

HOW 3GPP'S 5G MEDIA ARCHITECTURE ENABLES 3RD PARTY SERVICES

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3GPP 5G VISION

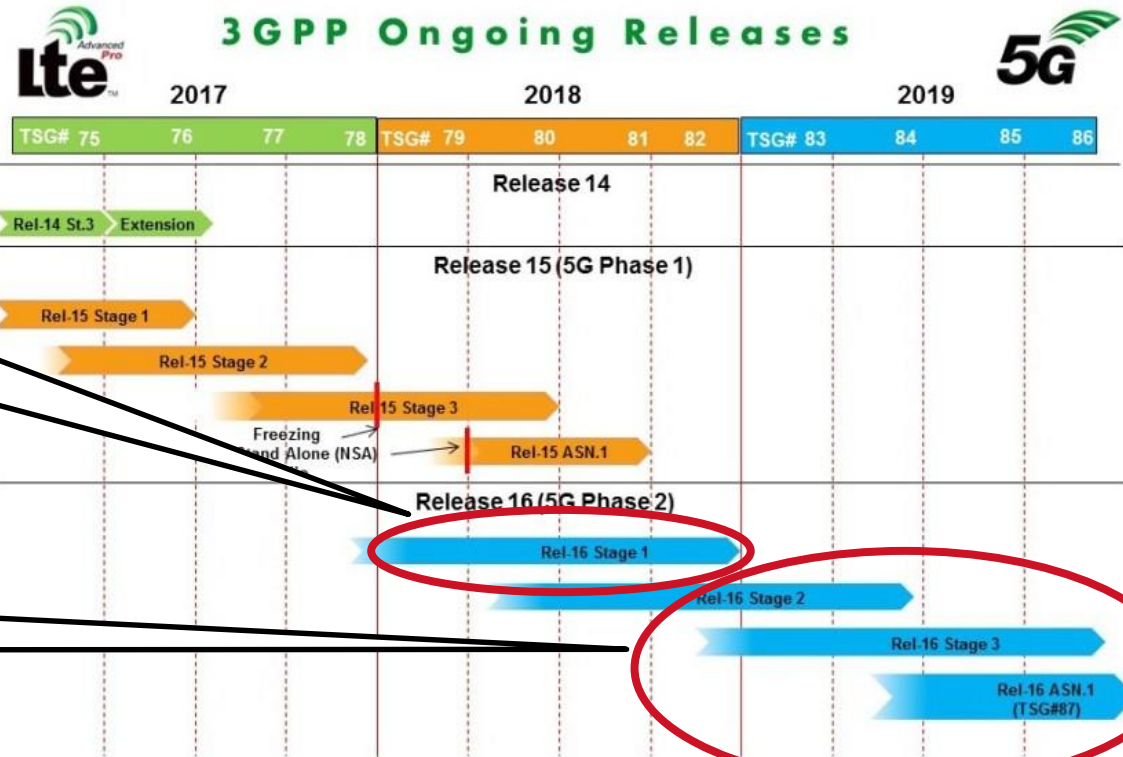
3RD PARTIES ARE KEY

*“The need to **support different kinds of UEs** (e.g., for the Internet of Things (IoT)), **services, and technologies** is driving the technology revolution to a high-performance and highly efficient 3GPP system. The drivers include IoT, Virtual Reality (VR), industrial control, ubiquitous on-demand coverage, as well as the opportunity to meet customized market needs. These drivers require enhancements to the devices, services, and technologies well established by 3GPP. **The key objective with the 5G system is to be able to support new deployment scenarios to address diverse market segments.**”*



- *No “one size fits all”*
- *Targeted at 3rd parties and vertical sectors*
- *Dynamically and highly adaptive*

3GPP 5G ROADMAP STILL A LONG WAY



First 5G release, establishing the framework

Time for the interesting stuff...

3GPP ORGANISATION AND KEY GROUPS

SA1 –
requirements

SA2 –
architecture

SA3 – security

SA4 – codecs

SA5 –
management

3GPP 5G REQUIREMENTS (3GPP TS 22.261) BUILT AROUND 3RD PARTIES

slicing personalized to service

content delivery media

The 5G system shall support a mechanism to prevent an unauthorized UE from trying to access a radio resource dedicated to a specific private slice for any purpose other than that authorized by the associated **3rd party**.

3rd
parties

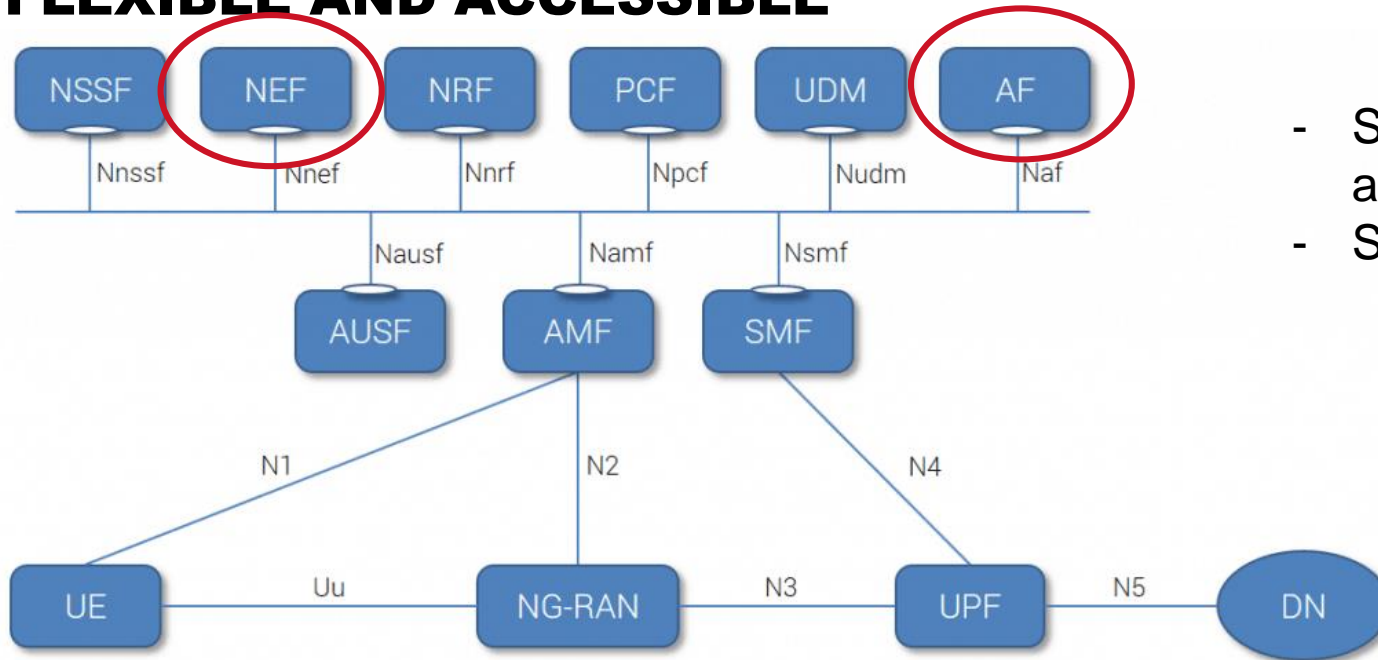
Subject to service agreement between the operator and the content provider, the information of content and content itself can be aware by operator. In-network content caching provided by the operator, a **3rd party** or both, can improve user experience, reduce backhaul resource usage and utilize radio resource efficiently.

Network capability exposure open, access

Based on operator policy, a 5G network shall provide suitable APIs to allow a trusted 3rd party to create, modify, and delete network slices used for the **3rd party**.

3GPP 5G GENERAL ARCHITECTURE (SLICE)

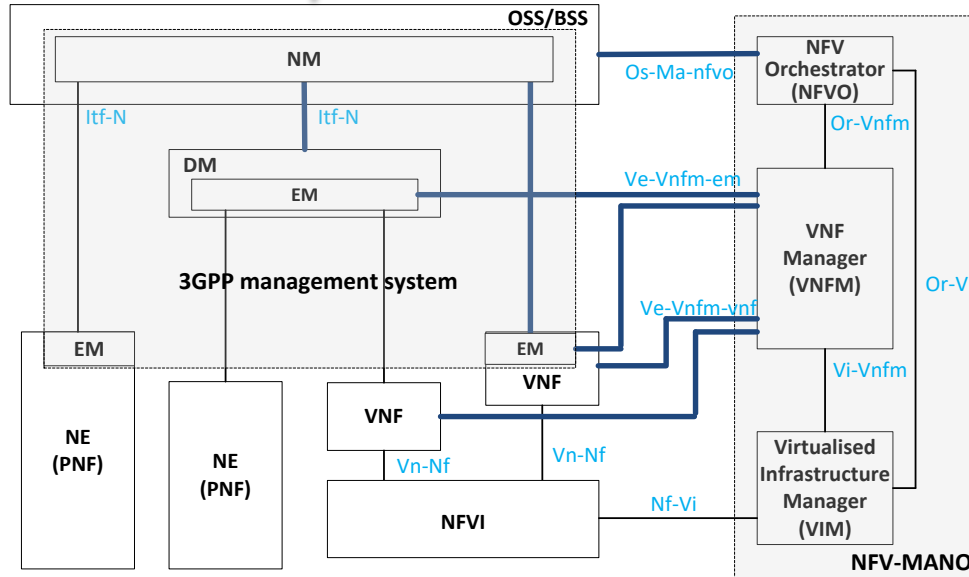
FLEXIBLE AND ACCESSIBLE



- Service based architecture
- Split CP and UP

3GPP 5G MANAGEMENT ARCHITECTURE DYNAMIC (AND ACCESSIBLE)

API (WIP)



- Orchestrated infra
- API (to be defined)

STUDY ITEM: 5G MEDIA DISTRIBUTION

- › Started in 2017 → completed in 2018
- › Map current media services to new 5G architecture
- › Identify new media services that 5G makes possible

Main results

- › During the course of the study, uplink streaming was also added to the focus
- › Need of APIs to abstract 5G network
- › New services such as mixed/extended reality (XR)
- › Specification on media streaming architecture is needed

3GPP 5G MEDIA STREAMING ARCHITECTURE GOALS

Create a new 5GMedia Streaming (5GMSA) architecture specification which supports:

- MNO and 3rd party Media Downlink Streaming Services with relevant functions and interfaces to support:
 - Different collaboration scenarios between third party-providers and mobile network operators for media distribution over 5G;
 - Appropriate service and session definitions in the context of 5GMedia Distribution, especially for third-party media services and corresponding network interfaces to establish, announce and discover those;
 - A distribution-independent service establishment and content ingest interface;
 - Relevant functions for operators and third-party service providers in different collaboration scenarios, including but not limited to aspects such as session management, QoS framework, network assistance, QoE reporting, accessibility, content replacement, notification, content rights management, etc.
 - The delivery of 3GPP-defined media formats and profiles as well as third-party formats based on commonly defined packaging formats.

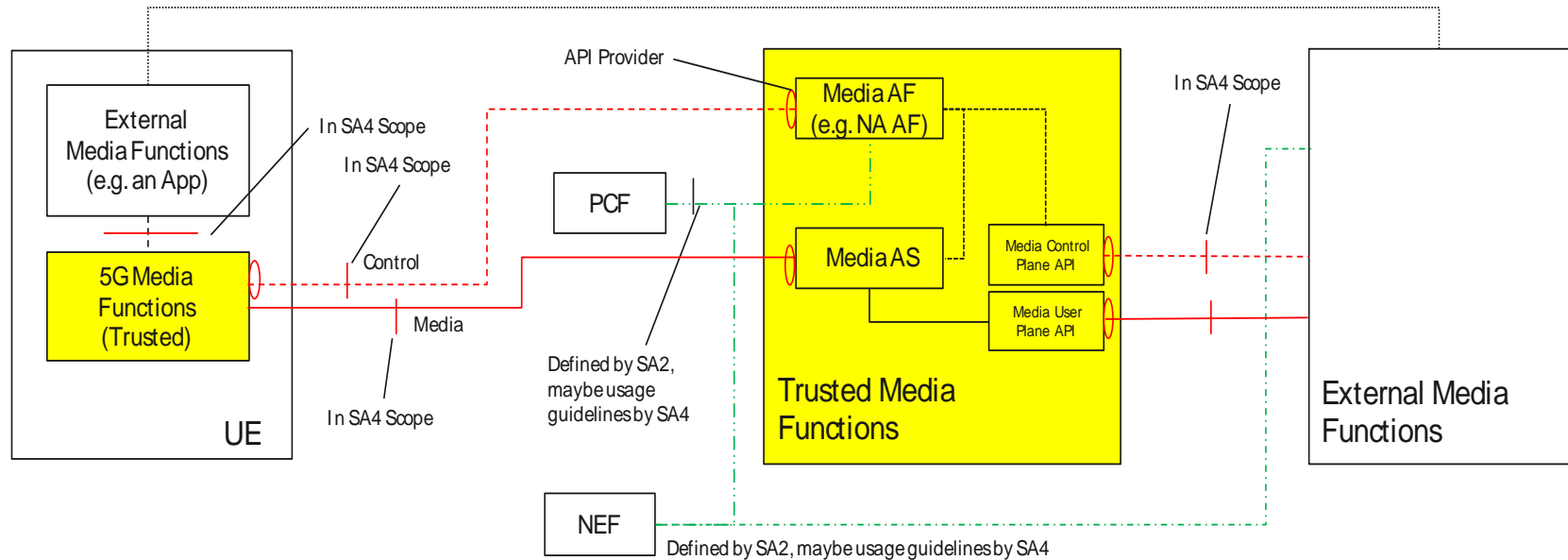
Note: Support of 5GMedia streaming over MBMS with 5GC is not considered in this work item.

- MNO and 3rd party Media Uplink Streaming Services based on the non-IMS FLUS architecture:
 - Specify the non-IMS FLUS entities and interfaces as part of the 5GMSA where the FLUS sink is not in the UE;
 - Enable different collaboration scenarios between third party-providers and mobile network operators for media over 5G.
- Corresponding UE functions and APIs;
- Backwards compatibility for EUTRAN deployments (with and without MBMS)
- Usage of 5G specific features such as network slicing and edge computing.

The new 5GMedia Streaming architecture should be functionally decomposed into independent components enabling different deployments with various degrees of integration between 5GMNOs and Content Providers. It should be specified as a set of extensions to TS 23.501 "System Architecture for the 5G System".

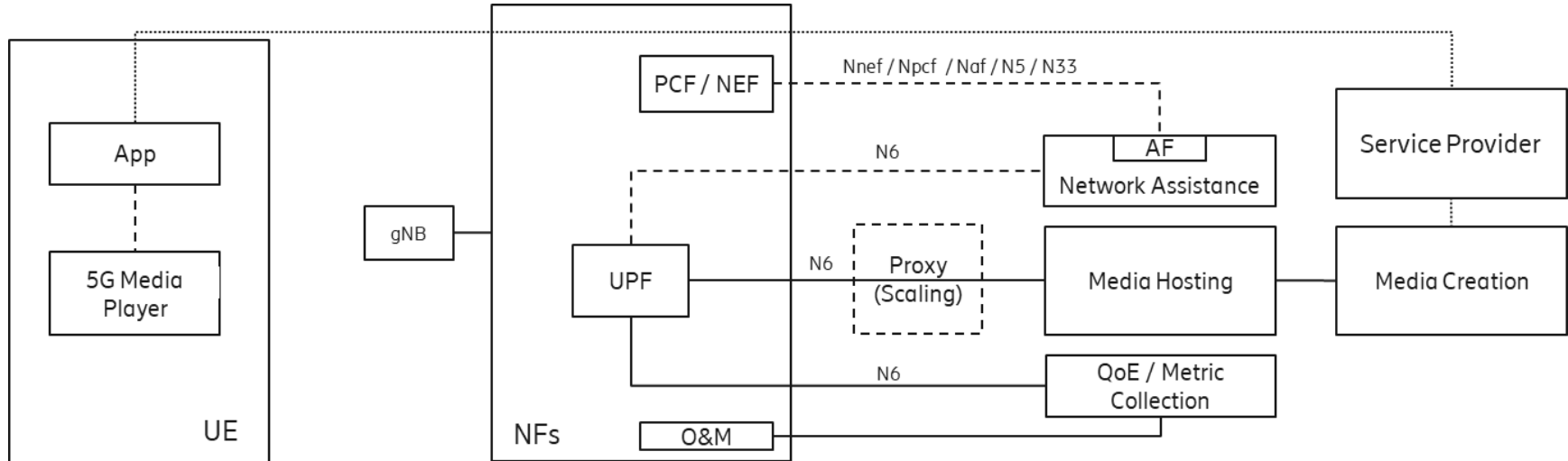
The work should consider input from key industry players on their requirements and usage scenarios for media streaming over 5G. This includes broadcasters and content providers/emerging media service providers, as well as mobile network operators running their own media services.

3GPP 5G MEDIA STREAMING ARCHITECTURE OVERALL ARCHITECTURE (WIP)



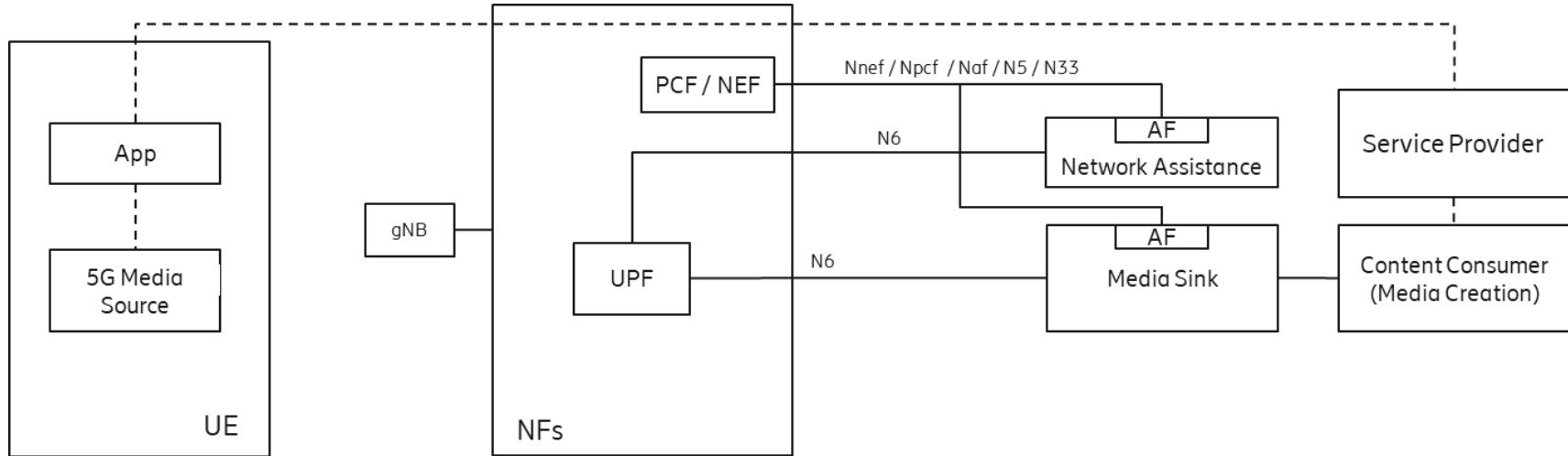
3GPP 5G MEDIA STREAMING ARCHITECTURE

DOWNLINK STREAMING (WIP)



3GPP 5G MEDIA STREAMING ARCHITECTURE

DOWNLINK STREAMING (WIP)



STILL A LOT OF THINGS TO DO

- › Finish media architecture design
- › Define collaboration scenarios
- › Develop 3rd party APIs
- › Involve key vertical stakeholders

QUESTIONS TO YOU

- › Is there anything missing?
- › What would 3rd parties need to make optimal use of a 5G network?

A nighttime photograph of a city street. In the foreground, a modern, curved pedestrian bridge with a metal mesh railing is illuminated from below. The background shows a city street with buildings, some of which have lit-up windows. There are prominent green and white light trails from moving vehicles, creating a sense of motion. The overall scene is a blend of urban architecture and dynamic light effects.

› **THANK YOU FOR YOUR
ATTENTION**

Take a look:
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