

## ENS III – Activity 1.3

- Which system is used in Internet to keep router's information up to date and coherent?

Internet is divided in Autonomous System (AS) which use Extern Gateway Protocols (EGP) to maintain the routing information between them. One of the most frequent EGP is Border Gateway Protocol (BGP) which presents a policy of updating the routing information using TCP messages.

AS are also called National/International Backbone Providers (NBP) and correspond to public or private organism like AT&T and Telefónica.

Each AS manage its own routing information using an Internal Gateway Protocol (IGP) as for example Open-Shortest Path First (OSPF), which divides the AS in different areas with several kind of routers:

- AS Boundary routers: communication with other AS using EGP as described above.
- Backbone routers: routers that interconnect more than one area
- Designated routers: main router of a specific area
- ...

Routing information is maintained by periodic messages which discover new neighbours.

An area in a AS could correspond to what is called a “Regional Internet Service Provider (ISP)” which offer Internet to enterprises or Local ISPs.

Generally the routing algorithms used are:

- Vector-Distance for Extern Gateway Protocol. Communication take place only between neighbours with big packets of information.
- State-Link for Intern Gateway Protocol. Very little packets are sent using broadcast with new changes or requests.

Although in practice we could use hybrids that merge the two models.

Author:  
Sergio Blanco Cuaresma