Network Address Translation

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NAT

- Overview
- Example
- How NAT works
Overview

- Shortage of IP Addresses
- CIDR may not be enough
- IPv6 may take a long time until deployed
- NAT enables reuse of addresses
- See IETF RFC 1631 (1994)
Example

Home Network

- One IP address is visible outside

IPa (typically DHCP)

NAT

IPb (DHCP with NAT)

IPc (DHCP with NAT)

Internet
How it works

Trick: Use TCP port to distinguish computers

[IPb | IPx | TCPm | TCPn | …]

[IPa | IPx | TCPb | TCPn | …]

[IPa | IPx | TCPb | TCPn | …]

[IPb | IPx | TCPm | TCPn | …]

[IPx | IPa | TCPn | TCPb | …]

[IPx | IPb | TCPn | TCPm | …]

[TCPb ↪ IPb, TCPm]