Service Description TopInternet.

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DreiBusiness.
Macht's einfach.

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1. Scope of application.

TopInternet is a managed internet service for companies who place a high value on performance, security, quality and flexibility.

TopInternet offers:

- a multitude of access variants for a wide variety of requirements at every customer location (Ethernet connections based on copper, glass fibre and directional radio)
- bandwidths of 2 Mbit/s to 10 Gbit/s
- Service Level Agreements tailored to your quality requirements
- a portfolio of high-quality routers, which can also be proactively monitored by us during the course of the selected Service Level Agreement
- provision of IPv4, IPv6 or incorporation of provider-independent IP addresses
- operational security thanks to a variety of back-up solutions
- options for combination with individually matched Internet services and individual solutions

2. Product Description.

The scope of supply of TopInternet includes the following service levels as standard or as options:

Service Levels	Included	Optional
Bandwidths	2 Mbit/s to 10 Gbit/s	> 10 Gbit/s
Router	managed router portfolio	special routers on request
IP addresses (IPv4 and IPv6)	IPv4 / 29 five usable IP addresses	larger IPv4 address blocks, IPv6 addresses, provider-independent IP addresses
Domain	1 domain from price group 1 (.at, .eu, .com, .net, .org, biz, …)	Further domains from all price groups
E-mail addresses/web hosting	Optionally available at https://www.drei.at/de/business	
Service Level Agreement	Service level: Premium+ Support level: Full Support	On request
Back-up	-	LTE, copper, fibre optic on request

2.1 Internet connection.

TopInternet is a high performance Internet service with unlimited broadband speed for companies which demand high standards of security, quality and flexibility. The service is based on the proprietary Drei network infrastructure, which currently offers overall bandwidths in excess of 100 Gbit/s and is connected to the world-wide Internet web at multiple hand-over points.

2.1.1 Carrier service variants.

The following carrier service variants are available for the TopInternet:

xDSL (based on a virtual unbundled infrastructure): this connection is achieved using one or more virtual unbundled twin-core copper cables or a fibre optic cables from A1 Telekom Austria AG and the appropriate transmission technology provided by us.

Directional radio access variant: your company location is connected to a microwave directional radio link which can also be used for networking our mobile telephony transmitters. The performance specification for the “directional radio access variant” is applicable to this radio link.

Ethernet service: we use standard Ethernet connections over 100 Mbit/s, 1 or 10 Gbit/s Ethernet interfaces (auto-negotiation).

Other interfaces can be offered on request as options for special applications.

2.1.2 Routing Protocols.

The IP addresses issued to you are generally assigned to static routing. If you possess your own IP addresses (see point 2.1) and also are in possession of your own Autonomous System Number, you can exchange routing information using the Border Gateway Protocol (BGP Version 4).

2.1.3 Speed.

Speed is an important factor when evaluating an Internet connection. How long does it take to send an IP packet from point A to point B and back again? To provide you with a basis for comparison, we measure the Round Trip Time (RTT) for destinations within Austria and internationally.

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

If the actual RTTs exceed the maximum times, we undertake to implement technical measures to resolve the problem.

Another important measure of the data transmission rate is data throughput as a function of the size of data packet. The data throughput of a network is the quantity of data which can be transmitted by the network within a stated period of time. In contrast to the data transmission rate, data throughput relates purely to usable data, i.e. control data are excluded from the calculation. We use the terms gross data transmission rate and nett data transmission rate to reflect this distinction.

Example: the data throughput on Ethernet at 100 Mbit/s consists of a typical mix of traffic, with small and medium-sized packets, at a transmission rate of approx. 94%, i.e. about 94 Mbit/s nett rate.

Our product descriptions always state the gross bandwidths.

2.1.4 Quality.

There are two important factors to be considered when evaluating the quality of an Internet connection:

2.1.4.1 Availability.

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

The availability of the Drei proprietary IP backbone is 99.99% averaged throughout the year.

2.1.4.2 Packet Loss.

Packet Loss is the loss of data packets within the Internet due to overloading or malfunctions within the Internet. Data packets that are lost are of course retransmitted, but this gives rise to delays and thus to a reduction in the quality of the Internet connection.

The packet loss within TopInternet is generally less than 1 percent.

If the actual packet loss exceeds this value, we undertake to implement technical measures to resolve the problem.

2.2 IP Addresses.

All the items listed below and designated as “IP addresses” are the IPv4 addresses currently used as standard on the Internet. These IPv4 addresses are provider-assigned (PA) IP addresses.
All parts relevant to IPv6 are explicitly designated as IPv6 addresses. These IPv6 addresses are also provider-assigned (PA) IP addresses.

2.2.1 IPv4 Addresses.

8 IPv4 addresses are included as standard in the scope of supply. More IP addresses can be provided as an option on request.

You have the facility to change the IP addresses that we supply, for instance when upgrading from 8 to 16 IP addresses. This may however necessitate revision of the entire range of IP addresses.

2.2.2 IPv6 Addresses.

We can make available a /48 network, in which the assignment complies strictly with the RIPE regulations. This is achieved by means of the dual stack process, i.e. in combination with IPv4 addresses.

2.2.3 Provider Independent IP Addresses.

If you already have your own IP addresses (provider-independent IPv4/IPv6 addresses) explicitly assigned to you (by RIPE), these can be used in conjunction with a connection to the Drei IP backbone.

2.3 Domain, Web Host and E-mail.

Further information about these additional services can be found at: https://www.drei.at/de/business.

2.4 TopInternet Backup.

The “TopInternet Backup” option offers the facility to provide security of TopInternet access via a second route (path redundancy). Depending on the conditions on site, we can test a TopInternet cabling backup tailored to your requirements and implement it as follows:

- Fibre optic connection and copper connection
- Fibre optic connection and a second fibre optic connection
- Fibre optic connection or copper connection with LTE backup

Of course the backup configuration will take over the function of the main connection including all the IP addresses via BGP routing. Your support adviser will be happy to provide advice on an individual solution for you.

3. Creation of the TopInternet connection.

Provided it is technically feasible and commercially viable, we set up at each domestic location a TopInternet connection to the agreed carrier service variant. Once the connection has been established, we install a router at a suitable position in the installation area at your nominated company location, so that it is easily accessible in the event of any type of fault. We may also commission a third party to perform the installation of the equipment. The equipment that is made available remains the property of Drei or the third party commissioned by us. Any cables necessary for the installation will be made available in the desired lengths. We do not perform the laying of these cables (in-house cabling). Please assign an electrician to perform this task.

The TopInternet router may be a table-top model or a 19 inch rack unit (1 or 2 HU).

Installation is performed in 2 stages. Firstly the termination of the carrier service, which may be a TDO (copper), ONT (GPON) or an Ethernet converter. The second stage is to connect the TopInternet router.

It is your responsibility to provide the power supplies (230 VAC) required by the equipment. In areas where there may be large fluctuations in the supply voltage, the power supplies should include any necessary surge protection. Normally one power supply should be provided for each item of equipment. If a redundant power supply is required, the power supplies should be duplicated. In addition, a power supply should be made available for the necessary interference suppression measures. The length of the network cables supplied is approx. 1.5 m.

3.1.1 General Structural Requirements for Buildings.

Setting up a TopInternet connection requires an installation area or operating area which must be clean, dry, free of dust and sufficiently well ventilated. Please ensure that an operating temperature range of +5°C to +40°C and a relative atmospheric humidity of 35 to 75% (non-condensing) is maintained.

3.1.2 Network terminal point.

The network terminal point forms the boundary of responsibility. The TopInternet router constitutes this network terminal point.

The carrier service and the router that is provided fall within our area of responsibility. Equipment supplied by you and connected to the router remains your responsibility.

4. Equipment and equipment configuration.

The standard router provided with TopInternet is a Cisco router or one of a range of equivalent alternative routers.

By default, the TopInternet router is configured as follows:

- All LAN ports on the router can be used (auto-sensing 100/1000 Mbps)
- 8 IP /29 addresses; 5 of the 8 fixed IP addresses can freely be used at the LAN port
- NAT (Network Address Translation) and Firewall (ACL) are deactivated
- The maximum packet size (MTU) is 1,500 bytes

Configurations incorporating individual modifications from the standard configuration can be quoted on special request.

4.1 Maintenance of the equipment by Drei or our authorised partner companies.

The following maintenance services for TopInternet equipment are provided as standard, or are governed by the following agreements for the duration of the contract.

Full maintenance with on-site fault rectification for all equipment supplied.

Defective equipment will be exchanged according to the agreed support level.

For the agreed duration of the service contract, configurations may be generated and changes or extensions to the hardware may be performed only by us or by third parties commissioned by us.

Service visits for which you or third parties commissioned by you bear responsibility (such as if configurations have been changed), are not included in the support level and will be chargeable by us at the hourly rates applicable for the specialist technicians involved.

Other equipment, software, plug-in cards or other accessories for which no support level is agreed with us are excluded from the agreed terms of the support level.

If you yourself make changes to the configuration of the router, these may compromise the functionality of the router, for which we cannot be held responsible.

4.2 Management of the equipment by Drei.

For purposes of the defect-free provision of services the TopInternet router will be incorporated into the central Drei management system

We archive the configuration file for the last change that was performed (official set-up) and in the event of a fault we will reload this configuration.

5. Customer Connection.

It is your responsibility to connect all your equipment (routers, firewall) to the router (network terminal point), using the relevant connecting cables provided by yourself. This creates access to the TopInternet service.

6. Service Handover.

The service handover will be performed after the service has been commissioned, with provision by e-mail of a completion certificate for each TopInternet connection that is implemented.

7. Support.

The customer must provide a phone number and extension number to be used for purposes of fault rectification. More details of the information for contacts with Drei are also included in the completion certificate.

The support services provided by Drei do not include the support of solutions specific to items of equipment, nor to network solutions (LAN) or software solutions that do not relate to software or equipment supplied by Drei. They extend to the extent usually expected in the course of installation support and configuration support.

7.1 Service Level Agreements (SLA).

Service Level Agreements are available for the TopInternet service; see the “Service Level Agreement (SLA) for TopInternet Performance Specification” ar www.drei.at/business for a more detailed description of the services provided under the Service Level Agreement.