

Broadband: Access to infrastructure & service-based competition

Access to the broadband infrastructure is possible via different network nodes on the infrastructure and application level.

Connectivity as an enabler for entrepreneurs
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Infrastructure and applications

Generally, market participants (e.g. infrastructure owners, service providers) can manage **infrastructure** and provide **applications** (to end customers):

Infrastructure:

- physical infrastructure including buildings, ducts and masts;
- fixed and mobile networks (in particular for roaming);
- network elements and associated facilities (e.g. switch, router, repeater);
- local loop (last/first mile).

Applications:

- Services: relevant software systems including operational support systems (administration for networks and services, e.g. Triple-Play; conditional access systems for digital television services (e.g. Nagravision for Pay TV, HD channels) and virtual network services (e.g. remote maintenance).
- Customer support: information systems or databases for e.g. pre-ordering, provisioning, ordering, maintaining and repair requests, and billing.

Open access describes the non-discriminatory opening of the passive and/or active network infrastructure to third parties, i.e. for all market participants on an NGA infrastructure (in particular FTTH access networks). There are two basic access types to be distinguished.

Physical access to network infrastructure: On different network levels

Here, a competitor is able to completely take over the access and the operation of the downstream infrastructure or access to the end user at defined network points. This means that the service provider is able to ensure the highest degree of flexibility in the design of possible end customer products. At the same time, the physical access to infrastructure requires appropriate measures on the part of the competitor for providing the relevant products in the respective infrastructure segment.

Virtual access to network infrastructure: At different quality of service gradations

In contrast to physical access, there is no physical switch made to downstream network infrastructures and retail lines, but the required access is provided virtually by the owner of the infrastructure. That is, the competitor leases respective accesses without operating the necessary network components. The actual operation of the network and the downstream end user lines remain with the infrastructure owner. With regard to these access types, it is to distinguish to what extent such performance can be made available. Generally, it is to differentiate between the accesses based on layer-3 and layer-2, which differ in terms of the possibility of the design of standalone product offerings and features (e.g. a typical layer-2-function is static routing; typical layer-3-functions are virtual LANs and Quality-of-Service).

It should be noted that the physical access type demonstrates the highest degree of independence when making own end customer products available and cannot be exchanged easily with the appropriate virtual access types.

The entire spectrum of access types is thereby not feasible for every infrastructure or technology. In general, the following distinctions can be made in terms of access to the end customer:

- Copper wires: Physical and virtual access to subscriber line
- Coaxial cables: Virtual access
- Optical fibre: Physical (p2p) or virtual access (p2mp)

Read more on how to choose the right infrastructure type.

Follow the latest progress and learn more about getting involved.

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Related Content

Big Picture

Broadband project planning

The Broadband planning section helps municipalities and other entities in their planning of successful broadband development projects.

See Also

Broadband: Financing public-private and private-run deployments

Investment efforts to finance public-private and private-run networks are made in cooperation between private actors who own existing infrastructure, and public authorities.

Broadband: Carrier models

Municipalities, municipal companies, joint ventures, and private companies can be involved in one, two or all three stages of broadband development.

Broadband: Actors in the value chain

The basic roles of Physical Infrastructure Provider (PIP), Network Provider (NP) and Service Provider (SP) can be taken by different actors.

Broadband: Plan definition

The key to successful regional broadband development lies in defining a plan that includes goals, collaborations, and specific needs and stakeholders.

Broadband: Action plan

Broadband project plans help you map infrastructure needs, plan financing and deployment, monitor progress, find stakeholders, make the right choices and more.

Broadband: Technology overview

An overview of different wired, wireless and upcoming broadband technologies and a description of their advantages, disadvantages and sustainability.

Broadband: Basic business models

Choosing the right business model depends on the roles of the market actors in the broadband value chain.

Broadband: Investment models

Investment models present interesting involvement opportunities for a public authority that engages in regional broadband development.

Broadband: Main financing tools

The European Commission has a range of financing tools for high-speed broadband development projects across the EU.

Broadband: State aid

State aid for broadband may be necessary in some places where the market does not provide the necessary infrastructure investment.

Broadband: Network and topology

A broadband network consists of geographical parts. The topology of a network describes how the different parts of a network are connected. The most relevant topologies for the backbone and area networks are tree topologies, ring topologies and meshed topologies. For the first...

Broadband: value chain, actors & business models

Different business models are available to public authorities and other market actors in broadband development.

Broadband: Choice of infrastructure

Broadband networks require different infrastructure types based on different logistic, economic or demographic conditions. Use the questions to help choose.

Broadband: Technology comparison

A comparison of broadband technologies presents features of each solution and helps decisions on the best solution for different regions.

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