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**Architecture for delivering multicast mobility services
using network slicing
draft-xuan-dmm-multicast-mobility-slicing-00**

Abstract

This document describes the architecture of delivering the mobility and multicast over 5G core network using network slicing. The mobility and multicast are delivered to customers on demand basis, depending on operator's use cases and traffic type of customer.

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1. Introduction

In the 5G era, the mobile network functions and mobile services could be provided on demand basis using network function virtualization (NFV) and network slicing. This document describes the architecture of delivering the mobility and multicast services over 5G core network using NFV and network slicing. The mobility and multicast are delivered to customers depending on their type of traffic that they are going to request or mobile operator's specific use cases. This architecture makes use of advanced features of current distributed mobility management deployment and management and orchestration framework (MANO) of network function virtualization. This architecture provides a real view of deployment of mobility and multicast functions in 5G core network.

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 [RFC-2119](#) [[RFC2119](#)].

The terms about distributed mobility managements, MANO, NFV are defined in [[ETSI-NFV-MANO](#)] and [[IETF-DMM-deployment-model](#)] and [[IETF-DMM-multicast-deployment-model](#)]

3. Architecture for delivering multicast and mobility services using network slicing

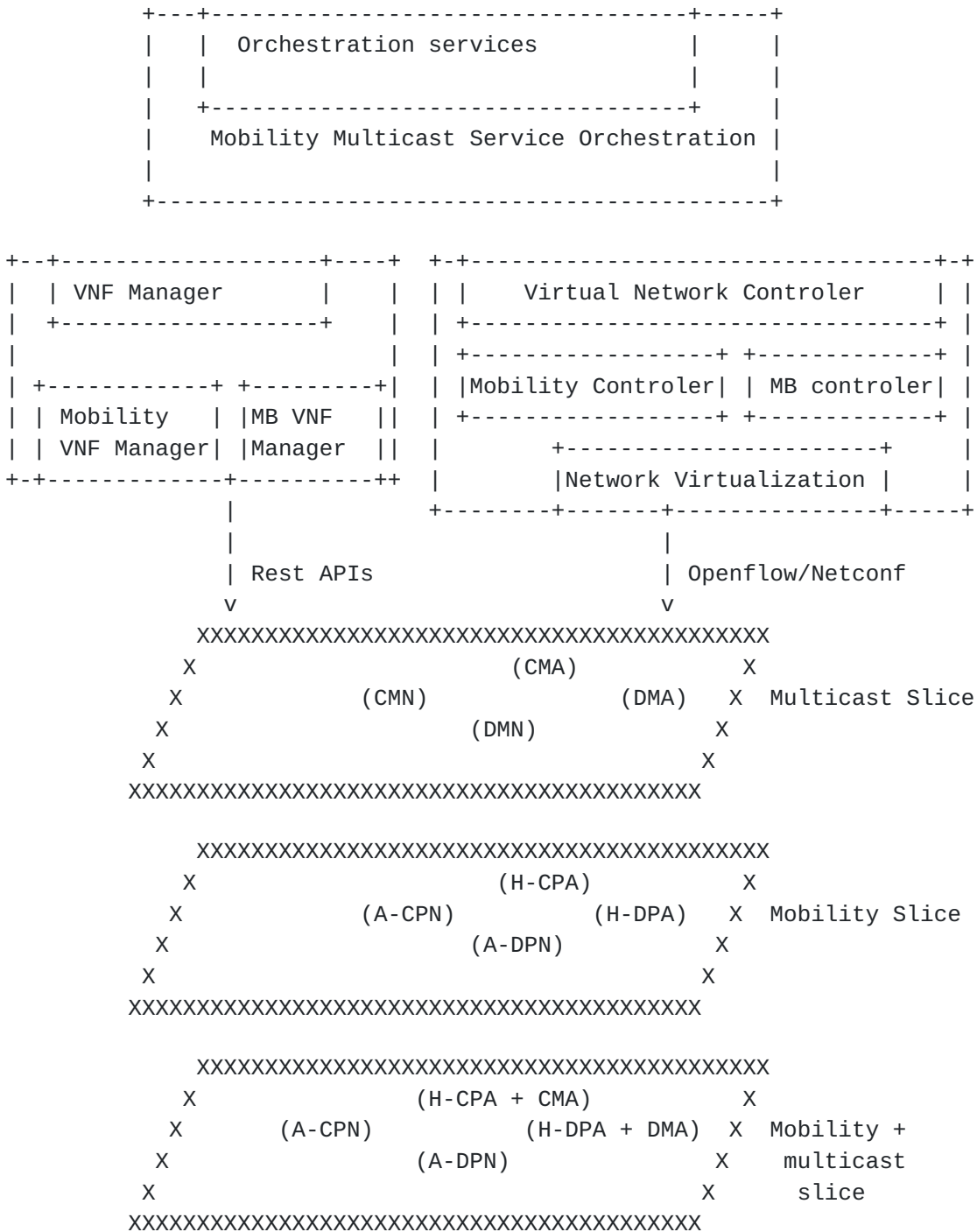


Fig 1. Multicast and mobility using slicing

Fig 1. shows the architecture for delivering multicast and mobility services over core network using network slicing. In this document, we assume that mobility and multicast services could be provided using DMM functions, such as CMA, DMA. Those DMM functions are covered in [[IETF-DMM-deployment-model](#)] and [[IETF-DMM-multicast-deployment-model](#)]. In 5G network, the concepts of MANO and slicing are introduced to increase the network resource efficiency, elasticity, and flexibility. The mobile network services should be provided on the demand basis and optimized for a specific use case using network slicing. We observe that there are several use cases that have different requirements for mobility and multicast services as below.

- + Only multicast: public safety, video broadcast over sport area
- + Only mobility: user with non-video traffic (web surfing)
- + Multicast and mobility: user with video traffic

We introduce the architecture to provide network slice on demand and suitable for each use case. Here, we have three network slices: the only multicast slice providing video streaming services for public safety or sport event use cases; the only mobility slice providing services for non-video traffic users; and the mobility and multicast slice providing services for video traffic users. Here, user traffic could be classified as video and non-video traffic before entering to the specific slice.

Main components of our architecture includes: specific VNF managers (mobility VNF manager, multicast broadcast VNF managers), specific network controllers (mobility controller, multicast broadcast controllers) and a combined orchestration service. The specific VNF managers are used to instantiate, configure, and manage DMM functions. These DMM functions are described by VNF descriptors. The specific network controllers are used to configure virtual networks corresponding to functions supported by each slice. A flowvisor is used to create different network slices over common network infrastructure. A combined orchestration service based on operator's requirements to compose different DMM functions to provide appropriate network services.

4. Security Considerations

TBD.

5. IANA Considerations

TBD.

6. References

6.1. Normative References

[ETSI-NFV-MANO]

ETSI, "Network Function Virtualization (NFV) Management and Orchestration V1.1.1", Dec 2014.

6.2. Informative References

[IETF-DMM-deployment-model]

S. Gundavelli, S. Jeon, DMM Deployment Models and Architectural Considerations,
[draft-ietf-dmm-deployment-models-00.txt](#), Aug 2016

[IETF-DMM-multicast-deployment-model]

Kyoungjae Sun, Truong-Xuan Do, and Younghan Kim,
Multicast mobility deployment scenarios over distributed mobility management,
[draft-kjsun-dmm-deployment-scenarios-multicast-dmm-03.txt](#)
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