

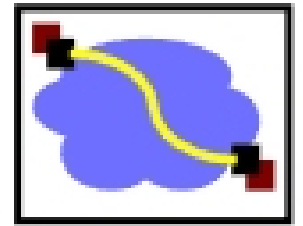


15-441 Computer Networking

Inter-Domain Routing

BGP (Border Gateway Protocol)

Hierarchical Routing



Our routing study thus far - idealization

- all routers identical
 - network “flat”
- ... *not* true in practice

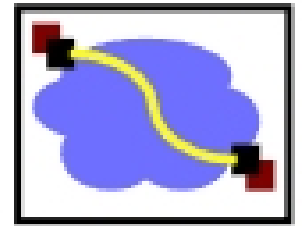
scale: with 50 million destinations:

- can't store all dest's in routing tables!
- routing table exchange would swamp links!

administrative autonomy

- internet = network of networks
- each network admin may want to control routing in its own network

Hierarchical Routing



- aggregate routers into regions, “**autonomous systems**” (AS)
- routers in same AS run same routing protocol
 - “**intra-AS**” routing protocol
 - routers in different AS can run different intra-AS routing protocols

gateway routers

- special routers in AS
- run intra-AS routing protocol with all other routers in AS
- *also* responsible for routing to destinations outside AS
 - run *inter-AS routing* protocol with other gateway routers