CS 455 – Computer Security Fundamentals

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- Gateway Router’s job

Gateway Router's job

- Do the NAT (network address translation), of course
- Router needs to use the public IP because it is facing to the internet.
- There could be some other functions, software are installed into routers
- For example, Firewalls, we can use the firewall to filter out some unwanted packets
  - i.e. ipchains, iprules in Linux are used to build simple and easy firewalls
  - This is commonly seen in the small business / enterprise
- Intrusion Detection System (IDS) is commonly installed in this machine as well.

Gateway Router's job

- The process of (1. and 2. in a very high level description):

1) computer (in priv. net.) → router → some computer in the internet

2) computer (in priv. net.) ← router ← some computer in the internet

- In 1), if the computer hiding behind the private net. is sending the packet to some computer in the internet, the 1st station of the packet traveling is to the router. The router will replace the sender's private IP address as its public IP address but still keeps sender's MAC address
- So, in this way, if the "computer in the internet" wants to send something back to the computer in the "priv. net", it can correctly reach the "sender's gateway"

Gateway Router’s job

- What now? The packet travels from the “computer in the internet” back to the “sender’s gateway”?
- The router knows, the receiver is me, but the packet belongs to the MAC address inside of the private network where I’m managing.
- The router checks the table and find the private IP Address / MAC Address mapping
- The router forwards the packet