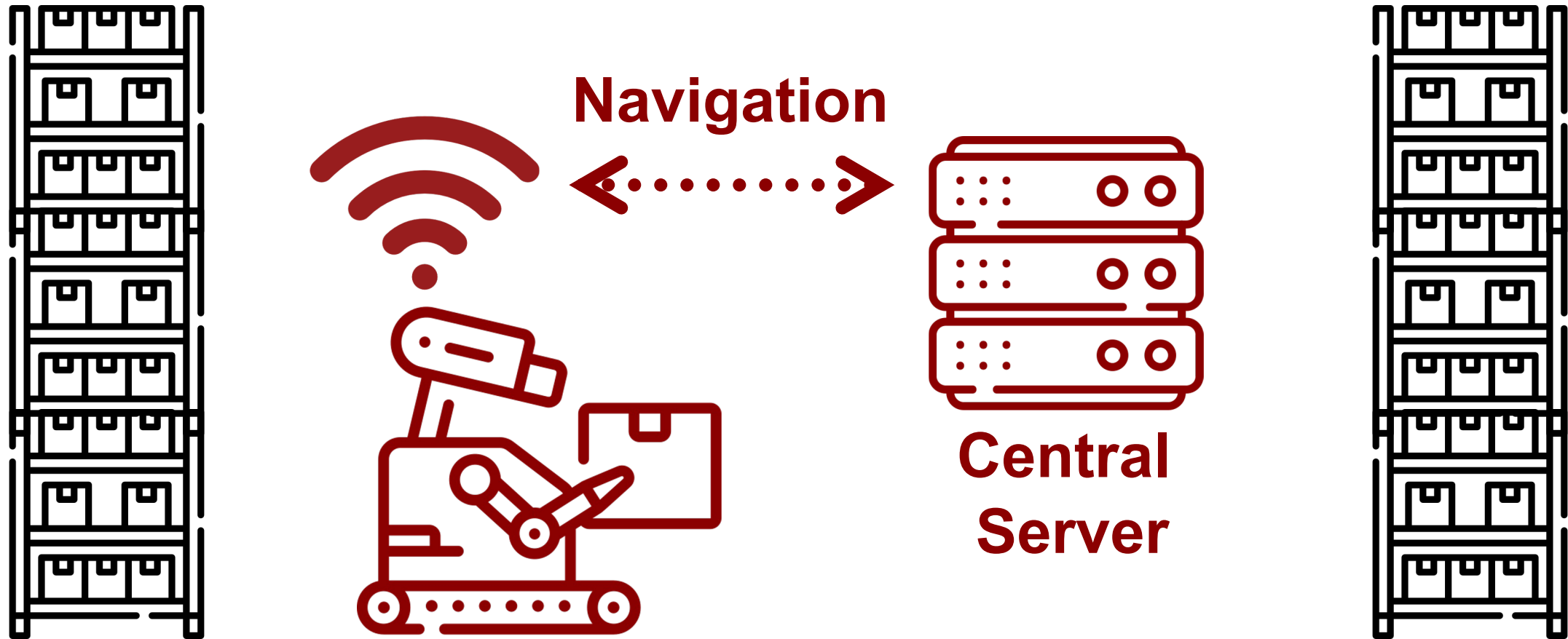# 17-723: Designing Large-scale Software Systems
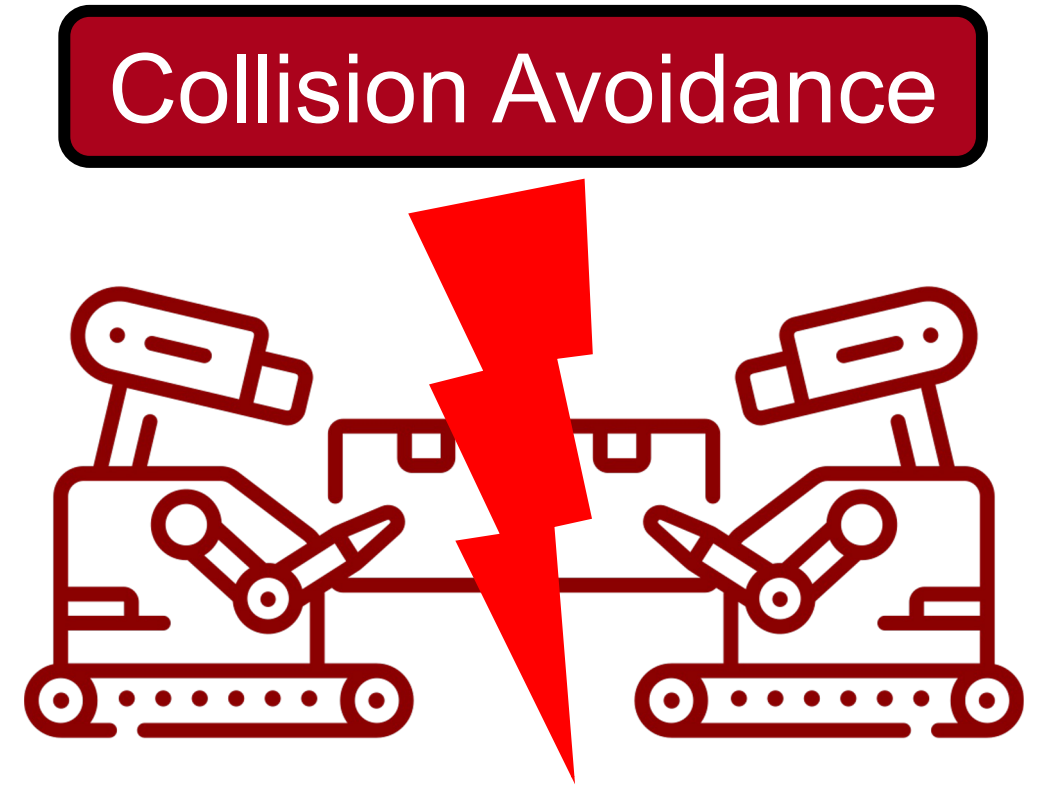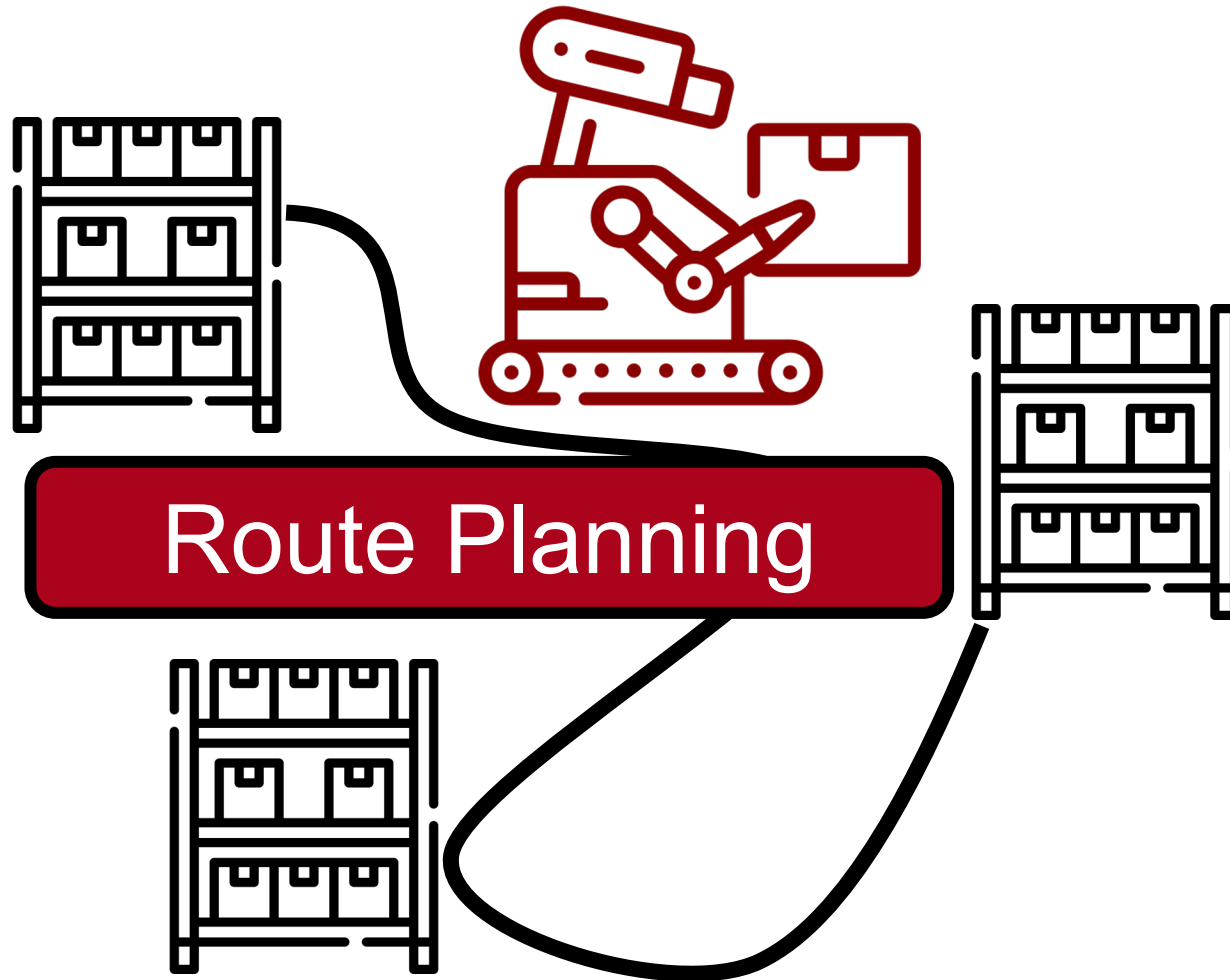
Recitation on Design Tradeoffs

Tobias Dürschmid
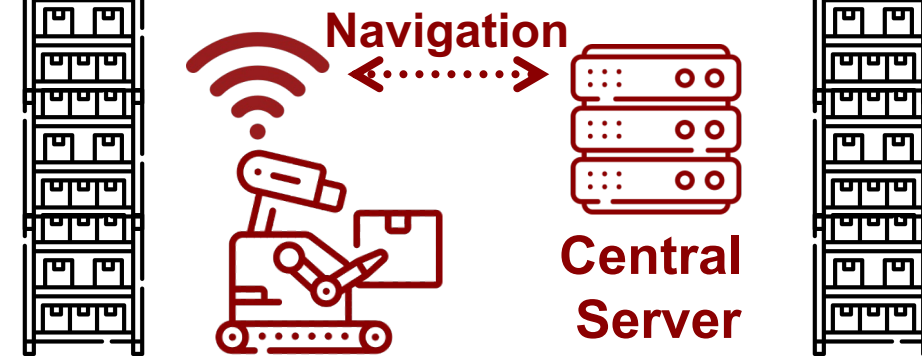
Design A Server-Supported **Robot Warehouse Navigation System**

Navigation

Central Server

Design a Robot-Server Communication System that supports **Collision Avoidance** and **Route Planning**

Route Planning

Collision Avoidance

What **Requirements** are Important?

Robustness
The robot should **be able to operate safely** even if the **network is unavailable**.

Changeability
Updating robot software should be possible without a robot hardware connection.

Scalability
Adding new robots to the system should not degrade individual robot performance.

Cost
The **hardware** and **operating** cost of robots, network, and server should be minimal.

Implementation Effort
The effort to implement **robot** and **server software** should be minimal.

Shuffle the Groups to Review your Designs

Shuffle