NFS TD 4

I Introduction

Today, we will see how to use the RIPE Stat platform to analyse Autonomous Systems (AS), their prefixes, neighbours, and routing behaviour. You will work with your own network context by looking up the AS associated with your current public IP address, and then compare it with large international networks.

II Discovering Your ASN

Question 1: Identify your public IPv4 or IPv6 address and determine the corresponding ASN using RIPE Stat. Who is the organisation holding this ASN, and in which country is it registered?

Question 2: List all prefixes announced by your ASN. Are they IPv4, IPv6, or both? Comment on their relative sizes.

Question 3: Using the "ASN overview" section, report the allocation date of your ASN and the number of announced prefixes.

II.1 Neighbours and Connectivity

Question 4: Identify the upstream providers and downstream customers of your ASN. Based on this information, classify your ASN as a stub, transit, or content provider.

Question 5: How many direct neighbours does your ASN have? Compare IPv4 vs IPv6 connectivity if available.

Question 6: Choose one neighbouring ASN. Briefly compare its size and role with your own ASN (e.g., prefix count, number of neighbours, type of network).

II.2 Prefix Analysis

Question 7: Pick one prefix of your ASN and inspect its "Prefix Overview" panel. When was this prefix first announced? Has its visibility changed in recent years?

Question 8: Using the Routing overview, check whether this prefix shows any routing instability (withdrawals/announcements) in the past months.

Question 9: Check the RPKI status of your ASN's prefixes. Are they valid, invalid, or unknown? What does this imply for routing security?

II.3 Comparison with a Large ASN

Question 10: Select a large international ASN such as Google (15169) or Cloudflare (13335). Compare the number of prefixes and neighbours with your own ASN.

Question 11: Compare IPv6 deployment between this large ASN and your own. Comment on the differences.

III Security Considerations & Synthesis

Question 12: Inspect whether your ASN or the large ASN you selected experienced any routing anomalies (e.g., hijacks or unexpected origin changes). Summarise your findings.

Question 13: Check the reverse DNS configuration of one prefix belonging to your ASN. Is it properly configured? What is the operational impact if it is missing?

Question 14: Based on all previous observations, describe the likely role of your ASN in the global Internet topology.

Question 15: Identify which information provided by RIPE Stat is most useful for network operators and/or attackers, and which elements should be interpreted with caution.

IV Open Questions

Question 16: A BGP router received different paths for the same network prefix. How many of them will it disseminate to its peers?

Question 17: An autonomous system A maintains a peering relationship with a service provider B, but this connection is intended solely as a backup. Under normal conditions, A should not route traffic through B.

- What configuration steps must A apply locally so that outbound traffic does not use the A-B link when alternative paths exist?
- How can A advertise its routing preferences to external networks so that inbound traffic avoids the A-B link and instead reaches A through its primary connections?

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