

Tait Radio Communications

**Integrated communications solutions for integrated transport
systems**

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Presentation Overview

- **Introducing Tait Radio Communications**
- **Drivers for ITCS & RTPI communication systems**
- **Tait Integrated Transport Solutions**
 - MPT- IP, P25 & DMR
- **Examples**
 - London
 - Portland
 - Plzen
- **Conclusions**



We are global ...



...but now also local

Drivers for a new ITCS communication system



Tait Integrated Transport Solutions

Tait offers:

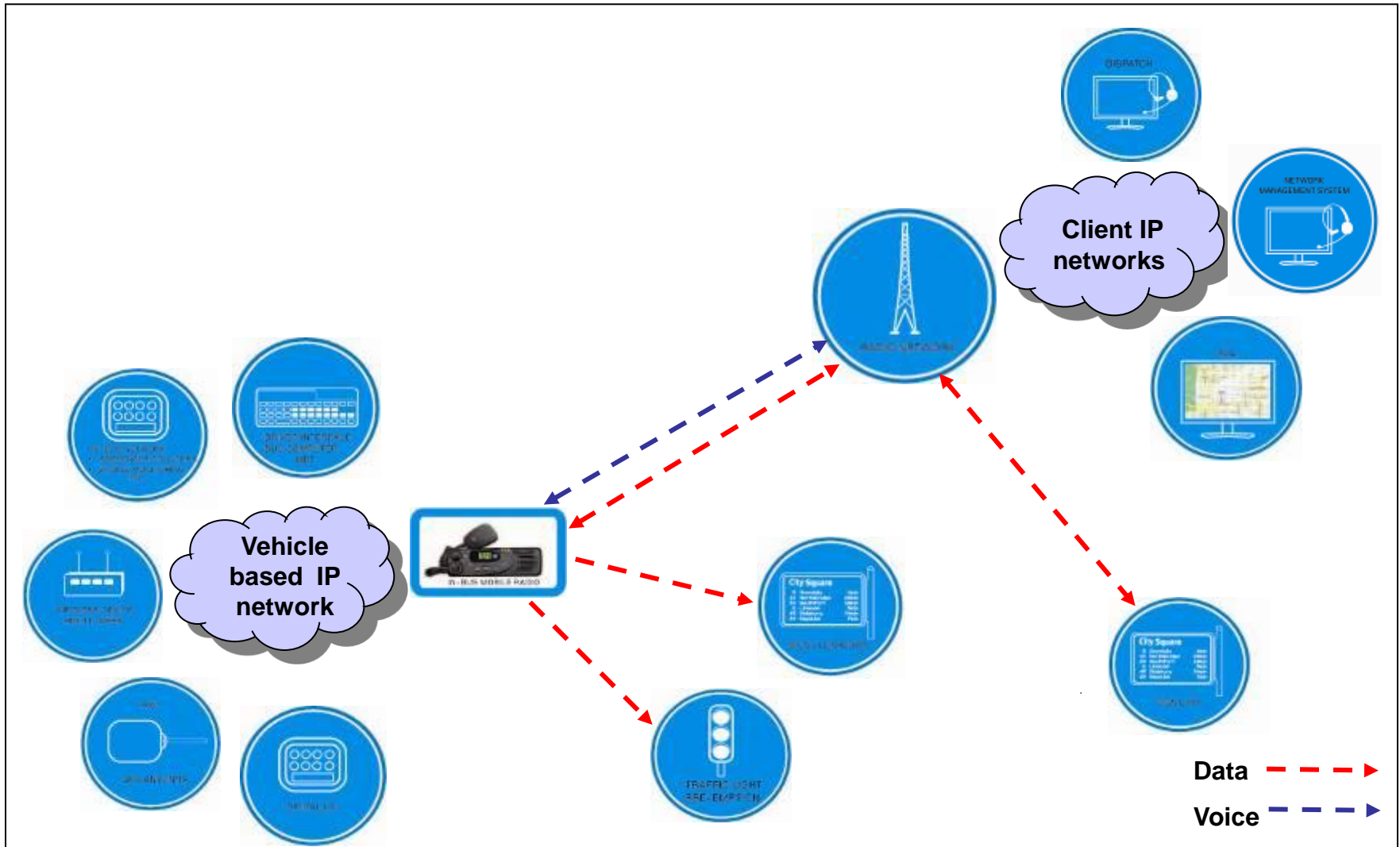
- **Open Standards – MPT, P25 & DMR**
- **Easy Migration**
- **Integrated communication systems**
- **Proven reliability and high-priority voice**
- **Fast data services**
- **Advanced Vehicle Location systems scalable for small to large fleets**
- **Sign data solutions with real-time update rates**
- **Traffic Signal Prioritisation which eases congestion**
- **Integrated Bus and Network Management Systems**
- **99.999% system availability – even during extreme events**



Typical ITCS and RTPI data payloads

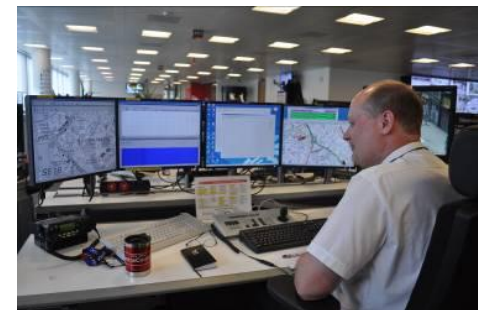
Message type	Data size	Frequency	Priority
Sign / log on	50 byte (medium)	30 minutes	Immediate
Timetable compliance	10 byte (small)	30 seconds	Predictable
Demand / response	100 byte (medium)	15 minutes	Immediate
Individual, group or broadcast	100 byte (medium)	20 minutes	Immediate
Passenger Information sign clear down	10 byte (small)	5 minutes	Immediate
Traffic light priority	10 byte (small)	30 minutes	Immediate
Daily log / downloads, tomorrows activity	100Kbyte (large)	Daily	Predictable
Emergency or alarm	10 byte (small)	Frequent during the incident	Immediate

Tait Public Transport communication network



Tait direction for public transport solutions

- **Intermodal Transport Control Systems – (ITCS)**
- **Real Time Passenger Information – (RTPI)**
- **Traffic Signal Priority - (TSP)**
- **Security and Safety**
- **Network Management System – (NMS)**



What can Tait systems provide

- **Flexible, multi site, multi channel, modular data and voice communications system**
- **Efficient utilisation of existing spectrum**
- **Easy system deployment with flexible management**
- **Extensive range of data services**
- **Security**
- **Same or better coverage than the existing analog network**



Tait DMR or P25 Solutions provide

- **High level encryption support to protect privacy of communication**
- **Advanced Network Management System**
 - **SNMP based**
 - **Extensive reporting facilities**
 - **Diagnostics**
 - **Encryption management**
- **Application support for ITCS and RTPI applications**
- **End to end IP connectivity**



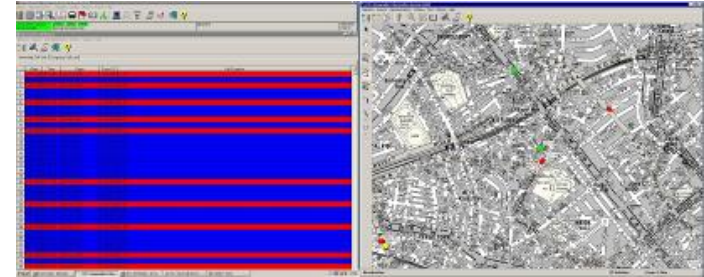
Voice functionality

- **Individual and group calls**
 - **Route, Route Group, Area, Depot, Company, Broadcast, All call functionality**
- **Priority calling**
- **True pre-emptive emergency calls**
 - **Ambient listening functionality**
- **Dynamic re-grouping**
- **PABX/PSTN calling to talk-group**
- **SIP gateways for control room connectivity**



Data functionality

- **Short data messaging - 12 to 47bytes of data per message**
 - Location information
 - Vehicle status information
 - Driver logins or passenger counting
- **Status messaging of 128 characters**
 - Pre-defined messages allow for fast and efficient communications for headway or RTPI messages
- **IP packet data messages – 50 – 1Mbytes of data**
 - For RTPI sign updates
 - Status information where messages exceeds short messaging capacity
 - Images in case of distress or emergency
 - OTAR, updates and upgrades



Tait DMR or P25 products

- **Terminals include WIFI and Bluetooth interfaces**
 - **Allows for easy connection to equipment in the vehicle (bus computer, ticketing machine, engine management, wireless headset)**
- **Remote firmware update is supported through WIFI**
- **Remote programming is supported through WIFI and over the air**
- **Dual analogue and digital functionality for ease of migration**



Network Management System

- **SNMP based management system**
- **Comprehensive monitoring, reporting and diagnostic tools**
- **One system for all systems communications**
- **OTAP and OTAR support**
- **Security management tools**
- **Asset management and documentation**
- **Vehicle Systems Management tools**
- **Dispatcher monitoring and management**



Example – London Bus

- **Over the last decade bus patronage on London buses has increased by 57 per cent. Every weekday 8600 buses run on over 700 routes, carrying 6.4 million passengers per day (over 2 billion trips are made annually on London buses).**
- **To enable this success London Buses recognised the need to replace their 20 year old operational radio and passenger information systems with modern technology would that allowed them to enhance and expand their services.**

London Bus Project

- **Replacement for existing 12 year old MPT 1327 system**
- **Turnkey Tait Systems delivery**
- **Coverage Across Greater London Basin**
- **RF coverage planning and verification**
- **TN5100 TaitNet MPT1327, high availability system**
- **10 Sites supporting 76 Channels**
- **185 Dispatchers at 3 control centres and 90 Garages**
- **Designed for 10,000 bus radios and hand portables**
- **Project management**
- **Tait support and maintenance 24/7**
- **Options for digital upgrade**



Example – Portland Trimet (USA)

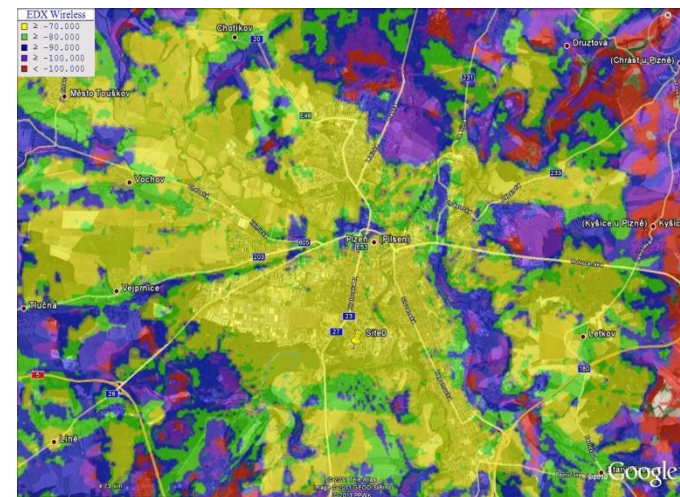
- **P25 trunked radio system**
- **Digital 4 site voice and data system**
- **Integrated high speed data polling**
 - **650 Buses with ITCS and Voice**
 - **450 light-rail and paratransit vehicles**
 - **500 Handportables with AVL and voice**
 - **180 local authority support vehicles**
 - **Integrated dispatch system**
 - **Voice and data encryption**



Example - Pilsen

- **Voice (and data) dispatcher and AVL applications based on MPT1327 network**
 - 2 UHF sites , 1+3 channels
 - 2 TNDS and 2 THSD data channels
 - 1 simplex UHF channel for TLP
 - TNDS polling interval 10 s for 300 vehicles
 - 4 LDT dispatcher consoles
 - vehicle radios fully remoted by OBC

- **Supported by powerful voice communications features**
 - dynamic group
 - priority
 - emergency calling
 - broadcast calls
 - data and voice communication
 - audio gateway to the passenger information systém



Conclusions



Our people
connecting
your people

DMR
DIGITAL MOBILE RADIO

MPT – IP P25

Tait is proud to be a founding member of the DMR Association.