Smart Railways & Smarter Cities

Building the Triad of Connected People, Connected Transport and Connected Cities

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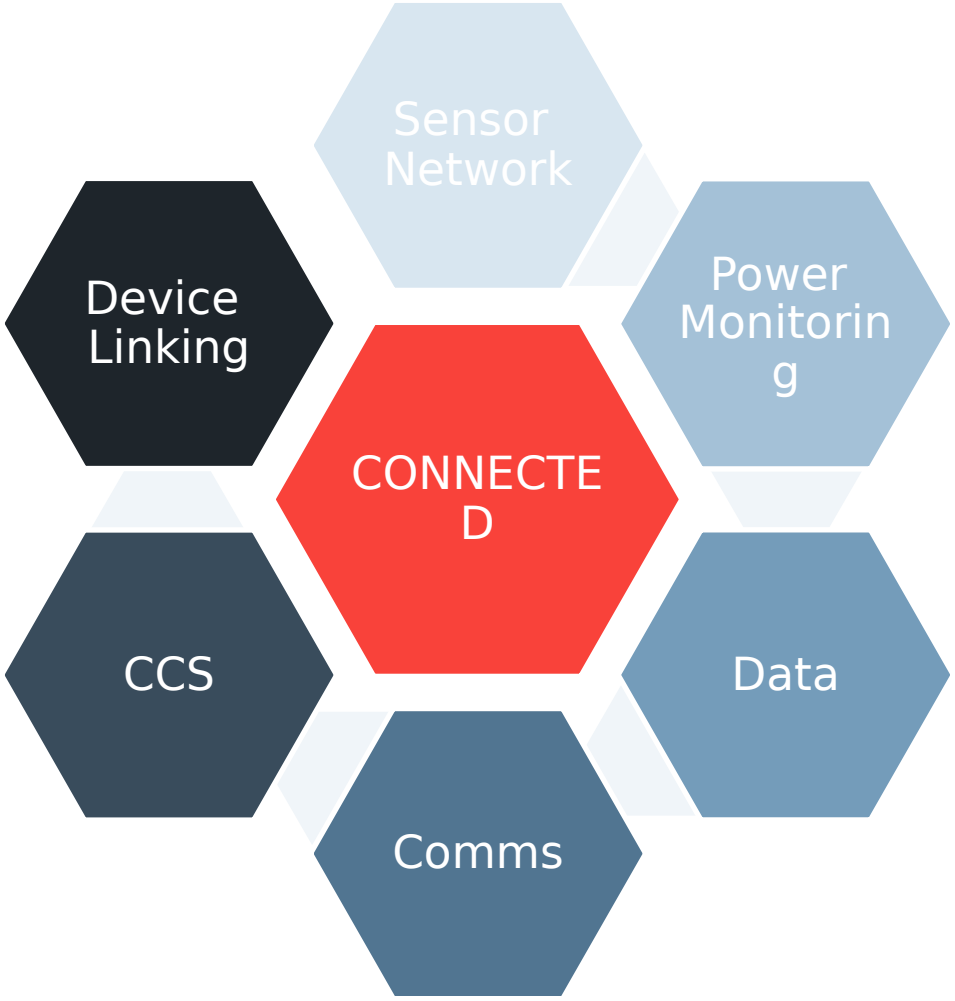
A CONNECTED WORLD

A network of sensors and actuators that minimise human effort

- Sensors and actuators associated to key information flows and activities
- Repetitive tasks managed by AI
- Complex but regular tasks managed by AI/ML
- Human intervention optimized to key inputs

OUR DEFINTION OF “CONNECTED”



HOW DO WE CONSTRUCT A CONNECTED WORLD?

D2D and D2H communications and decision making

- Device-to-device and Device-to-human connections
- Open or standard interface protocols
- Share network management layers
- Distributed data management in local hubs
- Build on top of the existing infrastructure
- Static, Dynamic and Transient infrastructure

THE INFRASTRUCTURE LAYER

STATIC

- Fixed infrastructure nodes; non-reconfigurable
- Smart Buildings
- Utilities & Smart Grid / Intelligent Infrastructure

DYNAMIC

- Fixed but re-configurable
- Cellular network – fixed frame and dynamically change message paths

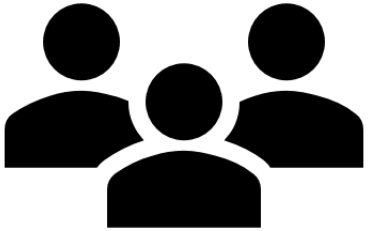
TRANSIENT

- Fluid infrastructure
- Movement of people with connected devices
- Continuous creation and disbandment of infrastructure

THE USER LAYER

Personal

- Phones, tablets, computers
- Sports Devices
- Music
- E-ticketing
- Home control



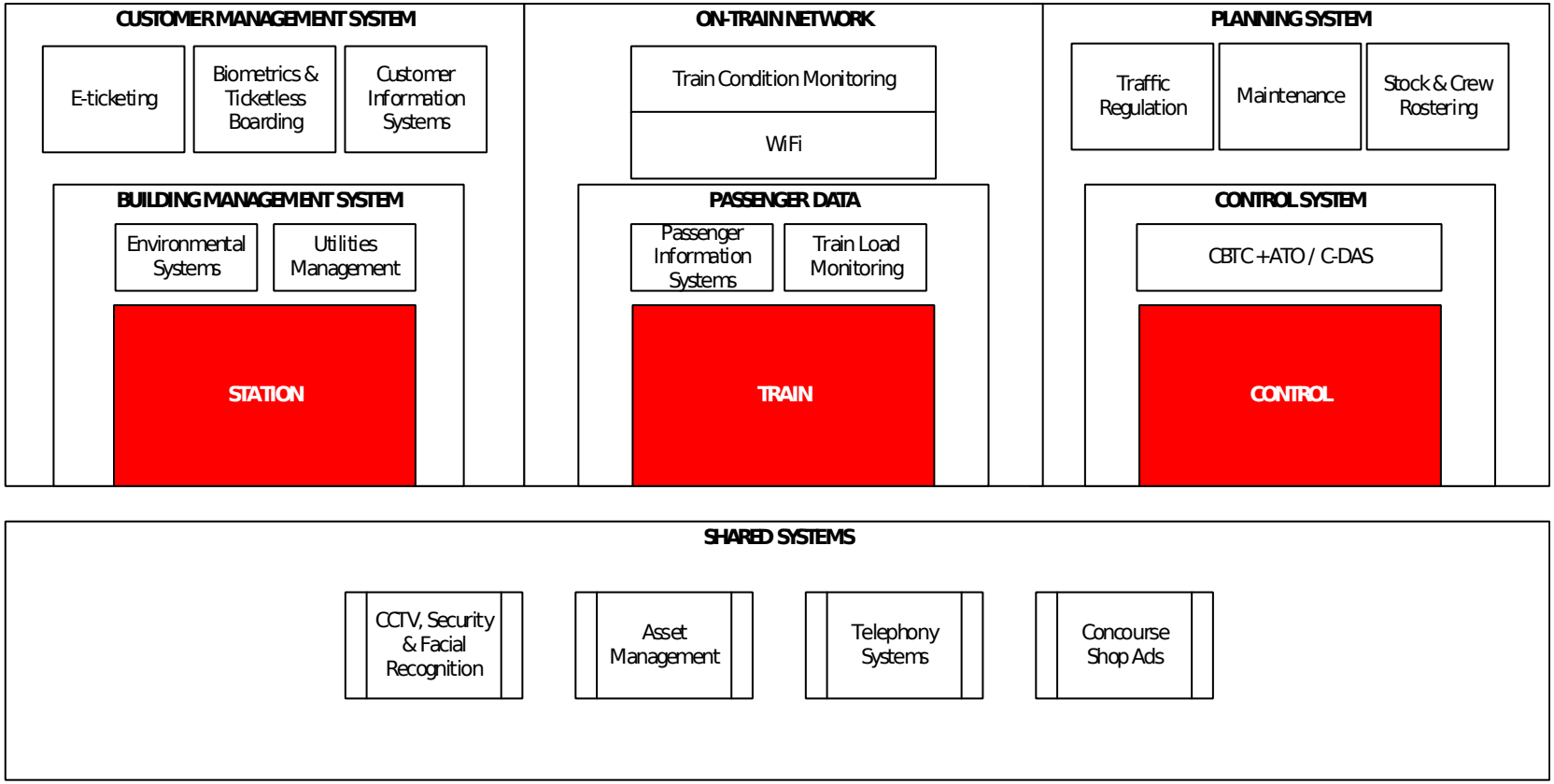
Work

- Work phones, tablets, computers
- Corporate VPN

Corporate

- Building management systems
- Rostering & timesheets (stock & crew)
- Security & fire safety systems
- Financial planning
- Incident management

THE RAILWAY ECOSYSTEM



THE RAILWAY PROBLEM

TRANSIENT INFRASTRUCTURE

Trains are not static – they are a collection of connected devices, moving at 100mph, through urban areas

Every connected device trying to maintain an open link via the local communications network infrastructure

Every local network attempting to manage very large spikes in demand which may be regular but not uniform or consistent

PROBLEMS & CHALLENGES

- How do we ensure network resilience in a more heavily connected world?
- How do we ensure mission and safety critical communications are secured?

YOU HAVE BEEN LISTENING TO

Tim Whitcher BEng(Hons) MBA CEng MIET MIEEE

Tim is a multi-disciplinary systems engineer and has spent most of this time as a professional trouble-shooter for development and delivery projects across both mainline and mass transit rail

His professional interest is stopping people making stupid mistakes through not getting the basics right

His personal interest is in making urban transport more responsive to environment it sits in, and stretching it to its limit.

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DIGITAL RAIL

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