

# Solution & Service Portfolio for the Telco Market. IP-Based Communications.

# Solution & Service Portfolio for the Telco Market.

## T-Systems.

T-Systems is a one-stop information and communications technology (ICT) service provider. As an integral part of Deutsche Telekom Group, T-Systems has extensive knowledge and experience within the telecommunications industry.

T-Systems' integrated offering is unique, and unrivalled in the ICT world. Within the scope of close partnerships, T-Systems acts as a single point of contact, providing effective, comprehensive answers to all information and communications technology needs. Our broad Solutions & Service Portfolio enables our customers to maintain their leading roles in today's highly competitive markets.

We optimize processes and cut costs for our customers, thus providing them additional flexibility for their core business. We do this by making targeted use of industry expertise and cutting-edge technology. T-Systems' services encompass all levels of the information and communications technology value chain, spanning from ICT infrastructure and ICT solutions, up to, and including, business process management.

## Best Practice for Our Customers.

As part of an internationally renowned telecommunications company, T-Systems designs and implements systems and solutions for carriers and telco operators all over the world.

T-Systems' offering covers the whole process of Plan-Build-Run:

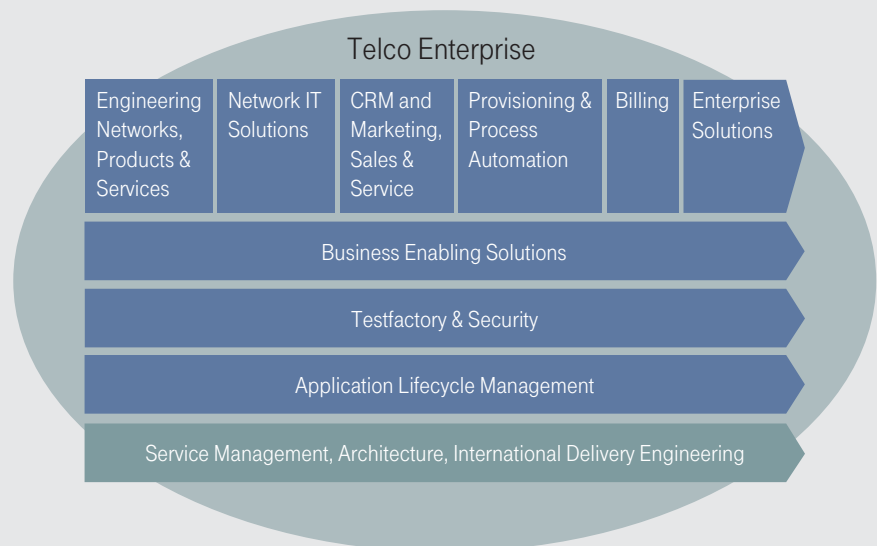
- Excellency in consulting
- Implementation of best-of-breed IT solutions
- Reliable and high-performing IT operations

Within T-Systems, more than 40,000 IT specialists worldwide, 7,000 of them with telco focus, are ready to support our customers in all IT-related areas.

Highlights of our Solution & Service Portfolio for the telecommunications industry are:

- Scalable billing solutions for operators of all sizes
- Customer Relationship Management for mobile and fixed carriers and ISPs
- Network planning and optimization
- Provisioning and process automatization

Numerous references from within Deutsche Telekom, as well as from other leading operators, prove that T-Systems is one of Europe's top ICT companies.



# IP-Based Communications.

## Market Demands and Customer Needs.

Voice over IP clearly indicates that time has come to say goodbye to traditional carrier network architectures which separate voice and data. IP technology has proven to be the perfect technical basis for versatile communication networks with a superior total cost of ownership. IP-based communications is the key to the telco future. This is why the whole telecommunications industry is in the process of re-inventing itself:

- In the mature markets, the established carriers plan to rapidly migrate their networks to IP in order to substantially reduce CAPEX/OPEX for their networks
- At the same time new entrants start offering attractive and innovative IP-based products and services
- Established Internet Service Providers expand their businesses into IP-based telephony services
- In the emerging markets, the incumbent carriers are ready to step into the All-IP future starting with a "greenfield" approach

Today the markets demand:

- Expertise and proven skills to design and engineer IP networks and operations systems
- Know-how to migrate from existing networks to All-IP communication networks
- Next-Generation operations systems and software to seamlessly manage the networks

- Scalable service platforms based on standardized architectures to implement IP products and services quickly on a cost-efficient basis

As the leading system integrator in the telco industry, T-Systems is prepared to meet the challenge. We are the partner of choice for IP-based communications.

## T-Systems Offering.

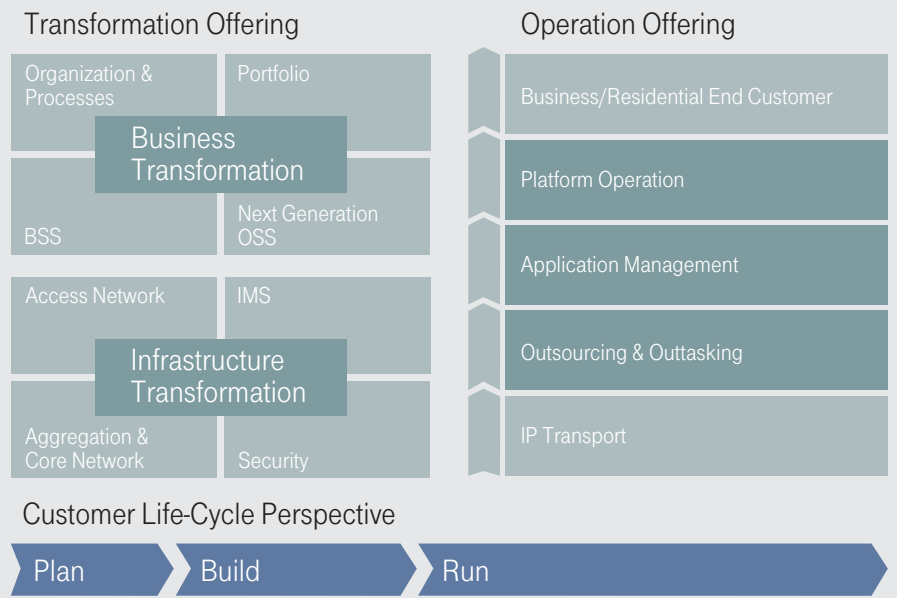
T-Systems provides a unique blend of best practice and proven innovative solutions to convert IP-based communications into successful business. Our well-structured Solution & Service Portfolio combines our expertise in network transformation and network operation.

We offer consulting, engineering, implementation services and turnkey solutions for business transformation and infrastructure transformation. Our operation offering includes platform operation, application management as well as network outsourcing & outtasking.

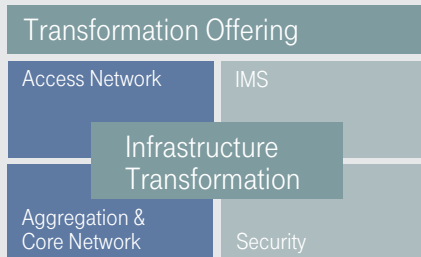
Our close cooperation with leading-edge software manufacturers enables us to rapidly develop cost-efficient solutions which are consistent with eTOM, NGOSS and ITIL standards.

T-Systems is second to none when hands-on experience with Operational Support Systems for large-scale communication networks counts. We do know what it means to keep a network up and running with less than 0.001% outages.

In the following, the most important elements of our network transformation offering are described in more detail.



# IP-Based Infrastructure.



## Consulting & Engineering for the Network of the Future.

T-Systems is the architect and engineer of high-performing IP networks. We plan, design and optimize access and backbone networks and we take care of network migration. Our offering includes solutions and platforms for fixed/mobile convergent IP-based services.

### Our portfolio.

- Design and Engineering of Next-Generation Networks
- Next-Generation Access Solutions
- Network Planning and Optimization
- Network Migration
- Solutions for Fixed Mobile Convergence

## References & Showcases.

### Migration of a legacy network towards a Next-Generation Network for a leading European fixed network carrier.

The project with intense participation of a large number of consultants and experts from T-Systems spans several years and consists of three stages:

Step 1: Basic Internet telephony

Step 2: Multi-vendor platform, additional applications, Border Control Function

Step 3: Full fixed network substitution, fixed network feature simulation, advanced Value Added Services

### Consulting in the area of Next-Generation Networks for a midsize European operator.

The project comprises infrastructure aspects of VoIP migration scenarios and support for the design of an NGN tender.

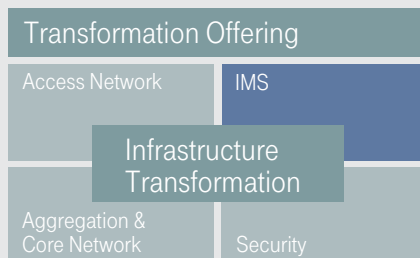
### Complete WiMAX-based solutions for an incumbent operator outside Europe.

Consulting, development of the business case, base station planning of a WiMAX-based access network. The solution supports more than 100,000 customers with telephone access and symmetrical Internet access.





# IP Service Delivery Platforms/IMS.



## The Sound Basis for an Attractive Service Offering Portfolio.

T-Systems started to design and develop IP-based services more than a decade ago. At that time it was pioneering work and the solutions were "hand-crafted". The systems for VoIP and IP Value Added Services, which we offer today, are based on cost-efficient standardized architectures like IMS and exhibit carrier grade performance.

### Our portfolio.

- Comprehensive Service Consultancy
- Conception and Implementation of IMS compliant service platforms
- Service Delivery Platforms
- Next Generation Services
- Voice over IP
- Triple Play Solutions

## References & Showcases.

### Management consulting and technical consulting in the area of IMS for a European operator.

Topics are VoIP implementation scenarios, incl. features like VoIP Centrex and security consulting. The customer benefited in particular from our extensive IMS know-how and the participation of our standardization experts.

### Design and implementation of a complete Voice over IP solution for a leading European ISP.

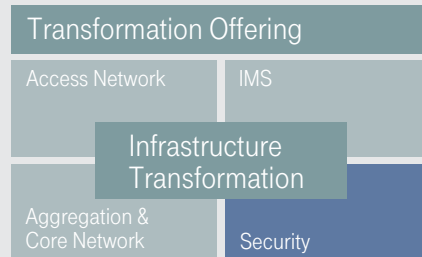
T-Systems developed the technical architecture including Voice Configuration Administration and Number Assignment Authority functions, and integrated the VoIP platform components into the ISP's back office systems like billing systems. The platform provides carrier grade reliability and is scalable virtually without limits.

### Next-Generation Services.

One typical example of our Next-Generation Services portfolio is T-Systems' Push-to-Talk showcase. While the core software is based on standard software, T-Systems integrates and customizes the service to the needs of the individual customer. For telco carriers, T-Systems recommends an integration into an IMS environment, but alternatives are also supported. In addition, our customer has the choice of operating the system by himself or letting T-Systems host it.



# IP Security.



## A Must for All Carriers & Operators.

As is the case with the Internet today, the vulnerability of IP-based communications very soon will become a central point of interest for all carriers and telco operators. T-Systems is a leading supplier of security solutions and services. Our offering covers all aspects of secure communication including access devices, smartcard-based systems and comprehensive ICT security concepts.

### Our portfolio.

- Security Consulting
- Network Security Solutions
- Identity & Access Management
- Security Penetration and Evaluation Services
- Regulatory Governance

## References & Showcases.

### Consulting & Implementation Services.

T-Systems has about 250 experts and more than 20 years' experience in the ICT Security business. In Germany, T-Systems is by far the leading service provider in the field of security.

### Security for e-business.

We carried out an in-depth analysis of the e-business implementation of a well-known service provider. Our work included firewalls, routers, Web and application servers, as well as the background systems. We also tested the achieved security level of networks, systems and applications and identified multiple security breaches.

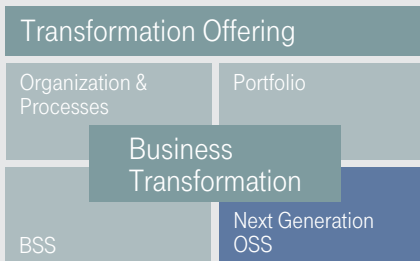
### Secure chip-card solutions.

T-Systems operates the first trust center ever licensed by the German Regulatory Authority (RegTP), conformant to the rigorous German Signature Act. The TeleSec secure chip-card operating system TCOS was the first smartcard operating system worldwide to pass the stringent requirements of ITSEC E4 "high".

### Secure access solution.

T-Systems integrates security mechanisms into control units. "Embedded Security Systems" is the name for a sub-area of IT security being characterized by a tight connection between software and mechatronics.

# Next-Generation Operations Systems & Software.



## Best-of-Breed Operations, Administration & Management Solutions for IP Networks.

The design and implementation of carrier-grade OSS systems belong to the core competencies

of T-Systems. Since the advent of IP-based communications we have purposefully expanded our Solutions & Services Portfolio. Today our offering includes a comprehensive suite of state-of-the-art OSS solutions for IP networks.

### Our portfolio.

- Business Service Management
- End-to-End Service and Fault Management
- Network and Service Provisioning & Activation
- Network-related Revenue Assurance and Fraud Detection
- Inventory Management (physical, logical, service)

## References & Showcases.

### DSL Provisioning for a leading European carrier.

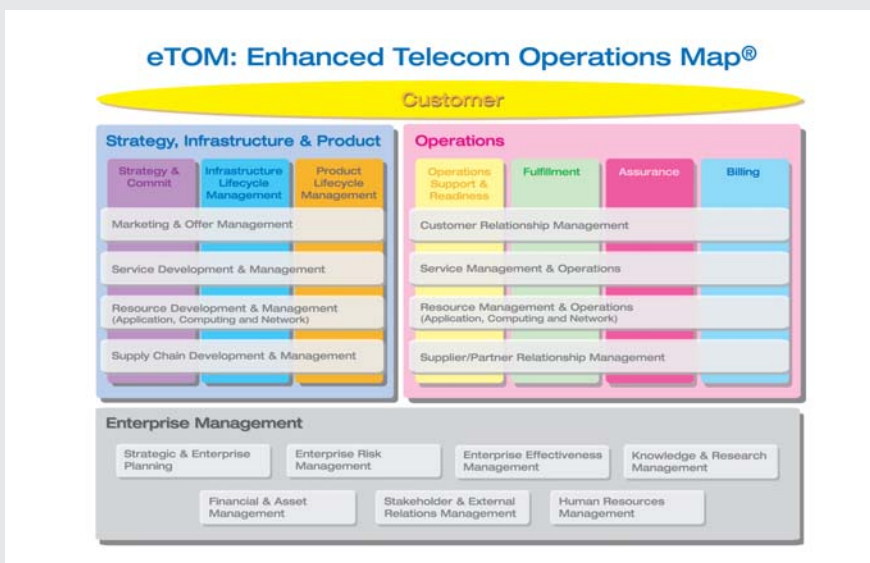
Design and implementation of a DSL Server-System Solution for the automatic provisioning of broadband services. The solution controls more than 23,000 network elements and is used by more than 50,000 registered users. More than 25,000 orders are handled per day.

### Comprehensive IP network management solution.

T-IPOSS is an OSS solution from T-Systems which is specially designed for IP/MPLS network operators. It is an NGOSS-based framework integrating IP Network Provisioning, IP Assurance, IP Performance Management and IP Network Inventory. All functions are tied together by EAI middleware exploiting best-of-breed products. T-IPOSS exhibits unique features like "Master-Source-Data Management" and "Trusted Provisioning".

### Service management center for a leading international mobile carrier.

The solution designed and built by T-Systems uses standard commercial off-the-shelf products. It allows a harmonized service management for all services by providing all important alarm messages for the international service monitoring.



eTOM: Enhanced Telecom Operations Map, Source: TeleManagement Forum GB921

**Publisher:**

T-Systems International GmbH  
Mainzer Landstrasse 50  
60325 Frankfurt am Main  
Germany

Responsible for content:  
Systems Integration & IL TMU

**Contact:**

T-Systems International GmbH  
IBU Telecommunications  
Business Development SSD Telco  
Am Propsthof 49  
D-53121 Bonn  
E-mail: [IBU.Telco.Communications@t-systems.com](mailto:IBU.Telco.Communications@t-systems.com)  
Internet: [www.t-systems.com](http://www.t-systems.com)