

Use Cases of CASM

(Coordinated Address Space Management)

draft-xie-ps-centralized-address-management-02
draft-kumar-casm-problem-and-use-cases-00

Chongfeng Xie, Qiong Sun (China Telecom)

Weiping Xu, Will Liu (Huawei)

Ian Farrer, Normen Kowalewski (Deutsche Telekom AG)

Ying Cheng (China Telecom)

Rakesh Kumar, Anil Lohiya (Juniper Networks)

Marc Blanchet (Viagenie)

Fioccola Giuseppe (Telecom Italia)

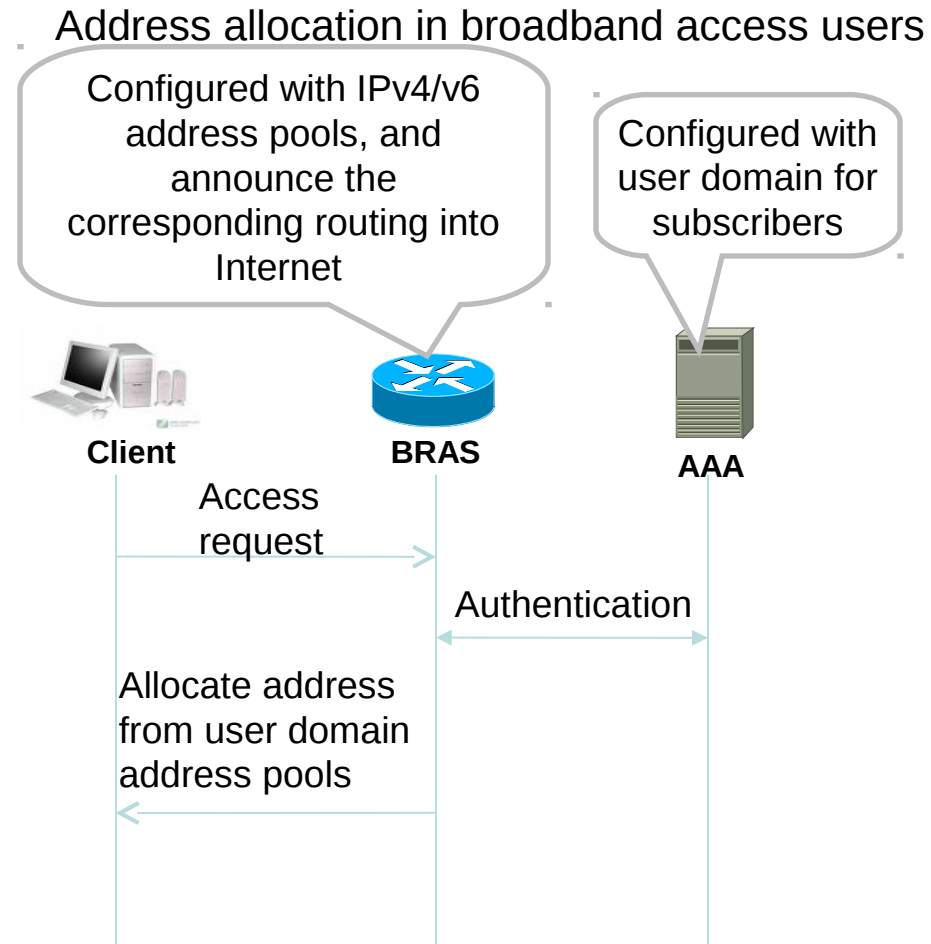
Declan Ma (ZDNS)

Use Cases List

- Address pools configuration on (v)Devices / (v)Functions
 - DHCP server pool
 - Static address configuration
- NAT & CGN
 - Public IP address pool
- Address configuration API of IPAM
- Interfaces to the RPKI
 - Resource Certificates and Signed Objects
 - Local Trust Anchor and RPKI RPs in ISPs
- SDN/NFV scenarios

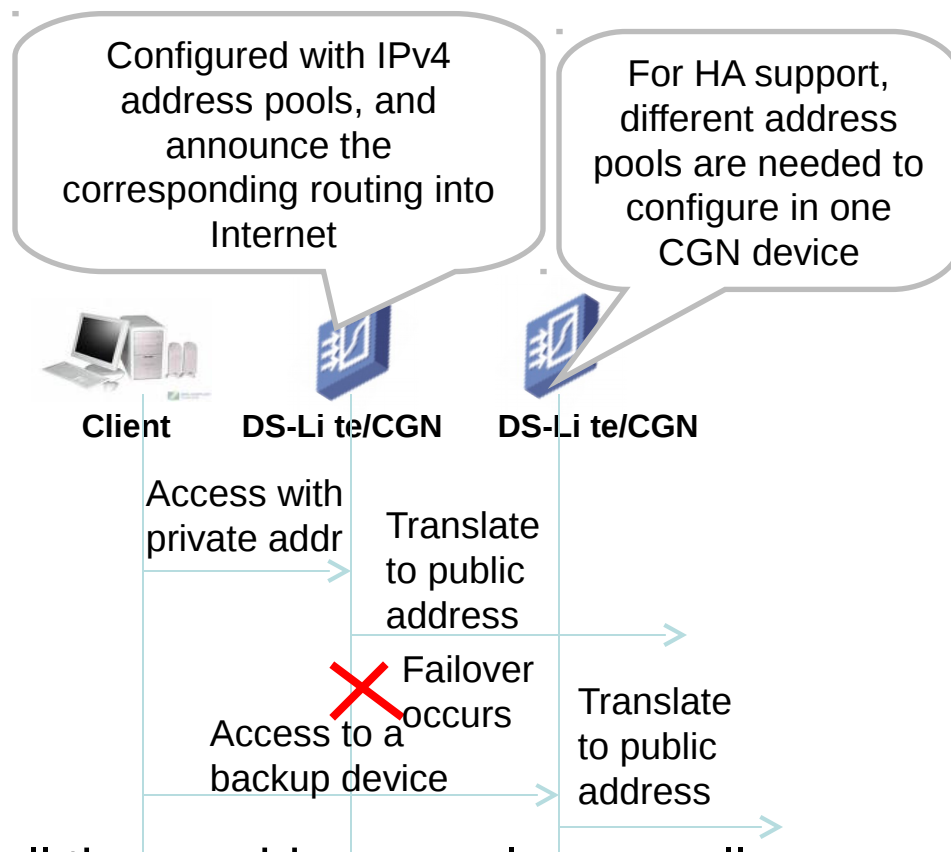
Use case 1 – sharing address among devices/(v)devices

- Our problem:
 - With address shortage problem, the remaining IPv4 address pools are usually quite scattered.
 - It is complicated to manually configure all the address pools statically in BNGs (large MAN may have more than 100 BNGs).
 - Sometimes, the address pools are needed to be transited from one BNG to another.
 - The same requirement for Mobile is to manage PGW



Use case 2 - sharing address among functions/(v)functions

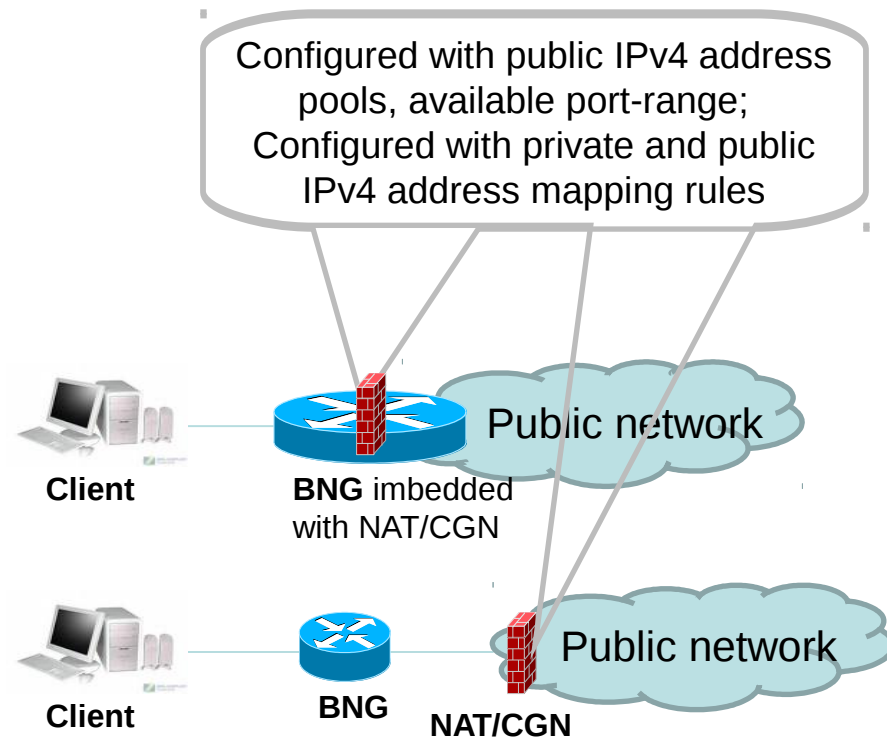
- Our problem
 - For IPv6 transition technologies, e.g. DS-Lite, lw4over6, etc., they need to be configured with address pools as translated addresses.
 - Different address pools are needed to be configured on each transition instance for HA support.
 - The occupation of the address pools may vary during different transition periods.
 - The same requirement for managing address of dynamic created SFC functions



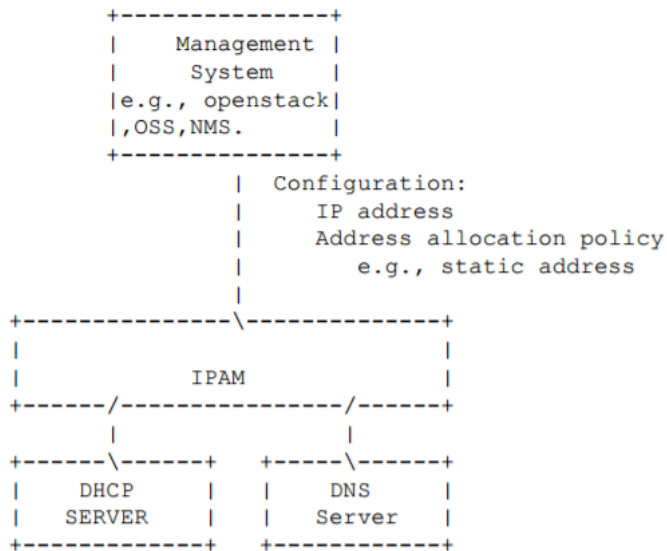
It is too complicated to configure all these address pools manually

Use case 3 - NAT & CGN

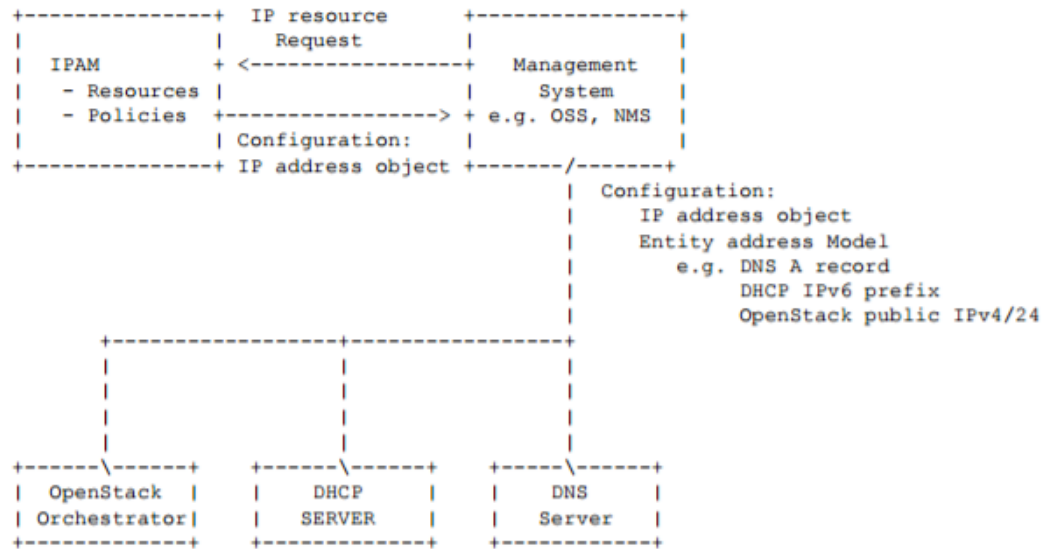
- Our problem:
 - With address shortage problem, the remaining IPv4 address pools are usually quite scattered.
 - It is complicated to manually configure all the address pools statically in NAT.
 - Sometimes, the public address pools are needed to be transited from one NAT to another.



Use case 4 - Address configuration API

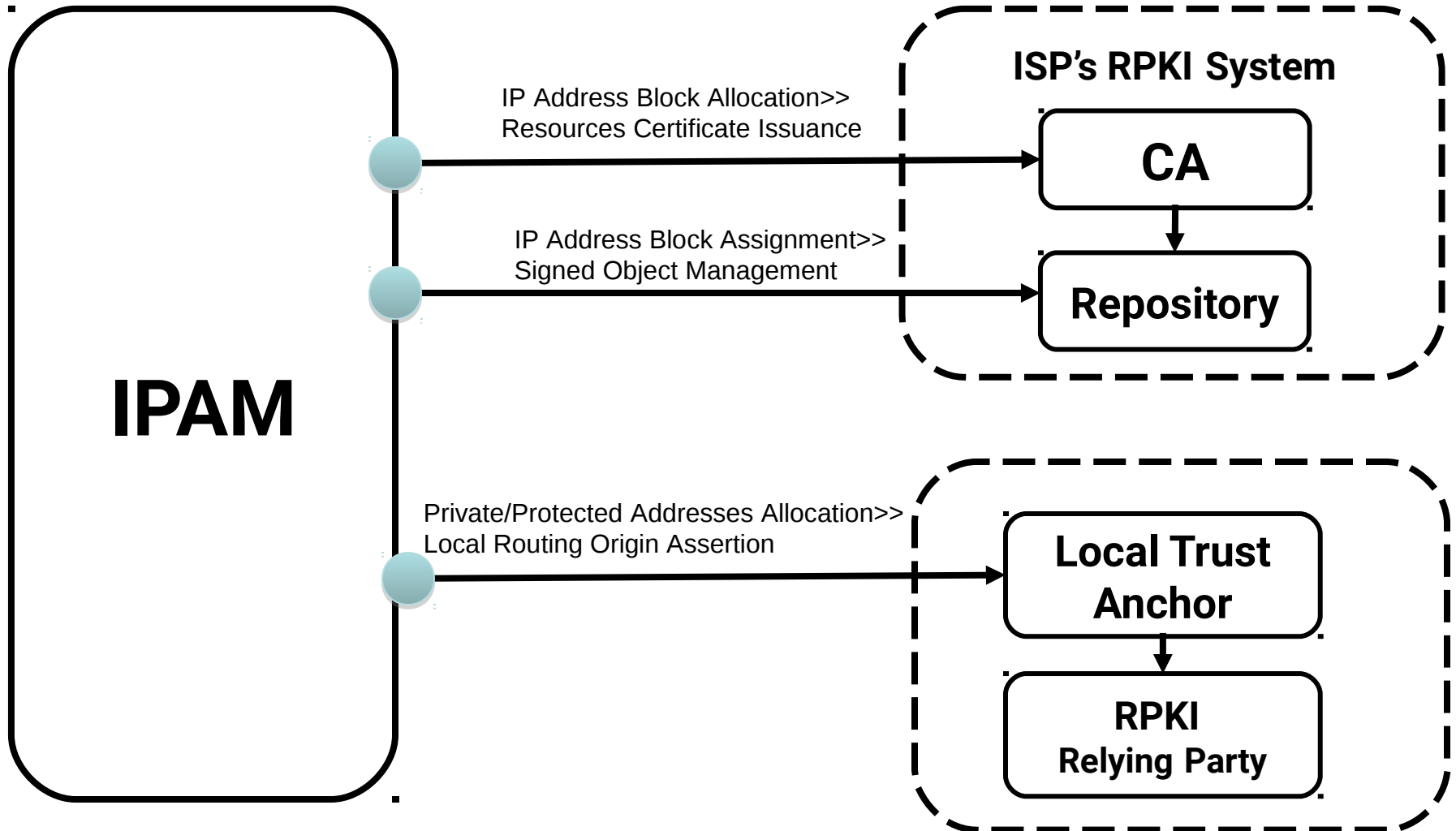


Address configuration API of IPAM

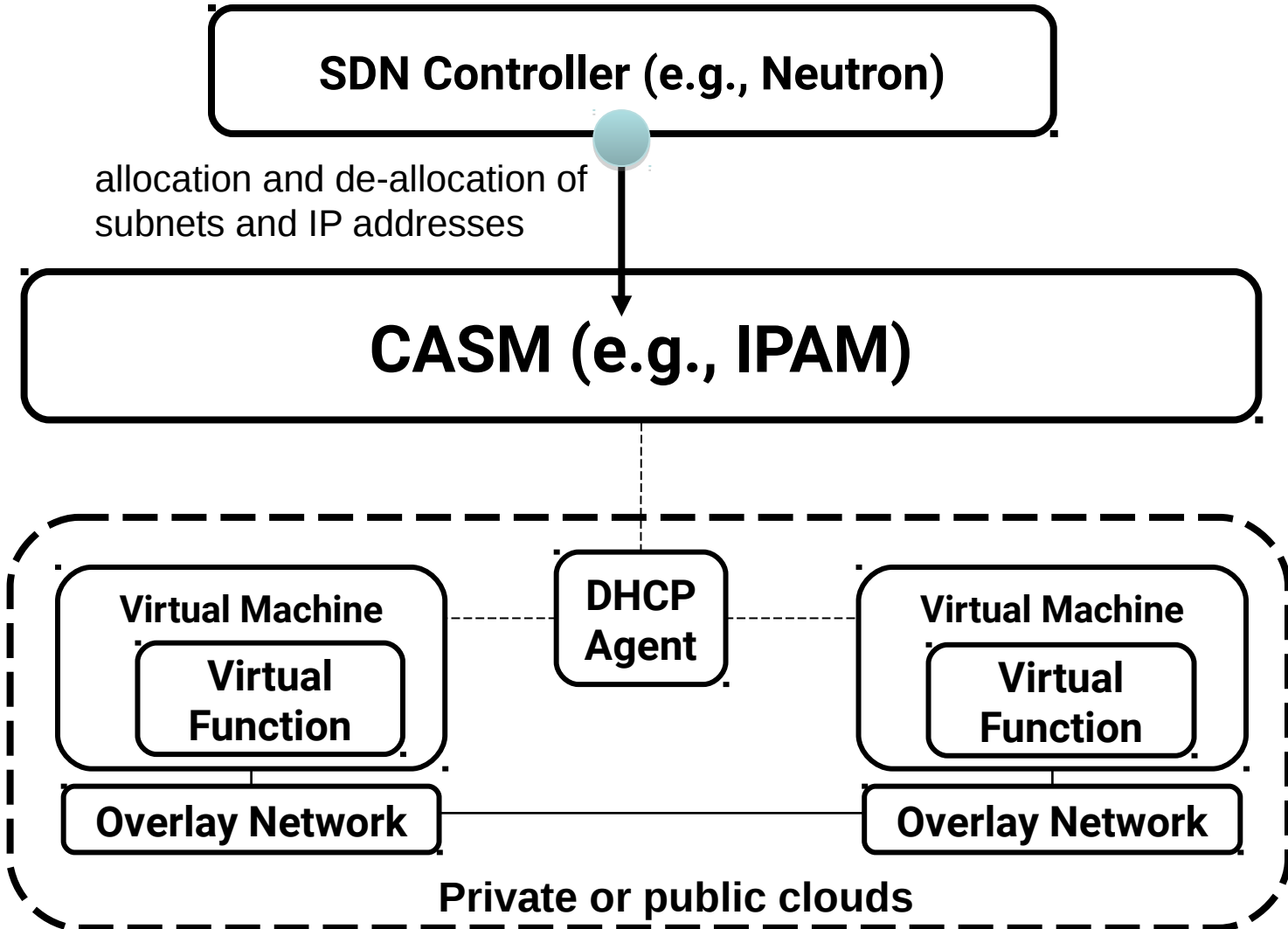


MNS/OSS and IPAM perform address management on different levels of granularity

Use case 5 - RPKI



Use case 6 - SDN scenarios



Discussion

- Do you have similar address management problem in your network ?
- What's the current approach for address management in your network ?
- Is it useful to have a common address management specification?
- Do you have same requirement in your network?
- Do you have interests to work on this topic ?

Backup slides

Description

- Organizations use IP Address Space Management (IPAM) tools to manage their IP address space, often with proprietary database and interfaces.
- This work intends to evolve IPAM into standardized interfaces for coordinated management of IP addresses, including SDN/NFV networks and other forms of virtualization.
- Use cases include dynamic allocation and release of IP addresses and prefixes based on usage (reallocation in case of no more in use) and/or user intent (for specific services).