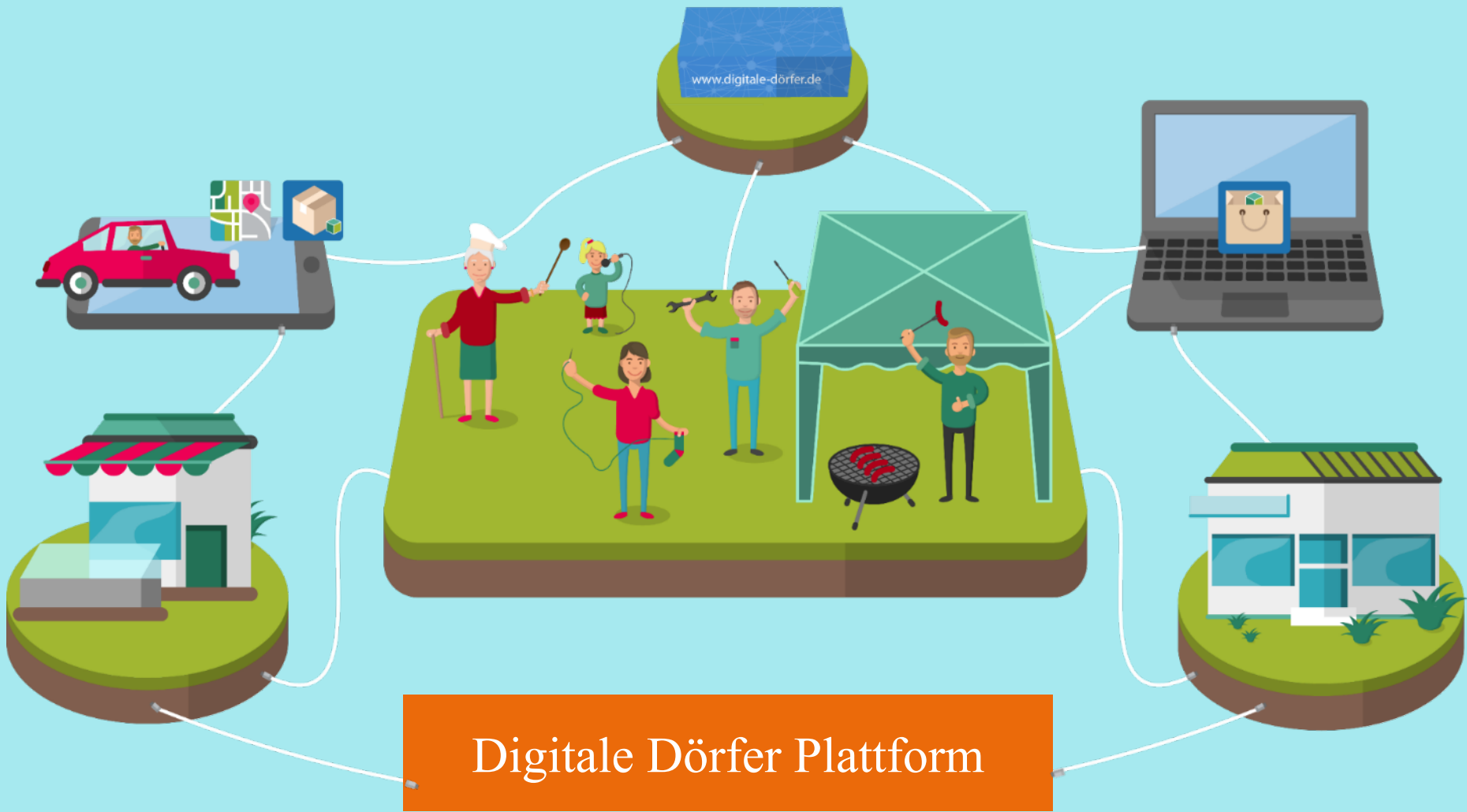


Betzdorf

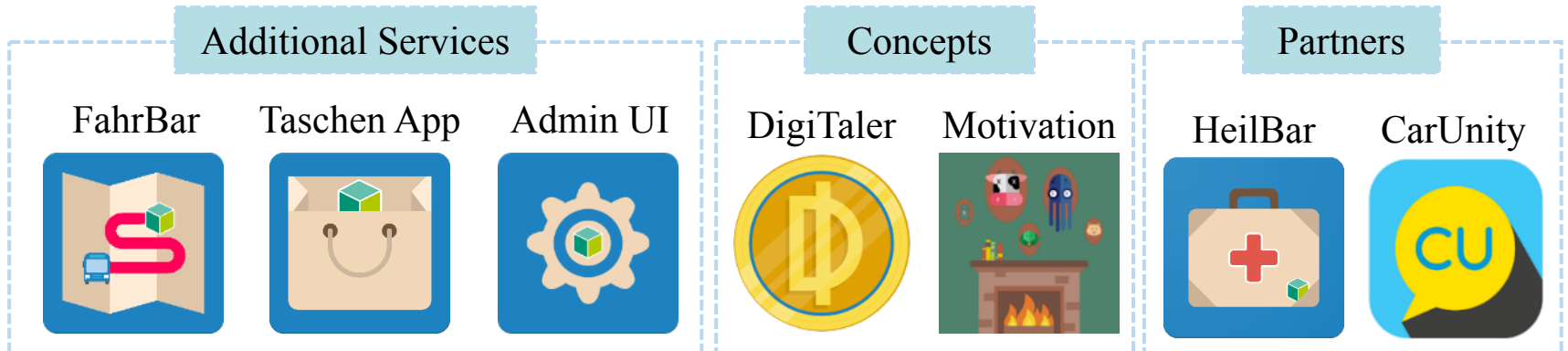
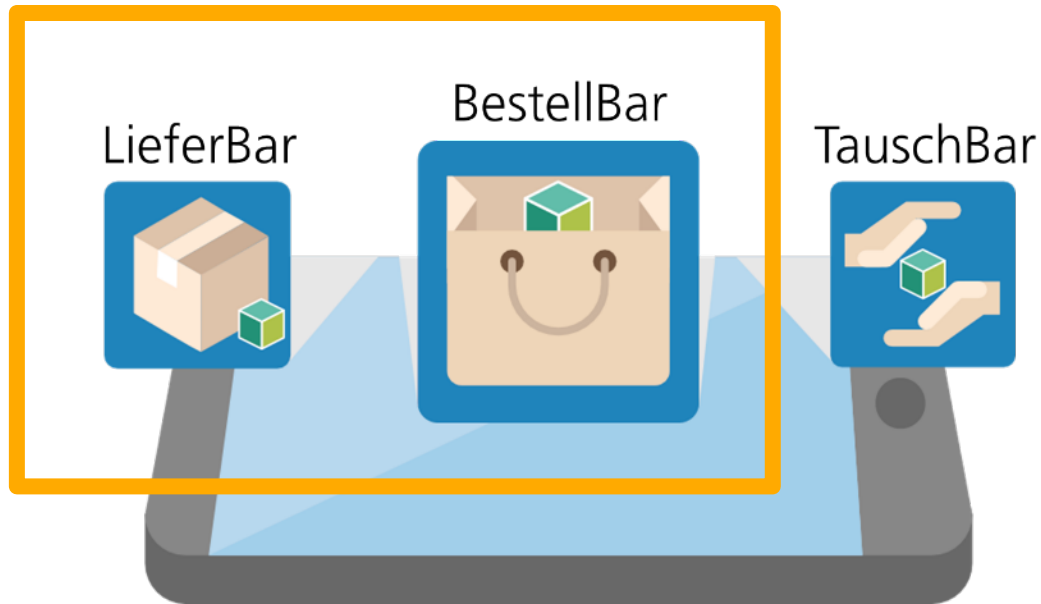


Donnersbergkreis
(Göllheim/Eisenberg)



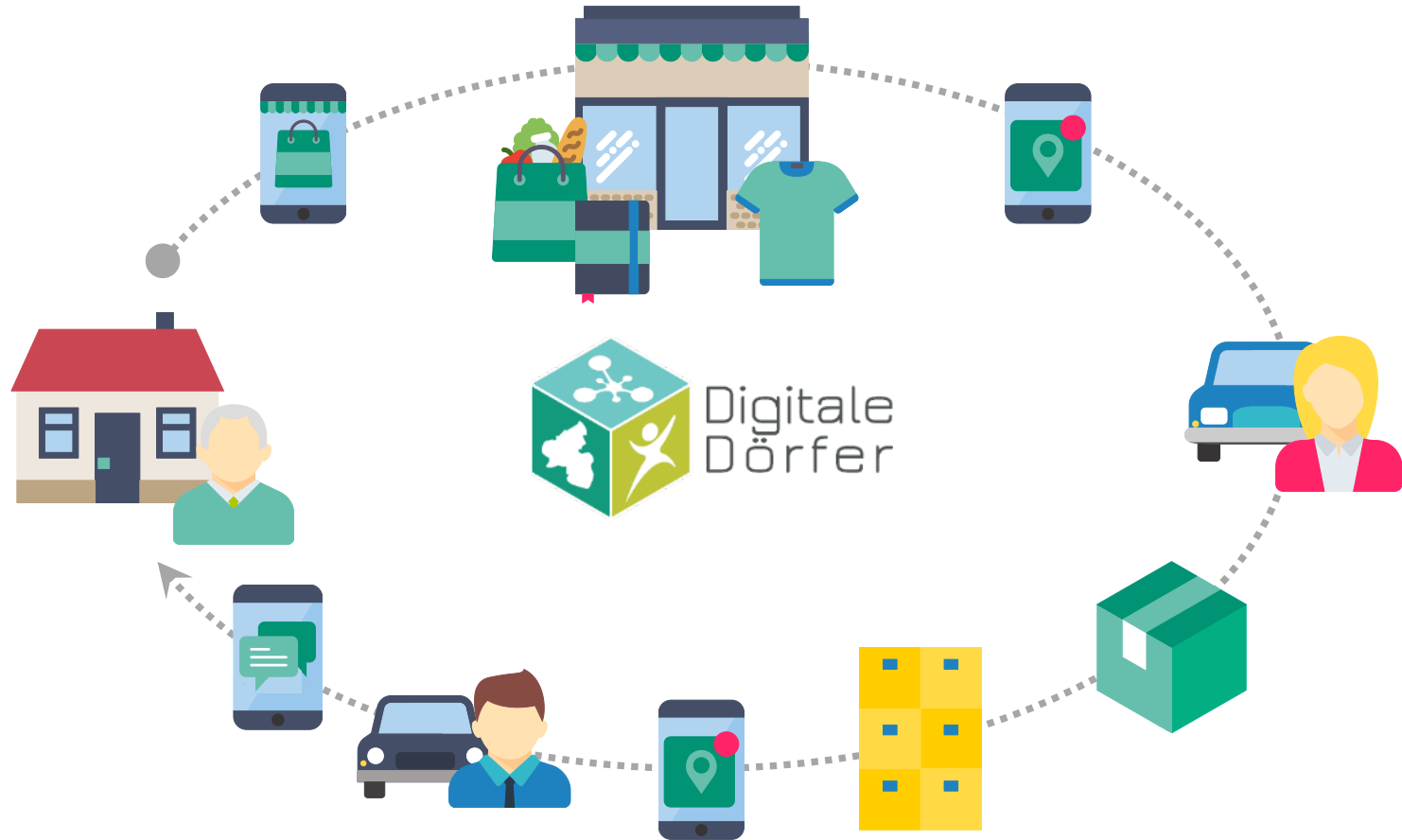


Digitale Dörfer Application Landscape



Crowd Logistics

Crowd Logistics

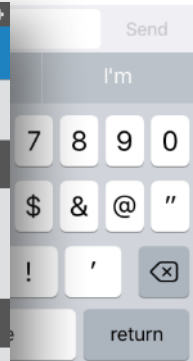
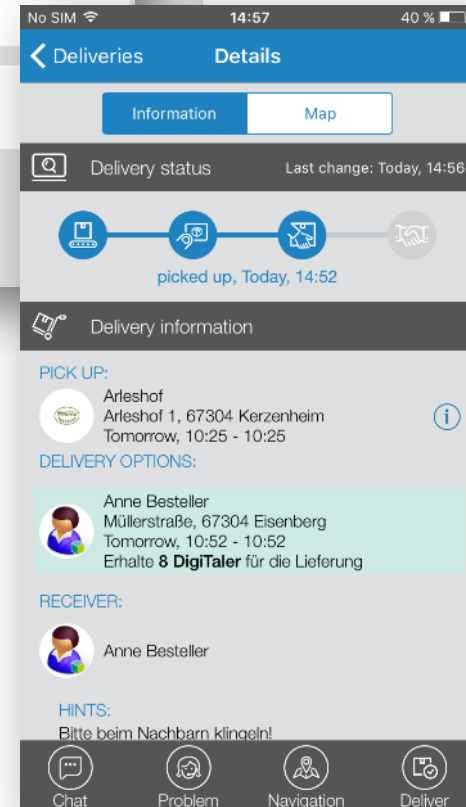
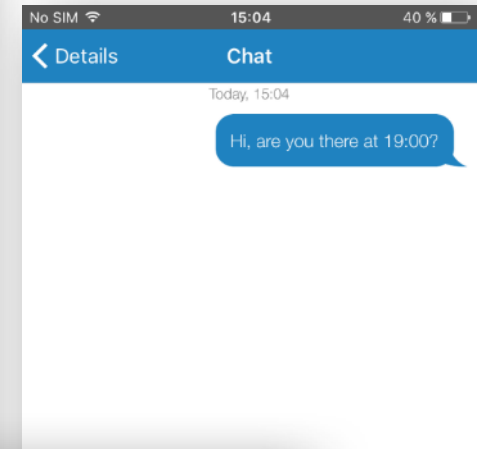
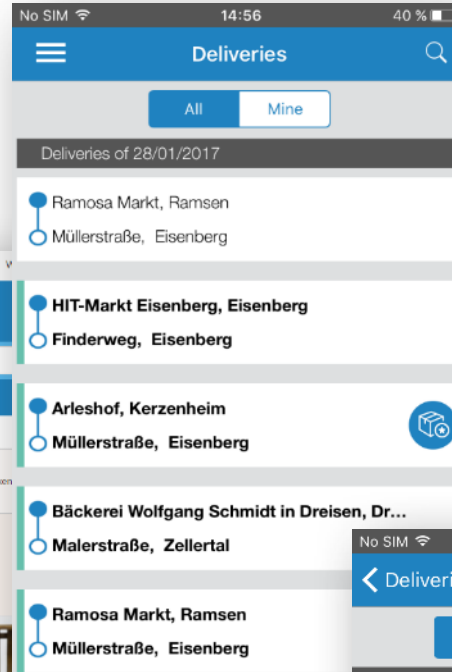
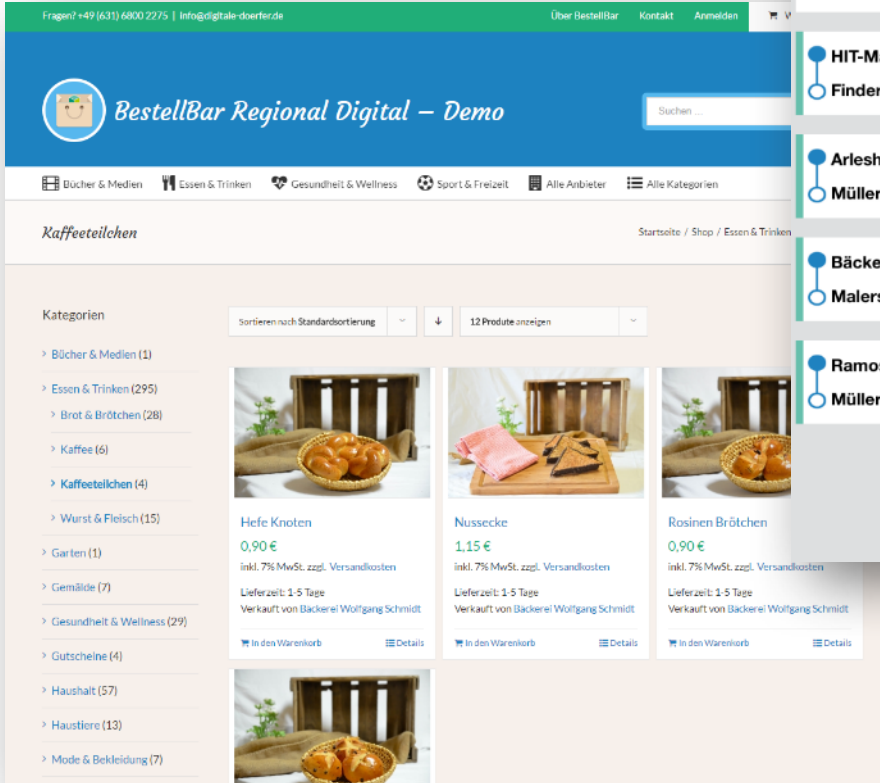




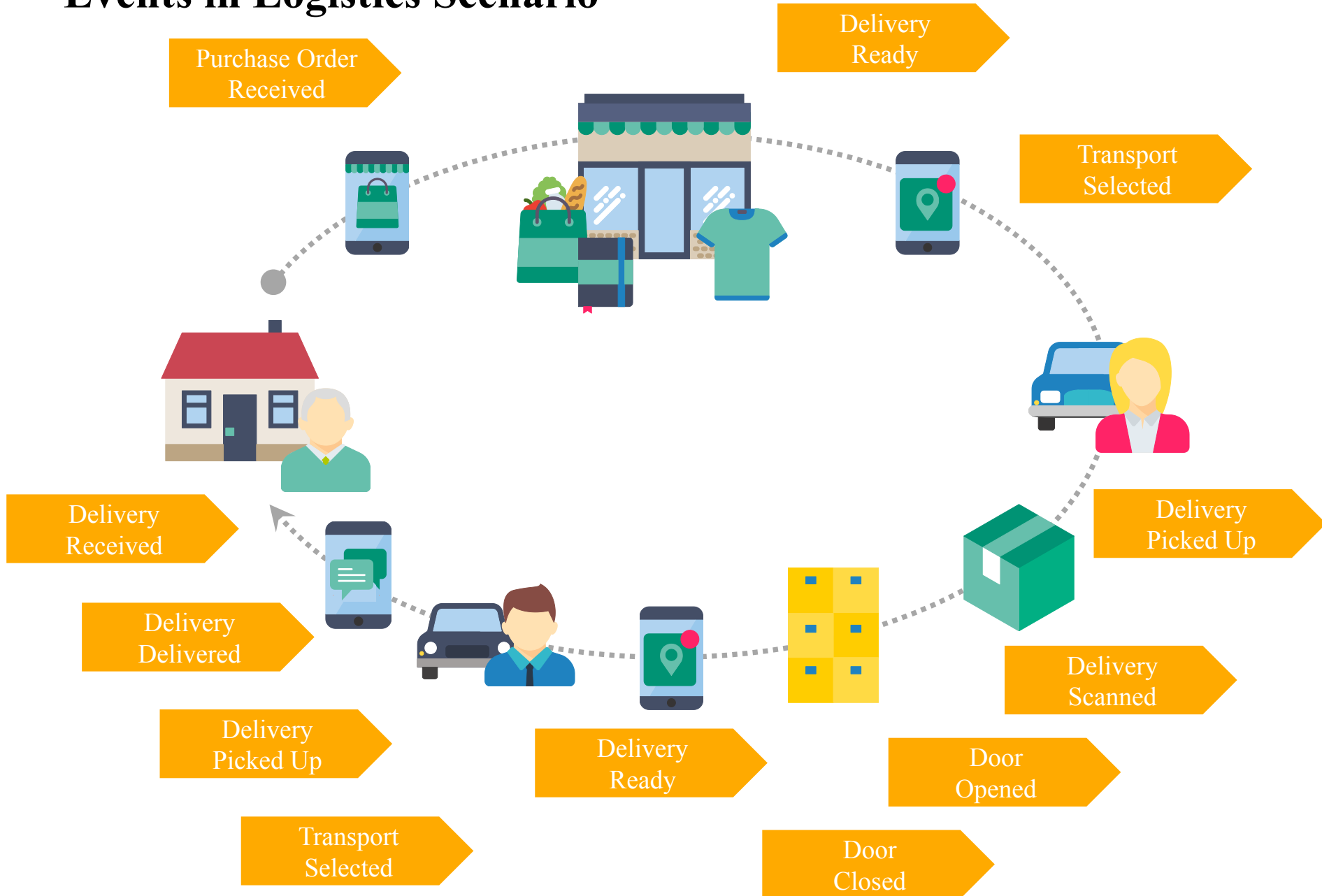
Pooling Station



Webshop and Apps

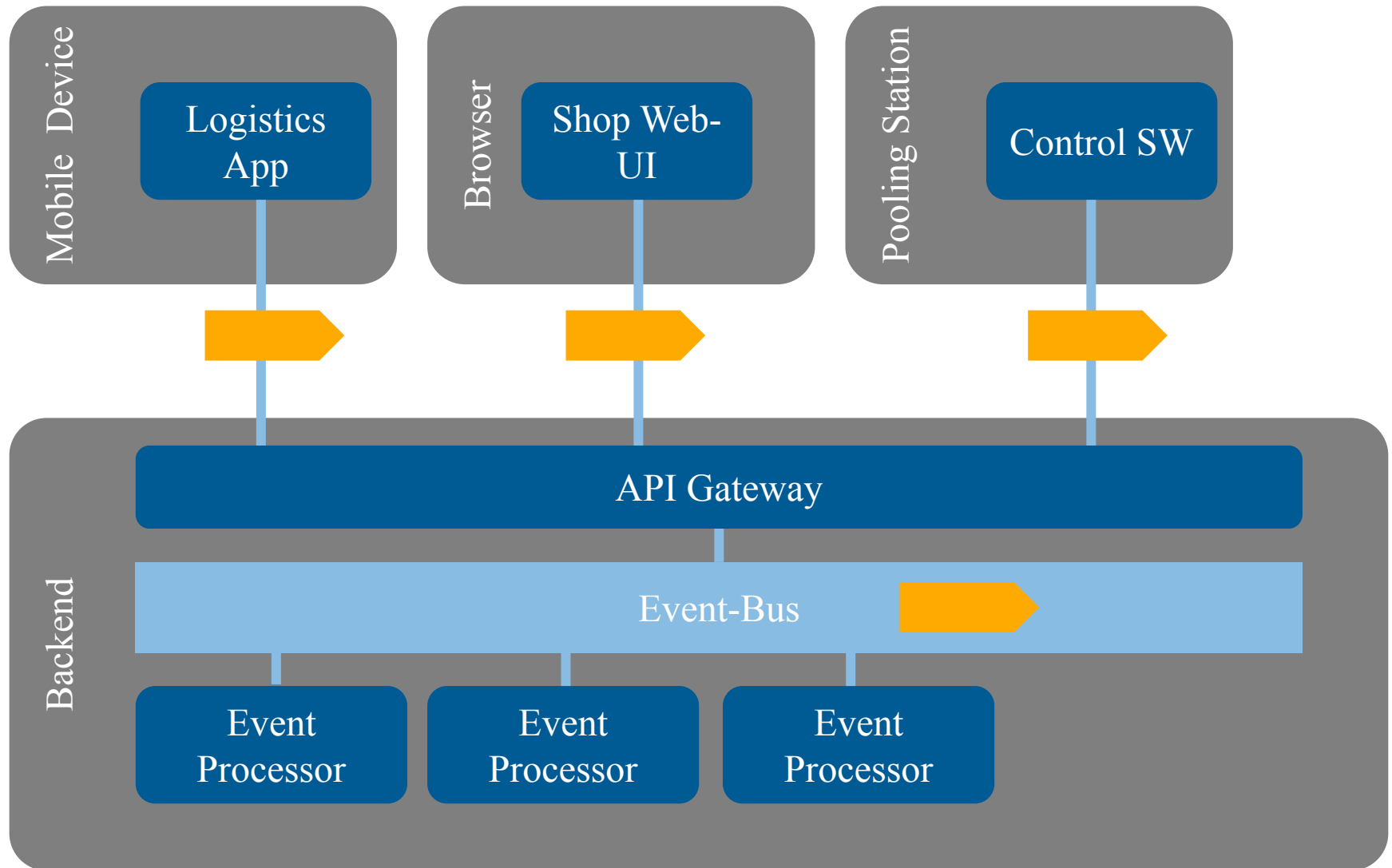


Events in Logistics Scenario

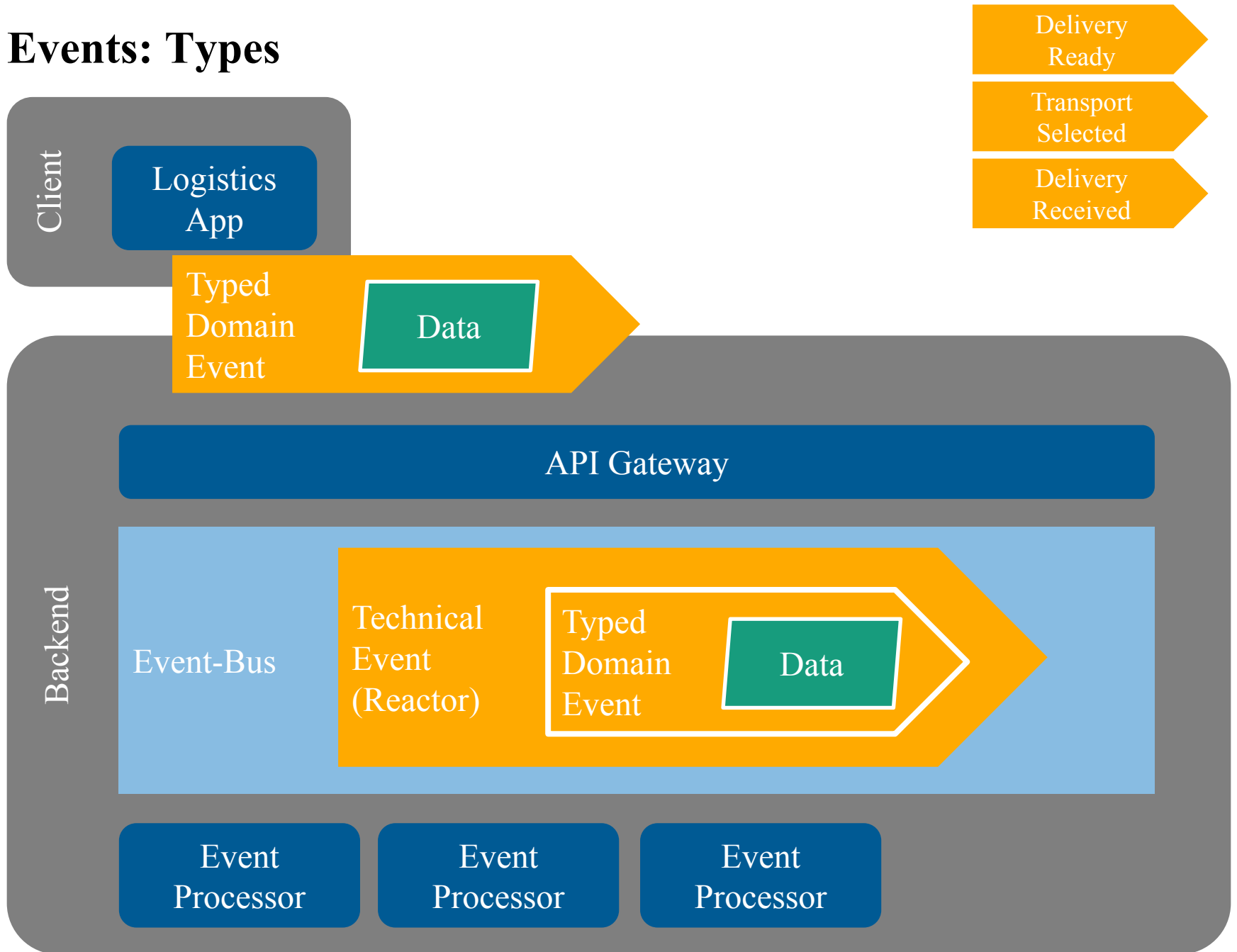


Event-Driven Architecture

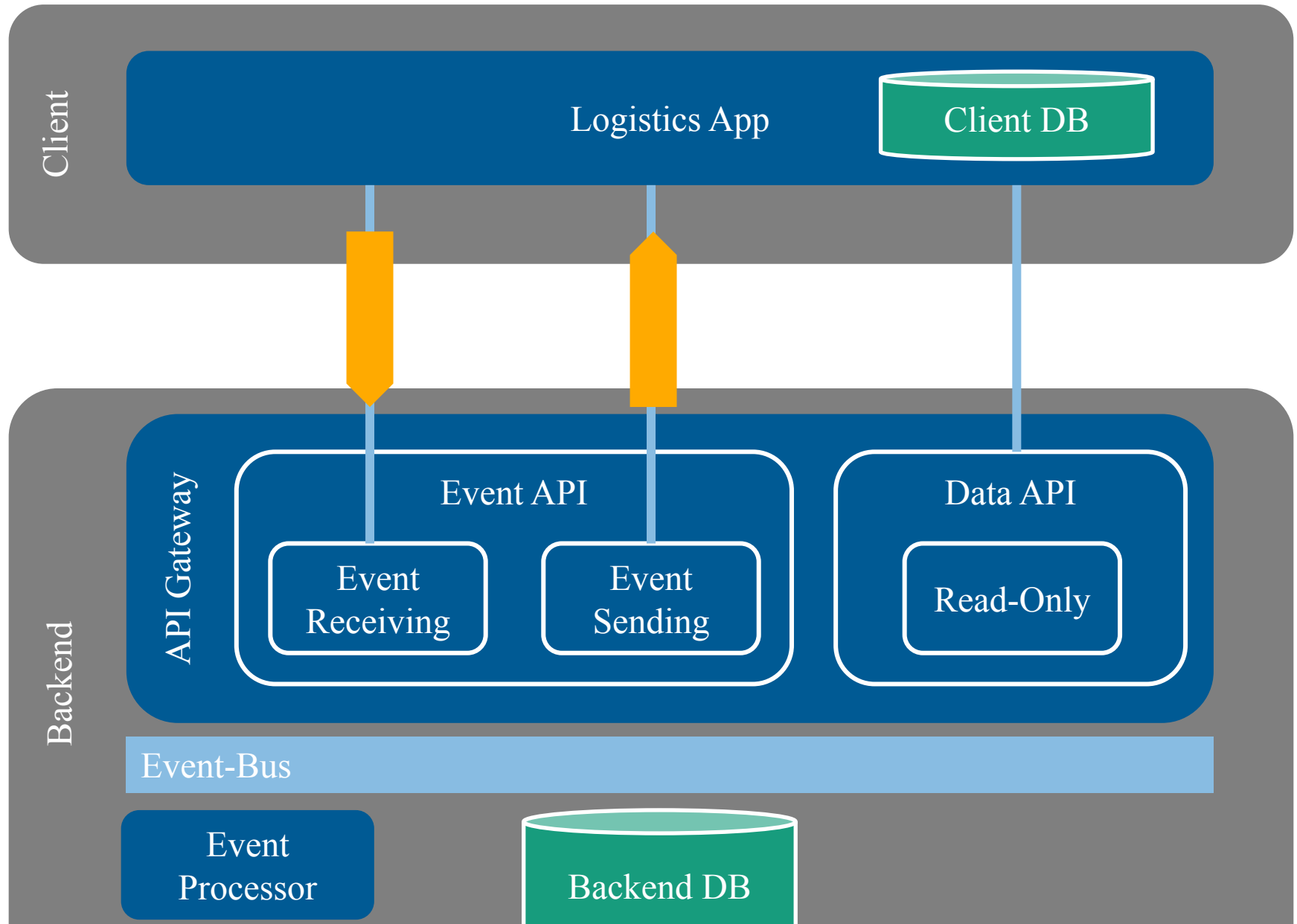
Basic Architecture of Logistics System – Event-Oriented



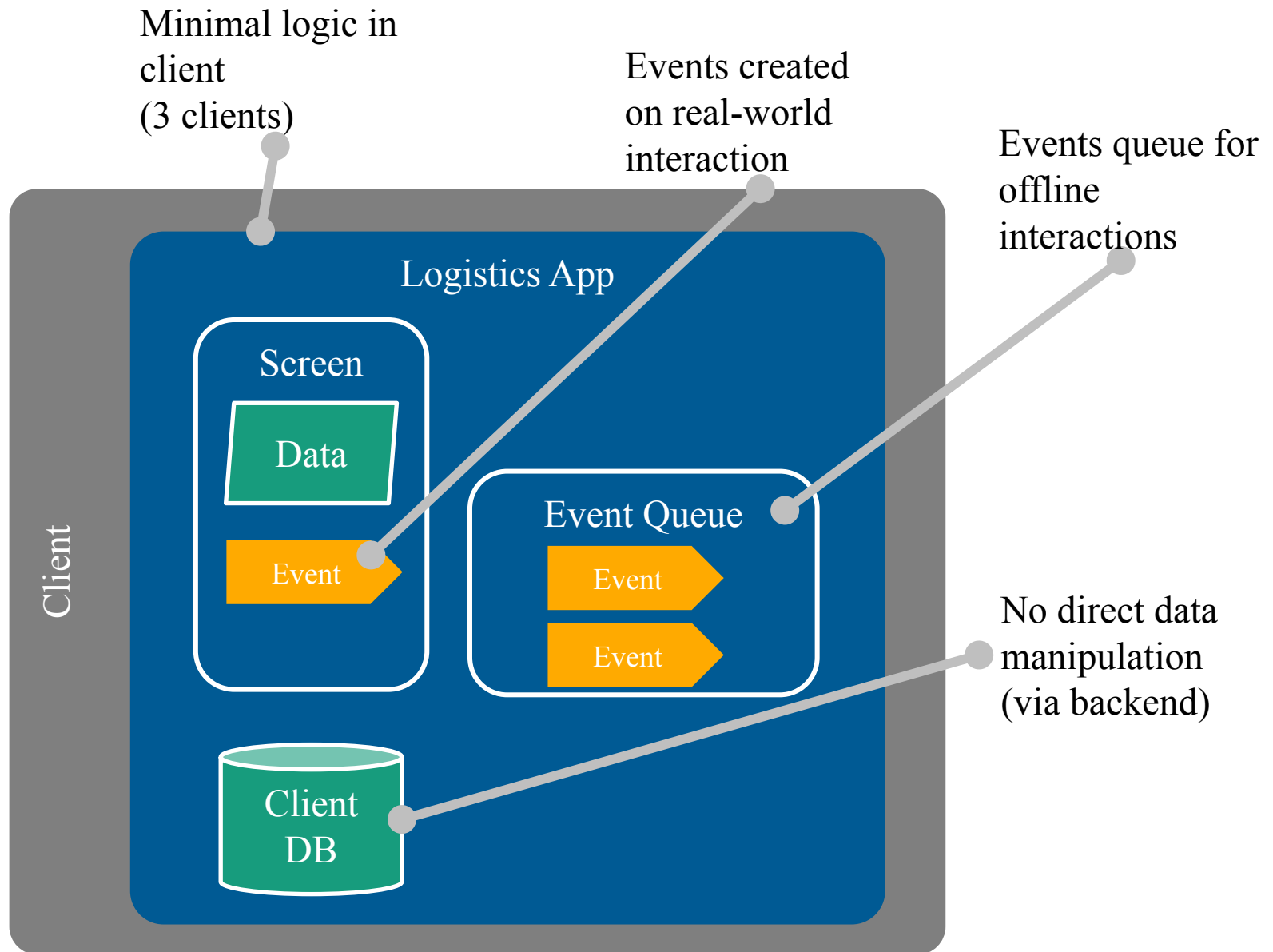
Events: Types



Interfaces between Clients and Backend



Impact on Client Architecture



Technical Realization

Technologies



AWS



Runtime



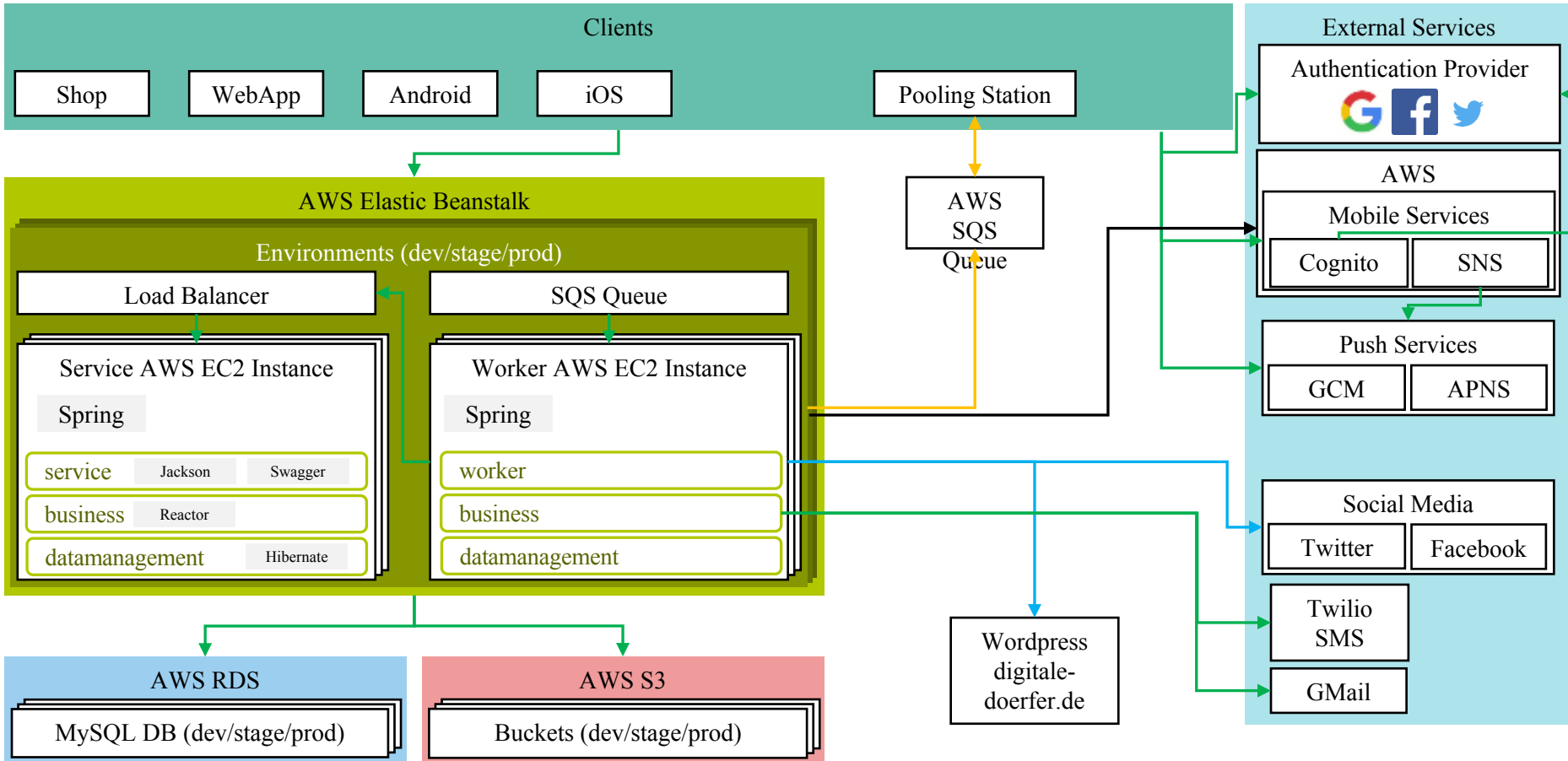
Jenkins

maven



Devtime

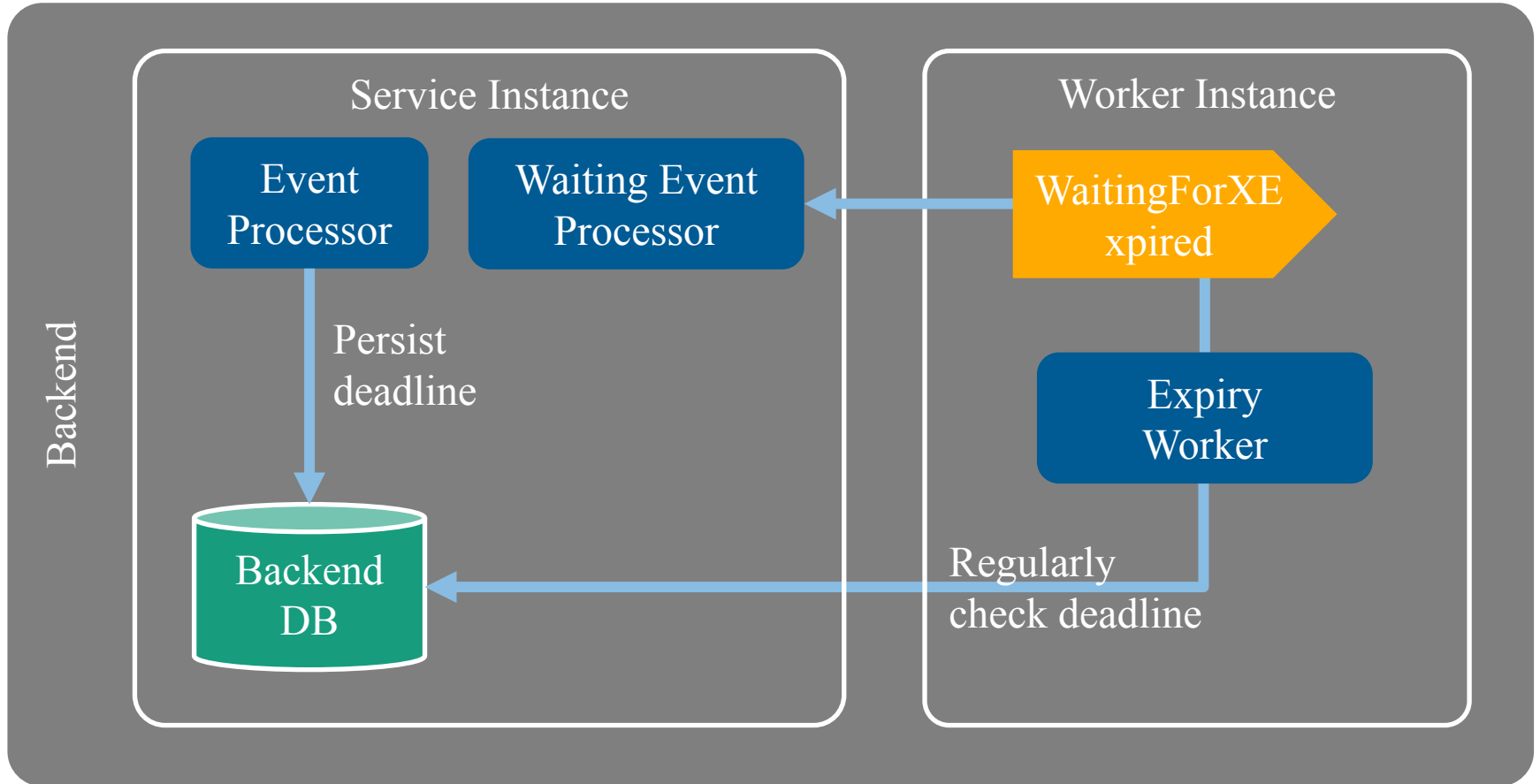
Deployment Overview



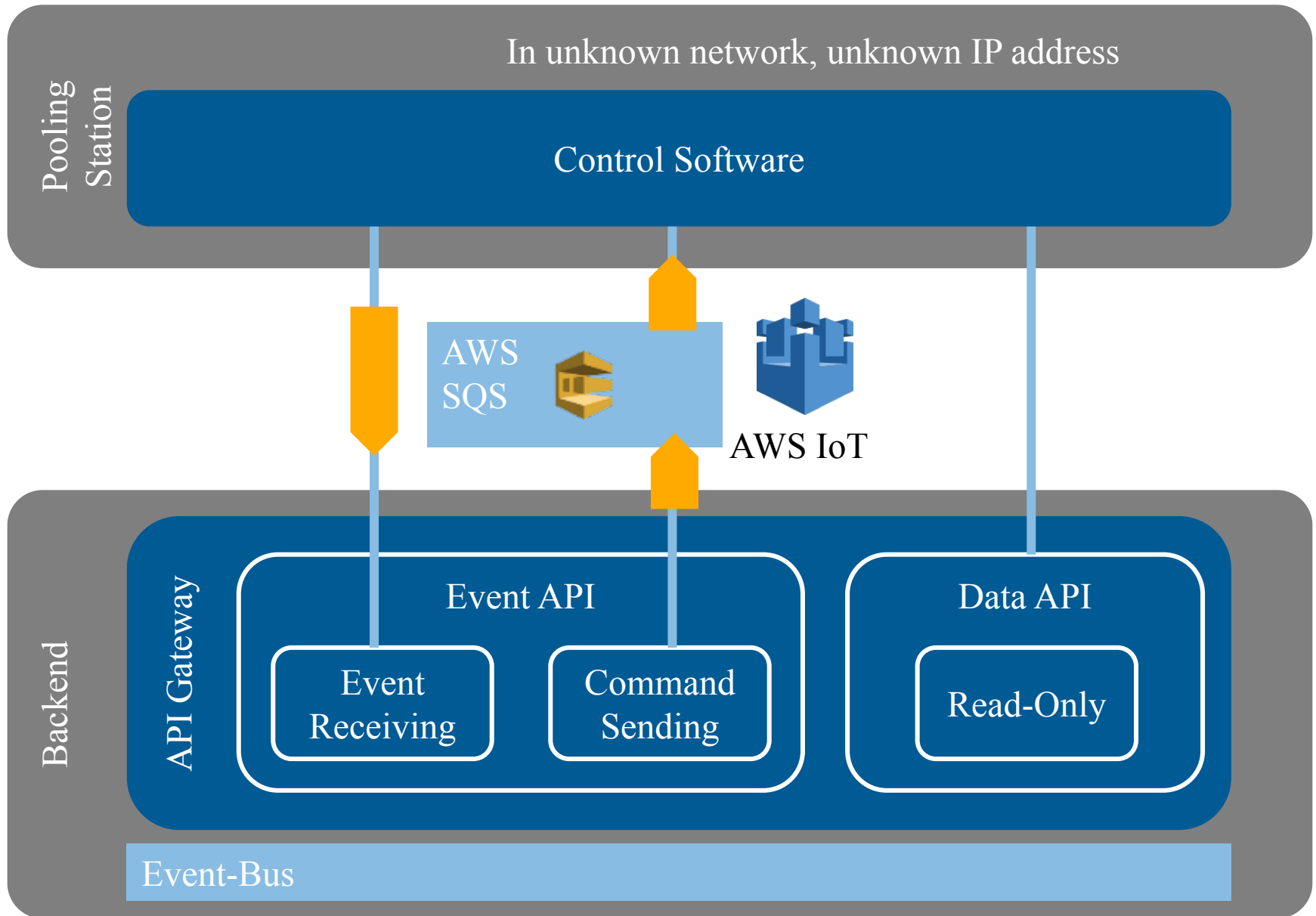
Time Triggered Events via Elastic Beanstalk Workers

Handling of deadlines for business processes

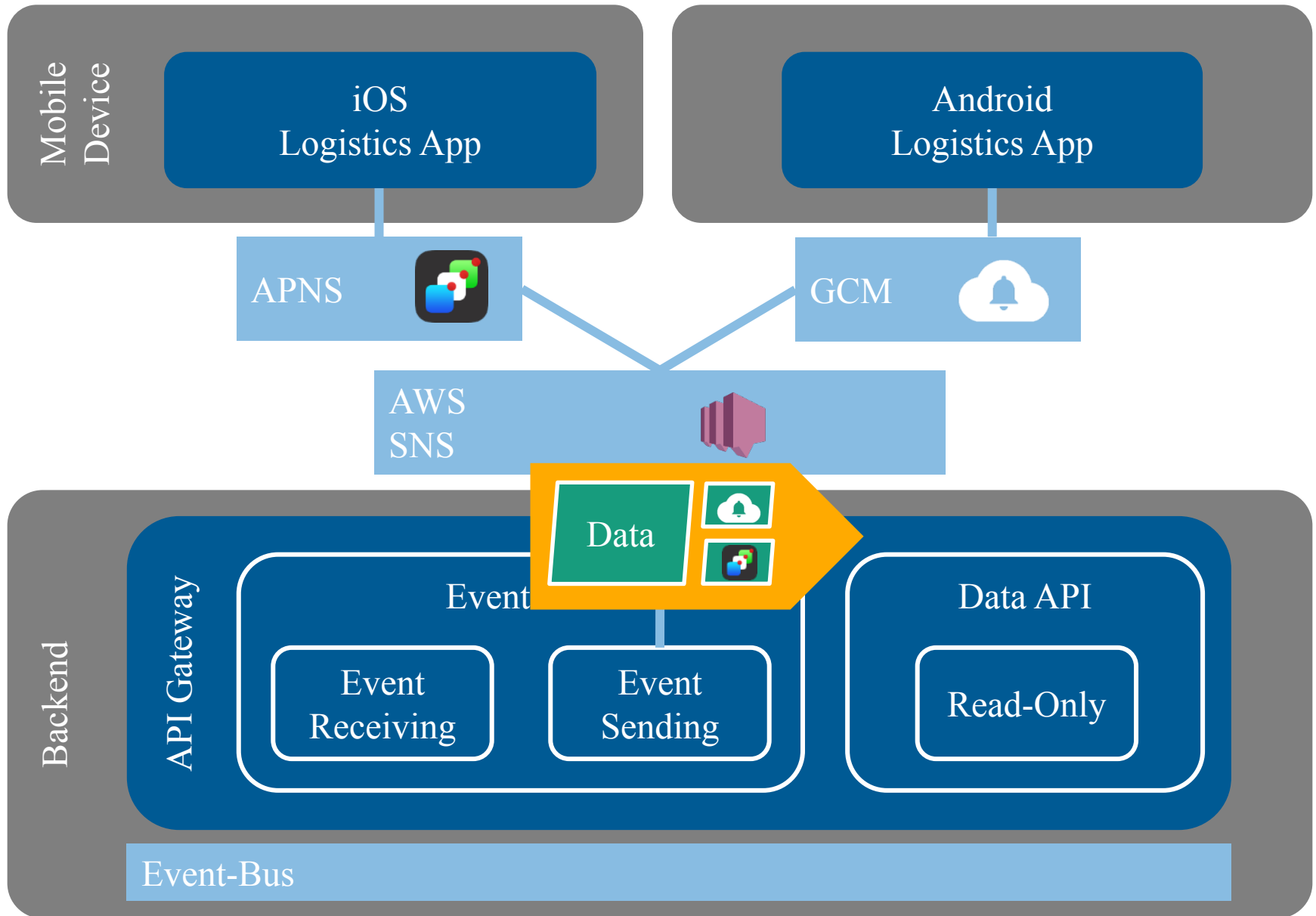
TransportWaitingForDeliveryExpired
Event



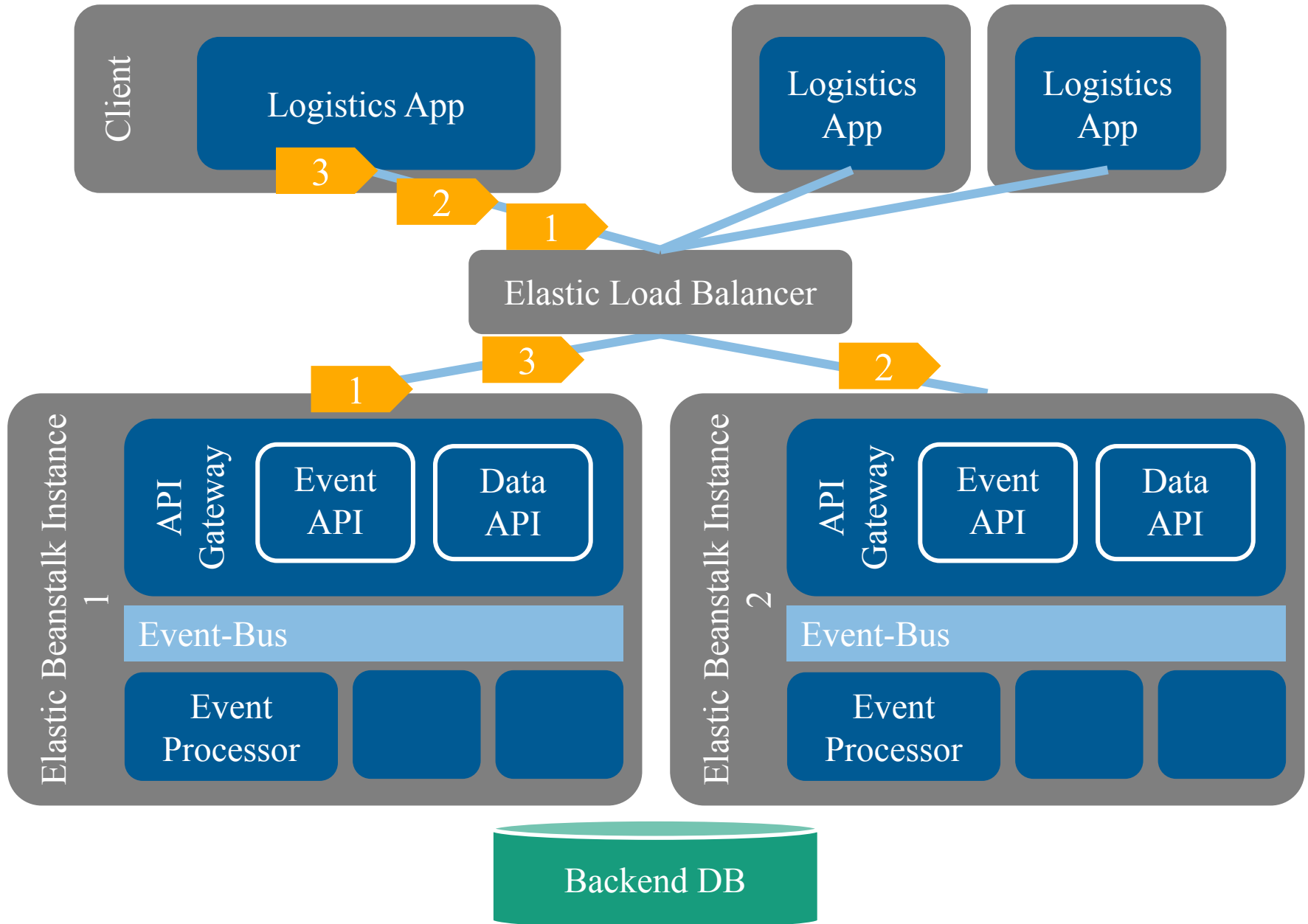
Pooling Station: Reverse Communication Queues via SQS



Events from Backend to Clients via SNS



Scaling of Backend Services via Elastic Beanstalk



Lessons Learned

Event-orientation fits well as paradigm for logistics but needs a lot of concretization

Running a system of that size within a research project only works with prefabricated high quality services

Operation still requires significant knowledge, automation is the key for success

Key Takeaways

Running a research prototype in production is possible

“Simple” AWS services like Elastic Beanstalk and RDS are well suited for a learning team

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