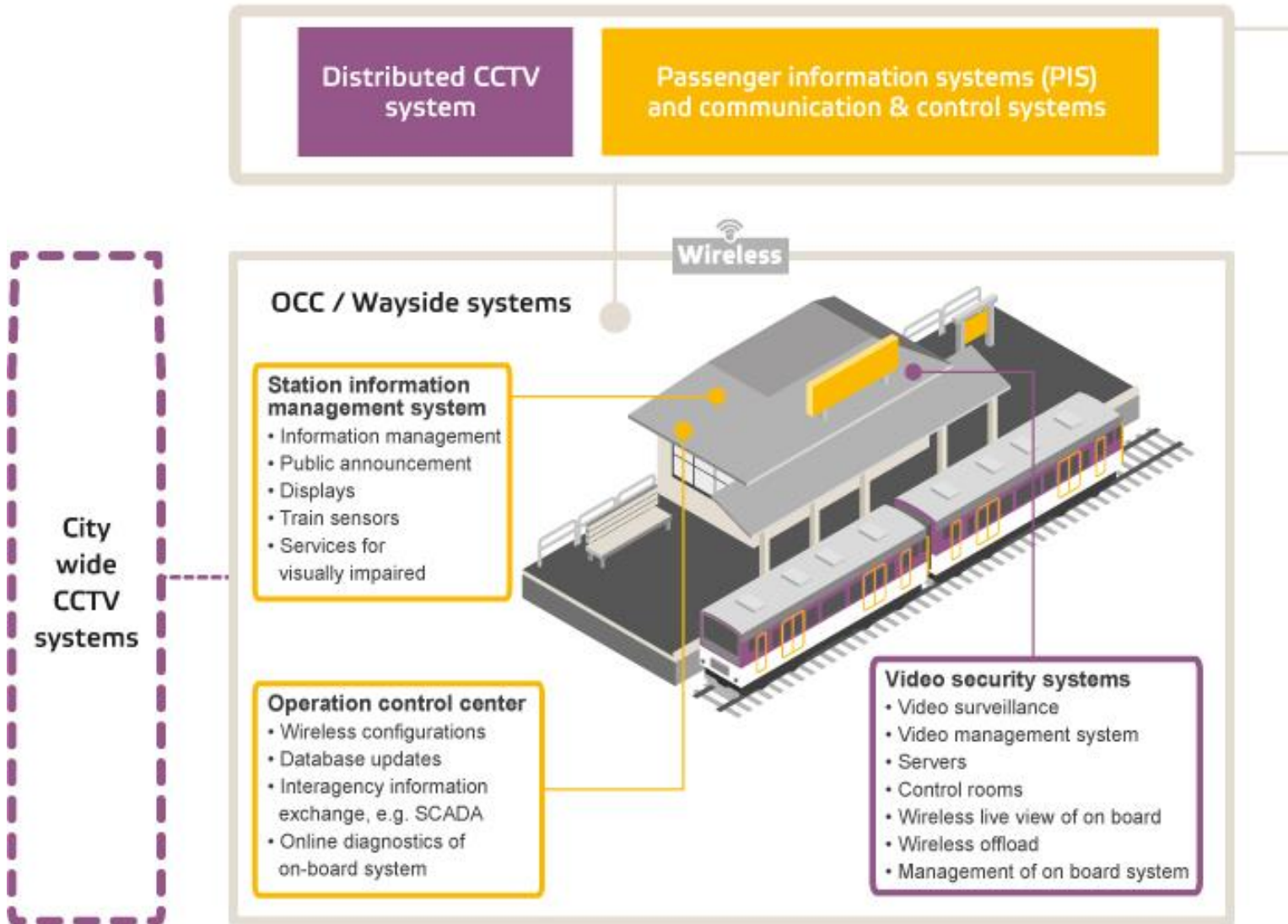


Case scenarios for 5G: Video offload and industrial video edge cloud processing

Jerker Björkqvist
Åbo Akademi University
Turku, FINLAND

Case I: Video surveillance



Case I: Video offload

- Very fast data upload at hot spots (e.g. from trains to a station) using wireless (or is optical communication also an option?)
 - Top relevance for Teleste
 - 60GHz-Wi-Fi or by other 5G-projects?
 - Cognitive radio important
- Estimate of required data transfer:
 - Scenario: 5-6 HD (1080p resolution) quality video streams / train carriage, 10 frames / s per
 - 3 Mbit/s / camera → 32 GB / camera / day
 - approx 1 TB of data per camera / week
 - Approx 200 cameras in the rail area
 - **need for 12 Gbit / s offload**

Case 2: Topic Edge video processing

- industrial edge computing, special focus on industrial image processing and automation
 - example: quality control of industrial production, where image processing is not carried out in the individual machine but in the factory's computer cluster ("local cloud")
 - **video data is transmitted over a 5G-like system** (because of required very low latency) and then routed to the local cloud ("edge computing") in order to avoid the throughput limitation and latency of the core network
 - **image processing carried out in the local cloud**, then the reaction (control of an actor) is fed back to the machine over 5G (closing the loop for the automation system)