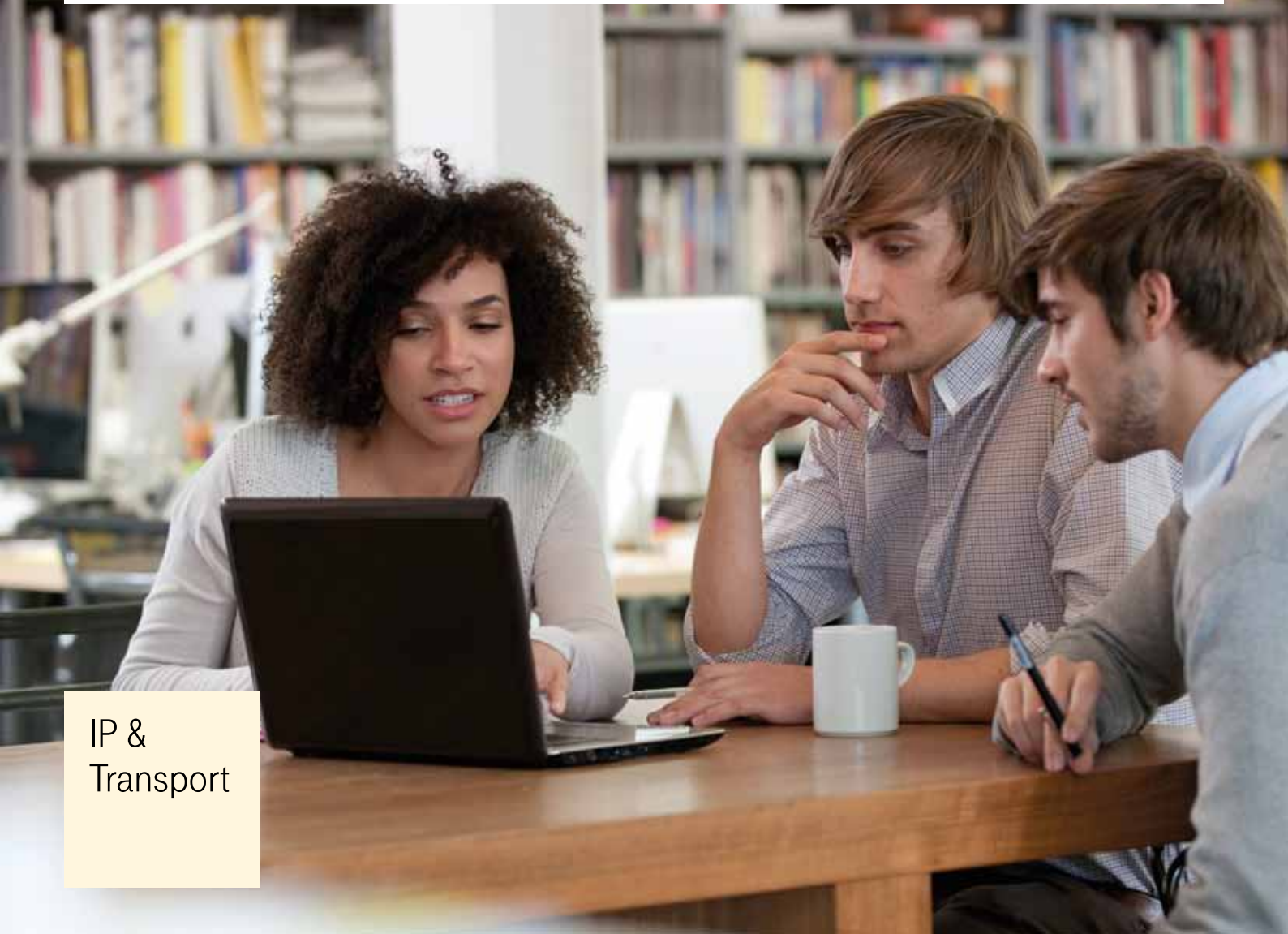


Carrier Intranet Service.

International Carrier Sales & Solutions (ICSS)

Life is for sharing.



IP &
Transport

ICSS's Wholesale IP VPN offering.

IP VPNs (Virtual Private Networks) have become a key area of expansion for new and incumbent service providers worldwide.

ICSS's wholesale IP VPN solutions combine state-of-the-art technology with good quality of service. Carrier Intranet Service allows us to offer advanced revenue-generating services over a

common IP MPLS backbone and is an equally attractive solution for enterprises searching for economic efficiency by migrating their voice and data services on to a shared infrastructure. Carrier Intranet Service provides a way to utilize a common infrastructure for multiple services.

ICSS Wholesale Layer 3 IP VPN – Carrier Intranet Service – solution overview.

Carrier Intranet Service is an MPLS-based data transport service (L3 IP VPN) that provides access to Deutsche Telekom's managed MPLS network via an interconnection between Deutsche Telekom's MPLS network and the carrier's MPLS network.

Based on our IP MPLS backbone, we connect different end-customer locations (VPN endpoints) across the globe. Carrier Intranet Service provides the end customer with a private, secure WAN and quality of service based on a reliable, scalable, dedicated IP VPN. The service can either be implemented on Deutsche Telekom's global IP network or on partner carriers' IP VPN network and services via interconnections.

Carrier Intranet Service bundles the following elements: one-stop shopping.

Carrier Intranet Service includes the IP Infrastructure, access, and logical VPN connections within the Deutsche Telekom and partner carriers' backbone, as well as (upon request) the **Customer Edge (CE) router**, all on a rented basis, including basic connectivity configuration and hardware maintenance according to ICSS's standards. The carrier remains responsible for the management and remote monitoring of the CE router throughout the operation of the VPN.

Any-to-any connectivity within a customer's VPN.

The service functions consist of any-to-any IP connections between the service access points and service interfaces within each of the customer VPNs. Sites within the VPN are provided with connectivity to all other customer sites on the same VPN without the need for dedicated point-to-point connections or for routing through a hub location.

Class of Service (CoS).

The class-of-service (CoS) functions let the VPN traffic be mapped to up to four traffic classes based on various quality-of-service requirements. The customer can decide how to assign its network's traffic to different classes. Carrier Intranet Service includes four classes of traffic segregation:

- Best-Effort Class – best used for “bulk” background applications, i.e., HTTP, FTP, e-mail, etc.
- Premium Class – tailored for business-critical applications that can not tolerate even a small amount of packet loss (e.g., Telnet, ERP)
- Multimedia Class – optimized for bursty and real-time applications that can cope with a degree of packet loss, but are highly delay-sensitive, e.g., video conferencing
- Voice Class – defined for the typical profile of Voice over IP (VoIP) traffic, i.e., relatively regular streams of small data packets. It is most suitable for delivering time and jitter (delay variation) sensitive applications. It is set up using strict priority queuing mechanisms.

CoS transparency: The IP precedence values or DSCP values used by the carrier for classifying end-customer traffic are not overwritten by ICSS, which means that the carrier can implement the same CoS service for the end customer as it offers in its own network.

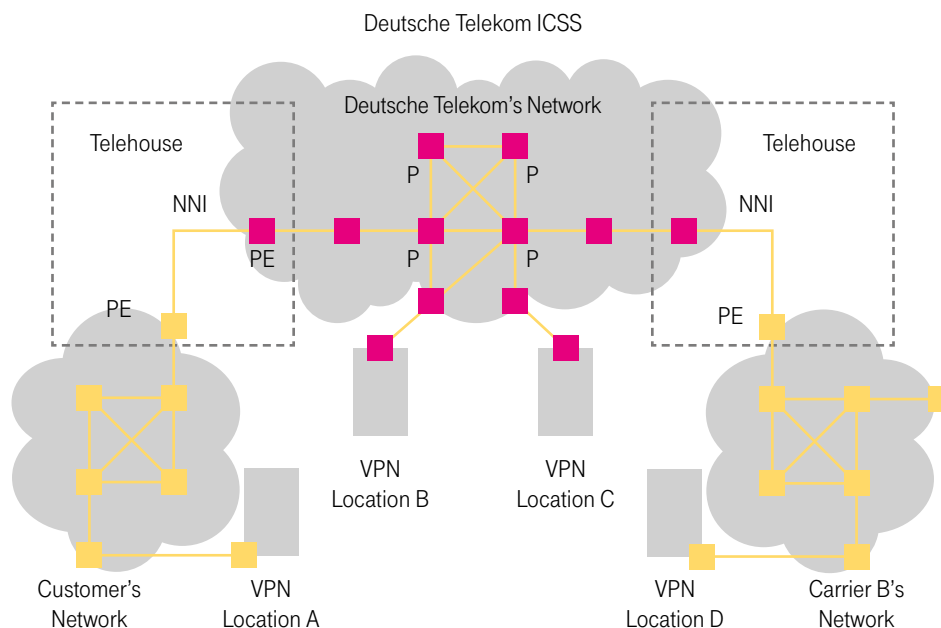
Service levels.

ICSS's Carrier Intranet Service offers two service levels:

- Compact Service Level (24h)
- Comfort Service Level (8h)

Service levels differ in the committed time to restore values. Both the Compact and Comfort Service Levels include the hardware fault clearance of the CE router provided that the carrier ordered the router delivery and maintenance from ICSS.

Service options



Service level agreement.

ICSS is responsible for the delivery, operation, and maintenance of the contractually agreed services. Performance commitment values have been set up according to the various classes of service available (premium, multimedia, and voice). These are valid for PoP-to-PoP measurement.

All service levels are covered by an SLA with the following commitments:

- Ready-for-service date per service access point
- Availability
- Network performance parameters (latency, jitter, packet loss)
- Mean time to restore

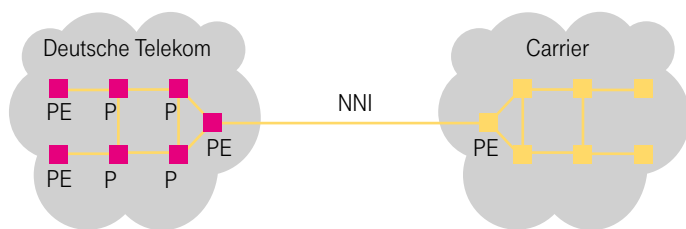
Carrier Intranet Service Gateway (NNI).

ICSS's Carrier Intranet Service allows carrier customers to interconnect with Deutsche Telekom's MPLS platform according to the RFC 4364 Section 10a specifications. Serial point-to-point and Ethernet connections can be implemented for the Layer 2 protocol across the gateway. Bandwidths available for interconnection include E3/T3, STM-1, STM-4, STM-16, FastEthernet, GigabitEthernet, or 10 GigabitEthernet ports.

Interconnection access options are:

- a) Port only (on Deutsche Telekom's international IP PoPs)
- b) Port and in-house cabling (on Deutsche Telekom's international IP PoPs; direct or in meet-me room)
- c) Port and local loop

Interconnecting the MPLS networks



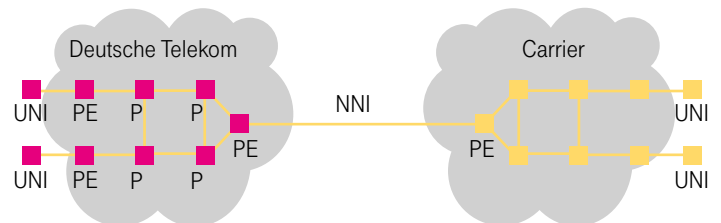
Carrier Intranet Service UNI (User Network Interface).

Depending on the physical medium in the VPN end-point access area, different committed access rates can be implemented. The bandwidths available for the Carrier Intranet Service vary from E1/T1 and its subrates, E3/T3 and its subrates, STM-1, STM-4, STM-16, and Ethernet, FastEthernet or GigabitEthernet. ADSL and SDSL access bandwidths are also available, as well as different redundancy implementations to cover customer availability requirements.

Carrier Intranet Service UNI access options are:

- a) Port-only (on Deutsche Telekom's international IP PoPs)
- b) Port and in-house cabling (on Deutsche Telekom's international IP PoPs; direct or in meet-me room)
- c) Port and local access to the customer location (upon request with CE)

Connecting the end user sites



Geographical service coverage.

ICSS's Carrier Intranet Service is provided on Deutsche Telekom's own global MPLS platform. Extended reach via partner carriers' MPLS networks to regions where Deutsche Telekom has no coverage or the provision of more advantageous offers in certain countries is also available.

Pricing.

Carrier Intranet Service is offered with clear price packages that ensure flat-rate billing for contract terms of one to three years. The packages are defined upon the number of CoS ordered by the carrier to a UNI. In Germany, ICSS offers the most convenient pricing by providing the carriers bundled prices including all service elements valid for the whole country.

Carrier Intranet Service – benefits.

- Enrich your portfolio while expanding your network to new locations for your existing subscribers and keeping your own IP VPN service offerings
- Reduce network costs
- Reach a broader set of potential customers and offer truly global VPN services
- Obtain flexible bandwidth to satisfy a number of applications and users
- Profit from Deutsche Telekom's extended geographical coverage
- Enjoy a customer-oriented pricing structure based on worldwide flatrate pricing

For further information, see
www.telekom-icss.com

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