NAT444 and other IPv4 exhaustion impacts on content providers

BYO “Bar” BOF at IETF77

Brian Carpenter
University of Auckland

March 2010
Why?

- IPv4 exhaustion is coming for sure.
- Yesterday’s predicted dates:
  - Projected IANA Unallocated Address Pool Exhaustion: 03-Oct-2011
  - Projected RIR Unallocated Address Pool Exhaustion: 21-Aug-2012
- ISPs expect to run out between now and 2015
- Not long to get ready
- Content providers are at risk of annoying or losing users
What

• 2 or 3 layers of NAT between end user host and public address of content server

• Perhaps, A+P mapping between client NAT and public address of content server

• Perhaps, IPv6-only clients reaching server via NAT64 and IPv4

• Perhaps, IPv6 clients with flaky connectivity (broken Teredo or 6to4, PMTUD failure on tunnels,...) half reaching the server via IPv6
What side effects on content providers? (Lorenzo’s list++)

- worse geolocation for targeted advertising and streaming content restrictions
- higher latency
- IP blocking for abuse/spam causing collateral damage
- increased risk of NAT state loss/timeout (Large Scale NAT may not actually scale...)
- NAT penetration techniques failing with multiple layers of NAT
- ...

[747x40]4
[118x518]4
What to do?

- Write a draft documenting issues that content providers will face, and suggesting countermeasures?
  - Authors names go here: .......... 
- Create relevant section in draft-ford- ?
- ISOC edu actions?
- Shrug?
- Go to a real bar?