

# IPv6 ACLs / NAT

## Agenda

- Updates for Lab 10:
  - Download newer version of Lab 10 which includes work-arounds for T108
  - Google's QUIC protocol (2012 - May 2021): UDP for HTTP/HTTPS
  - ACLs on our switches are only possible for the **in** direction
- Review of ARP for IPv4.
- Complete: slide deck on IPv6 ACLs
- Start: Network Address Translation - NAT
  - important: concept of a socket - sufficient to uniquely identify any connection
- Wed lecture: return midterms and review answers for short-answer questions

## Assignments and Lab work

- Lab 9 post-lab: due **before** your lab session this week.
- Lab 10 pre-lab: due **before** your lab session this week.
- Lab 10: ACLs - extended
- Lab 10 post-lab: IPv6 ACLs
- Readings: NetAcad Module 6: NAT for IPv4; by Mon **Nov 21**

## Notes on NAT

- NAT provides two significant benefits for IPv4:
  - increases the number of hosts which can be connected to the internet
  - provides security from external attacks by "hiding" internal hosts
- NAT is almost universal for all residential and SOHO internet connections.
- When NAT is done by an Internet Service Provider (ISP), it's called CGNAT for Carrier Grade NAT.
- Be aware that there is some variation in the naming of NAT, and that Cisco has some of their own terminology: NAT, PAT (= Cisco's "NAT overload")
- Due to the insanely large address space of IPv6, NAT is never *needed* but it's still possible to obtain the security benefits of "hiding" internal hosts. It's typically called NPTv6 (ref: RFCs 6296, 7157).
- NAT for IPv6 is not covered in this course, so it's self-study if you're interested! :-)
- Despite the similarity in name, NAT64 is a translation mechanism to bridge between IPv4 - IPv6, rather than a method of hiding/translating private addresses.