



System Integration Introduction

Systems Integration

PBA Softwareudvikling/BSc Software Development

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Fall 2017

Today's Agenda

- Introduction to course
- Introduction to System integration
- Solving integration problems using messaging technology and treated through patterns descriptions
- We will cover
 - Basic Messaging Architecture (EIP chap. 1)
 - Integration Styles (EIP chap. 2)
 - Messaging Systems (EIP chap. 3)
- Messaging exercise
 - Coffee Shop (messaging concepts)



EIP

The Course

What to expect

Helpful links

- Moodle (links to GITHUB, TimeEdit, IT guides etc.):
<https://cphbusiness.mrooms.net/>
- Semester plan overview: <https://datsoftlyngby.github.io/soft2017fall/>
- Teaching materials: <https://github.com/datsoftlyngby/soft2017fall-system-integration-teaching-material>
- EIP book online resources:
<http://www.enterpriseintegrationpatterns.com/>

Course Overview

- 2 main modules
- Projects & Groups
- Exam
- Platform & Languages

System Integration Patterns
Messaging Technology

Loan Broker project

Autumn Holidays

Network Protocols and Integration
Techniques and Technologies

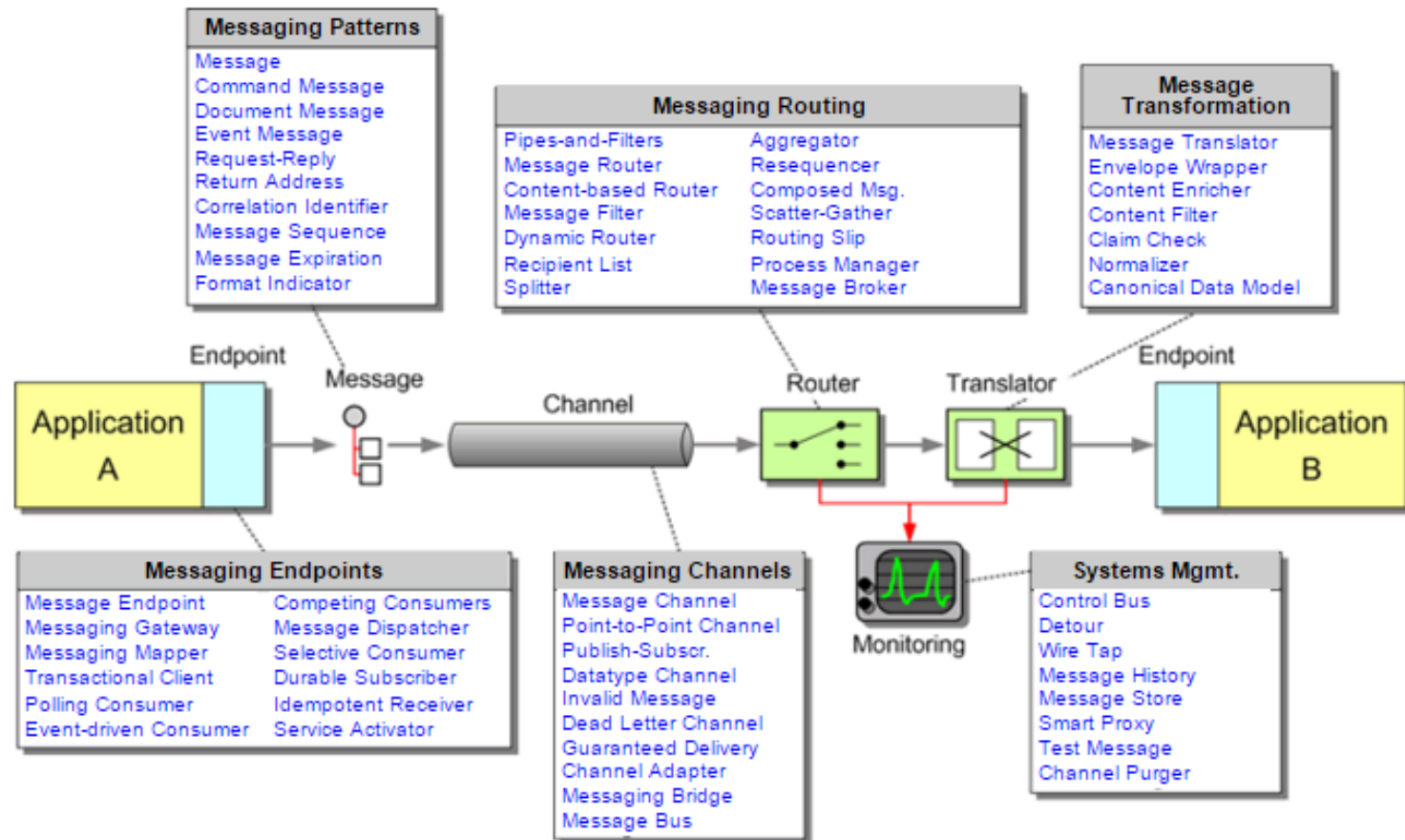
Minimum-Viable Blockchain project

EIP Book Organization

- **Visual and verbal language** to describe integration solutions
 - Not a precise specification language
 - No vendor jargon
- **Patterns** describe message components and concepts
 - Systematizes messaging knowledge learned the hard way
 - Each pattern describes considerations and trade-offs
 - Combines patterns to describe larger solutions
- The patterns apply to a **variety of programming languages and platforms**, e.g.
 - Java, C# JMS, MSMQ, BizTalk
 - A few larger coding examples in chap. 6 + 9 (interludes which are templates for YOUR project!)
- **Online resources:** <http://www.enterpriseintegrationpatterns.com/>

Overview of Patterns in the EIP Book

- **65(!)** messaging patterns are documented
 - We are NOT covering them all ☺

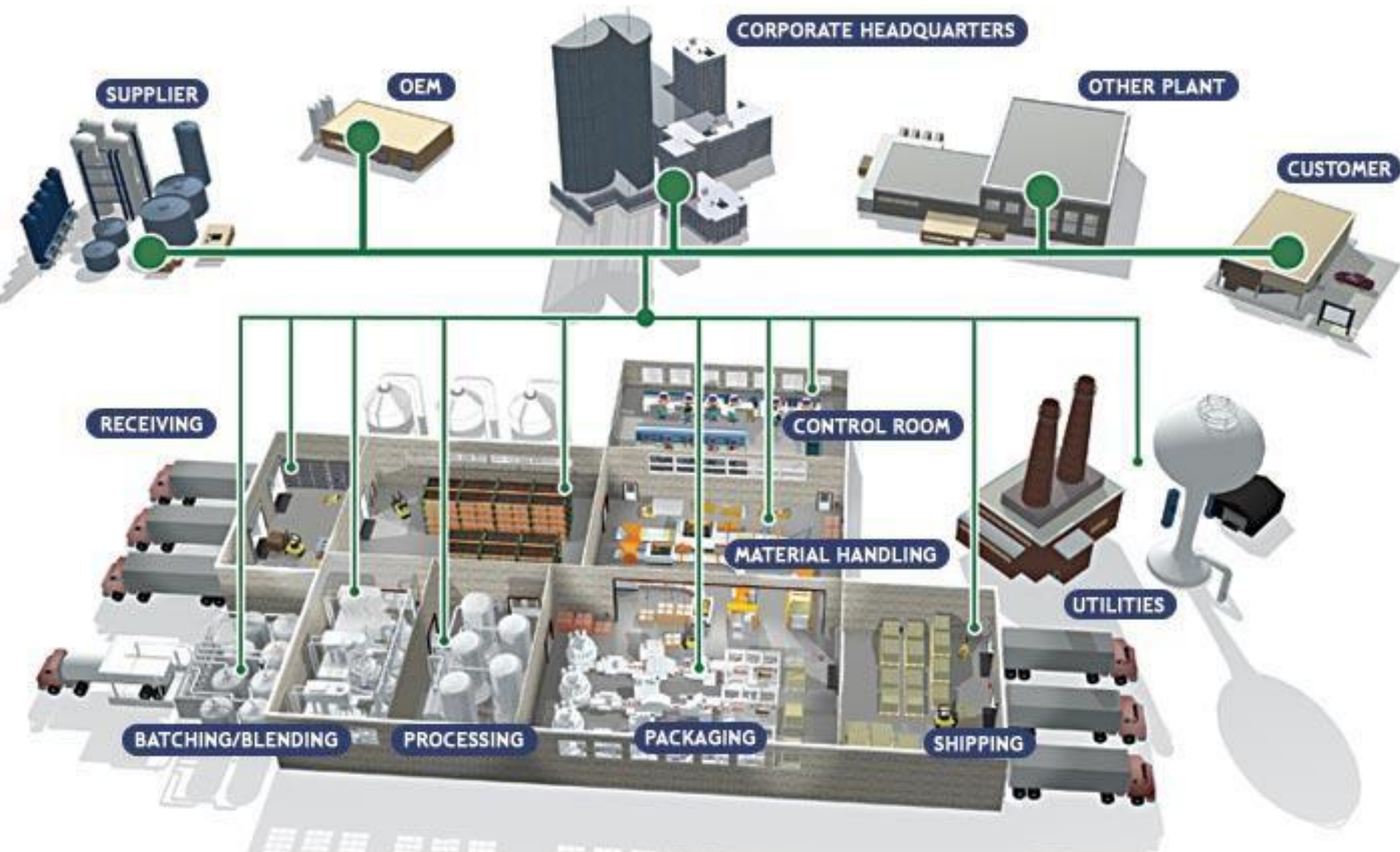


Introduction to System Integration

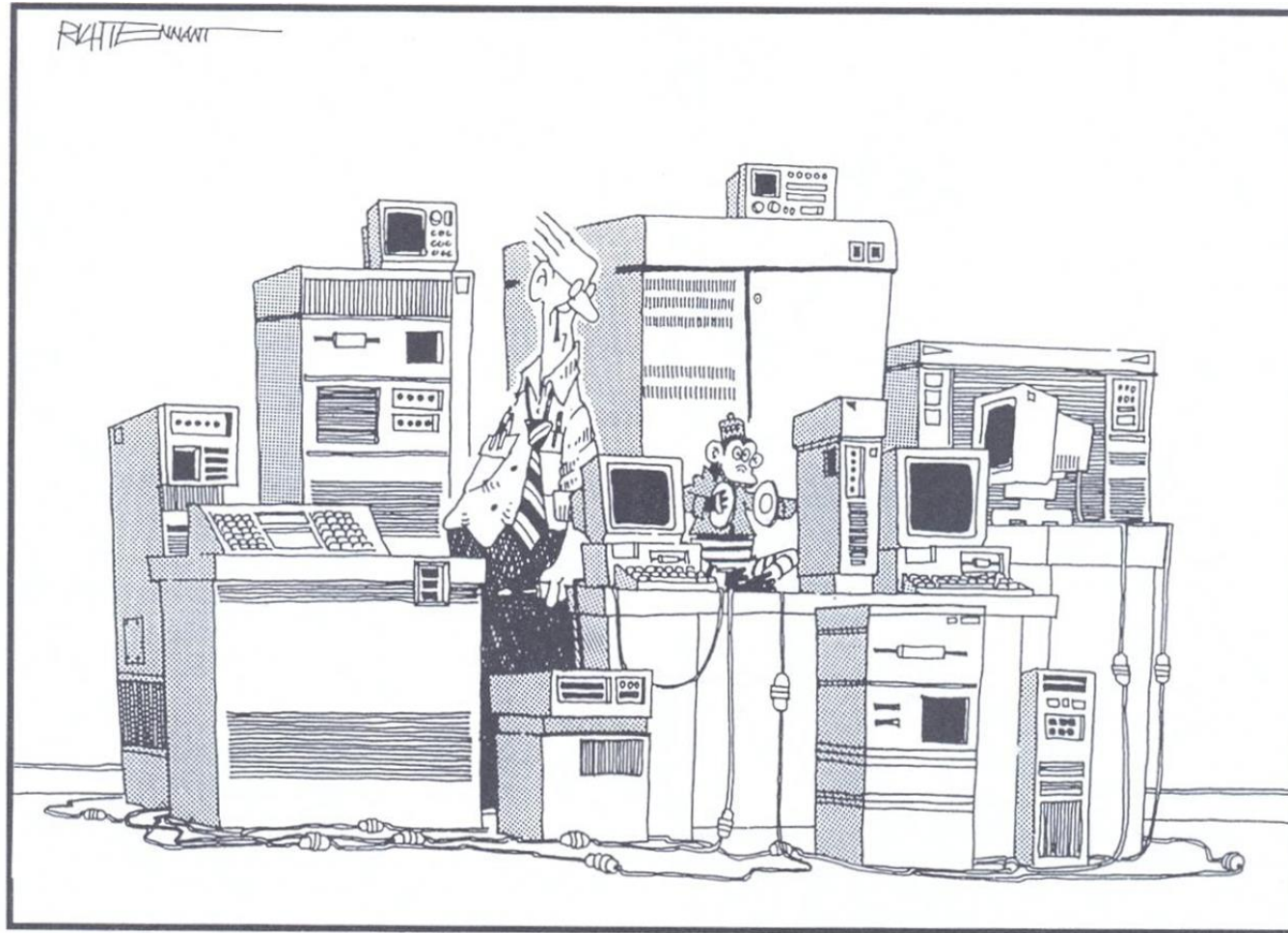
System integration is the task of making different applications work together in order to ...?



Business Integration Scenario - Example



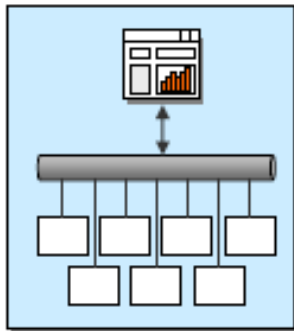
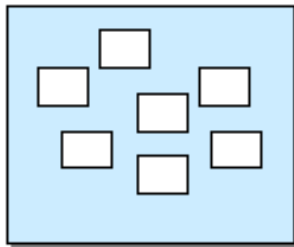
What We Don't Want!



"Now, just when the heck did I integrate THAT into the system?"

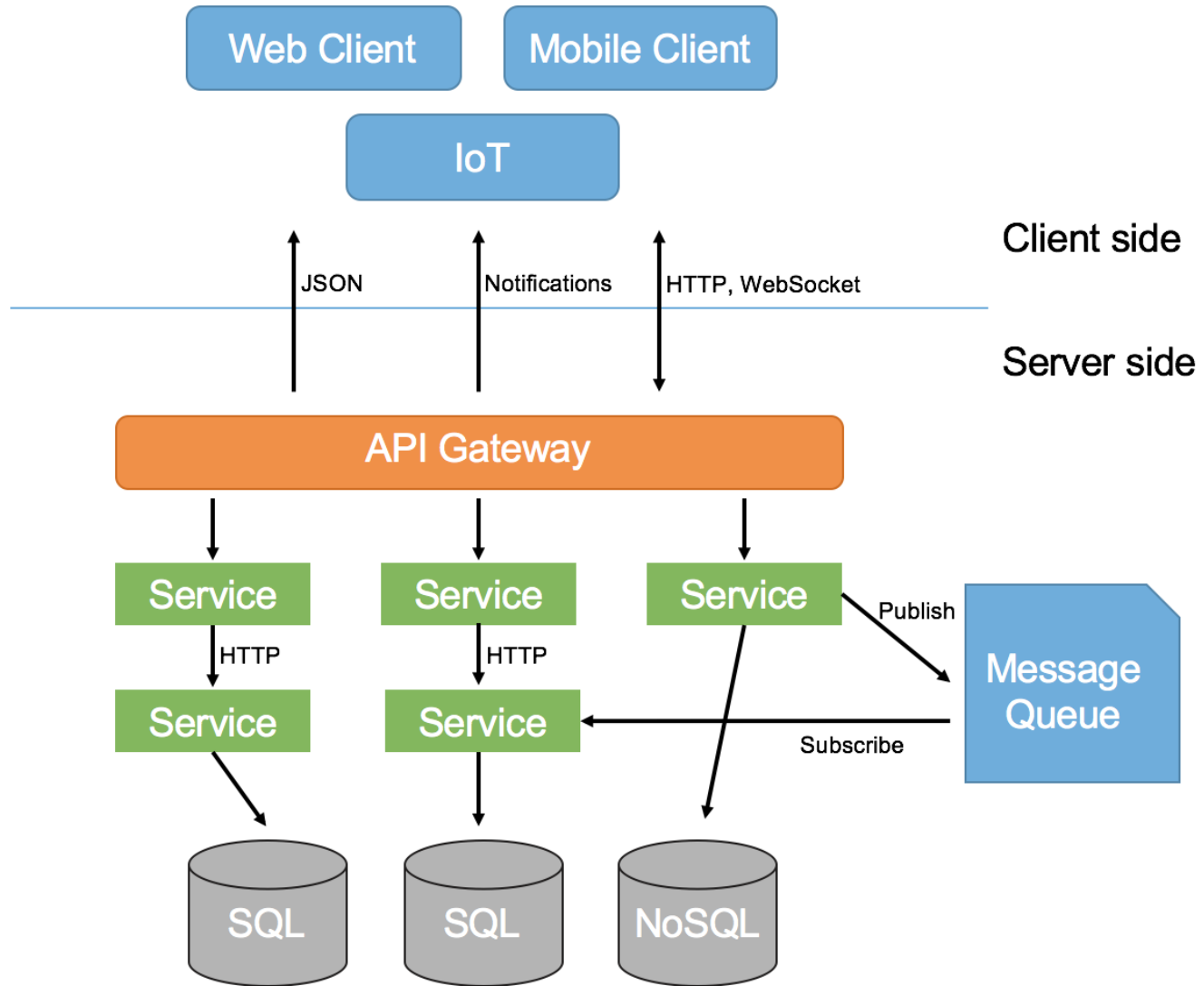
The Idea: Make Isolated Systems Work Together With Unified Access

Isolated Systems



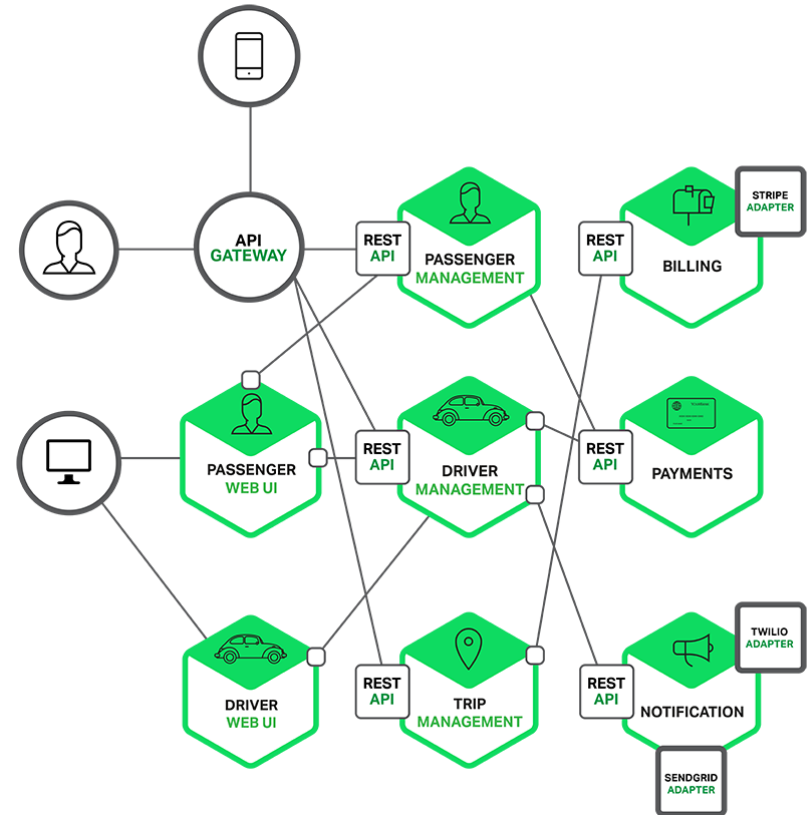
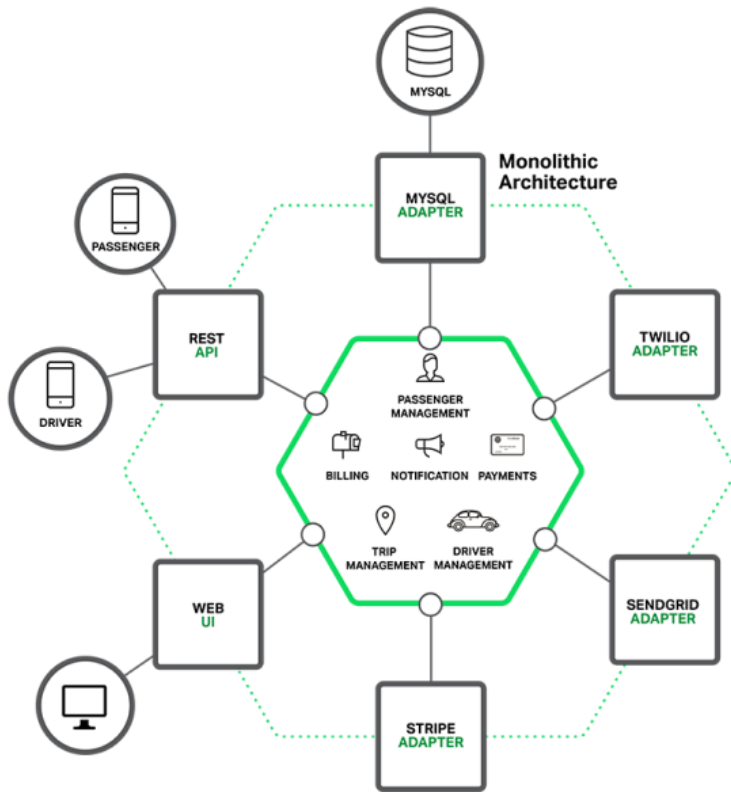
Unified Access

- To support common business processes and data sharing across applications
- Requires applications to be connected to a common integration solution.
- Examples
 - [Cisco](#)
 - [RESTful API](#)
 - [Enterprise Service Bus](#)



Monolithic vs. Micro Service Architecture

Example: Taxi system like Uber



Resource: <https://www.version2.dk/artikel/traet-it-monolitten-proev-microservice-1070559>

Course Objectives

To enable the student to work with integration of systems

- ✓ Know about business considerations in relation to system integration
- ✓ Design a system that is easy to integrate with other systems, and uses existing services
- ✓ Transform or expand a system so that it can function in a service-oriented architecture
- ✓ Use patterns that support system integration
- ✓ Be able to choose from various integration techniques
- ✓ Acquire knowledge of developments in standards for integration

Assessment levels

- Knowledge
- Skills
- Competences

Different perspectives

- Technical view – technology focus (primary)
- Business view – business process scope (secondary)

Students Expectations / Activity

- You can expect:
 - a mix of hands-on, exercises, project work and ordinary lecturing
- We expect:
 - Full-time students 😊 I.e. spend ~ 12 hrs. work in each PBA course.
 - Activities are typically divided into 3 equal parts:

