

# BGP Terminology



- A BGP router is known as a 'BGP Speaker'
- A BGP neighbor is known as a 'BGP Peer'
- Route Summarization in BGP is known as 'Route Aggregation'

# BGP Data Structures



BGP has similar tables to IGPs:

- BGP Neighbor Table
- BGP Table (all routes learned via BGP, similar to OSPF's LSDB)
- Routing Table (best routes from all routing protocols)

# BGP Characteristics



- BGP is designed to provide the characteristics required to support routing on the Internet:
  - Reliability
  - Scalability
  - Stability
- The trade off is that convergence is slower than with IGPs

# Reliability



- BGP uses TCP port 179
- TCP provides reliable connection-oriented delivery
- There are periodic TCP keepalives to check the neighbor is still available

# Scalability and Stability



- There are over 700,000 IPv4 routes in the full Internet routing table
- BGP uses:
  - Incremental, triggered batched updates
  - TCP sliding window acknowledgements (rather than an acknowledgement for each individual packet)
  - Suppression of route changes due to flapping links

# Autonomous System Numbers



- AS numbers are 16-bit and range from 1 to 65,535
- Public numbers: 1 to 64,511 (used for Internet routing)
- Private numbers: 64,512 to 65,535 (usage includes private extranets, MPLS VPNs, and testing)
- 32-bit AS numbers have been introduced to prevent number exhaustion, providing 4,294,967,295 numbers