

A satellite with two large solar panel arrays is shown in orbit against the backdrop of Earth's blue and white atmosphere and the blackness of space filled with stars.

Indoor Localisation Services.

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Business Center Location Based Services, T-Systems

Systems, Munich 21.10.2008

Our Employees are a part of us as well as we are part of Deutsche Telekom AG.

And this power is our customer's benefit.



..T.. Systems

Offers products and solutions for business customers

..T.. Mobile

Enables to stay in contact always and everywhere.

..T.. Home

Enables fascinating communications at home.



T-Systems –Company introduction-

Annually revenue volume at Euro 12 Bn. T-Systems one of the biggest companies in Germany.

Revenues (01.01 – 31.12.2007)

Approx. Euro 12 Bn.

EBITDA (01.01 – 31.12.2007)

Euro 0,9 Bn.

Employees

approx. 56,000.

International Presence

Subsidiaries in more than 20 countries with global delivery ability.

Customers

More than 160,000 Customers worldwide.



T-Systems Engagement in Galileo.

Close cooperation with DLR and Telespazio.

T-Systems Partner:



Ground Control Center

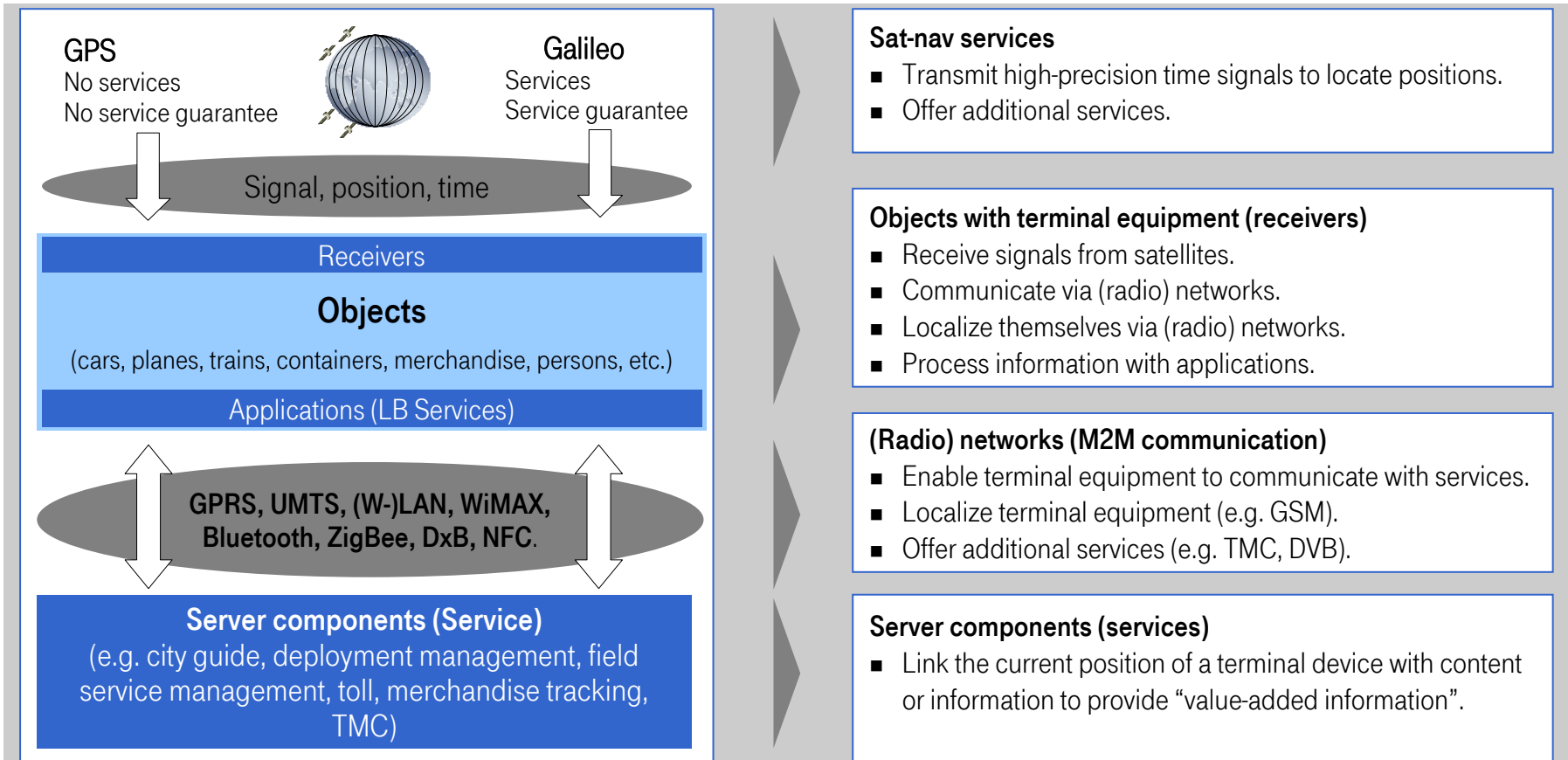
- PC infrastructure.
- Operation of data center.

Network

- Operation of Network infrastructure.

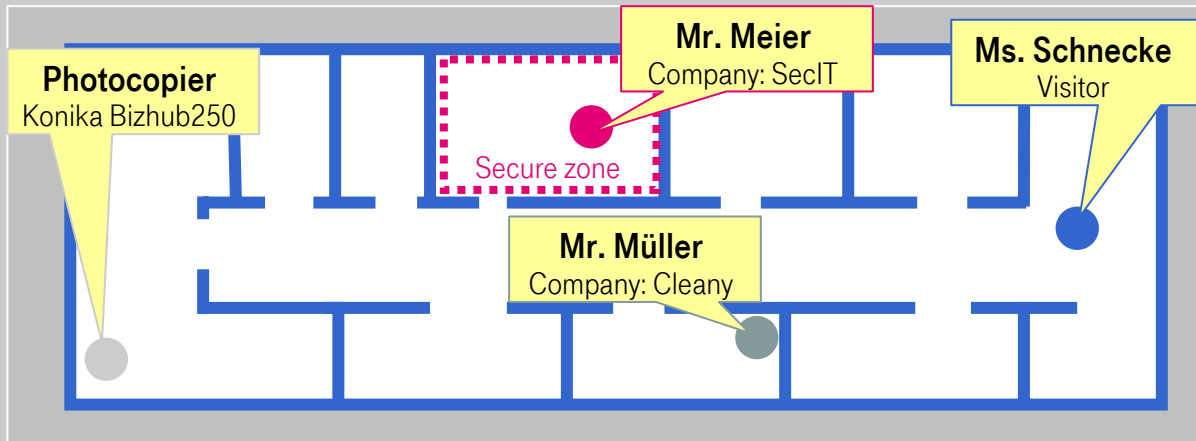
Definition of Location Based Services.

LBS link the current position of a person or object with content or information to provide “value-added information”.



Indoor Localisation Services.

Monitoring events in buildings or on the campus.



Description

- Precise localization of persons and commodities in buildings using various technologies.
- Links the systems with other applications.
- Marks out special zones (e.g. security areas) with geofencing.
- Different technologies can be combined, e.g. to include biometrics or temperature sensor systems.
- Examples: Access Control, monitoring of visitors, tracking of people and assets(e.g. hospitals)

Technologies

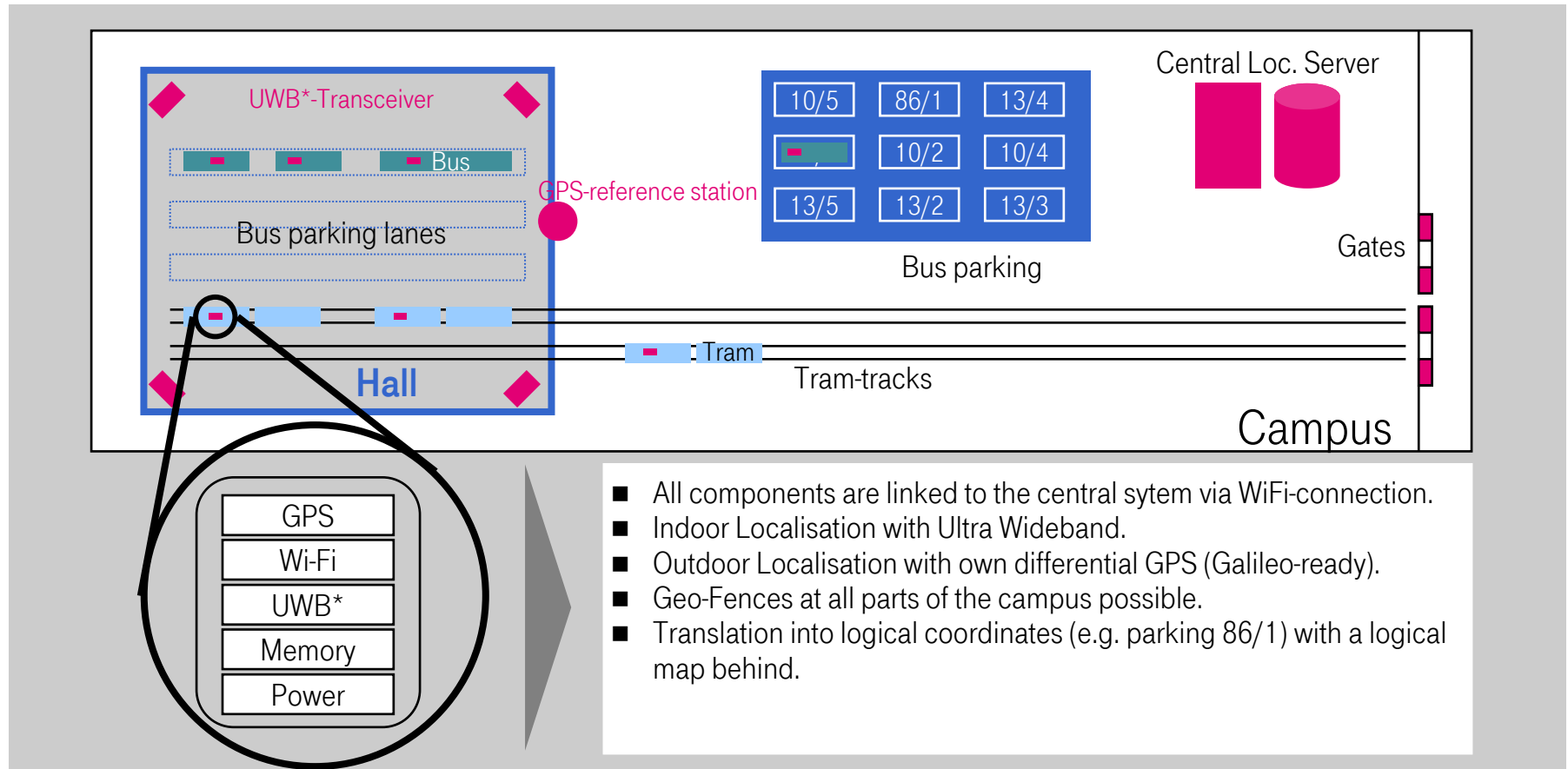
- RFID & NFC, 15cm to 5m accuracy).
- WLAN (2-5m accuracy).
- UWB (15-50 cm accuracy).

Applications

- Access control monitoring.
- Tracking of people+assets.
- Assignment coordination.
- Surveillance of high-value commodities.

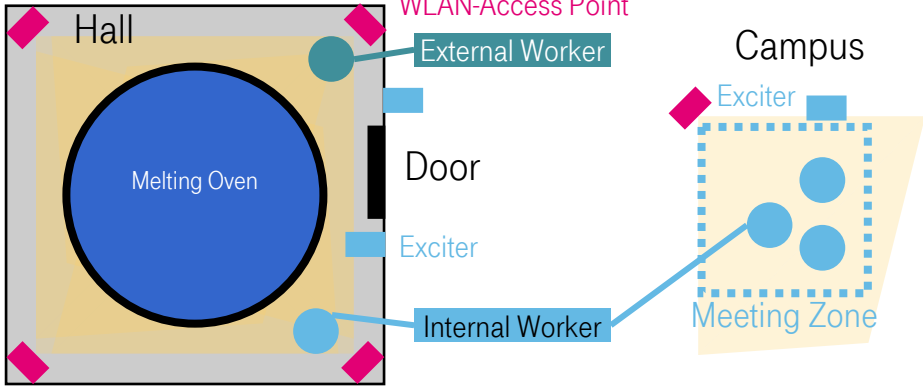
Public Transport Solution (1/2).

Indoor Localisation with UWB* and outdoor with differential GPS meets the required accuracy at any place of the campus.



Heavy Industry-Solution.

Security application to ensure a safe working environment.

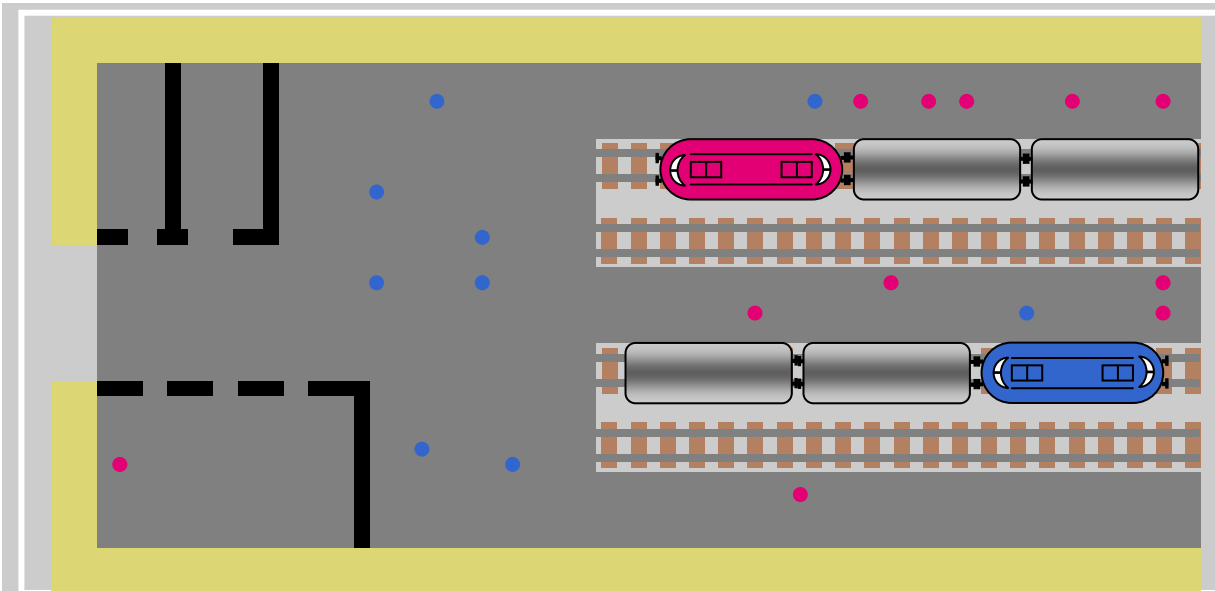
Solution	Description
 <p>The diagram illustrates the solution's components. On the left, a 'Hall' contains a 'Melting Oven' (blue circle) and a 'Door'. A 'WLAN-Access Point' (green circle) is located near the door. An 'External Worker' (green circle) is positioned outside the hall. An 'Exciter' (blue rectangle) is located near the door. An 'Internal Worker' (blue circle) is positioned inside the hall. On the right, a 'Campus' area contains a 'Meeting Zone' (dashed blue rectangle) with three blue circles representing workers. An 'Exciter' (blue rectangle) is located near the meeting zone. A line connects the 'Internal Worker' to the 'Meeting Zone'.</p>	<ul style="list-style-type: none">■ Internal or external workers can be equipped with a WLAN-Tag (battery exchange every two years*) instead of classical identification cards.■ Persons will be localised and the current position stored in a database.■ Authorised personnel can have access to the data. The view depends on the role and the situation.■ In case of alert all workers have to enter the defined security meeting zones. The system checks whether all workers arrived securely.

Advantages of the Solution

- Access control and Security application included.
- Role and situation based access to the localisation data.
- Usage of standard components (WLAN) approved for special working environments.
- WLAN- Installation can also be used for data communication.
- No influences of very high temperatures to this solution.

Asset-Management in Train Stations.

Localisation can be used as an enhancement of existing EAM* tools. Process-Automation is one of the most interesting advantages.



Advantages of the Solution

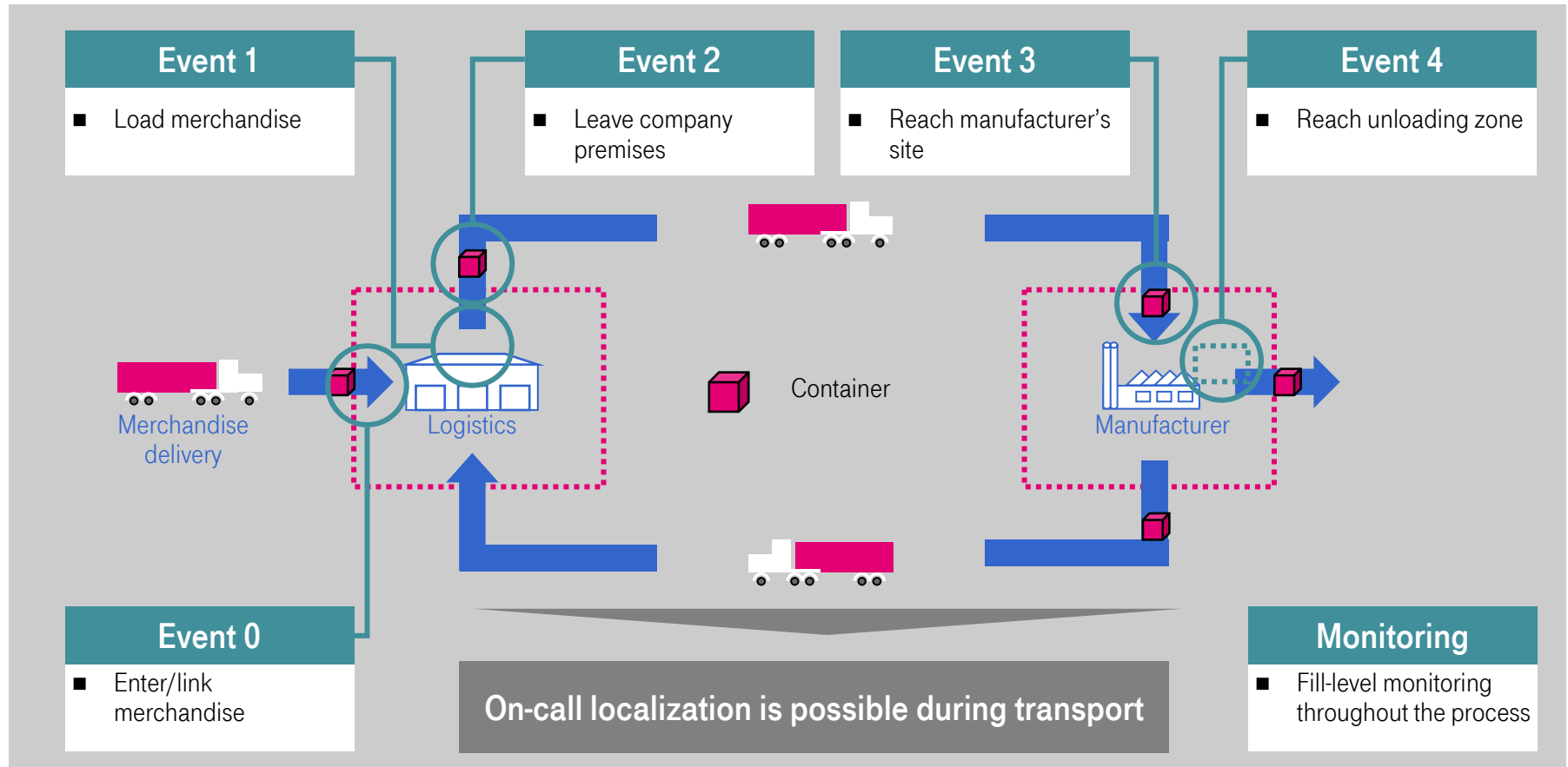
- Gaining an overview of all existing assets on the station.
- Surveillance and theft protection.
- Process automation (e.g. Maintenance-verification)

Description

- Existing WLAN-Infrastructure can be used.
- Tags can be fixed on various types of assets
 - Trolleys.
 - Service wagons.
 - Service personnel.
 - Security personnel.
 - Maintenance personnel.
- Tags can also be equipped with alert buttons or temperature sensors.
- Geofencing on special areas for dedicated messages possible.
- Graphical overview in a web portal or interface delivery to standard ERP-systems.

Logistics process optimization.

Creating process transparency as the basis for logistics management and the starting point for optimization strategies.





Thank you!

Julius Rupf BC LBS

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.. **T** .. Systems ..

Localization technologies.

Various technologies for indoor and outdoor localization. Technologies can be combined to provide seamless localization.

