



Service description TopInternet.

Stand: 09/2018

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1. Area of Application.

ToplInternet is the managed Internet service for companies that value performance, security and quality. ToplInternet offers high levels of flexibility:

- A multitude of access variants for a wide range of location requirements (xDSL, leased line, Ethernet direct connection)
- Scalable bandwidths from 2 Mbit/s to 1 Gbit/s
- Can be executed as either a central or decentralized Internet connection for corporate networks
- Rapid adaptation to changes and new requirements at your company
- Combination with a wide range of terminal equipment (e.g. router, firewall,...) as well as optional additional services (e.g. managed firewall)
- Combination with customized Internet services (e.g. domains, mail space, web space)

2. ToplInternet.

ToplInternet offers access to the World Wide Web in a variety of bandwidths and service characteristics.

Included in the Standard Package	
IP-addresses provided by Drei (IPv4 and IPv6)	8 IPv4 addresses 1 and a /48 IPv6 network
Domain registration	1 domain from the price category 1 (.at, .eu, .com, .net, .org, .biz, ...)
Domain management (primary and secondary domain name service or secondary domain name service [Primary DNS is the responsibility of the customer])	1 Domain
Network News Service	included
E-Mail Spooling and E-Mail Relaying	included
Management of E-Mail-Addresses by the customer (includes up to 5 GB for up to 100 E-Mail addresses; the E-Mail-Addresses can be freely configured in the online administration with 10/30/50/100/200/300 MB each)	included
Web space (on the basis of Linux + Apache web server)	500 MB
Database space (mySQL)	100 MB
Web server statistics: Access statistics and documentation	included
Support (as per Point 6)	included

2.1 IP-Addresses.

All the following designations "IP-addresses" refer to the IPv4 addresses currently used as standard in the Internet. These IPv4 addresses are provider-assigned (PA) IP addresses.

All IPv6 relevant parts are explicitly designated as IPv6 addresses. These IPv6 addresses are also provider-assigned (PA) IP addresses.

¹ 16 and 32 IPv4 addresses are possible upon request. More than 32 IPv4-addresses can be obtained from Drei for a charge, but must be requested using the RIPE-141 document (see Point 2.1).

2.1.1 IPv4 Addresses (Conventional IP Addresses).

Customers can be assigned 8, 16, or 32 fixed IP-addresses; assignment is carried out strictly in accordance with RIPE policies.² If the TopInternet service is terminated, the IP-addresses must be returned to Drei at the end of the period of notice.

If the customer needs more than 32 IP-addresses, he must explain the reasons using the current RIPE form and send it to Drei (to the E-Mail address at.hostmaster@drei.com). It generally takes one week to process these applications.

The customer has the possibility to adapt the IP-addresses assigned by Drei, e.g. upgrade from 8 to 16 IP-addresses. However, this might make it necessary to change the entire IP-address range.

If the customer already has IP-addresses of its own that were explicitly awarded (by RIPE) to it (provider independent IP-addresses), these may be used with a connection to the Drei IP backbone.

2.1.2 IPv6 Addresses.

Drei may assign the customer one /48 network; assignment will be carried out strictly in accordance with RIPE policies. If the TopInternet service is terminated, the IPv6 addresses must be returned to Drei at the end of the period of notice.

If the customer already has IPv6 addresses of its own that were explicitly awarded (by RIPE) to it (provider independent IP-addresses), these may be used with a connection to the Drei IP backbone.

2.2 Domains and Domain Name Service.

The charge for Drei TopInternet includes the registration (new registration or re-registration) and administration for one domain. Additional domains may be registered and administered for a separate charge (see Price Sheet Drei Domain Service). In this case, Drei acts as a facilitator between the registry and the customer, i.e. a contract for the domain comes into being between the customer (= owner of the domain) and the registry, in accordance with the General Terms and Conditions of the registry.

The customer's contract with the body assigning the domain does not therefore end when the Drei TopInternet contract ends, but must be terminated separately by the customer.

During the registration procedure, Drei sets up the domain on the Drei DNS server and carries out the technical name resolution for Ipv6 in accordance with RFC 1034, 1035 and 3596. With the Drei domain service only the Drei DNS server may be used. Drei also invoices the charges incurred on behalf of the domain allocators; these are included in the monthly charges. The customer accepts that all charges incurred in connection with the domain will be invoiced each year in advance and that they must be paid by him irrespective of which person he registered as the domain owner when registering the domain.

Drei registers a domain for the customer although there is no guarantee that a domain is in fact available. Drei does NOT verify the legal permissibility of the domain desired by the customer. This is the sole responsibility of the customer. Domain names that have already been registered may be moved to Drei without any problem.

2.3 Webhost.

The webhost offers web space and database space on state-of-the-art brand hardware from well-known manufacturers. TopInternet includes a Drei webhost with 500 MB of web space and 100 MB of database space. Detailed information about the scope of the service is provided in the current description of services for Webhost and is available at www.drei.at/business.

2.4 E-Mail.

TopInternet offers the customers the following possibilities for using mail space.

2.4.1 Customer Operates Their Own Mail Server.

The customer receives a suggestion for the IP-address assignment from Drei in the handover protocol. As soon as the dedicated line has been successfully installed and the customer switches to the Drei IP-address, he must notify the host master (E-Mail to: at.hostmaster@drei.com) of the changes which must be made in his Internet domain that has been taken over by Drei.

Drei also offers other important functions for the operation of a customer-owned mail server.

² RIPE = Reseaux IP Europeens in Amsterdam is the organisation responsible for assigning European IP addresses

E-Mail spooling is a backup function for the customer's mail server. In the event of a temporary failure of the customer's mail server, messages are automatically delivered to a temporary Drei storage area. The E-Mails are held there for up to 6 days. Once the customer's mail server is back online, the E-Mails will be delivered to the server every 8 hours or the customer can retrieve the E-Mails at any time using an ETRN signal.

However, with regard to this option it should be pointed out that Drei does not verify the user so that all E-Mails are accepted, e.g. including spam.

With the E-Mail relaying option, the Drei mail server can be used as a relay server to send E-Mails. The Drei Internet platform can only be used for relaying by Drei customers with Drei IP-addresses. In E-Mail relaying no mail bounces may be sent over the Drei mail server.

2.4.2 Use of Mail Space.

If the customer does not wish to operate a mail server of its own, Drei will make a virtual mail server available. Using a web mail tool, the customer can administer up to 400 addresses, (the equivalent of up to 20 GB of mail space) i.e. set up, change or delete E-Mail accounts himself.

The standard TopInternet package includes 5 GB of mail space for up to 100 E-Mail accounts (POP3 or IMAP). The storage space can be divided between the accounts by the customer; 10 to 300 MB per mailbox is standard. Additional mail space may be purchased at any time in increments of 1 GB up to a maximum of 20 GB.

Access is granted in compliance with the relevant RFCs (Request for Comments), in particular RFC 821 and 822, RFC 1730 or 2060 and RFC 1735.

2.5 Network News Service.

Via the Network News Service, TopInternet customers have unrestricted read and write access to the Drei news server with international news groups. All that the customer needs to use it is a newsreader (e.g. Thunderbird, Microsoft Outlook Express) in which the Drei news server is configured.

Optional Additional Services:	
Administration of additional domains (registration, administration, primary and/ or secondary DNS)	See SD 3 and Price Sheet Domain Service
Expansion of mail space (possible in increments of 1GB)	See Price Sheet TopInternet
Expansion of web space/database space	See Price List Webhost
Optional terminal equipment (purchase/rental, configuration, maintenance and management)	Price upon Request
TopInternet Backup	Price upon Request
Mail Security (for customers with their own mail server)	See SD and Price Sheet Mail Security
Managed Firewall	See SD Managed Firewall / Price upon Request
Option vServer	See SD vServer / Price upon Request
Option ListServer	See SD and Price List ListServer
Option StreamingHost	See SD and Price List StreamingHost

2.6 TopInternet Backup.

The TopInternet Backup option makes it possible to back up the TopInternet connection over a second path. A customised TopInternet line backup can be verified and realised depending on the site-specific line conditions.

2.7 Optional Terminal Equipment.

The TopInternet service allows the customer to lease or purchase an alternative router or security terminal equipment from Drei or its authorised partners or to use their existing router depending on their requirements.

3. Internet Connection.

TopInternet is the **guaranteed** and **permanent** Internet service from Drei with maximum flexibility for individual requirements. The service is based on Drei's own network infrastructure, which is currently connected to the World Wide Web with a total bandwidth of more than 10 Gbit/s at several interconnection points.

3.1 Carrier Service Options.

The following carrier service options are available for TopInternet:

- TopInternet by means of xDSL (on the basis of unbundled infrastructure)
In this case, a TopInternet router is an integral part of the access.
- TopInternet by means of leased line
The delivery point is executed as an X.21 interface (DB-15 jack) on the connecting unit, through which IP packets can be exchanged with the TopInternet service with the chosen bandwidth over PPP (Point-to-Point Protocol according to RFC 1661).
- TopInternet by means of a direct Ethernet connection
- The customer location is connected to the TopInternet over an Ethernet connection. The default physical connection bandwidth (and thus the maximum connection bandwidth) is 10 or 100 Mbit/s (10BaseT or 100BaseT, static configuration) and upon request may also be 1000 Mbit/s (1000Base-LX/SX).
- Option G.703 Interface

³ SD = Service Description

- is possible upon request (with a DB-9 jack or RJ-45 jack depending on the implementation) in cases where leased lines on the basis of a G.703/704 interface (instead of X.21 DB-15) are used with a bandwidth of 1984 kbit/s.
- Upon request, other interface options may be offered for special applications.

3.2 Connection Protocol.

The TopInternet connection supports the Internet Protocol IP Version 4 according to RFC 791 and, optionally, IP Version 6 according to RFC 2460.

If TopInternet Services are used, the relevant Requests for Comments (RFC) must be adhered to (see also Internet Engineering Task Force Web Site at <http://www.ietf.org/rfc.html>).

No claims may be asserted in the event of failure to comply with RFC standards or if proprietary solutions are used.

3.3 Routing Protocols.

Essentially, the IP-addresses given to the customer will be allocated using static routing. If the customer has IP-addresses of his own (see Point 2.1) and is furthermore in possession of his own Autonomous System Number (also 4 bytes AS), he may share routing information by means of the Border Gateway Protocol (BGP Version 4).

3.4 Service Handover.

The service handover is completed when the handover protocol for each implemented TopInternet connection is presented to the customer.

3.5 Installation of the TopInternet Connection.

Drei installs a TopInternet connection for the customer at every end point in Austria, provided this is economically and technically feasible.

3.5.1 General Structural Requirements.

The installation of a TopInternet connection requires an installation or operating room at the customer's premises which must be clear, dry, free of dust and adequately ventilated. The customer must ensure that an operating temperature range of +5°C to +40°C and a relative air humidity of 35 to 75% (non-condensing) are maintained.

3.5.2 Connecting Unit.

Drei installs or integrates (depending on the chosen terminal equipment option) a connecting unit in the installation room at the customer's premises. This must be positioned in a suitable location that is easily accessible in the event of failure. The connecting unit consists of a carrier-service terminal (modem), TopInternet terminal equipment (router or/and firewall) as well as a dialup modem for possible Network Management access and with a direct dialing capability (standard analogue, optional digital ISDN). This is obligatory for the rental and purchase option with management. Firewalls CANNOT be integrated into the management.

The TopInternet terminal equipment can be provided as a table-top unit or as a 19-inch push-in unit. The size of the TopInternet terminal equipment (up to max. 2 units required) is based on the customer's requirements.

The dial-up modem is typically a table-top unit, also suitable for wall-mounting.

The space required for the connecting unit must be made available by the customer in an appropriate place. The customer has no entitlement to the provision of a connecting unit in a particular version.

The power supply (230 VAC) required for the connecting unit is to be provided by the customer. In the normal case, provision must be made for each connecting unit to have its own power supply (except in the case of a redundant power supply where the power supply must be doubled). In addition, a further power supply must be made available for fault clearance measures. The length of the power supply cable is approx. 1.5 m.

If the customer site is an area that is exposed to a higher risk of lightning, necessitating the installation of a voltage overload protection that is provided at a charge by Drei, the customer must have a potential equalization line and nonlinear resistance arrestors installed for these at his own expense by a licensed electrician.

Drei may also have the connecting unit fitted by third parties. The connecting unit made available remains the property of Drei or of the company appointed by Drei, unless an agreement has been made to the contrary.

3.5.3 Network Termination Point.

The TopInternet connection represents the end of the transmission path for the chosen carrier service, and thus the network termination point.

The network termination point defines the boundary of responsibility between Drei and the customer. All network equipment in front of the connecting unit (on the network side) and also the carrier service terminal itself fall within Drei's area of responsibility. Responsibility for the terminal equipment depends on the chosen versions.

3.5.4 Customer Connection.

The customer connects his terminal equipment (router, firewall) via corresponding connection cables to the network termination point. This creates the connection to the TopInternet service. The connection cables required must be provided by the customer.

The customer may only connect terminals to the connecting unit which are suitable for the TopInternet service and which are compatible with the electrical and mechanical interface conditions of the carrier service. In case of doubt the customer must obtain the agreement of Drei.

4. Drei TopInternet Performance.

Drei TopInternet is the managed Internet service for enterprises that value high speed (throughput) and quality when choosing an Internet solution.

4.1 Speed.

Speed is a key factor for evaluating an Internet connection. How long does it take for an IP packet to get from Point A to Point B and back again? To offer you a basis for comparison, Drei measures the round trip time (RTT) to destinations within and outside Austria.

Within Austria (starting from Vienna):

	Average RTT	Maximum RTT
Graz	7 ms	10 ms
Innsbruck	13 ms	17 ms
Linz	11 ms	15 ms
Salzburg	12 ms	16 ms

International destinations (starting from Vienna):

	Average RTT	Maximum RTT
Frankfurt	25 ms	30 ms
Munich	15 ms	20 ms
London	45 ms	50 ms
Prague	10 ms	20 ms
Budapest	10 ms	20 ms
New York	110 ms	120 ms
Moscow	90 ms	100 ms
Tokyo	330 ms	350 ms
Sydney	330 ms	350 ms

In the case of failure to achieve the maximum RTTs Drei undertakes to take technical measures.

Another key parameter for the data transmission rate is data throughput dependent on the size of the data packets. The throughput rate of a network is the quantity of data per time that can be transmitted over the network. In contrast to the data transmission rate, only pure user data is taken into consideration, any control data is not included in the calculation. We then talk about the gross or net data transmission rate.

Example: In typical mixed traffic with small and medium-sized data packets, the data throughput at 100 Mbit/s Ethernet is approx. 94 % of the transmission rate, i.e. approx. 94 Mbit/s net rate.

The bandwidths described in the product are always stated as gross bandwidths.

4.2 Quality.

There are two key factors for evaluating the quality of an Internet connection:

4.2.1.1 Availability.

Availability is the actual availability of Drei's own Austria-wide IP backbone.

Average annual availability of Drei's own IP backbone is 99.99%.

4.2.1.2 Packet Loss.

Congestion or faults in the Internet can lead to packets of data failing to reach their destination, i.e. packet loss. Although these are packets then retransmitted, retransmission leads to delays and thus diminishes the quality of the Internet connection.

Packet loss in TopInternet is generally less than 1 percent.

In the event of failure to achieve these values, Tele 2 undertakes to implement technical measures.

5. Terminal Equipment.

TopInternet is available either with or without terminal equipment (router, firewall). A Cisco 8xx router or an equivalent alternative terminal is typically provided as a standard router. In exceptional cases, the supply of an alternative terminal device can be examined. However, terminal equipment with "end of sales" or "end of life" status is always excluded.

Depending on the desired customisation and the amount of advice needed, customers may choose between the configuration classes Set-Up Basic or Set-Up Individual.

Configuration Terminal Equipment	Set-Up Basic	Set-Up Individual
Lease TopInternet Terminal Equipment	<ul style="list-style-type: none"> Standard Configuration Changes to the configuration only possible by upgrading to Set-Up Individual 	<ul style="list-style-type: none"> Consultation session Terminal equipment individually configured to suit customer requirements Changes to the configuration possible for a charge
Purchase TopInternet Terminal Equipment	as above	as above
TopInternet Security Features	not possible	as above Router configuration with integrated firewall feature set or firewall
Integration of existing customer terminal equipment	not possible	as above

5.1 TopInternet Terminal Equipment Lease or Purchase Option.

The lease or purchase option for TopInternet routers includes delivery, installation, initial configuration and commissioning of the terminal equipment. It also includes hardware and software maintenance by Drei or its authorized partner companies in accordance with the support level Standard Support. Support times can be extended by upgrading to Extended Support 1 and 2 or Full Support for which there is an additional charge.

In the Leasing option, all supplied terminal equipment and accessories (modem, etc.) remain the property of Drei.

In the Purchase option for terminal equipment, Drei retains title to the respective items of terminal equipment until full payment has been made by the customer. Delivery is free of charge throughout Austria.

5.1.1 Lease or Purchase with Set-Up Basic.

The router is given a standard configuration and installed by customer service. Set-Up Basic does not include any configuration changes. However, if a change is made this must be done by means of an upgrade to the configuration class Set-Up Individual for which there is a charge. Changes will then be made in accordance with this option.

5.1.2 Lease or Purchase with Set-Up Individual.

Set-Up Individual includes a comprehensive consultancy session and a configuration solution that is tailored to the individual requirements of the customer network. Subsequent configuration changes can be made at any time by means of remote access. Billing is carried out at the current applicable hourly rate for specialists (see the Supplementary Sheet Price Information Customer Service Charges) on a time and materials basis.

5.2 TopInternet Terminal Equipment with Security Features.

Individual security requirements can be met with the Drei Managed Firewall product. In addition, security solutions can also be provided via certified Drei partners.

Further information is available in the applicable service description of the Drei Security Portfolio at www.Drei.at.

5.3 Integration of an Existing Customer Router Option.

TopInternet allows the customer's existing router to be used for the service. To ensure the trouble-free use of the terminal equipment, integration into Drei's reactive management is recommended.

The integration of existing routers is only possible in the configuration class Set-Up Individual and includes the management and maintenance of the router.

Maintenance work is carried out in accordance with the agreed support class.

The existing terminal equipment remains the property of the customer.

- The following additional agreements also apply to the integration of the customer's terminal equipment:
- The services of the TopInternet service class can only be agreed for equipment that Drei also uses in its product portfolio at the time the contract is concluded.
- All devices from other manufacturers that are to be integrated must be subjected to a detailed inspection before being taken over. During this inspection the hardware, software and configuration will be checked to verify that integration is possible. The expenses incurred will be charged to the customer at the current applicable hourly rate for specialists on a time and materials basis. Should this inspection produce a negative result for the devices from other manufacturers or parts thereof, the customer must have the necessary changes made at his own expense before integration.

5.4 Maintenance by Drei or an Authorised Partner.

If TopInternet terminal equipment is leased or purchased, the following additional maintenance services will be provided as standard irrespective of the chosen configuration class or the following agreements will be concluded for the duration of the contract (based on the proposed solution):

- Full maintenance of all terminal equipment supplied by Drei including fault repair on site in accordance with the support level.
- Faulty equipment will be replaced by the Customer Service in accordance with the support level. Any warranty claims are based upon the legal requirements.
- For the agreed duration of the service, configurations, configuration changes and hardware upgrades may only be carried out by Drei or by third parties appointed by Drei.
- Service assignments attributable to fault on the part of the customer or a third party appointed by the customer (e.g. configuration changes) are not included in the support level and will be billed on a time and materials basis according to the current applicable hourly rate for specialists of Drei.
- Other equipment, software, push-in units or other accessories, for which no support level is agreed with Drei, are excluded from the support level agreements.
- If the customer carries out configuration changes on the router, this may lead to impairments in the function of the router for which Drei cannot be held liable.

5.5 Management by Drei.

To ensure the trouble-free use of the terminal equipment, integration in the reactive management of Drei is mandatory for access type Business xDSL; for other access types it is recommended. For this purpose, the terminal equipment must be SNMP compatible. The terminal equipment is integrated into the central Drei management system.

Drei archives the configuration file of the last ordered change (official Set-Up); in the case of a fault this configuration is played in again (if possible remote from the NOC by means of TFTP, otherwise on site) If this corrects the fault, it will be assumed that the fault was the result of changes in the configuration made by the customer or a third party appointed by the customer, and that the correction of the fault is not included in the service classes.

6. Support.

Within the framework of the TopInternet service a free telephone support service is available on the Drei BusinessLine under the number 050 500 3333 from Mon. - Sun, 24 hours a day.

In order to carry out fault repair work it is essential that the customer number and connection number are quoted. The customer will find more detailed information about contacting the support service on the Service Handover Protocol.

The Drei support services do not include support for terminal equipment-specific solutions, network solutions (LAN) or software solutions of the customer which do not concern software or terminal equipment which was not supplied by Drei and are therefore limited to a scope that can be reasonably expected within the framework of installation and configuration support.

6.1 Service Level Agreements (SLA).

Optional Service Level Agreements are offered for TopInternet; a detailed description of the services included in the Service Level Agreements can be found in the Service Description Drei Service Level Agreement (SLA) for TopInternet available at www.drei.at/business.