IPv6 and Cloud Hosting

Arne Kiessling | 30 March 2017 | Connecting the Cloud

The RIPE NCC

- Regional Internet Registry for Europe, Middle East, parts of Central Asia

- Created by the RIPE community in 1992

- Technical and administrative support for the RIPE community

- Provides Internet number resource allocations and assignments, registration services, coordination activities, other technical services and tools

The Internet Registry System

Cloud Hosting

- Users move to cloud solutions for:

  - Cost reduction

  - Business agility

  - Improvement of IT services

- Growth in user numbers limited by IPv4 address space available to the provider

Provider Challenges

- IPv4 does no longer scale

- Customers demanding IPv6 support

- (New) competitors offer services over IPv6

- Increasing IPv6 mobile traffic; many mobile apps are SaaS-based

- 'The Internet of Things' needs IPv6

How does IPv6 fit in?

- Huge address space

  - Large prefixes allow for better (internal) aggregation

  - Public addresses = no need for NAT

- Offers auto-addressing options

  - SLAAC, DHCPv6

- Improved L2 to L3 mapping

  - Neighbour Discovery replaces ARP

More IPv6 advantages

- Nearly unlimited scale

- Easier address management

- Possibility for enhanced services, evolution and cost savings

Points of Attention

- App Store requires IPv6 support

  - If your services include support for mobile apps, they need to be IPv6 capable or IP-agnostic

- IPv6 features to request from vendors

  - Document ripe-554 (Requirements for IPv6 in ICT Equipment) can provide support

- Information and training for staff

  - Document ripe-631 can help (residential) helpdesks with troubleshooting issues

Cloud providers offering IPv6

- Cloud providers now started to offer services over IPv6

- Mainly IaaS and PaaS solutions
  - AWS
  - Azure
  - Cloudflare
  - HP (also SaaS)
  - IBM Softlayer

Situation in the Netherlands

- RIPE NCC has ~900 active members in the Netherlands

- Demographics show that 27 out of the 32 Dutch RIPE NCC members in 'hosting' category announce IPv6

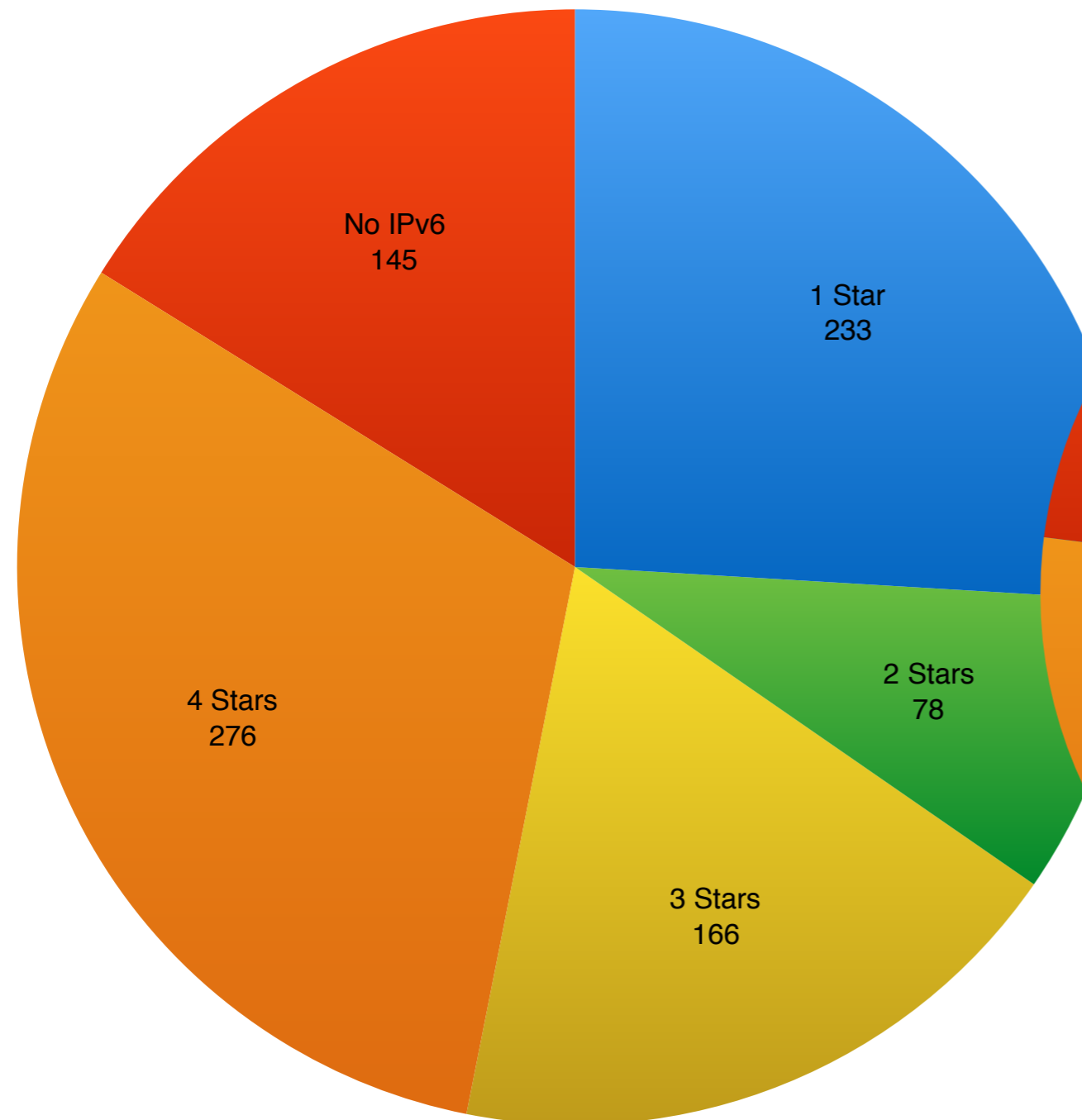- No statistics for cloud providers :(

IPv6 RIPEness

- RIPE NCC members score up to 5 "stars" for each step taken towards IPv6 deployment:

  - Holding an IPv6 Allocation

  - Announcing (parts of) the IPv6 Allocation in BGP

  - Registering a route6 object in the RIPE Database

  - Creating domain object(s) for Reverse Delegation

  - Offering access or content over IPv6
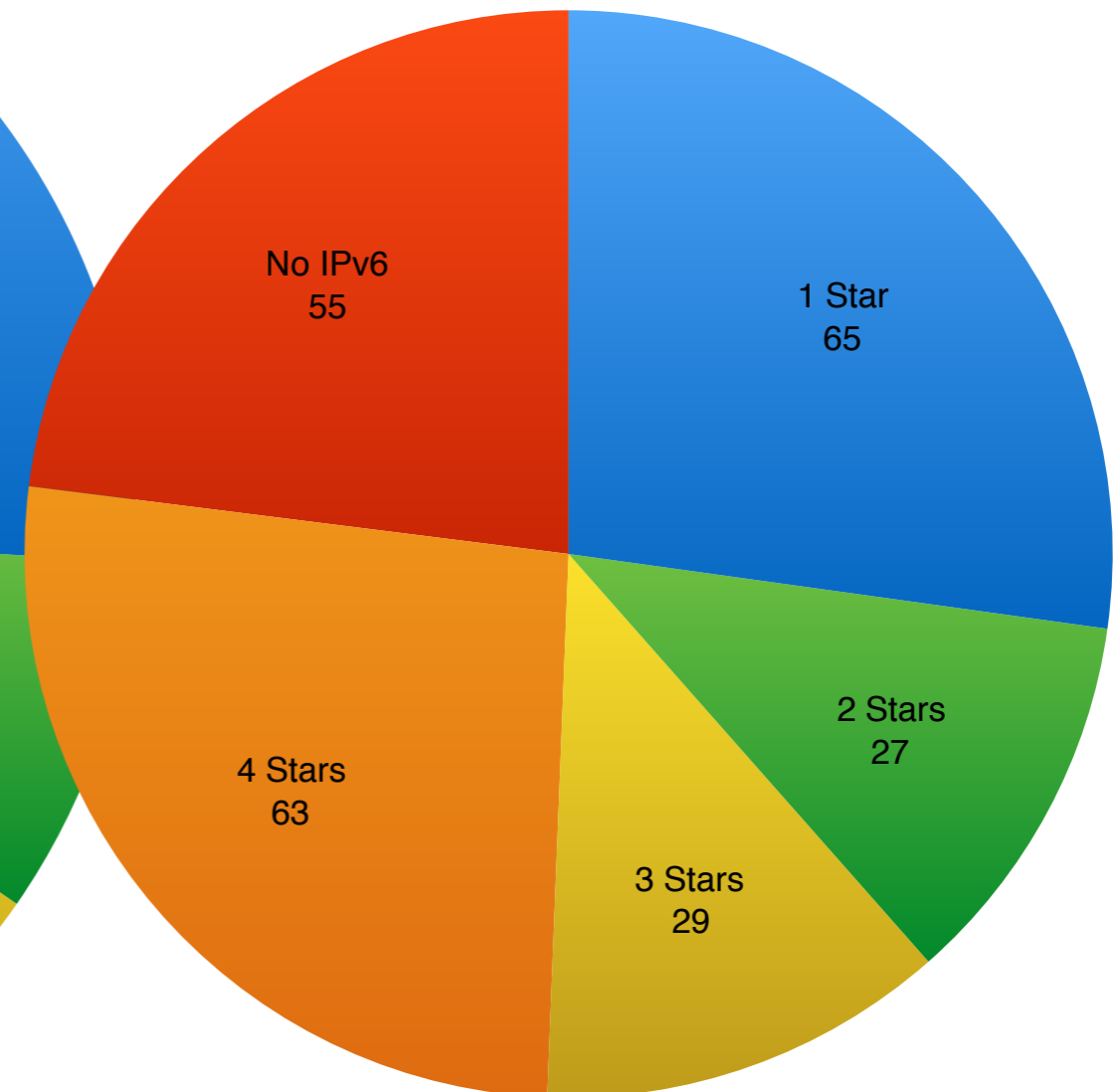
- Statistics: http://ripeness.ripe.net

IPv6 RIPEness in the Region

Netherlands (898 members)

No IPv6
145

1 Star
233

4 Stars
276

2 Stars
78

3 Stars
166

Belgium (239 members)

No IPv6
55

1 Star
65

4 Stars
63

2 Stars
27

3 Stars
29

Questions