



SIEMENS

Ingenuity for life

Digitalizing Light Rail signaling

Moving signaling into the cloud

[siemens.com/mobility](https://www.siemens.com/mobility)

Digitalization is fundamentally transforming the mobility industry across mainline and mass transit, improving the availability of vehicles and infrastructures, optimizing operations, reducing operational costs, and enhancing passenger experience. Thanks to our comprehensive domain know-how and IT expertise, we are able to offer our customers innovative and future-proof mobility solutions that guarantee availability.

Future cloud-signaling for light rail

As a reflection of this development, digital innovations are opening up the opportunity for new, intelligent solutions that will make rail transport more efficient, safer and more reliable. With a digitally interconnected landscape of rail infrastructure envisioned by Siemens and HaCon, essential elements such as point machines and signals will be the only devices still located in the field for tram operations in the near future – all other signaling components will be virtualized and collected inside the cloud. Connectivity in our mobility infrastructure will be the basis for a truly intermodal, seamless connection of train, car, bus and bicycle traffic, and other transport modes.

Fully connected mobility infrastructure

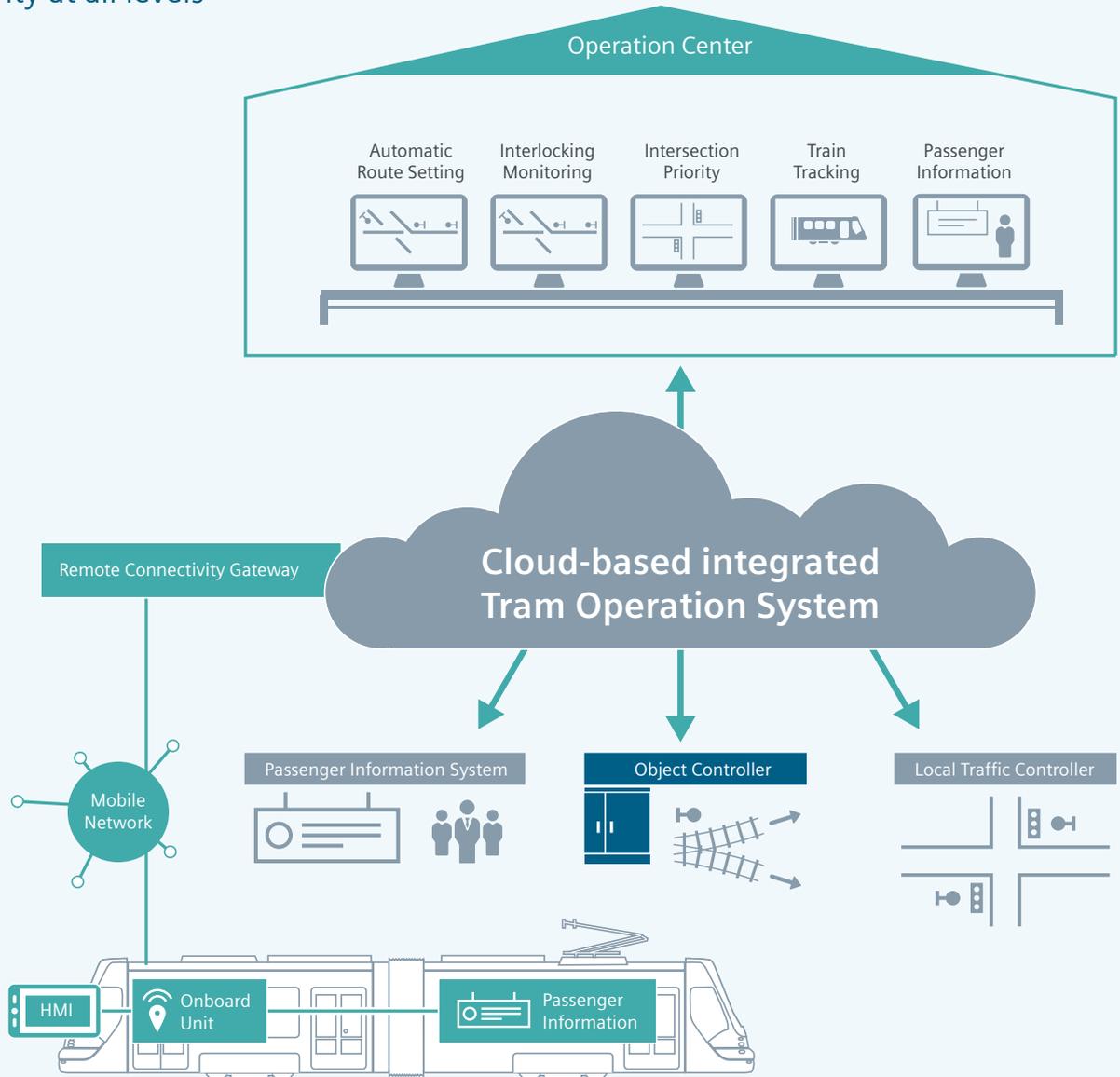
With an integrated cloud-based solution, which combines traditional signaling hardware from Siemens with advanced algorithms and travel applications from HaCon, future tram operations will be digitally revolutionized: Tram positioning data will be transmitted via wireless connection to a central operations system that manages safety and security aspects. This future signaling concept for light rail will no longer require traditional signaling hardware, including trackside balises or antennas, thanks to wireless connectivity via 4G.

The latter also serves as a communication backbone and can be used for other services too, including onboard Passenger Information Systems (PIS), Passenger Announcements (PA), and ticketing. The end result will be a completely connected infrastructure system that is automatically kept up-to-date on the current status of every single field element and tram. Operators will be able to access the data generated by the different components at any time and from any location, and then use the information for the dynamic and environmentally sensitive control of the different traffic flows.

Added value for operators:

- Real-time tracking of trams based on GPS data
- Visualization of vehicle positions on an interactive live map
- Schedule reliability of trams
- Online scheduling for trams
- Interlocking monitoring to guarantee highest degree of safety
- Savings of up to 1/3 on infrastructure
- Up to 10% increase in operational punctuality

Connectivity at all levels



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