



# INTERNET BROADBAND

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## SERVICE OVERVIEW

**Internet Broadband** service is developed for ISPs and other service operators, empowering them to provide a standard, good value, flat-rate Internet access service at higher speeds, over copper cables.

Internet Broadband offers premium Internet connectivity and a guaranteed bandwidth from the end user location to the Internet network. It is a higher speed broadband service, providing symmetrical upstream/downstream line rates starting from 256 Kbits to 10 Mbps.

The Internet Broadband service provisioning includes the following components:

- CPE\* (Customer Premises Edge) Layer3 (router)
- xDSL/Ethernet modem
- Copper access line connecting End User premises to Telekom Romania aggregation network
- A point-to-point virtual link (VLAN) throughout the aggregation network up to IP/MPLS network.

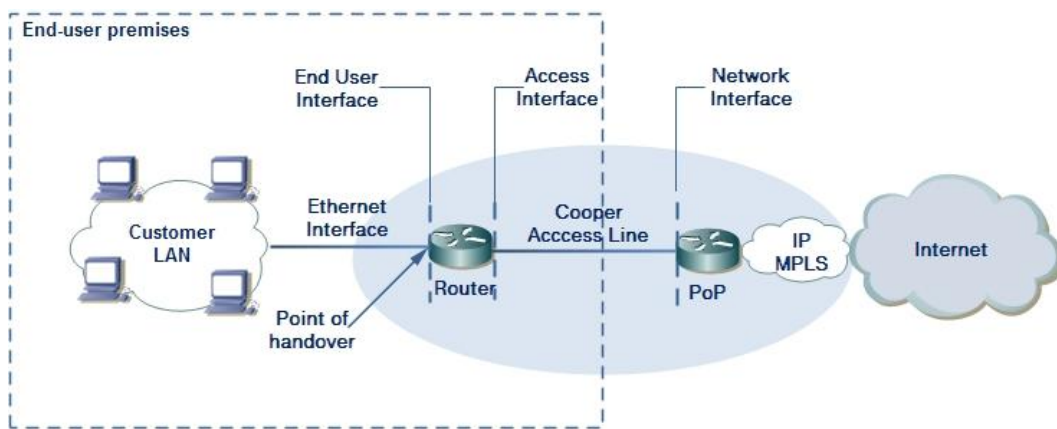


Figure 1: Internet Broadband technical architecture

## CUSTOMER BENEFITS

- **High speed connectivity**
- **Unlimited traffic:** flat monthly fee, irrespective of the traffic volume
- **24/7 service availability** resulting from pro-active monitoring of the network
- **High efficiency:** the service can be used simultaneously for various applications: (browsing, video conference, files upload/download, corporate e-mail, intranet, extranet, distance learning, VPNs)
- **Scalability:** the service bandwidth can be easily upgraded to meet the end user's needs.

## SERVICE ATTRIBUTES

The Internet Broadband service provides Premium Internet access service through a separate digital leased line connecting the end user's location to Telekom Romania's closest PoP.

Internet Broadband is one of the top Internet access products, the QoS being carefully controlled through traffic prioritization within the core network.

The allocated IP addresses (public and static) allow the implementation of various applications such as: WEB server, e-mail server, IP telephony, video telephony etc.

There is a large choice for service bandwidth options: 256 Kbps, 512kbps, 1 Mbps, 2 Mbps, 3 Mbps, 4 Mbps, 5 Mbps, 6 Mbps, 8 Mbps, 10 Mbps, 15 Mbps, and 20 Mbps.



| Access Technology         | Available bandwidth |          |           |        |           |        |        |           |        |         |
|---------------------------|---------------------|----------|-----------|--------|-----------|--------|--------|-----------|--------|---------|
| g.SHDSL                   | 256 Kbps            |          | 512 Kbps  |        | 1024 Kbps |        |        | 2048 Kbps |        |         |
| g.SHDSL.blb               | 2 Mbps              |          | 3 Mbps    |        | 4 Mbps    |        |        | 5 Mbps    |        |         |
| TDM Technologies (backup) | 128 Kbps            |          | 512 Kbps  |        | 1024 Kbps |        |        | 2048 Kbps |        |         |
| VDSL2                     | 2 Mbps              | 3 Mbps   | 4 Mbps    | 5 Mbps | 6 Mbps    |        | 8 Mbps | 10 Mbps   |        |         |
| EFM                       | 256 Kbps            | 512 Kbps | 1024 Kbps | 2 Mbps | 3 Mbps    | 4 Mbps | 5 Mbps | 6 Mbps    | 8 Mbps | 10 Mbps |

Other bandwidths might be available on demand, after a technical feasibility study.

## OTHER SERVICES

➤ **IP addressing:** allocation of IP addresses from Telekom Romania classes, as follows:

- 8 IP Addresses (/29 subnet)
- 16 IP Addresses (/28 subnet)
- 32 IP Addresses (/27 subnet)
- 64 IP Addresses (/26 subnet)
- 128 IP Addresses (/25 subnet)
- 256 IP Addresses (/24 subnet)

An IP subnet will be allocated as follows:

- a gateway address
- a network address
- a broadcast address
- the other IP addresses may be used for customer's equipments

**A back-up line** can be installed using two distinct last-mile links, with the following options:

- Permanent access – ADSL
- Semi-permanent access – ISDN
- Dial-Up access – ISDN.

➤ **QoS – traffic prioritization:** according to Telekom Romania CoS policy, Internet Broadband qualifies as a Silver class product (critical business applications; services with guaranteed bandwidth; video streaming; video on demand):

- for uploading traffic, the PE maps the services to Silver CoS
- for downloading traffic, the IGW maps the services to Silver CoS

➤ **Routing of:**

- a public IP class, owned by the end user;
- a private IP class of addresses through a unique public address from Telekom Romania domain (NAT/PAT – Network/Port Address Translation)

➤ **DNS services**

➤ **Traffic monitoring:** information related to the data traffic recorded by the end users, through a secured web site;

## ABBREVIATIONS

|           |   |
|-----------|---|
| ISP       | Internet Service Provider                 |
| VPN       | Virtual Private Network                   |
| WEB       | World Wide                                |
| TDM       | Time-division multiplexing                |
| VDSL      | Very high-bitrate digital subscriber line |
| CoS       | Class of Service                          |
| ADSL      | Asymmetric Digital Subscriber Line        |
| ISDN      | Integrated Services Digital Network       |
| PE router | Provider Edge router                      |





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