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DMM Deployment Scenario
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Abstract

This document discusses the deployment scenario of distributed mobility management. The purpose of this document is to trigger the discussion in the group to understand the DMM deployment scenario and consideration from the operator's perspective.

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[1.](#) Introduction

Distributed mobility management aims at solving the centralized mobility anchor problems of the traditional mobility management protocol. The benefit of DMM solution is that the data plane traffic does not need to traverse the centralized anchoring point. This document discusses the potential deployment scenario of DMM. The purpose of this document is to help the group to reach consensus regarding the deployment model of DMM and then develop the DMM solution based on the deployment model.

[2.](#) Conventions used in this document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

[3.](#) Deployment Scenario and Model of DMM

As discussed in the DMM requirement document, the centralized mobility management has several drawbacks. The main problem of the centralized mobility management protocols is that all the traffic need to anchor to a centralized anchor point. This approach does not cause any problem in current mobile network deployment but in the scenario that will be discussed later in this document, centralized

mobility management protocols will have many drawbacks and it is believed that DMM is more suitable in that scenario.

The main deployment scenario discussed in this document is divided into two types. The first one is the network function virtualization scenario. In this scenario, the mobile core network's control plane function is centralized in the mobile cloud. Apparently, deploying the data plane function also in the same centralized mobile cloud is not optimized from the traffic routing's perspective. Another deployment scenario is the SIPTO/LIPA scenario which is discussed in 3GPP. In this scenario, DMM can provide optimized traffic offloading solution.

4. Network Function Virtualization Scenario

This section discusses network function virtualization scenario.

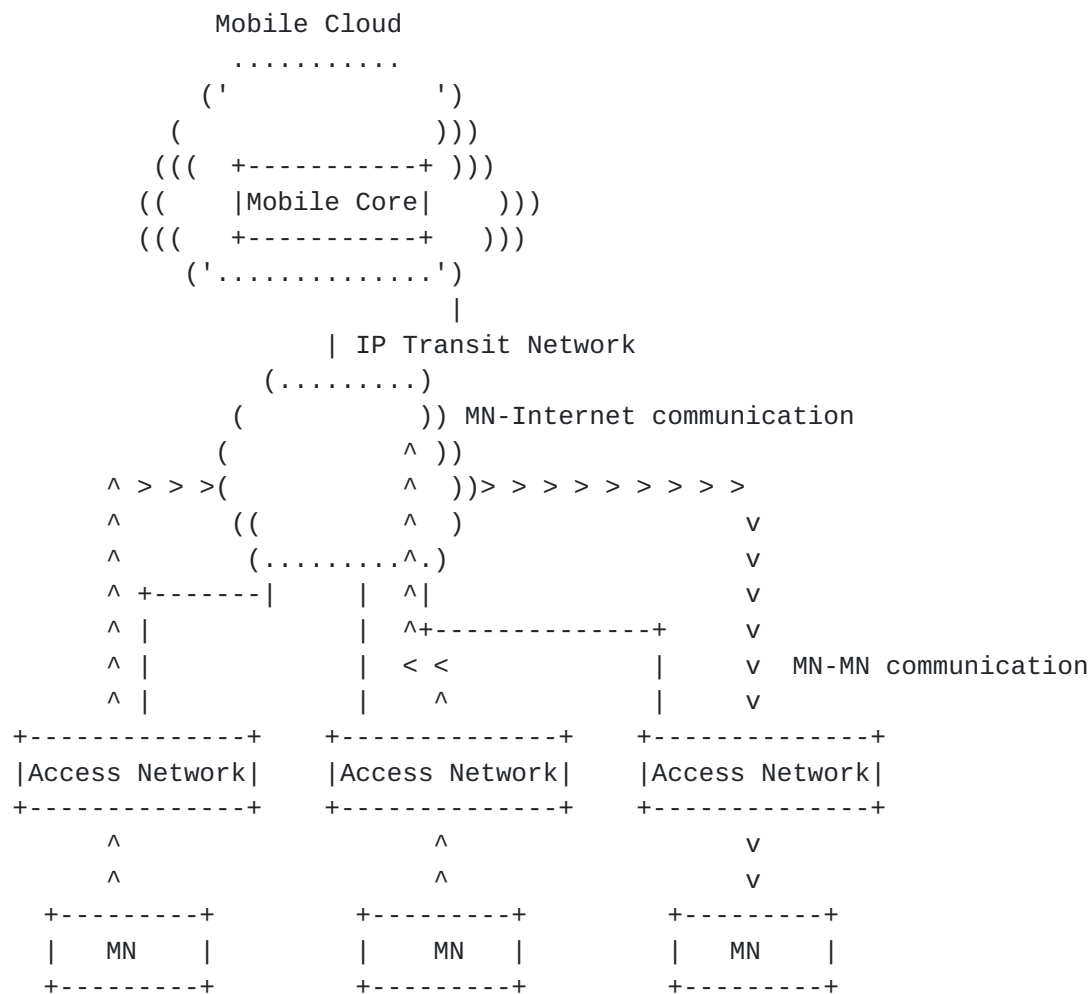


Figure 1: Network function virtualization deployment architecture

In this architecture, the mobile core network is located in the cloud /data center, which can be the operator's private cloud. The access network is connected through an IP transit network. The mobile core network can run in a virtualized platform in the cloud/datacenter.

5. Problem statement of network function virtualization deployment model

5.1. Control and data plane separation

The cloud based mobile core network architecture implies separation of the control and data plane. The control plane is located in the cloud and the data plane should be distributed. Otherwise, all the data traffic will go through the cloud which is obviously not optimized for the mobile node to mobile node communication.

For the mobile node to Internet communication, the Internet access point is normally located in the metro IP transit network. In this case, the mobile node to Internet traffic should also go through the Internet access point instead of the mobile core in the cloud.

However, in some deployment scenario, the operator may choose to put the mobile core cloud in the convergence layer of IP metro network. In this case, the Internet access point may co-located with the mobile core cloud. In this case, the mobile node to Internet traffic may go through the mobile core cloud.

5.2. Mobility management

Since the control plane and data plane are separated and the data plane is distributed, traditional mobility management can not meet this requirement.

Distributed mobility management or SDN based mobility management may be used in this architecture to meet the traffic routing requirement (e.g. MN to MN and MN to Internet traffic should not go through from the mobile core cloud.).

6. SIPTO deployment scenario

Another deployment scenario is the SIPTO scenario which is discussed in 3GPP. DMM is believed to be able to provide dynamic anchoring. It allows the mobile node to have several anchoring points and to change the anchoring point according to the requirement of application. In SIPTO scenario, the gateway function is located very near to the access network and to the user. If using current

centralized mobility management, the traffic will need to tunnel back to the previous anchor point even when the mobile node has changed the point of attachment to a new one.

7. Conclusion

This document discusses the deployment scenario of DMM. Two types of deployment scenario is discussed in this document. Further types of deployment scenario can be added to this document according to the progress of the group's discussion.

8. Security Considerations

N/A

9. IANA Considerations

N/A

10. Contributors

11. Acknowledgements

12. Normative References

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