

CS 640: Introduction to Computer Networks

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Lecture 11 -
Inter-Domain Routing -
BGP (Border Gateway Protocol)

Intra-domain routing

- The Story So Far...
 - Routing protocols generate the forwarding table
 - Two styles: distance vector, link state
 - Scalability issues:
 - Distance vector protocols suffer from count-to-infinity
 - Link state protocols must flood information through network
- Today's lecture
 - How to make routing protocols support large networks
 - How to make routing protocols support business policies

Inter-domain Routing: Hierarchy

- “Flat” routing not suited for the Internet
 - Doesn't scale with network size
 - Storage → Each node cannot be expected to store routes to every destination (or destination network)
 - Convergence times increase
 - Communication → Total message count increases
 - **Administrative autonomy**
 - Each internetwork may want to run its network independently
 - E.g hide topology information from competitors
- **Solution: Hierarchy via autonomous systems**