

Connecting Business Systems to the Real World: A Lean and Scalable Middleware for Device Integration

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Summary

Businesses increasingly monitor and control the real world in real time. To optimize industrial processes in manufacturing, logistics, and service industry real-world resources such as machines and automation controllers need to exchange information with the business systems controlling the processes. However, this seemingly trivial problem becomes difficult in the presence of a large number of distributed deployed devices, services, and controlling processes. This paper addresses the topic of device integration to bridge the gap between the real world and its representation in software. We introduce the concepts and a prototypical implementation for a lean and scalable middleware for device integration (MDI) to connect devices like sensors, RFID readers, or automation controllers to business management systems like SAP ERP. Furthermore, we highlight use cases and discuss the major concepts and design rationale of this middleware.