



Addressing Prefix Reachability Issues

And the 1.0.0.0/8 Case

Frank Salanitri

Project & Systems Services Manager, APNIC

Overview

- Background
- The problem
- APNIC Resource Quality Assurance initiative
 - Scope
 - Technical challenges
 - Social challenges
 - Strategy
- The 1.0.0.0/8 case

Background

- IP address gets filtered for various reasons
 - Bogon (not supposed to be used)
 - Bad behaviour
 - Security/access policies
- Most prevalent form of IP address filters
 - Route filtering
 - Application filtering, esp. Mail
 - Firewall filtering

The Problem

- Good packets fail to reach the destination due to:
 - Outdated filters on any segment of the path
 - Outdated black list / bogon list reference
- RIR is blamed for allocating ‘bad’ blocks
 - Situation worsens as IPv4 depletes
 - More bad blocks get uncovered
 - Prefix gets recycled, new user penalized for previous user’s bad behaviour
 - May eventually affect IPv6!

APNIC Resource Quality Assurance Initiative

- The number of routability problems expected to increase as IPv4 reaches exhaustion
- APNIC must be more proactive and use a long-term strategy
- Not one simple solution, but a combination of many different efforts
 - Collaboration with industry and community groups
 - Education through publications and APNIC training team
 - Whois Database quality
 - Establish procedures for prefix testing and filter removal

Technical Challenges

- Routability testing
 - Different types of testing
 - Tests that reflect real world situations
- Infrastructure required
- Tracking filters
 - Identification of blocking points

Social Challenges

- Contacting people
 - Communication
 - ‘Everyone and no one’s problem’
- Social standing
 - Identify major players & information points
- Reputation
 - Industry awareness of who we are
 - Build good relationships with community

Strategy

- Be realistic, don't aim for 100% reachability but at least spread awareness of the issue
- Liaise with reputable organizations that maintain bogon/black list
- Keep the Whois Database accurate
 - Actively remind resource holders to refresh their data

The 1.0.0.0/8 Case

- Received 2 /8s from IANA on 9 January 2010
- Announced using RIPE NCC de-bogonizing service on 27 January
 - 1.255.0.0/16
 - 1.50.0.0/22
 - 1.2.3.0/24
 - 1.1.1.0/24
- Stopped announcing 1.1.1.0/24 & 1.2.3.0/24 on 2 February
- More in RIPE NCC's report *Pollution in 1.0.0.0/8*



Thank You!

Questions or Comments?

frank@apnic.net