Coordinated Address Space Management (CASM) Architecture

draft-li-opsawg-address-pool-management-arch-00

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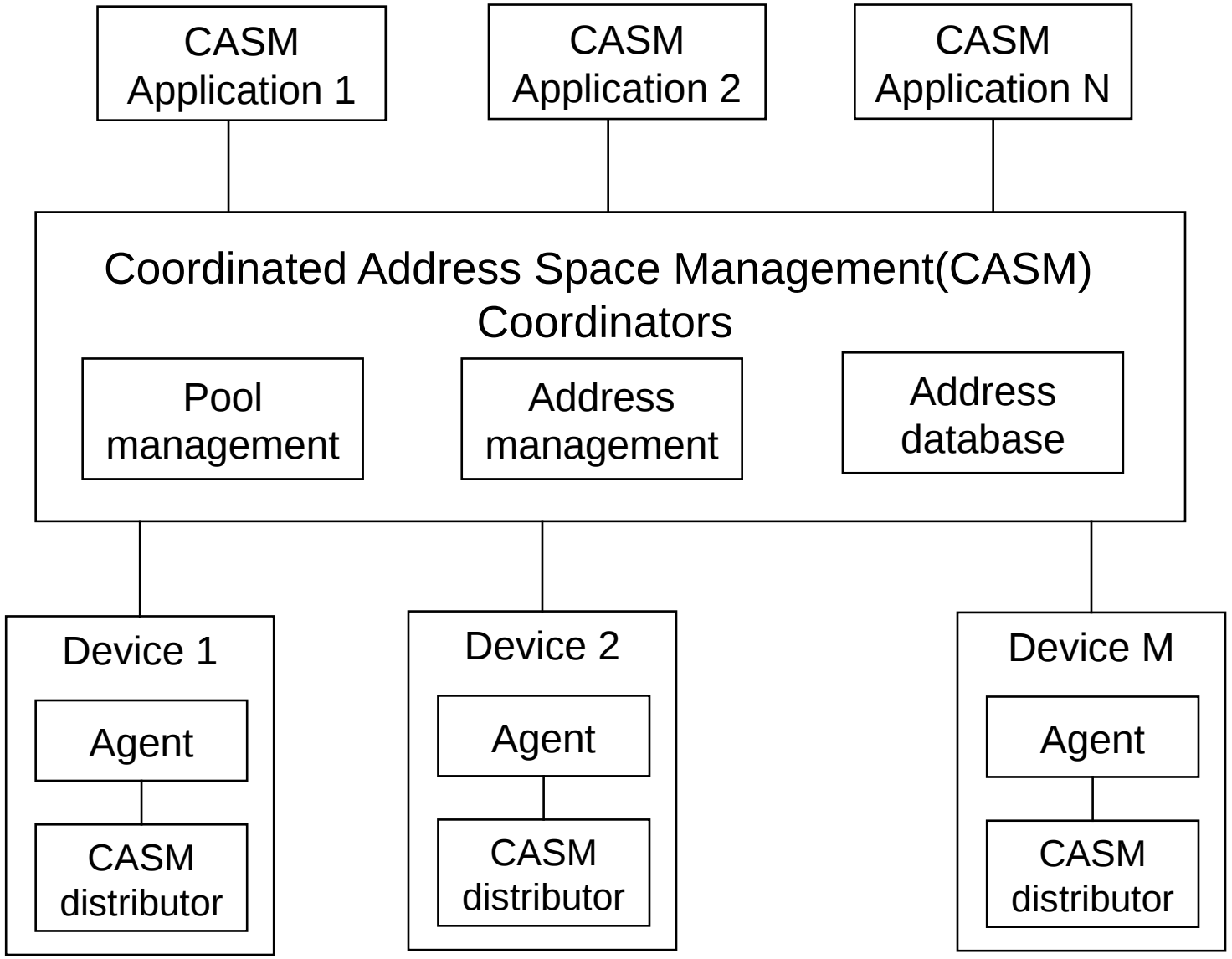
Scope of this Draft

- A general architecture is defined to meet the requirements of automatic address/pool management and allocation in wide-variety of scenarios.
- It can help to reduce the workload of the existing manual configuration approaches, and also use the address resource more efficiently.
- This can be a basic document for further work, such as interface modeling and workflow.

Use Cases

- Uses cases below have been discussed in IETF 98
  - Address pools configuration on (v)BNGs / IPv6 transition devices
  - NAT & CGN
    - Public/Private IP address pool
  - Address configuration API of IPAM
  - SDN controllers
  - Interfaces to the RPKI
    - Resource Certificates and Signed Objects
    - Local Trust Anchor and RPKI RPs in ISPs

Reference Architecture of CASM



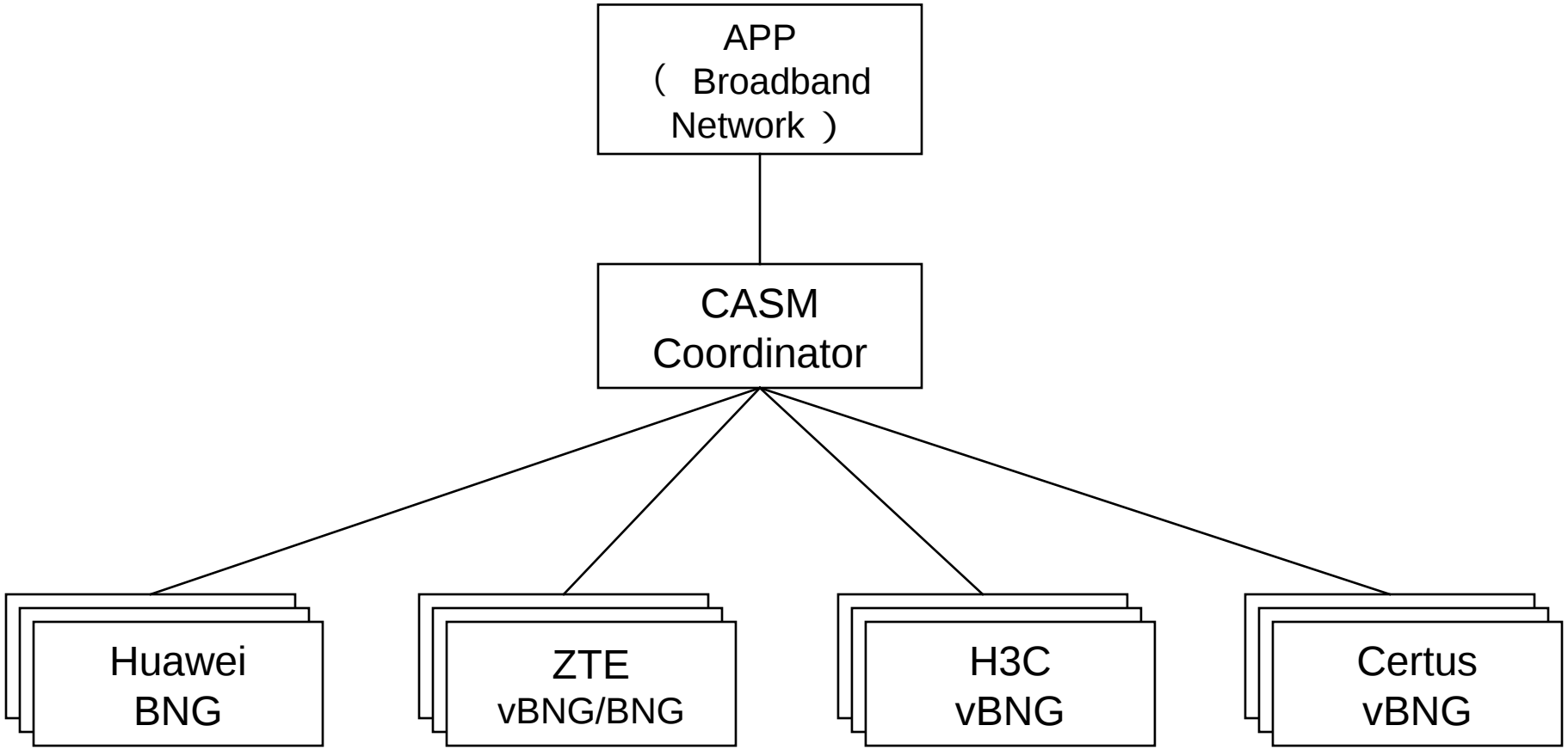
General Features

- Single solution for wide-variety of use-cases
  - Networking & security devices (routers/BNG, switches, firewalls)
  - Servers and end-points
  - Physical or virtual
- Centrally and dynamically coordination
  - Computation in coordinator based on the upper-layer inputs and the request from devices
- Openness and Integration with other address management services
  - Legacy (e.g., Radius, DNS, DHCP) and new (e.g., OpenStack, SDN) networks
  - Interface modeling
  - Standard interface between CASM and the upper layer (e.g. OSS/BSS, SDN), the technical detail is hidden

Requirements For the Interfaces

- Functional requirements
  - Dynamic allocation and reclaiming
  - Generic address assignment policies
  - Address pools management:
  - Address management: Unicast(Private/Public v4 addresses, v6 addresses), Multicast
- General operational requirements
  - Authentication and Authorization
  - Audit Logging
  - Error notification
  - Aggregated view
- Interface modeling requirements
  - Functional attributes such as switch, router, firewall, server, end-point
  - Form-factoral attributes such as physical, virtual
  - Network segment identifier, such as VLAN, VxLAN or other user-defined value
  - Addressing scope attributes, such as private, public, VPN, unicast, multicast
  - Extensible user-defined attributes

Multi-party Joint Field Trial



Moving forward

- Request more reviews and refine the document
- Interface definition in other new drafts, any contributions are welcome☺
- Adopted as a WG doc ？

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Thank you!
Q&A