What is Peering

This section of the Toolbox describes the Internet ecosystem and how network operators interconnect with each other to create what we know as the Internet.

What is a Network Operator

A network operator is an entity which is running a TCP/IP based network infrastructure, providing access to end users.

A network operator will have their **own** Internet resources, namely their **own** IP address space (IPv4 or IPv6 or both) and their **own** Autonomous System number (the globally unique identifier for their network as used by the Border Gateway Protocol (BGP), the routing protocol of the Internet).

Entities without their own Internet resources are not considered network operators for the purposes of this toolbox as they cannot participate in the activities being described here without those independent resources.

Network Operator Goals: Access

The primary goal of a network operator is to provide Internet access to their end users.

The vast majority of content consumed by end users today is made up of social media and videos. This content is distributed by the multi-national content providers and content distribution networks.

To provide the highest bandwidth and highest quality access to this content, a network operator positions their network as close as possible to the content providers. There are two ways of doing this: **peering**, and **transit**.

Peering

Peering is the connection of one network operator to another network operator to exchange traffic originated by each network operator.

The vast majority of peering does not attract traffic charges - it is known as “settlement-free peering”.

Peering can take place in two forms:

1. **Private peering** is where there is a private connection between the two network operators for the purpose of exchanging traffic.
2. **Public peering** takes place at a public peering point, commonly known as an Internet Exchange Point (IXP).

Transit

Transit is the purchasing of Internet access by a network operator from another network operator (known as their upstream provider).

The vast majority of transit attracts traffic charges, with charges being levied on traffic levels (typically measured in US$ per Mbps), rather than outright volume (as still happens in a few locations).

References

This content is sourced from many contributors, including:

- Value of Peering Presentation - Philip Smith
- Network Startup Resource Center
- Input from Mark Tinka, Kurt Erik Lindqvist, etc