The German “Toll Collect”-System – a Chance for India?

Dr. Uwe Leinberger,
Senior Solution Architect Road Charging & Telematic Services

uwe.leinberger@t-systems.com
Tel +49 89/1011-8722

Tacking hard into the wind for our customers.
T-Systems' ICT worldwide resources and capacity.

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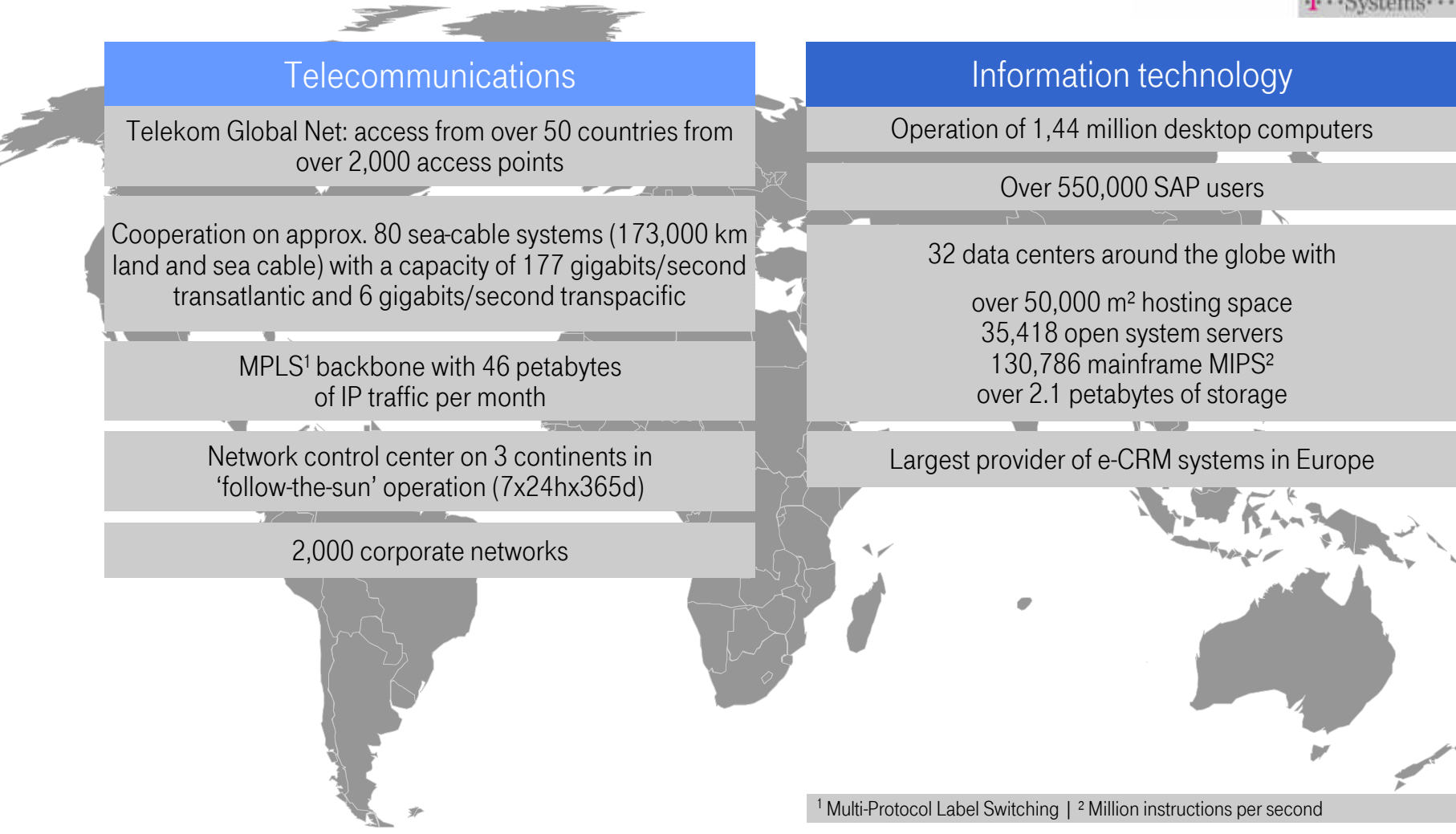

Telecommunications

Telekom Global Net: access from over 50 countries from over 2,000 access points

Cooperation on approx. 80 sea-cable systems (173,000 km land and sea cable) with a capacity of 177 gigabits/second transatlantic and 6 gigabits/second transpacific

MPLS[1] backbone with 46 petabytes of IP traffic per month

Network control center on 3 continents in 'follow-the-sun' operation (7x24hx365d)

2,000 corporate networks

Information technology

Operation of 1,44 million desktop computers

Over 550,000 SAP users

32 data centers around the globe with

over 50,000 m² hosting space
35,418 open system servers
130,786 mainframe MIPS[2]
over 2.1 petabytes of storage

Largest provider of e-CRM systems in Europe

[1] Multi-Protocol Label Switching | [2] Million instructions per second

We go where our customers are.
T-Systems' global delivery capability.

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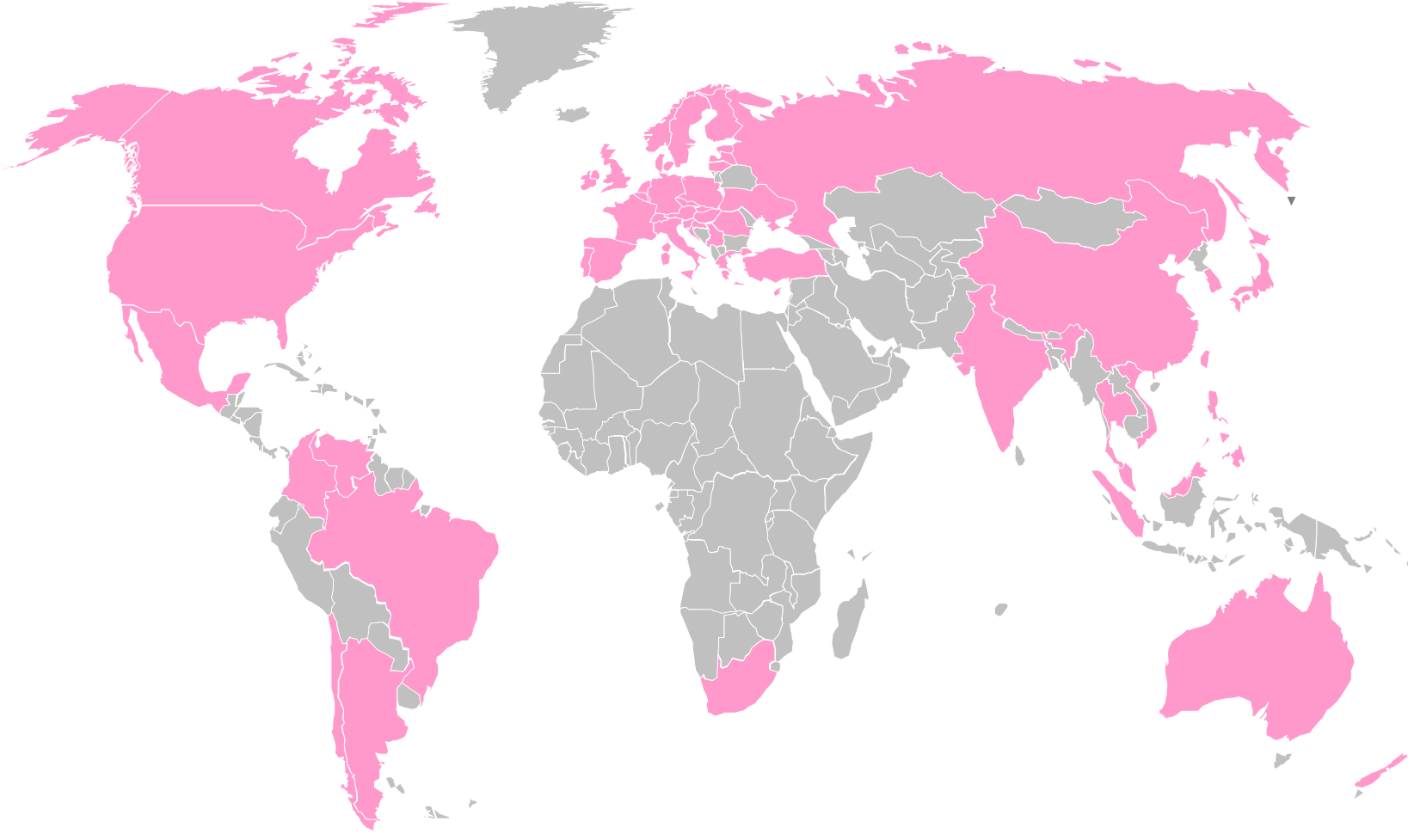

Who are T-Systems?
The company in brief.

Revenue (Jan. 1 - Dec. 31, 2005)	
Global	approx. EUR 12,9billion
Germany alone	approx. EUR 11 billion

EBIT adjusted (Jan. 1 - Dec. 31, 2005)	
Total	EUR 699 million

Employees	
Total worldwide	approx. 52.000
% based internationally	approx. 18 %

International presence

Representation in over 20 countries with delivery capability around the globe.

Customers

Over 160,000 customers worldwide

gedas

On April 1, 2006, T-Systems took over the shares in gedas AG from Volkswagen AG. gedas generated a turnover of around 606 million euros in 2005 and serves customers in the industry sectors for automotive, transport, logistics and public administration.

T-Systems.
The right address for government and business customers.

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T-Systems

the strategic business unit “business customers“ and “IT Services”

HQ

- CEO
- Corporate Business Development
- Finance & Controlling
- Human Resources

T-Systems Business Services (BS)

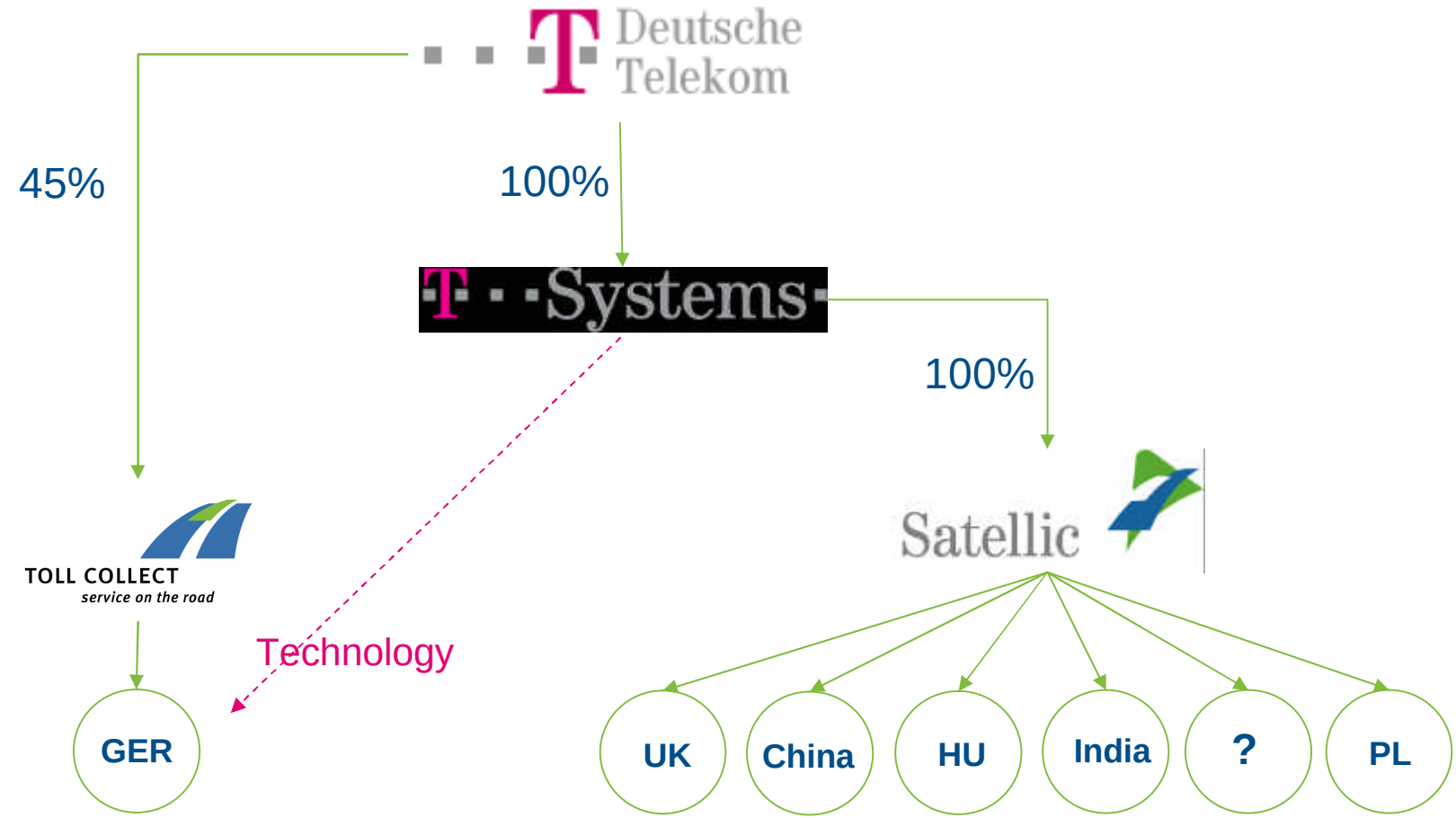
- Sales & Service Management
- Marketing & Product Management
- TC Operations
- Media & Broadcast
- Detecon

T-Systems Enterprise Services (ES)

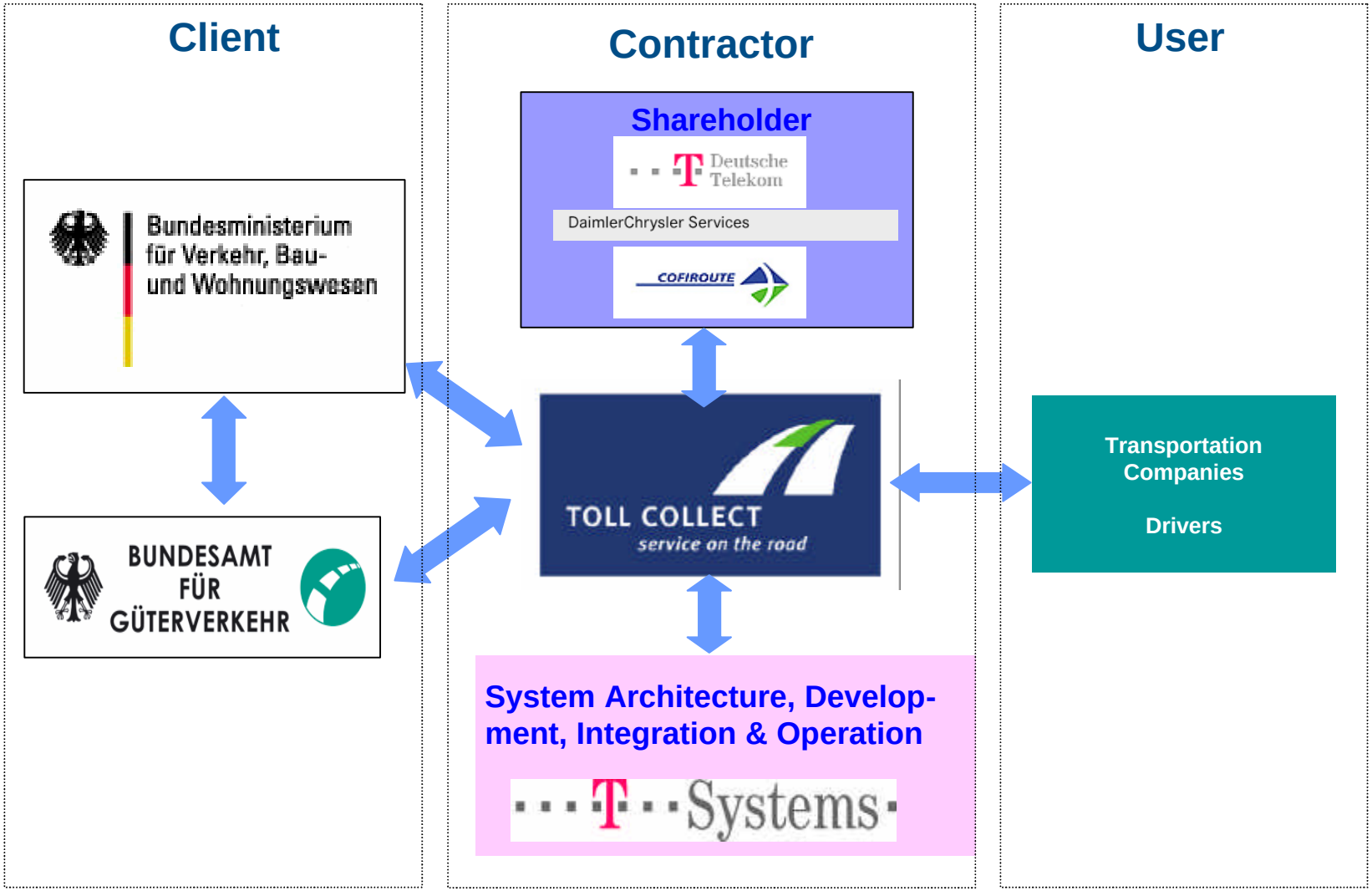
- Sales & Service Management
- IT Operations
- Systems Integration

Satellic Traffic Management Ltd

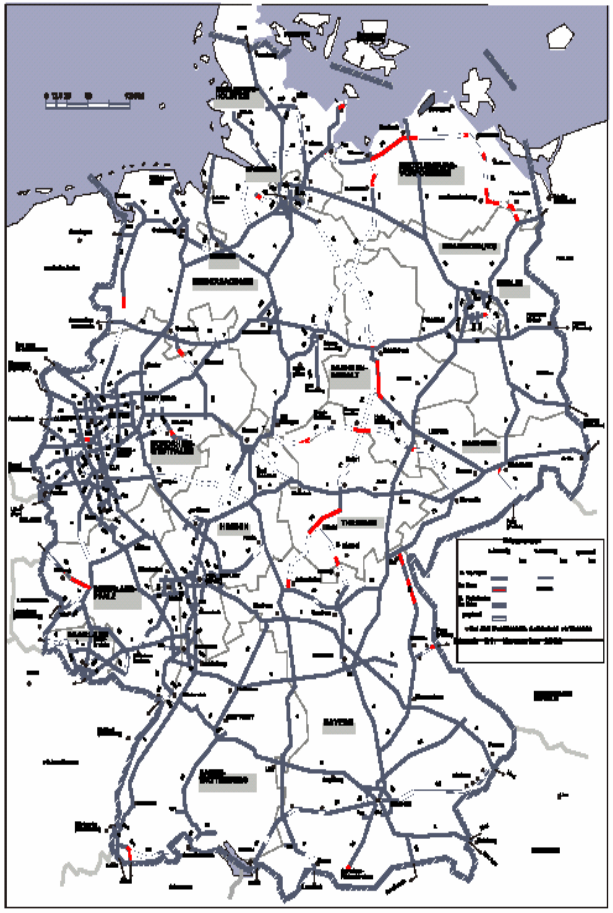
Bundling T-System‘s Tolling Experience



Introduction of Toll Collect.



Toll Collect.
Challenges.



Toll road network

- approx. 12,500 km on federal motorways
- approx. 2,500 junctions
- approx. 250 motorway interchanges

Trucks required to pay the road toll

- 900.000 trucks ≥ 12t
- Including approx. 200,000 - 300,000 registered outside of Germany

Toll road usage

- 27 billion vehicle kilometers per year
- 35% accounted for by vehicles registered outside of Germany

Toll Collect.
Challenges.

Large Scale Deployment of a New Technology

- Roll-Out of >350.000 devices in international lorry fleet for start
- Entirely new system concept never deployed before
- Large Land Infrastructure covering Germany and Neighbor Countries (300 Enforcement, >3600 Terminals, >1800 Garages)

Deployment of a New Business

- First km-dependent taxation scheme in Europe in Public Private Partnership
- Entirely new Business Processes to be Implemted & Deployed

Building a New Enterprise

- Entirely new Company with new Staff & Organization
- New Government Organization as Partner

Toll Collect.
Automatic Toll Collection System.

Tolling Principles

- On-Board unit installed in vehicle
- Recognition of Toll Roads by means of Satellite Positioning
- Toll Collection handled autonomously on board – based
- Transfer of Toll Data to Computing Center via GSM
- Toll Data receipts and when required software, map and tariff updates returned from Computing Center via GSM
- Secured by cryptography and security/identity modules (smartcards)
- DSRC-Interface enables check of On-Board Unit and Toll Collection of moving vehicles for enforcement (from gantry or enforcement car)

Toll Collect.

There are four ways into the Toll Collect System
> 90% of usage already benefits from the automatic system.

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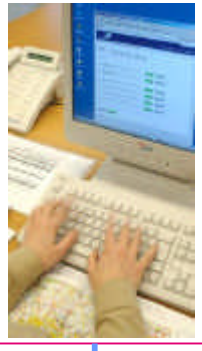
Automatic System

Manual System

>3600 Terminals

Internet



Call Center / WAP

GSM

Land Line

TOLL COLLECT
service on the road

- **Central and decentral system operation**
- **Toll accounting and invoicing**

Siemens VDO: key supplier of On-Board Units

1st generation: in use & reliable
OBU 1372 (Dashboard Solution) & OBU 1373 (DIN slot solution)

The German Tolling System

- Operator of the system is Toll Collect
- First satellite based tolling system worldwide
- Toll for trucks with a weight >12t
- Tolling on highways and some A-roads

OBU 1372

OBU 1373

The tolling OBU 1373 from Siemens VDO DIN slot size fulfills the same functionality as OBU 1372.

Toll Collect.
Enforcement.

- Toll regulations are enforced by the BAG
- Toll Collect runs Tolling Business Processes
- T-Systems delivers Systems & ITC Services

- **Infrastructure**
- Automatic enforcement: 300 automatic control gantries
- Stationary enforcement: BAG officers stop only suspect vehicle after it passed control gantry
- Mobile enforcement: 278 BAG enforcement vehicles

- **On the road**
- Automatic log-on via DSRC communication with On-Board Units
- Manual log-on by scanning vehicle licence plates and communication with the Toll Collect computing centre
- Only suspected toll violators are stopped by BAG officers
- Supplemental: on-site inspections

Show case Germany: Leading-edge technology has proven value

- Satellic toll system has achieved highest sustained recording quota ever!
- Satellic toll system has billed highest amount of driven kilometers ever!

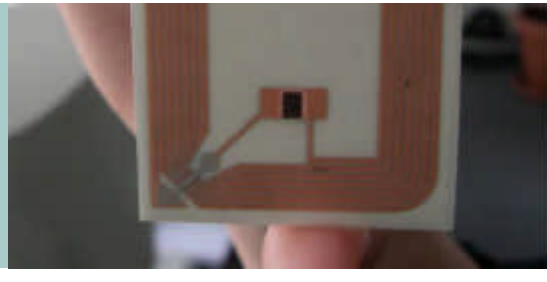
	20.10.2006
Installed OBU	**532.421**
Driven kilometres	**44.687.692.007,70**
Recording quota	**99,75%**
Registered vehicles	**823.933**
Registered users	**116.613**
Revenues in €*	**5.319.906.038,19**
Service partners	**1.431**
Toll station terminals	**3.623**
Automatic income Sep06	**87%**
Manual income Sep06	**13%**

Economic and Societal Issues create pressure on Policy

3 Examples...

Safety on the Road

Tracking & Tracing of Transports and Goods



Improving Financing and Use of Infrastructure

Safety on the Road.

faster & more effective reaction to accidents and desasters.

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Compliance with Regulations

improved Emergency Management

faster Medical Aid

Tracking & Tracing.
Tracking Transports & Goods in Real Time

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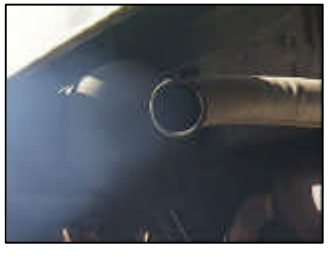
German Government has realised first positive developments of „Lkw-Maut“

Revenue effects:
“Total charge revenues range as expected.”

Traffic effects:
“The introduction of charges for HGV has shown 15% reduction of the number of empty runs .”

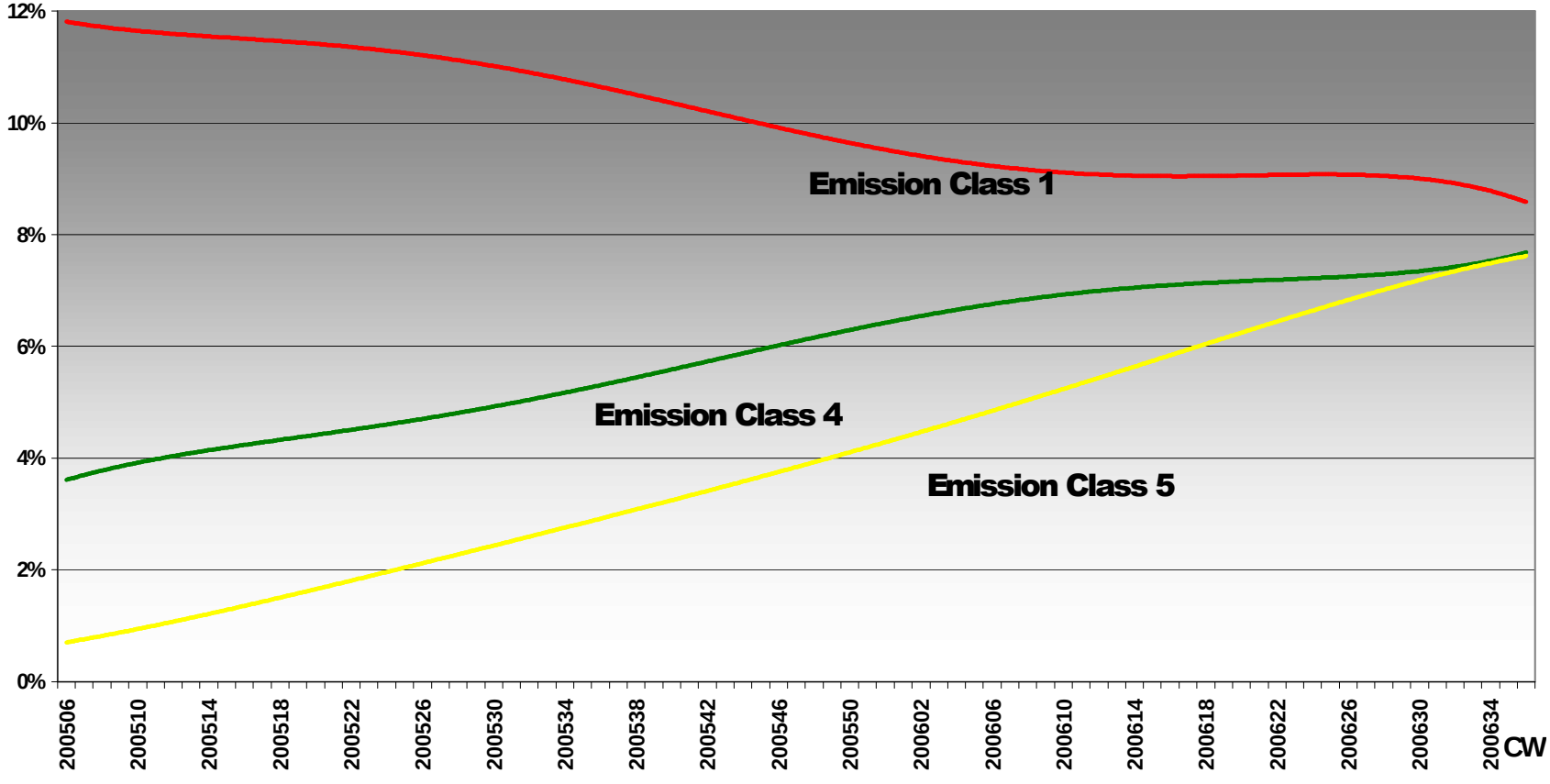


Environmental effects:
“Businesses start investing in HGV with financially advantageous emission classes.”

(all quotes: BAG)

Source: Sonderbericht BAG 09/2005

Development of Road Usage for different Emission Classes

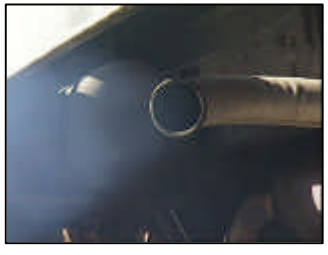


Source: Toll Collect

Transport for London experiences desired effects of congestion charging.

Revenue effects:
“The Congestion Charge provides vital funds which are invested back into London's transport system.”

Traffic effects:
“Measured against the overall background trend, congestion within the zone is down 30 per cent.”



Environmental effects:
“air quality is better with the most harmful vehicle emissions down by 13-15%, cycling levels are up 43%.”

(all quotes: TfL)

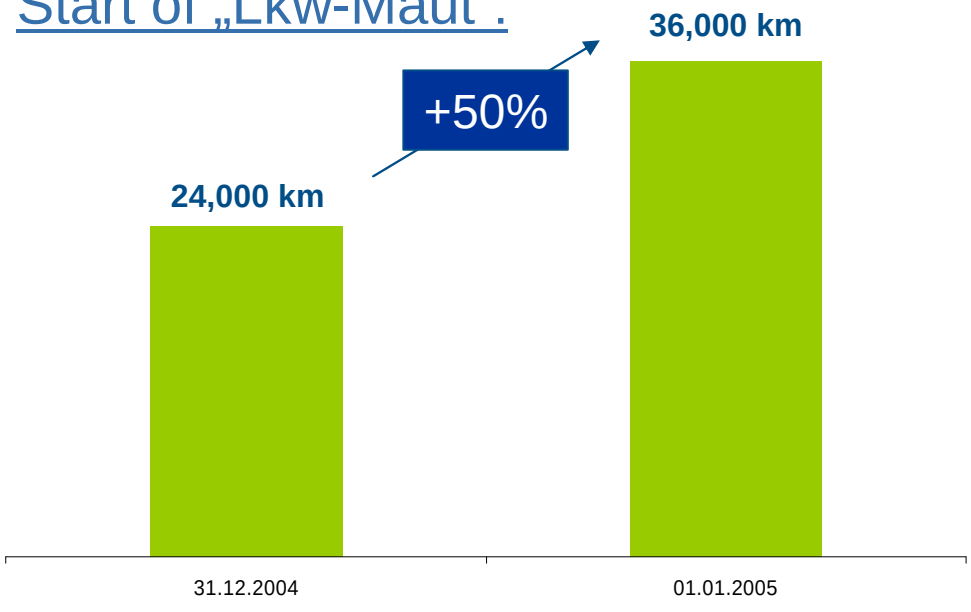
Source: TfL Press release 29 June 2006

Next steps e.g. km-based charging differentiated in several areas is possible with Satellite Technology only!

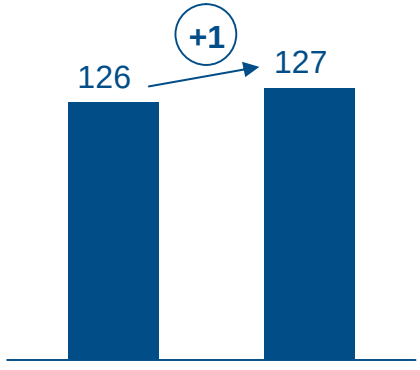
GNSS/GSM based road charging systems accelerate implementation of charges – especially on large networks

New charging regimes possible with new technology only!

Start of „Lkw-Maut“:



Total European toll road network (ASECAP)



Total European operators

GNSS/GSM based road charging systems establish a new platform for a wide variety of other services

Safety Services
- Qualified Emergency Alarms
- Tracing of Dangerous Goods
- Adherence to Laws & Rules
- Digital Tachograph

Security Services
- Tracking of Dangerous Goods
- Localizing and regaining stolen goods & vehicles

Commercial Services
- Fleet Management
- Pay-per-Use insurance
- Multi-Modal Transport Chain Management

Public Services
- Intelligent Floating Car Data
- Active dynamic routing optimizing network utilization

A whole new world of services on a new standard platform

How to transfer German Experience, Know How and Technology to India?

Use T-Systems Unit in India for IT-Services and System Operations

Utilize Major Supplier’s production and service facilities in India

Select best local Partners for

- Financial Services
- Point of Sales Operations
- Distributed Infrastructure Services
- Enforcement Operations
- Vehicle Integration
- Public and Government Relations

Partner with best suited National and International Road Infrastucture Providers

A whole new world of services delivered by a new Consortium based in India

T-Systems India.
Going strong, growing fast

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- June 2004: Start of Operations
- Location: Pune, India's new IT Hub
- Productive start with 24x7 SAP ALM-Project (Customer – EPCOS) from August 2004
- 666 employees as on date August 2006
- 1.000 employees by YE 2006
- Fast growth continuing in 2007
  - Communication platform via Corporate Network T-Systems (HITNET)
  - SAP Integration & Consolidation Services
  - Customer Relationship Management
  - Application Lifecycle Management
  - IT and Network Operations Management
  - Business Process Outsourcing Services

A whole new world of T-Systems Services from India – for the World!

T-Systems and key partners

- To build up a tolling system in India, T-Systems cooperates with national and international partners
- One of the major partners is Siemens VDO
- Core business of Siemens VDO:
  - Vehicle equipment
  - OBU supplier
- Siemens VDO is a leading international automotive supplier of electronics and mechatronics
- Siemens VDO is market leader in satellite-based Tolling On-Board Units

Siemens VDO in India

Three plants operative

- **Gurgaon**
  - Plant set up in July 2000
  - Production of 2-wheeler instrumentation

- **Pune**
  - Inauguration November 2001
  - Vehicle Instruments for Tata

- **Bangalore** – Headquarters
  - Development Centre & Main plant
  - Since August 1958
  - Production of electronic instrumentation and sensors (e.g.)

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Any Questions?

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Thank you for your Attention!

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