Rabobank IPv6 numberplan

What to do with all that IP space?

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Rabobank details

- Corporate bank
- 3rd largest bank from the Netherlands
- Located in the Netherlands
  - 2 Data Centers
  - 800 Office locations
  - 3000 Unmanaged locations
- International
  - 20 Countries
  - 10 Data Centres
  - 200 Office locations
  - Expansion

IP address assignment from RIPE

- Rabobank IPv4 space   145.72.0.0/16 for the Netherlands
- Rabobank IPv6 space   2a02:cc0::/29
- Public AS number 8211 for the Netherlands
- Other AS numbers for other countries

Main division

2A02:0CC0::/32	**ITI (WRR Rabobank International networks)**
2A02:0CC1::/32	Reserved but not allocated yet
2A02:0CC2::/32	Reserved but not allocated yet
2A02:0CC3::/32	Reserved but not allocated yet
2A02:0CC4::/32	ITN (Rabobank Nederland incl. local bank networks)
2A02:0CC5::/32	Reserved but not allocated yet
2A02:0CC6::/32	Reserved but not allocated yet
2A02:0CC7::/32	Reserved but not allocated yet

End devices and network infra

- Structure for IP number plan
  - Easy and simple (to understand, to expand and to troubleshoot)
  - Summarizable (keep routing tables small and keep routing efficient)
  - Keeping ACLs and firewall regions simple

- Split in Network infra IP space and End device IP space
  1. End devices can be servers, workstations, telephone, BYOD, etc.
  2. Network infra for Loopback, PtP, connection VLANs
  - The first are typical per security area, the second are needed for all security area's
  - By providing security area with end device and network infra IP space, there can be specific end device security rules and network infra rules.

Standard allocation end devices

PPP:PPPE:ZVLL:LXXX::/64

Definition:

P: Official allocated IPv6 prefix for Rabobank (2a02:0cc)
E: Entity (e.g. ITI, ITN, see 3.1)
Z: Main security zone (see 3.2)
V: Security subzone (e.g. VRF/VPN)
L: Label (various purposes e.g. location code)
X: Subnet serial number (VLAN-id)

Network infra

PPP:PPPE:0ZVLL:LXX::/64

Definition:

P: Official allocated IPv6 prefix for Rabobank
E: Entity (e.g. ITI, ITN, see 3.1)
0: Network infra
Z: Main security zone (see 3.2)
V: Security subzone (e.g. VRF/VPN)
L: Label (various purposes e.g. location code)
X: Subnet serial number (VLAN-id)

Main Security Zones

Z-id	Main Security Zone	
0	Reserved for network infra	
1	Unsecure zone	Untrusted
2	DMZ zone	DMZ
3	Access zone	Trusted
4	LYN zone	Trusted
5	Standard zone	Trusted
6	High Secure zone	Trusted
7	Mgmt zone	Trusted
8-F	Reserved for future use	

Security subzones

- Zones and subzones in the Netherlands are all centrally routed (over MPLS network)
- Summerization per Zone and subzone
- Per Zone and Subzone seperate End device and Network infra IP space
- To use sub zone depend on main zone

Locations and subnets

- Per subzone either LL:L XXX or LL:LL XX for networks
- LL:L XXX means
  - 4096 locations
  - 4096 subnets per location
  - Used for office locations and datacentre locations
- LL:LL XX means
  - 32 768 locations used
  - 256 subnets per location
  - Used for unmanaged locations
- LL:LL XX means for network infra L:LLL X. This means is:
  - 16 Network infra subnets

Questions ???