

New Directions in Passenger Information and Entertainment Systems



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Agenda

- **The main features of the new PIES¹ platform**
- **Examples of PIES services**
- **Wireless communication technologies**
- **PIES platform families**
- **Conclusions**

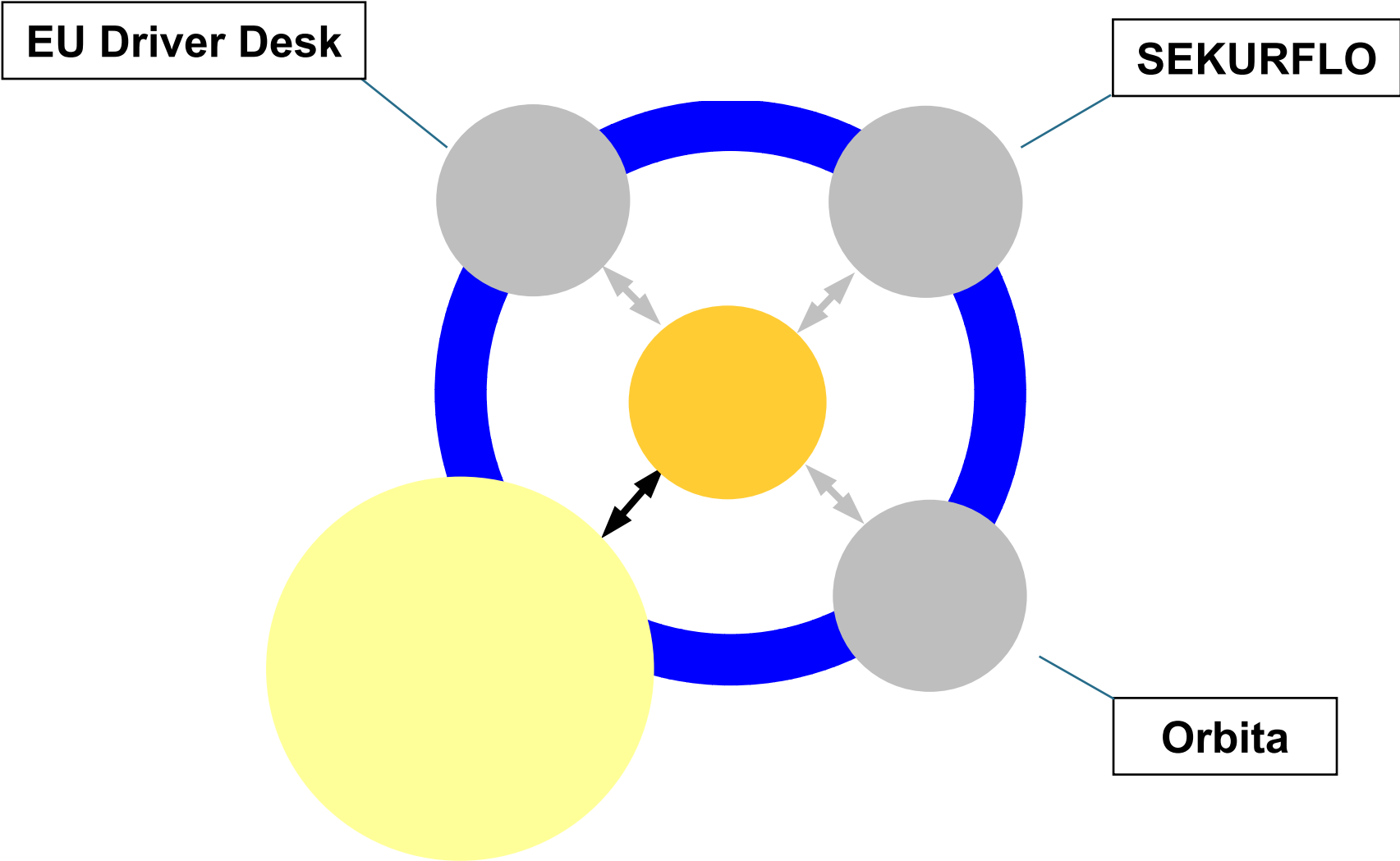
The main features of the PIES platform

- **Is focused on:**
 - Public PIES services
 - On-demand personalised PIES services
- **Provides highly modular & adaptable services**
 - To fulfil the different needs of our customers
 - For different train type
- **Is integrated in the high bandwidth on-board Mitrac – IP¹ TCMS² platform**
 - No double hardware
 - Integrated information flow

1 Internet Protocol

2 Train Control and Management System

Integrated system approach



Examples of PIES services

Public services

- **Travel information**

- Shall focus on smooth and safe journey
- Must be accurate & real-time updated
- Must be easily visible / audible
- Shall not overwhelm the traveller

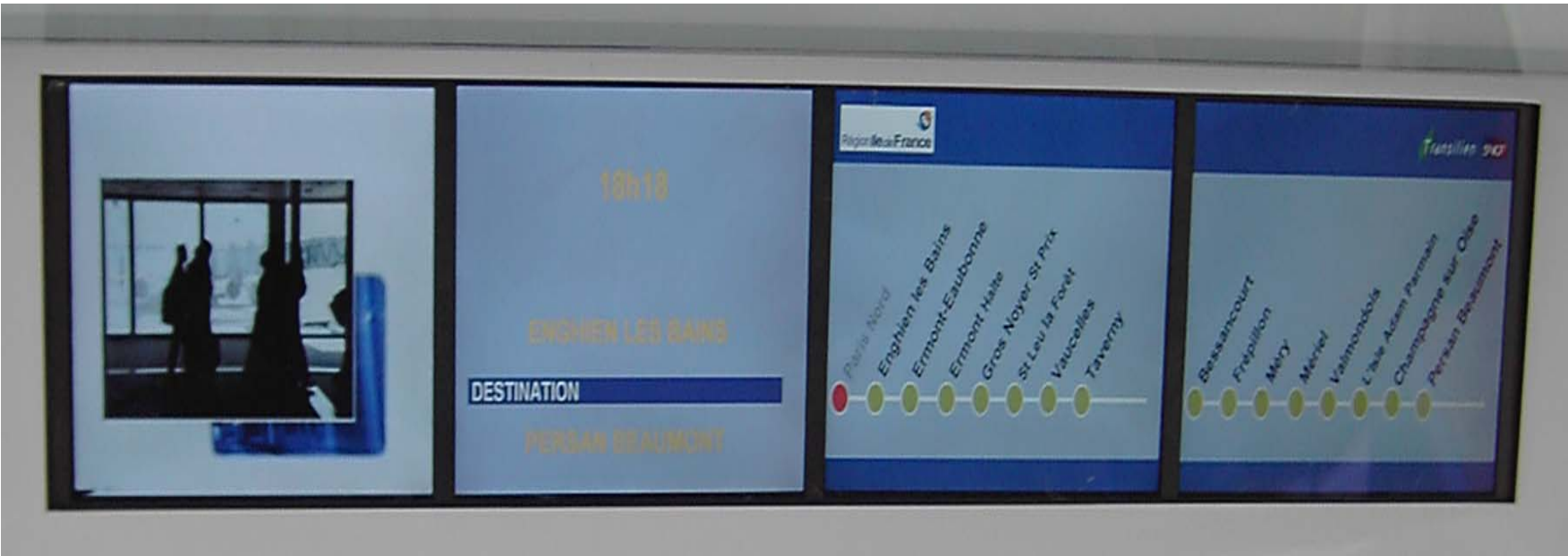
- **Entertainment**

- Can be Information, Publicity, Television, News, Points of interest, Weather forecast, etc..

Public travel information services



Public services



Public entertainment services

- Visual information and associated (wireless) audio



.RF
.Wifi

Personalised on-demand services

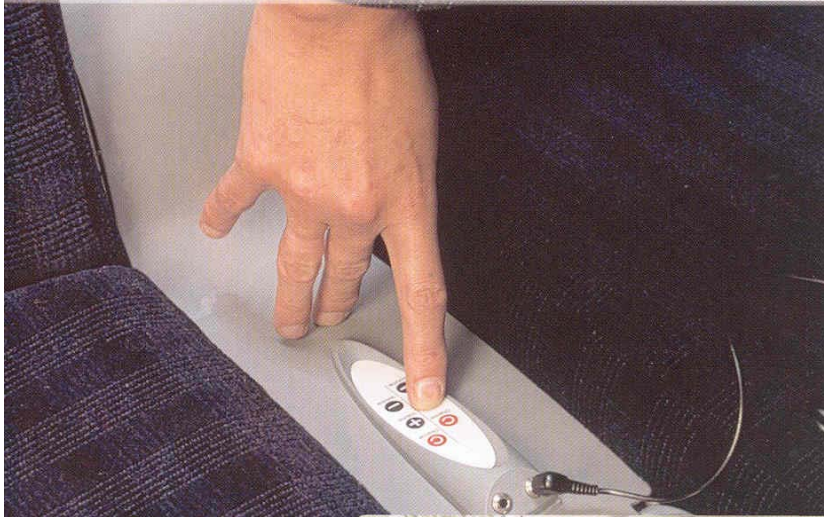
- **Are focused on the needs of the individual traveller**
 - She/he can select : channel, volume, page, etc..

- **Are providing a full range of possibilities:**
 - Infotainment /Entertainment
 - Music, Radio
 - Intranet, Internet, Movies, Television
 - Communication
 - VoIP
 - Business / Commercial
 - Etc ...

- **Are completely on-demand and fully interactive**

- **The traveller is using his/her own equipment**
 - PDA
 - Portable PC
 - Headphone
 - Mobile phone

Personalised entertainment services



Personalised internet services

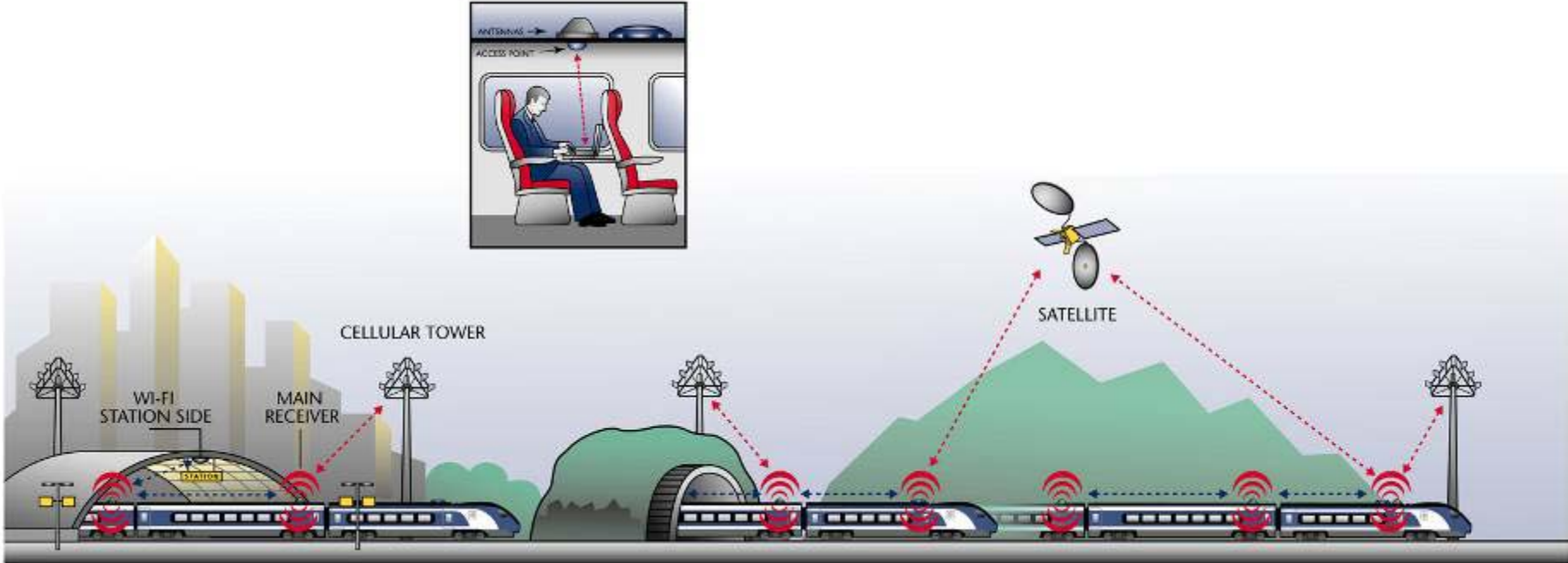


» MOBILE OFFICE



Wireless communications technologies

The reality of WAN¹ networks for trains



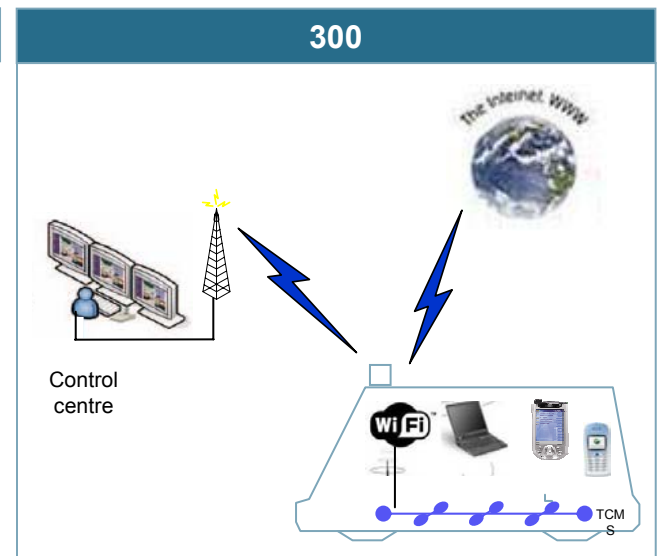
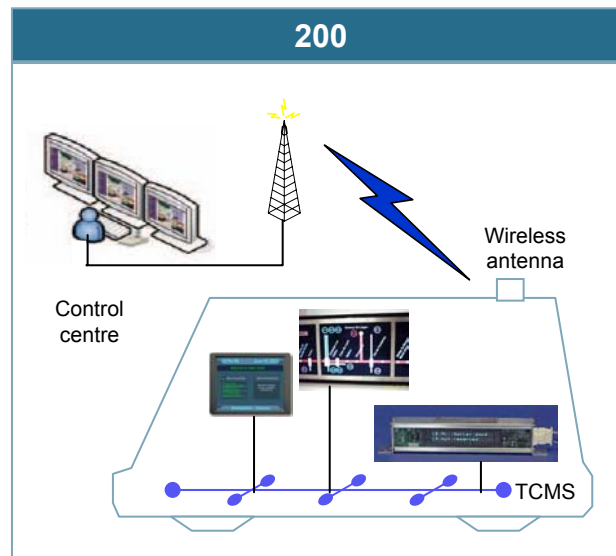
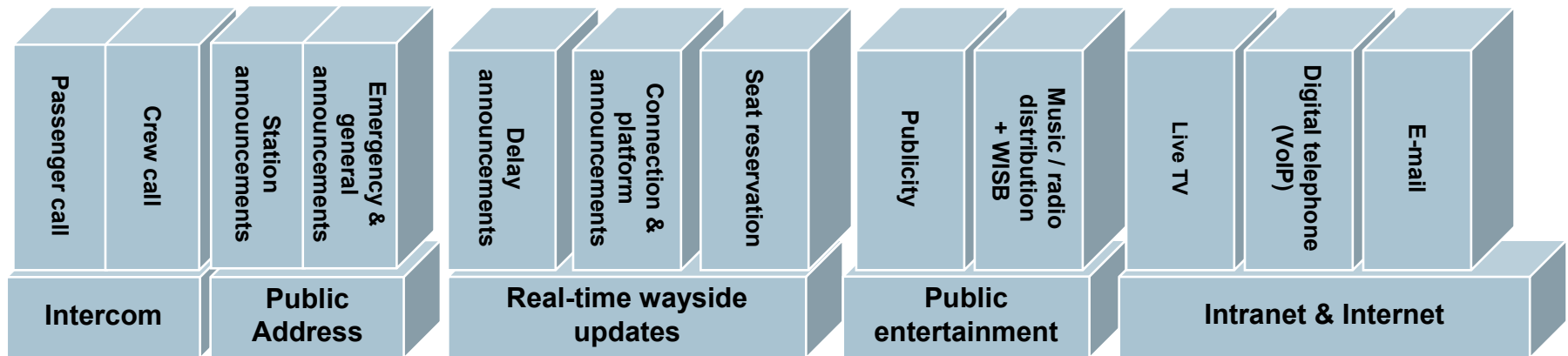
- 1 Wireless Area Networks
- 2 Wireless Metropolitan Area Network
- 3 Wireless Local Area Network

Technology overview

Technology group	Technology	Bandwidth Characteristics	Communication Cost Indication	Way side Infrastructure
2.5G¹	GPRS	Max 171 kbps Typ. 15.6 kbps	± 70€ / month 30 MB	Cellular
	EDGE	128 kbps	± 1,5€ / MB	Cellular
3G	UMTS	Down : 384 kbps Up : 64 kbps Up	± 100€ / month 1 GB	Cellular
	HSDPA (Downlink)	Down : 1.5 Mbps Up : 64 kbps (UMTS)	50 € / month 100 MB	Cellular
WLAN	WiFi (802.11b/g)	802.11 b: Max 11 Mbps 802.11 g : Max 54 Mbps	-	Dedicated equipment
WMAN	WiMax (802.16)	32 Mbps (Max)	-	Dedicated equipment
SATELLITE	Downlink	Down: 2 Mbps Up : GPRS/EDGE/3G	? M€ 700 Users (20 Mbps Down)	Central Server
	Two-way Up/Down Link	Down : 2 Mbps Up : 500 kbps	3.2 M€ 700 Users (20 Mbps Down / 5 Mbps Up)	Central Server

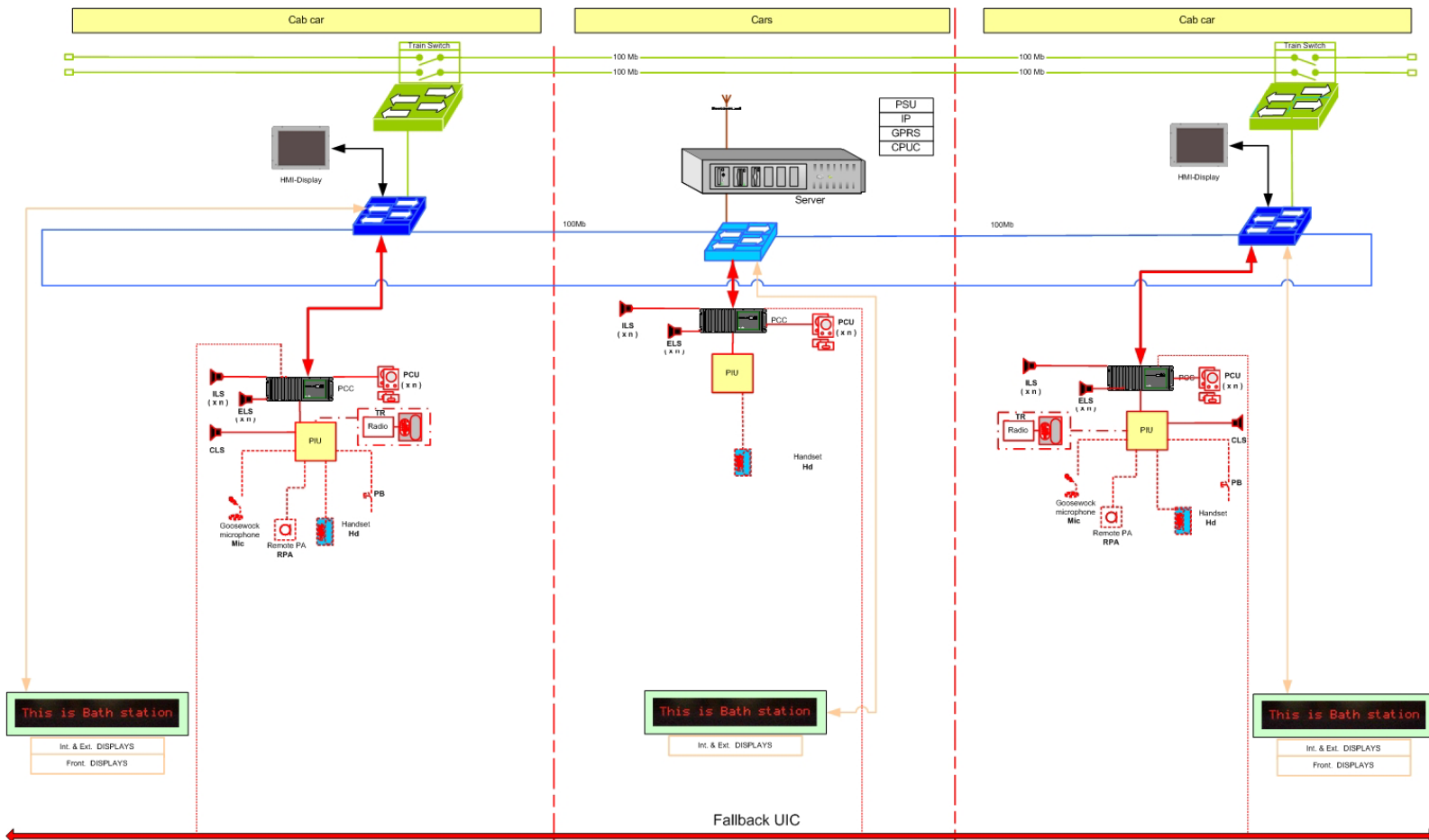
PIES platform families

BT TCMS iMedia

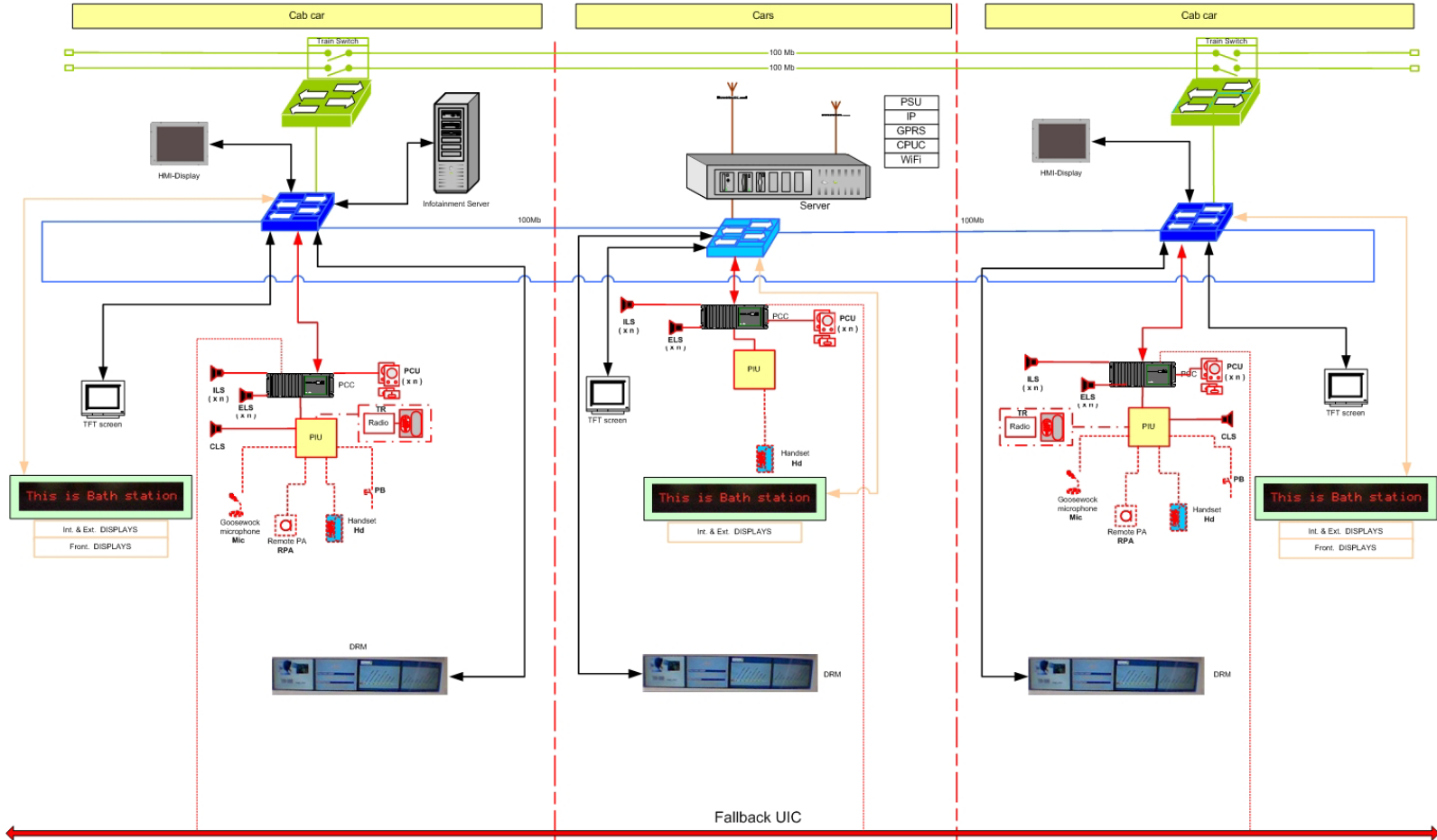


- 1 Voice over Internet Protocol
- 2 Wireless Information Broadcast System

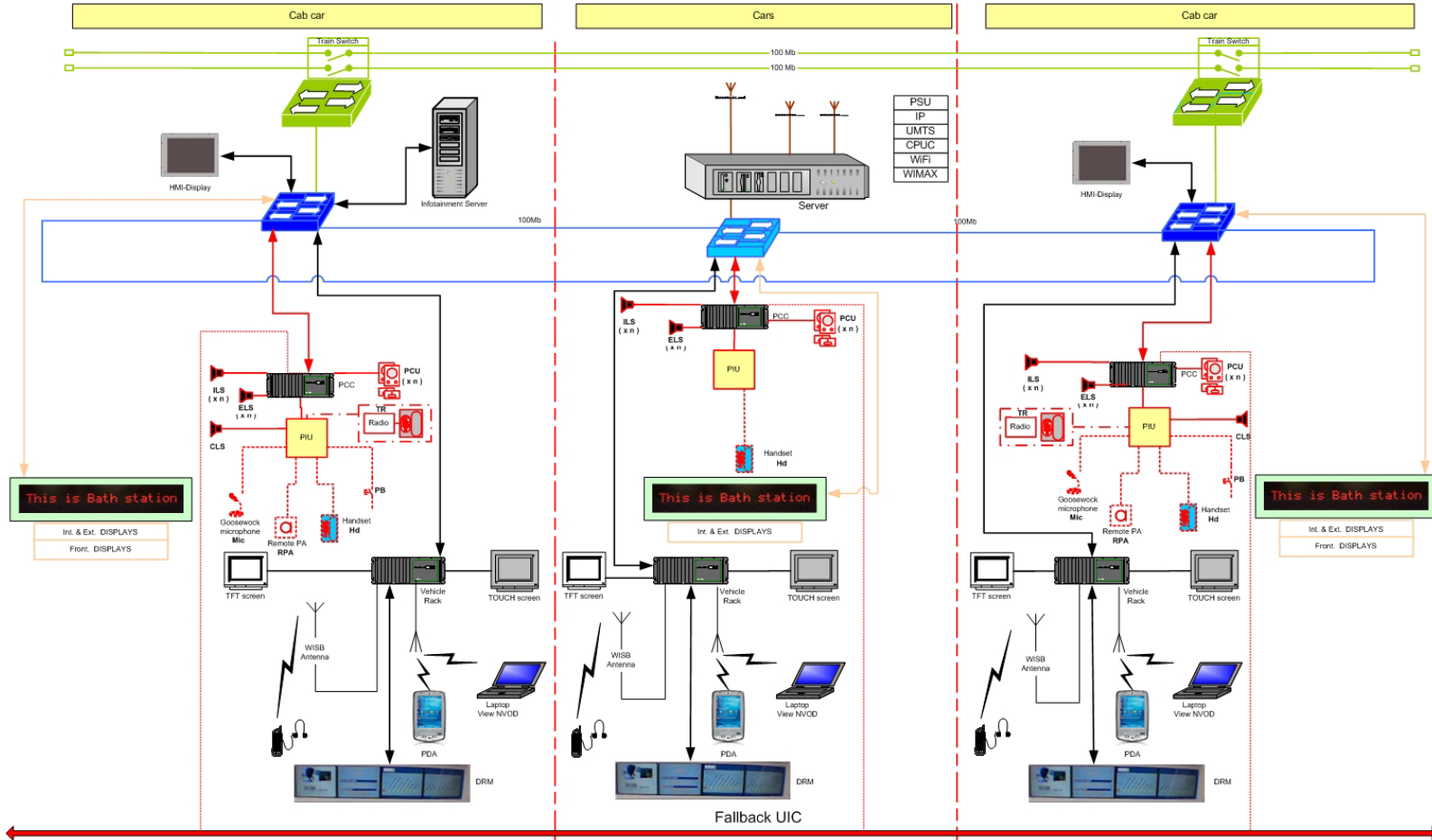
100 Family



200 Family



300 Family



Conclusions

- **The technology is in (r-)evolution!**
 - Mobile & high bandwidth communication
 - Multimedia
 - Internet

- **The BT solution provides:**
 - A scalable integrated product
 - The latest technology
 - At any moment adaptable
 - Based on open standards
 - High bandwidth Internet Protocol based backbone

TCMS iMedia Integrated Approach

