

Routing

A packet is transmitted by a source host to a router. The packet is then retransmitted from router to router until it is finally transmitted to the destination host.

Routes through the Internet occur through organizations known as Autonomous Systems. An Autonomous System is known as an AS, for short.

An AS is defined as a network or collection of networks managed by a single entity using common policies.

Routes between AS'es are governed by exterior border protocols; routes within AS'es are governed by interior border protocols.

The most commonly used exterior border protocol is the Border Gateway Protocol (BGP). See "Border Gateway Protocol" on the Cisco DocWiki.

In brief, BGP is designed for routers at the edges of AS'es to connect and exchange routing tables.

Internet Interconnection diagram:

<http://www.cybertelecom.org/broadband/backbone3.htm> (retrieved Oct. 1, 2018)

AS'es that are ISP's charge for routing packets through them.

Once a router has routing information from all of the other routers it can connect with, it can decide where to route particular packets.

Routers take into account several factors in making routing decisions, including distance, cost, and reliability.

One of the more commonly used interior border protocols is Open Shortest Path First (OSPF). See "Open Shortest Path First" on Wikipedia.
As the name sounds, routing packets using OSPF minimizes distance.

The route that a packet will likely follow between two hosts can be obtained using a tool named trace traceroute (called tracert on Windows)
Example path: a trace from my home to my business site (tagmatasecurity.com)