



Inter-modal Real-time Passenger Information and Managed Transfer Availability in Public Transport

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Trapeze: the Company

- Business unit of Constellation (TSX: CSU)
- Headquartered in Toronto, Canada
- **Trapeze ITS:** Headquarter in Neuhausen, Switzerland
 - ⇒ Supplies since 40 years **I**ntelligent **T**ransportation **S**ystems to the public transport industry
- **Trapeze Group:** European Headquarter in Århus, Denmark
 - ⇒ Delivers solutions to the private and public passenger transport sector
- 30+ offices across North America, Europe and Australia
- 1,100+ customers worldwide



Agenda

- Customer perceptions
- Managed transfer availability between different operators and transport modalities
- European standardization and core technologies for connecting control centers of different transport authorities
- Inter-modal passenger information concept of the transit association of Zurich

What Shapes Passengers' Perceptions?

- **Topical information** influences **perceived waiting and travelling time**
 - ⇒ at the beginning of a journey
 - ⇒ on-trip
- **Operation** of public transport is **perceived as...**
 - more reliable
 - more on time
 - more convenient

What's Different?

The goal: Making the **highest number of planned transfers** available to the passenger.

The communication method: Enhancing **in-vehicle information**

- in real-time
- about **available** transfers at next stops

The consequences:

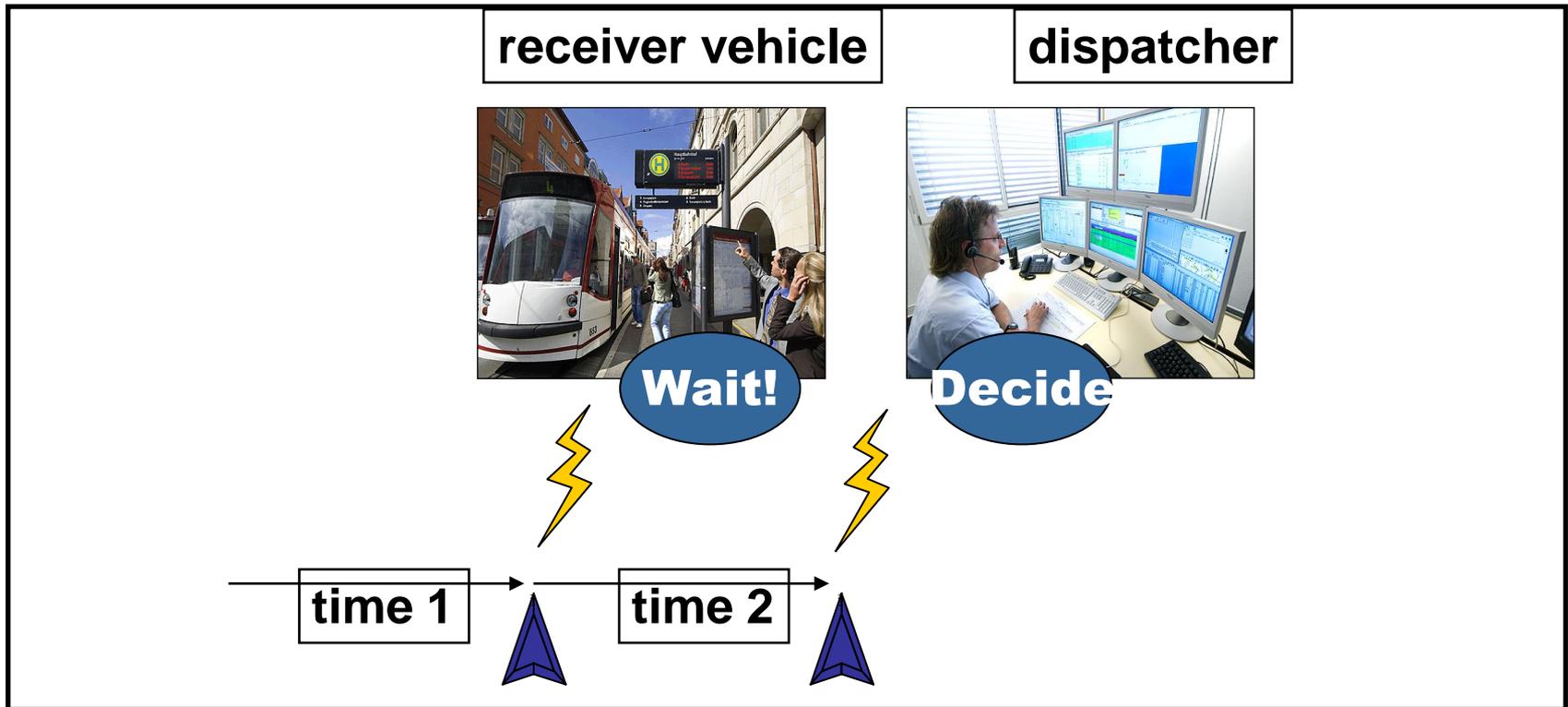
Transfer information is available

- already in the **feeder** vehicle (and not only at the stop)

Transport authorities

- must be able to “**guarantee**” the transfer
- by **ordering** the receiver vehicles **to wait** for the feeder

Managed Transfer Availability (MTA): Approach



Within a pre-defined time slot, the system **automatically orders** the **receiver vehicles to wait** for the feeder vehicles.

Managed Transfer Availability (MTA): Conclusions

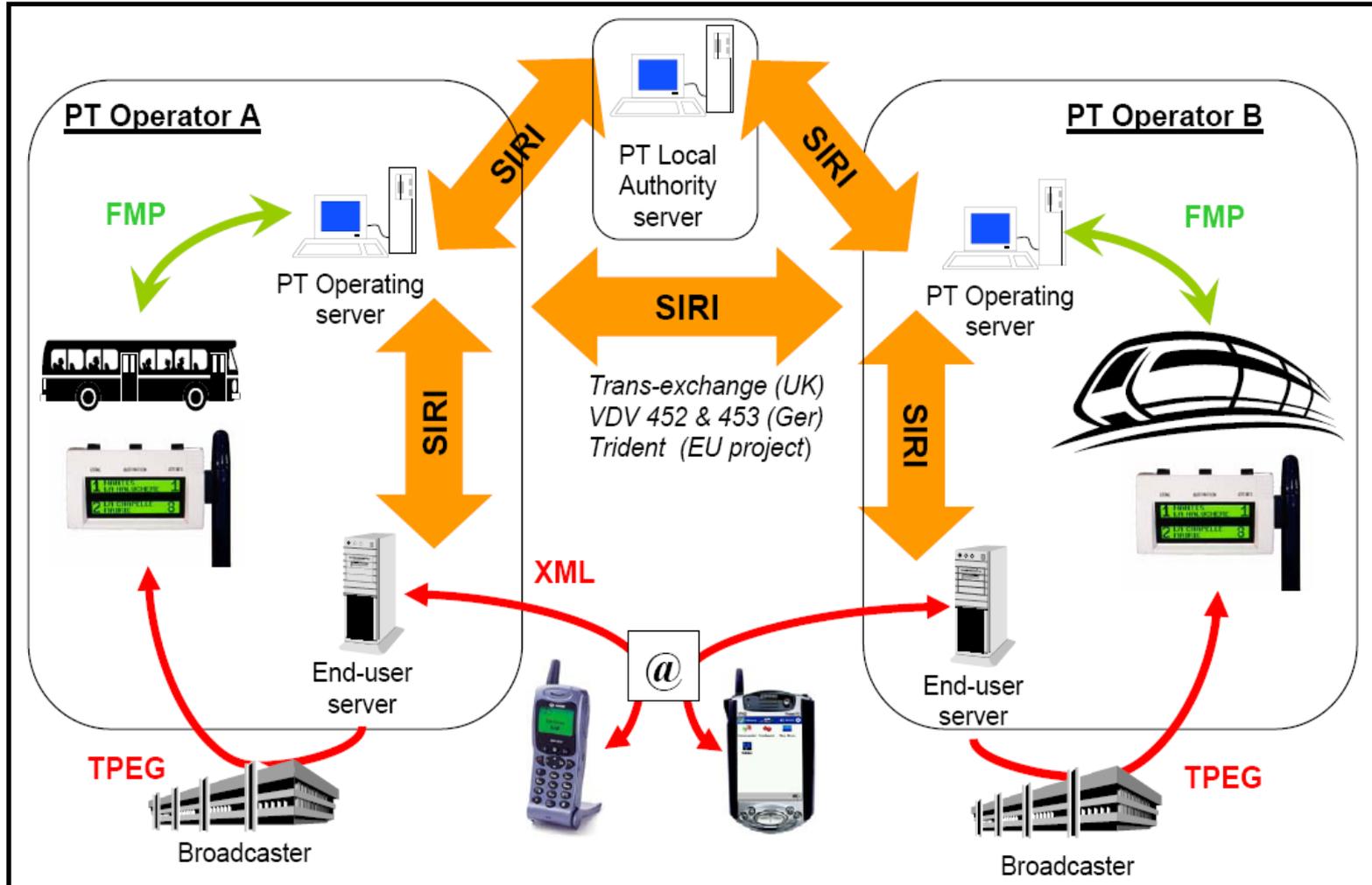


- Adequate and dedicated information must be made instantly available to passengers and drivers alike
- Securing transfers must not lead to slowing down local public transport at a network level
- Pay special attention when **different operators** at local, regional and national levels are involved

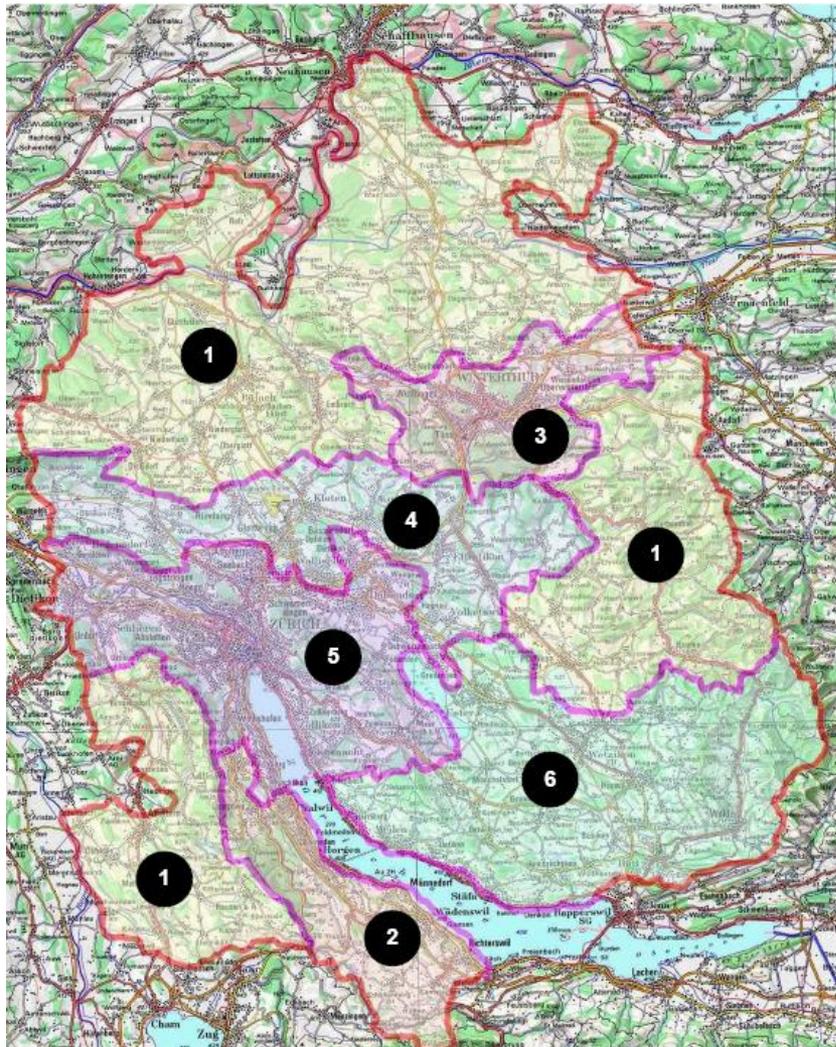
Core Technology – CEN Framework

- **Core technology:**
 - The **VDV-453** real-time interface
 - part of the basis of the **SIRI** “Standard Interface for Real-Time Information”
- **SIRI definition: A communication layer** which defines:
 - **common procedures** for requesting and exchanging public transport data
 - an **interface between control centres** of an Automatic Vehicle Monitoring System

SIRI: Basic Setup



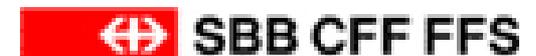
Inter-modal Passenger Information ZVV Zürcher Verkehrsverbund



100 km



SIRI / VDV Interface to:



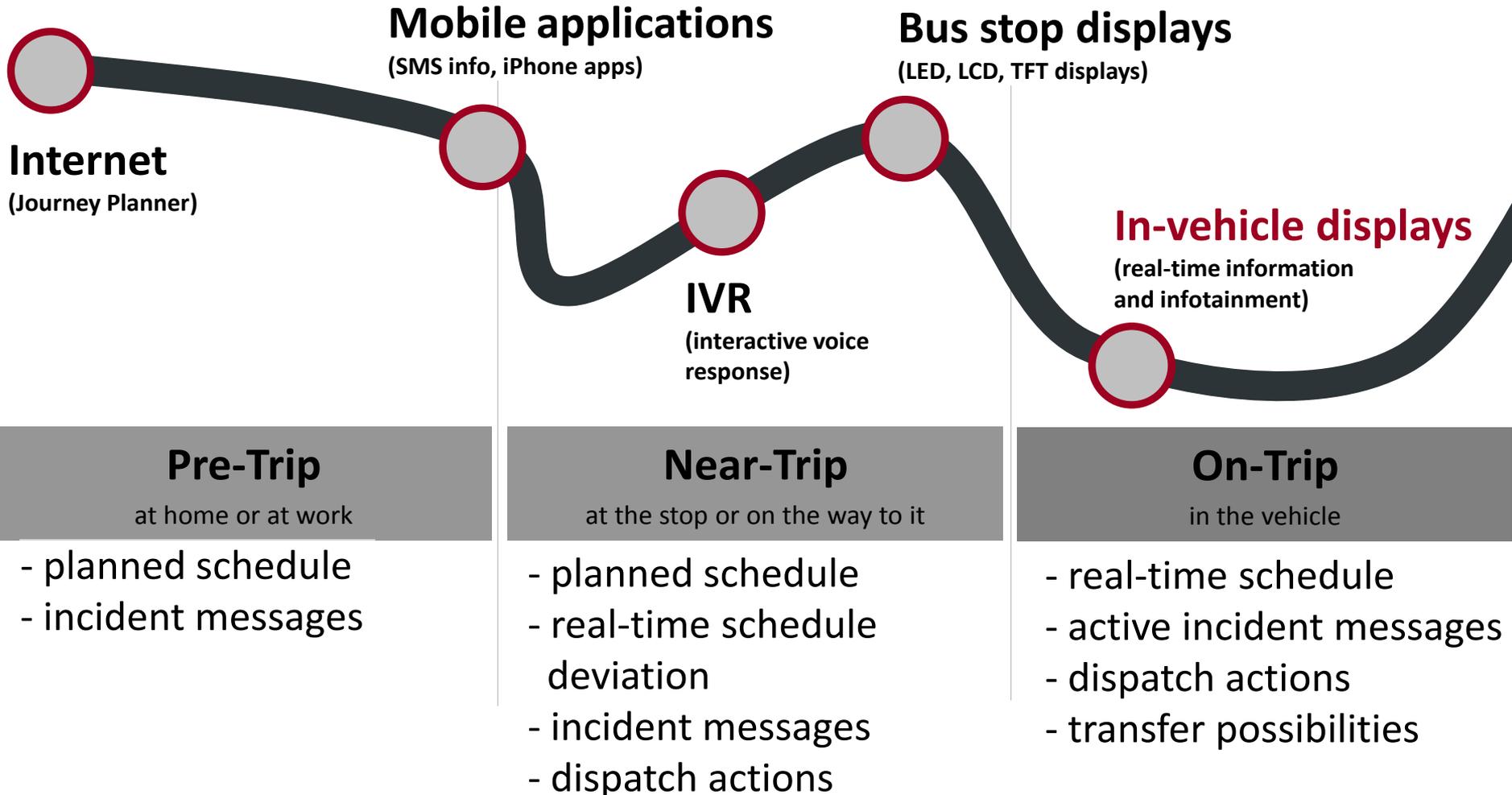
Real-time information provided:

- to **train** passengers ⇒ actual **bus** departure times
- to **bus** passengers ⇒ regional and national **train** departure times

Benefit:

- Passengers in **all feeder vehicles** will learn of **all transfers available** to them at the next stop regardless of whether this is a **city bus**, a **regional bus**, a **regional light rail train** or a **national train**.

Channels of passenger information



Internet
(Journey Planner)

Mobile applications
(SMS info, iPhone apps)

Bus stop displays
(LED, LCD, TFT displays)

IVR
(interactive voice response)

In-vehicle displays
(real-time information and infotainment)

Pre-Trip

at home or at work

- planned schedule
- incident messages

Near-Trip

at the stop or on the way to it

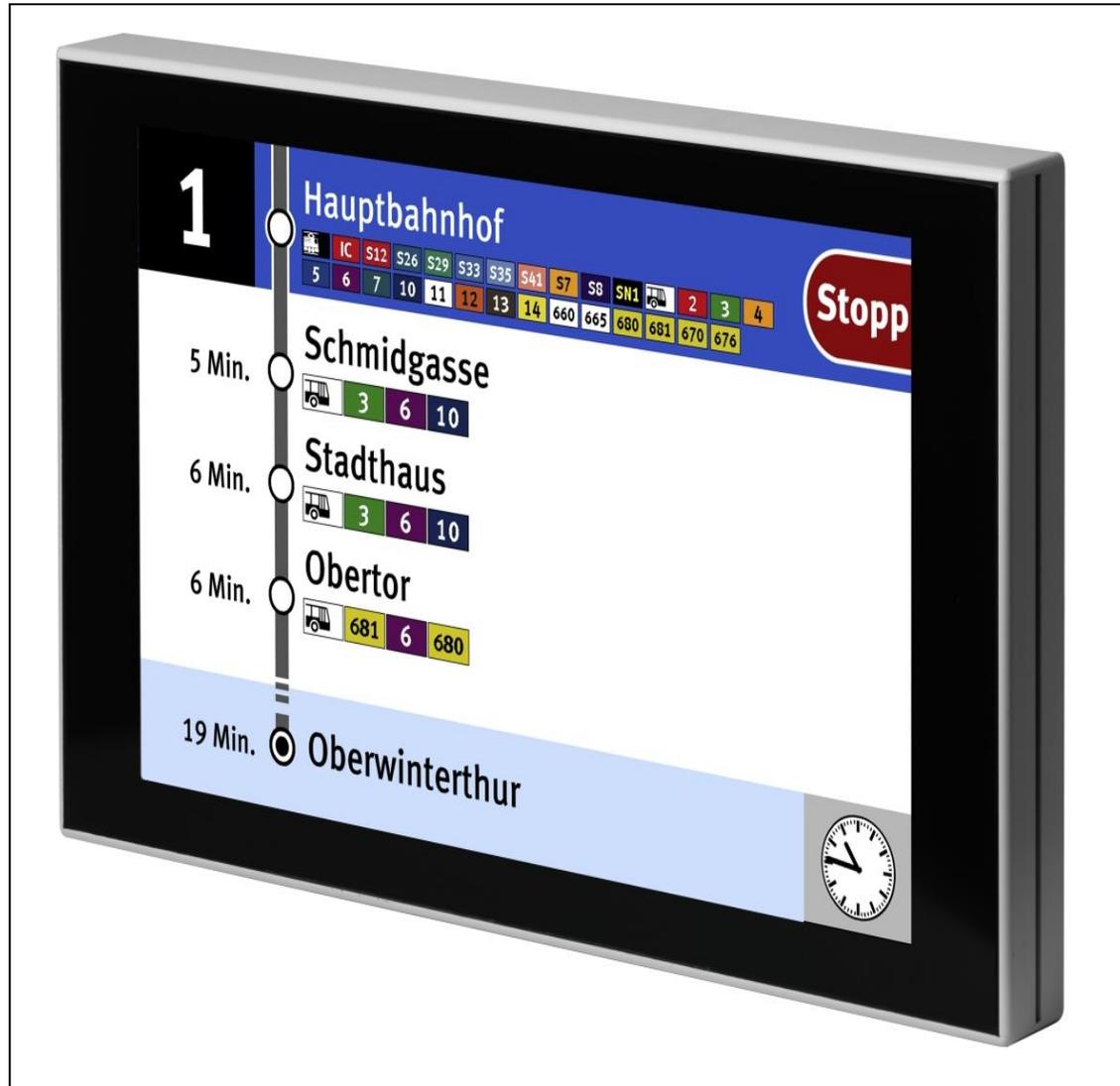
- planned schedule
- real-time schedule deviation
- incident messages
- dispatch actions

On-Trip

in the vehicle

- real-time schedule
- active incident messages
- dispatch actions
- transfer possibilities

Inter-modal Passenger Information ZVV In-vehicle “Perlschnur” representation

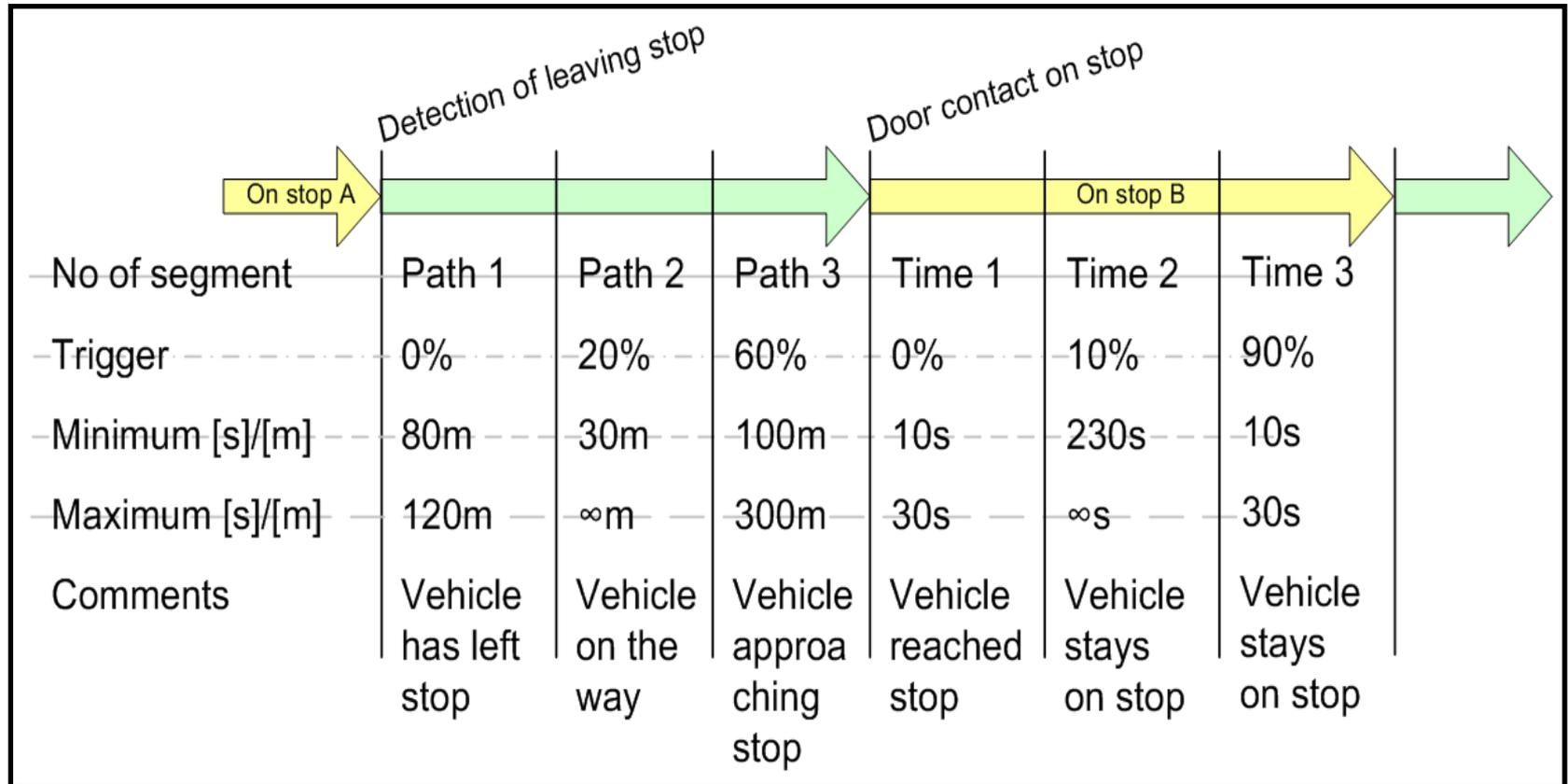


Inter-modal Passenger Information ZVV In-vehicle Transfer Screen



759		Zürich Flughafen, Bahnhof				Stopp	
		S2	S16		510	520	530
	S660	731	732	733	765	768	781
Anschlüsse					Gleis/ Kante	Status	Hinweis
16:31	510	Stadel b.N., Neuwis-Hus			A	knapp	2' später
16:32	S16	Herrliberg-Feldmeilen			9A/9B	knapp	
16:34	IR	Luzern			7	o.k.	15' später
16:35	S2	Effretikon			8	o.k.	
16:37	S660	Winterthur, Hauptbahnhof <small>via Bülach, Bahnhof</small>					fällt aus
16:37	530	Bülach, Bahnhof			G	o.k.	
16:39	768	Zürich Oerlikon, Bahnhof				o.k.	
16:42	EC	Zürich HB			3	o.k.	

Inter-modal Passenger Information ZVV Segmentation Strategy



location-dependent layouts for every segment: RTPI, Advertisement, Video, Multimedia

Inter-modal Passenger Information ZVV Internet-based at selected locations



Winterthur, Hauptbahnhof

	Route	Destination	Platform	Departure
	10	Oberwinterthur	C	0 Min
	3	Bettenplatz	B	2 Min
	1	Oberwinterthur	E	3 Min
	12	Bruderhaus	A	6 Min
	4	Tössfeld	C	7 Min
	7	Wülflingen	B	9 Min
	2	Seen	E	11 Min



Now 2°C

Fri -4° | 2°

Sat 1° | 2°

Sun 1° | 7°



Bahnverkehr: SBB-Züge waren 2009 pünktlicher
 Fri, 15 Jan 2010 12:51:26 GMT
 88 Prozent der SBB-Kunden sind im Jahr 2009 pünktlich gereist. Dies ist eine Verbesserung gegenüber dem Vorjahr von 2,6 Prozent.



Summary

- To make public transport more attractive, **passenger information** is one of the **critical success factors**.
- Inter-modal in-vehicle dynamic passenger information that includes information on **available transfers** at next stops is still an **exception**.
- In ZVV Zurich this function has been put successfully into operation based on the **VDV-453 real-time interface**
- Transport Authorities can manage their transport infrastructure **more effectively**

Thank you for your attention!

