Coordinated Address Space Management (CASM) Architecture

draft-li-opsawg-address-pool-management-arch-01

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Progress

• “draft-li-opsawg-address-pool-management-arch-00” present at IETF 101

• Comments around IETF 101
  • Some terminologies have been changed, such as “APMS” appeared in the old version.
  • Expired drafts referenced were replaced with the latest ones
  • It is extended to handle containers, VLAN assignments, etc.
  • A number of enterprise operators that have a need for this type of solution
  • Other refinement
    • Correct several editorial errors
    • Components introduction is moved close to the reference architecture in section 3
New Use Case: Service SDN Management

- End-to-end services building in private or public clouds.
- The SDN Orchestrator deals with addressing of undelay network elements, manages IPv4, IPv6 addresses and also MAC addresses to assign to network interfaces.
- Service provisioning of L3VPN and L2VPN by the SDN orchestration level.
New Requirements from Enterprise operators

• Automatic coordination of address block and single address should be supported
• User-friendly Interface to monitor and show address Usage, technical detail of low-layer could be hidden.
• Manual and dynamic resource coordination are both supported
• IP address allocation can synchronize with other entities, such as DNS server or SDN controller.
New comments in the mail list

Feedback to the comments of Tianran Zhou

1. There is a typo in section 1. "Another factor which drive this work is that The network architectures are rapidly changing with the migration to ward private and public clouds."  
   <Chen> delete t

2. In section 1, you have "A series of use cases are defined in "Use Case Draft"."  But there is no reference to these use cases.
   <Chen> add the draft to the reference which is expired.  https://www.ietf.org/archive/id/draft-xie-ps-centralized-address-management-02.txt

3. In section 3, "1) CASM Application"
   The figure 1 shows several CASM Applications. It's better to clarify how these applications may act differently.
   If only for different users, based on the reading of this part, it's better to have just one "CASM Client" in the figure.
   <Chen> CASM Application refers to various address applications, such as address service management and address log management. Application may be more appropriate than the client.

4. In section 3, "2) CASM Coordinator"  Figure 1 shows two components "pool management" and "address management". It's better to clarify these two functional components in this section.
   <Chen> the "pool management" is to manage an address block, and the "address management" is to manage address blocks and some specific addresses.  "pool management" is a way to achieve "address management".

5. In section 4, in the first procedure, how about enabling the operators to indicate the address allocation policies or so?
   <Chen> "the address allocation policies should be added in later version."

6. In section 5, it's better to address how the required interfaces can map to the "pool management", "address management" and "address data base" as in the CASM Coordinator.
   <Chen> we plan to write another draft about the YANG model of the interfaces mapping to the components mentioned in this draft.

7. Section 6. What's the relationship between this use case and the mentioned use cases in section 1?
   <Chen>  This is a new use case proposed by Telecom Italia. It will be put in a more suitable position in the next version

07/15/2018
New comments in the mail list

Feedback to the comments of Mohamed Boucadair

• Page 5, Q: What does that mean? (pointing to “maintain the CASM Coordinator”)
  A: This paragraph clarifies the role and function of the CASM Application. CASM Application manages, maintains, and operates address pool in the CASM coordinator.

• Page 6: Q: What is the difference between an address pool and addresses? (pointing to “address pools”)
  A: Address pool is a bunch of addresses configured somewhere in the network for a common purpose, addresses means multiple addressing units instead of a single one.

• Page 6: Q: How it knows this? (pointing to “the condition”)
  A: The DA module in the device collects the utilization of the address resource. Under certain policy conditions, the address is applied to make up for the shortage of the address. Otherwise, the address resource is released when the address is redundant.

• Page 7: Q: That is? (pointing to “user plane devices”)
  A: This is a statement about the device module. The BRAS consists of a user plane and a control plane. The user plane refers to forwarding, user session in data plane, and the control plane refers to control functions, such as address management.

• Page 7: Q: Does this means that a permanent session is required to be maintained? (pointing to “When the connection of the CASM Coordinator is lost or it needs the status information of certain applications, it may proactively query”)
  A: Yes, it need to monitor the session. If the session fails, it need to get the status from the DA again to avoid data incomplete.

• Page 15: Q: What is the motivation for having this use case? Are there unique requirements that can be derived from it? (pointing to “Services SDN Management Use Cases”)
  A: This is a new use case from Telecom Italia. It describes End-to-end services building in private or public clouds. It will be discussed at this IETF meeting and decide what to do with it.

07/15/2018
New comments in the maillist

Feedback to the comments of You Lu

• 1. The draft mentioned the usage in carrier networks. Is the architecture able to support enterprise networks or data center networks, such as google?

  Xie: Yes, CASM architecture is designed to support enterprise and data center networks for their automatic resource coordination. We are looking forward to receiving requirements from you based on your experience in google cloud.

• 2. Some of challenges in the draft are related to IPv4, is this work able to be applied to IPv6?

  Xie: As another kind of resource, IPv6 has been considered in CASM.
Acknowledgements

• Many thanks given to Mohamed Boucadair and Tianran Zhou, et c., for their contributions
Next Step

• Further refinement based on new comments
• Any contributions are welcome
• More inputs from enterprise operators
• Adopted as a WG doc ?
Thank you!
Q&A