

# Problems with Address Sharing

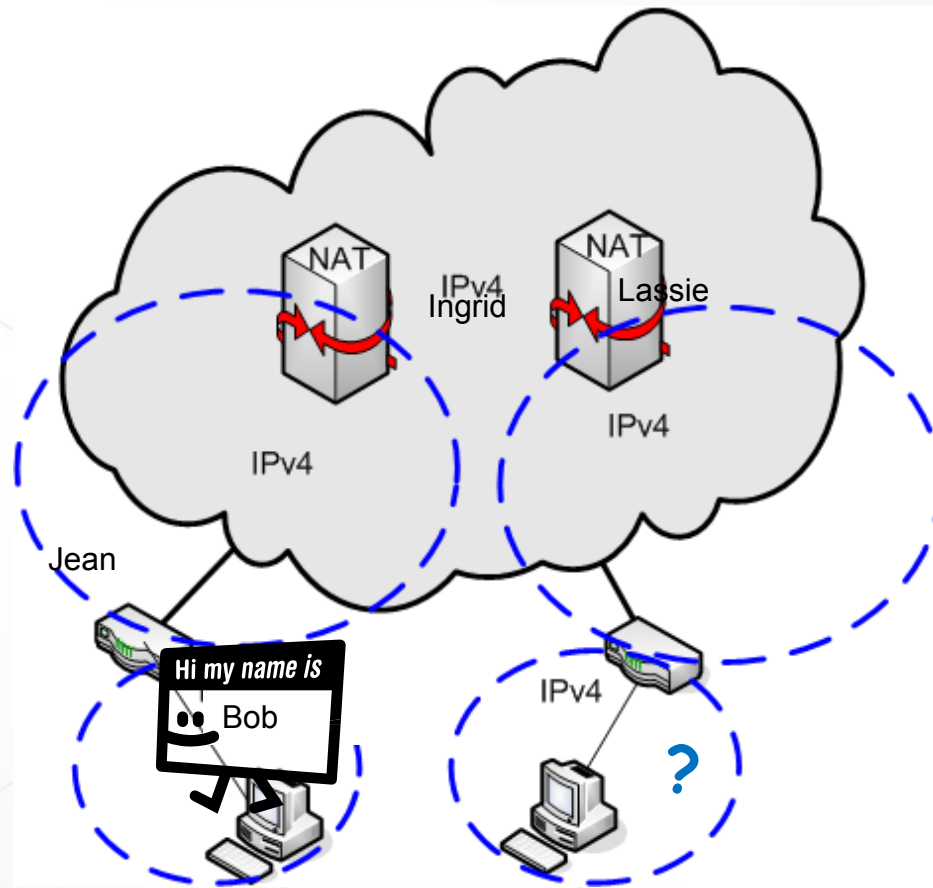
*Lee Howard*

*Time Warner Cable*

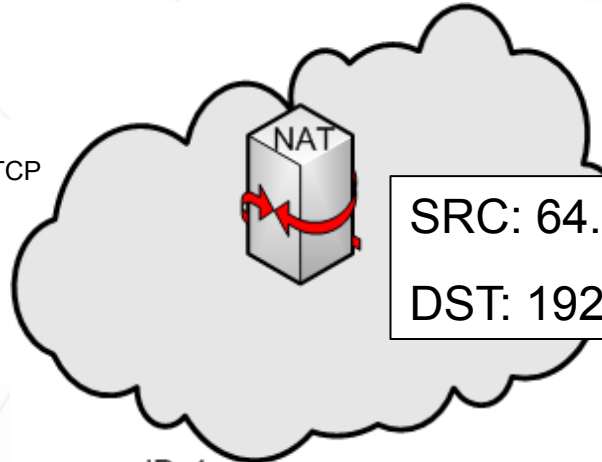
*Lee.Howard@twcable.com*



# Network Address Translation for Dummies



64.67.135.42:3056  
192.0.2.123:80 TCP  
10.123.45.67:2222



SRC: 64.67.135.42:3056  
DST: 192.0.2.123:80



192.0.2.123

IPv4

10.123.45.67:2222  
192.168.1.2:1024



SRC: 10.123.45.67:2222  
DST: 192.0.2.123:80

IPv4



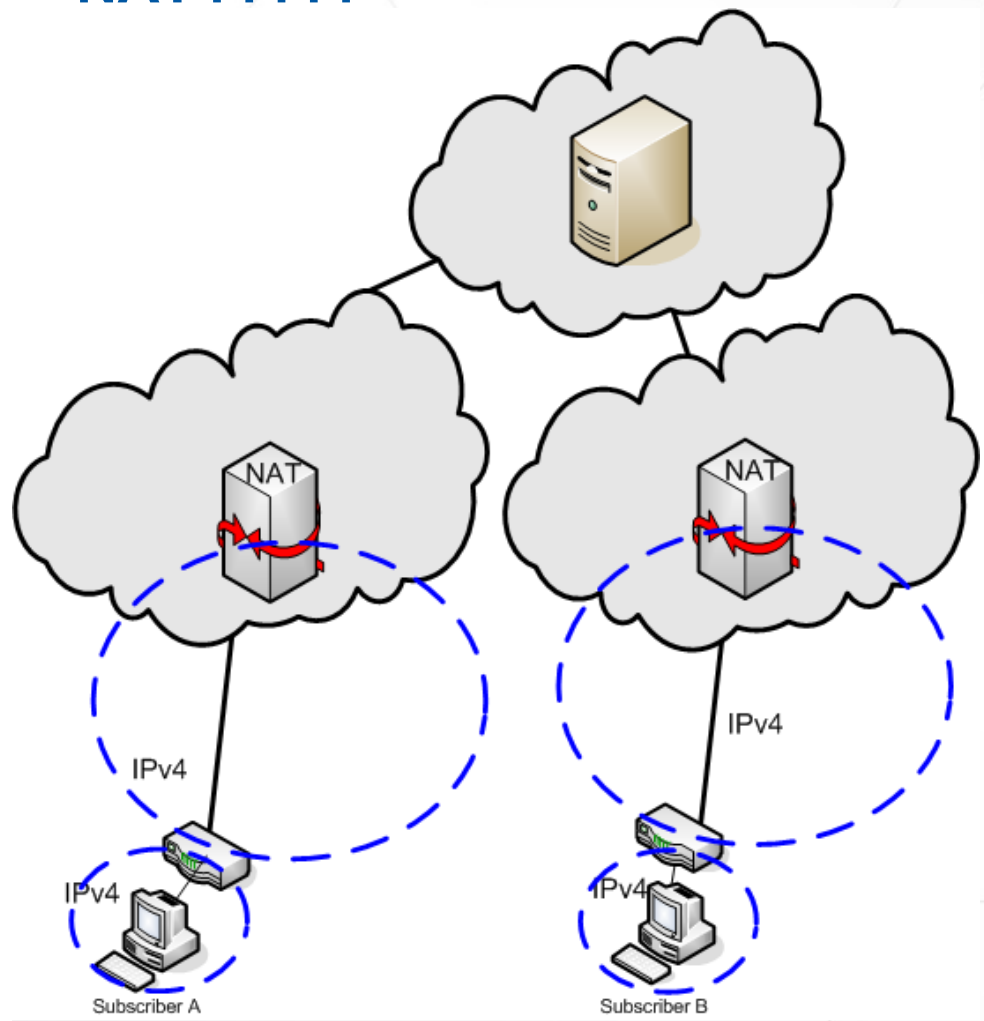
Subscriber A

SRC: 192.168.1.2:1024  
DST: 192.0.2.123:80





# NAT44444



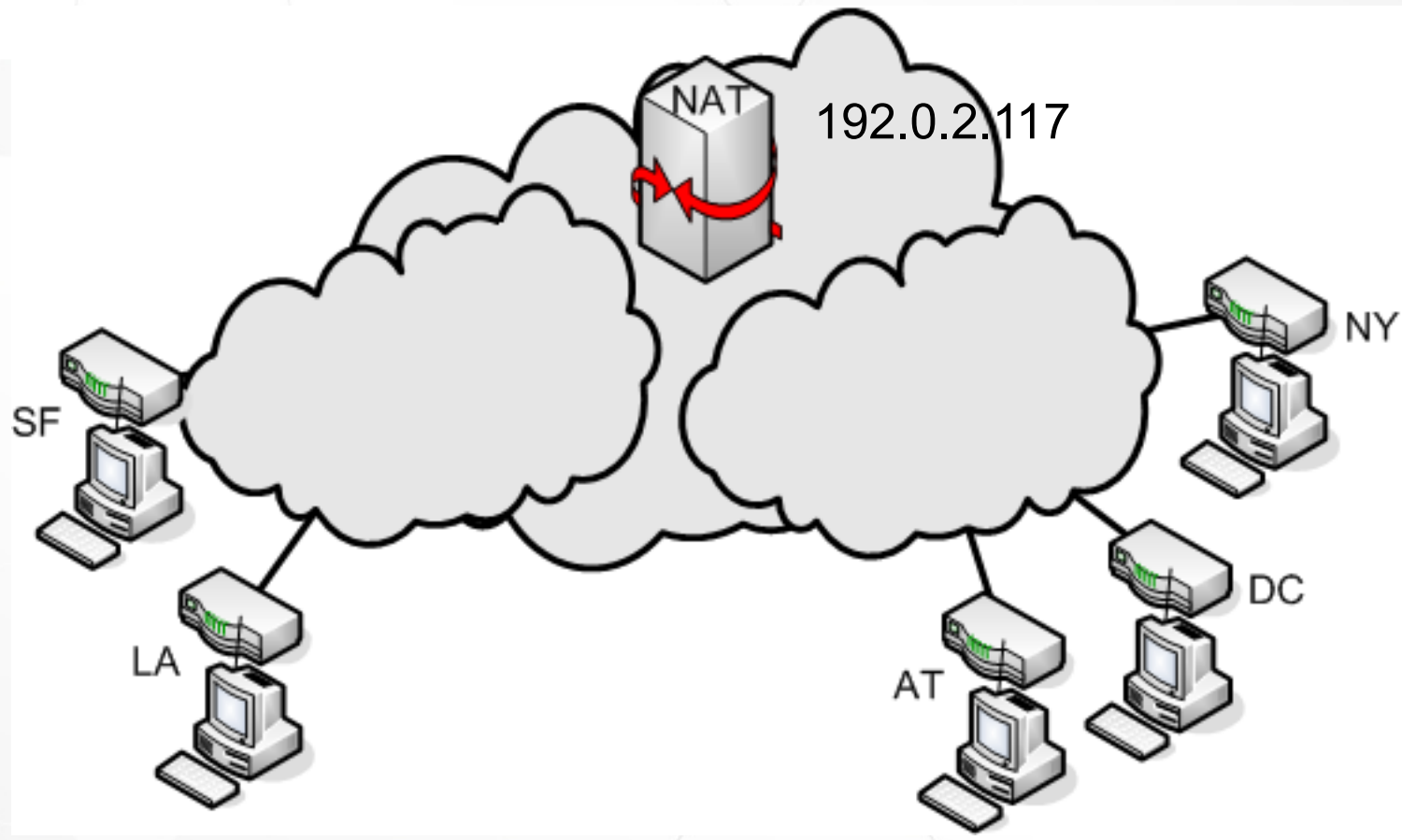
Dear P2P Tracker or  
Game Console Server,  
Please tell Subscriber B  
to connect to me.

Thanks,  
Subscriber A

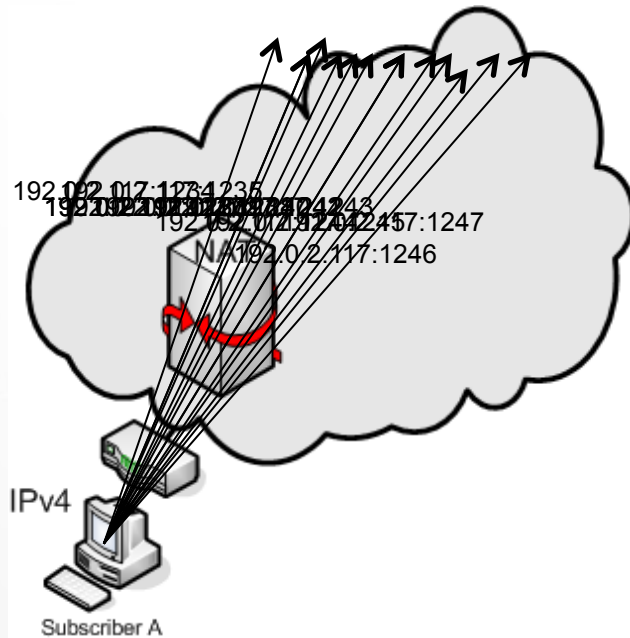
Connection from Subscriber B  
doesn't match 5-tuple mapping on  
CGN. Connection fails.



# Geolocation



## Port Spray



Common websites open  
80+ TCP connections

Some common apps open  
hundreds of sessions

What happens if browser/  
app reloads?



## Thanks

- Mat Ford, ISOC
- <http://tools.ietf.org/html/draft-ietf-intarea-shared-addressing-issues-01>

M. Ford, Ed.

M. Boucadair, France Telecom

A. Durand, Juniper Networks

P. Levis, France Telecom

P. Roberts, Internet Society





## Conclusions

- Sharing addresses makes security hard
  - Subpoena response
  - Black holes affect many customers
- Sharing addresses breaks some applications
  - Develop workarounds or develop IPv6 stack?
- Sharing addresses makes operations/support hard
  - Where's my OSS?
  - How many ports per user?

