Introduction on Data Channel Enhanced IMS Network

CMCC/Bai Xueqian

◆**IMS Voice Service Status Analysis**

◆**Data Channel Overview**

◆**Data Channel Enhanced IMS Network**

IMS Voice Service Status Analysis

中国移动 China Mobile

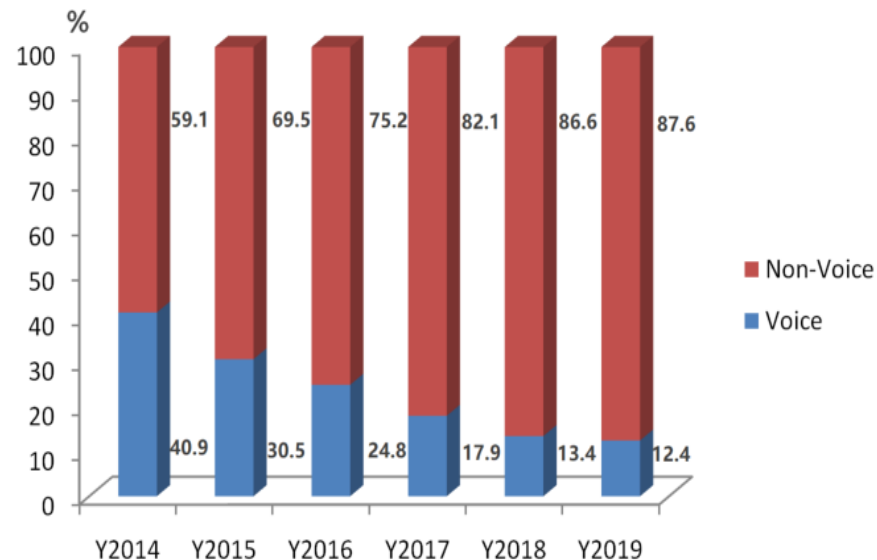**Challenge Analysis**

☐**OTT business growing up**
OTT Voice and Video utilization keep growing up at a rapid rate

☐**IMS/VoLTE user experience**
IMS/VoLTE call service needs to be improved in more diverse user experience

☐**Service tightly coupled with network**
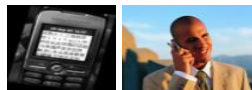IMS/VoLTE call service has a tight coupling with network and the service evolution is limited

Note: Telecom Incoming Ratio from MIIT Report

IMS Voice Service Status Analysis

中国移动 China Mobile

5G is driven by the ever increasing need for higher data speeds and new services, the **high transmission speed**, **low latency** and **high reliability** make it possible to enable diversified services in 5G period, not only **consumer**, but also **enterprise and vertical business**.

| Digital Voice Lower data rate | Digital Voice Middle data rate | IP based voice Mobile Broadband | IT based、Cloud based、Super-Broadband |

5G

2G Voice, TXT ▶ **3G** Voice, Standard video ▶ **4G** 1080p/4K HD Video ▶ **5G** 8K、 XR Holographic Communication
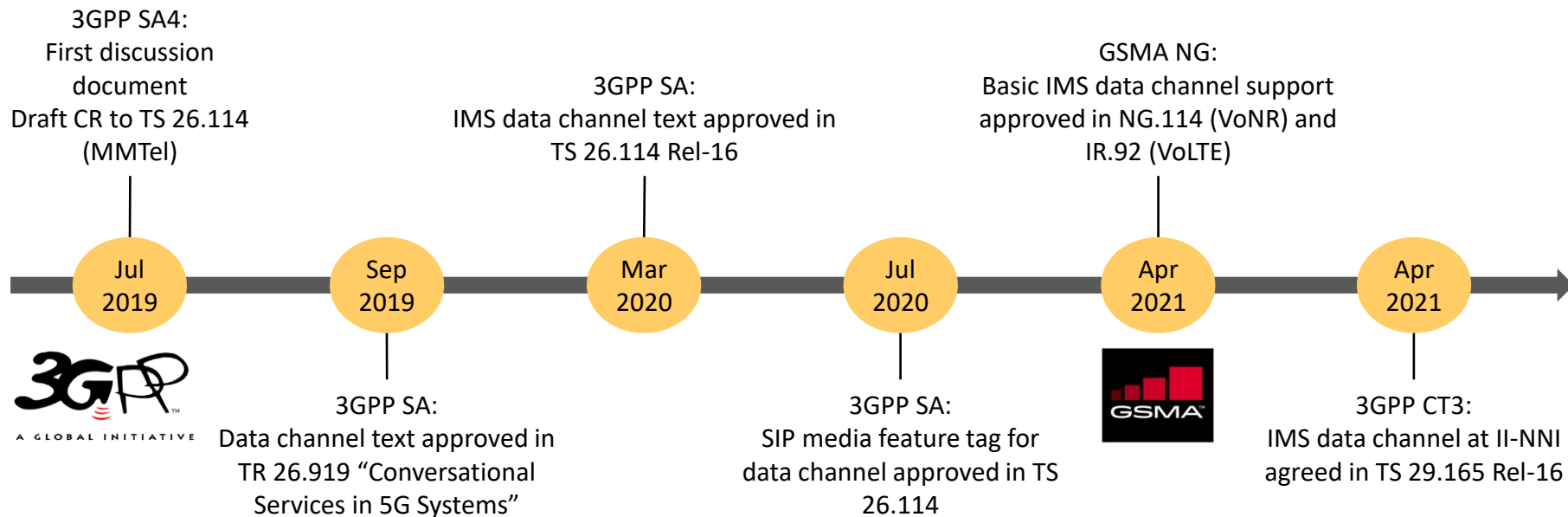
3GPP、IETF 、 GSMA 、W3C standard organization has actively research on **next-generation voice** and **mutual real-time communication** services enhancement
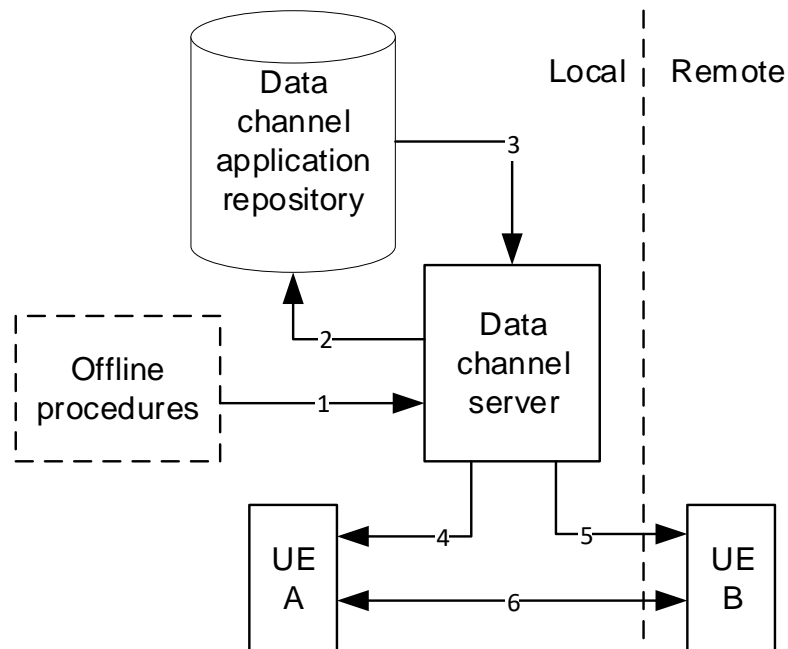
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Data Channel Standard Overview

3GPP SA4:
First discussion document
Draft CR to TS 26.114 (MMTel)

3GPP SA:
IMS data channel text approved in TS 26.114 Rel-16

GSMA NG:
Basic IMS data channel support approved in NG.114 (VoNR) and IR.92 (VoLTE)

| Jul 2019 | Sep 2019 | Mar 2020 | Jul 2020 | Apr 2021 | Apr 2021 |

3GPP SA:
Data channel text approved in TR 26.919 "Conversational Services in 5G Systems"

3GPP SA:
SIP media feature tag for data channel approved in TS 26.114

3GPP CT3:
IMS data channel at II-NNI agreed in TS 29.165 Rel-16

☐ IETF: WebRTC data channel protocol

☐ W3C: WebRTC data channel component API standardized

Data Channel Workflow

Local | Remote

Data channel application repository

3

2

1

Offline procedures

Data channel server

UE A

UE B

4

5

6

- Application uploaded

- Application retrieved

- Sent through bootstrap data channel to UE

- Additional data channel build up

Data Channel Characteristic

Compatibility | Realize based on SIP/SDP, compatible with VOLTE/VONR

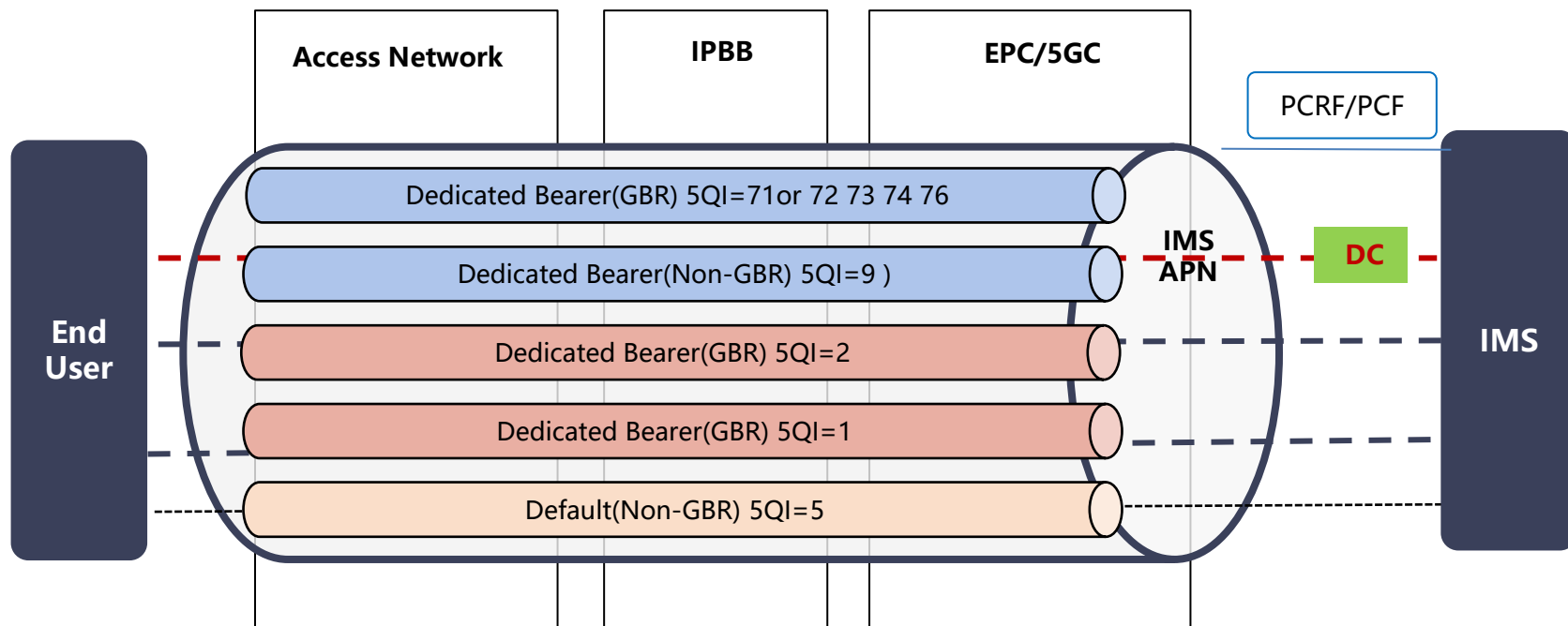**Flexibility** | Deploy in parallel or independently with SIP call
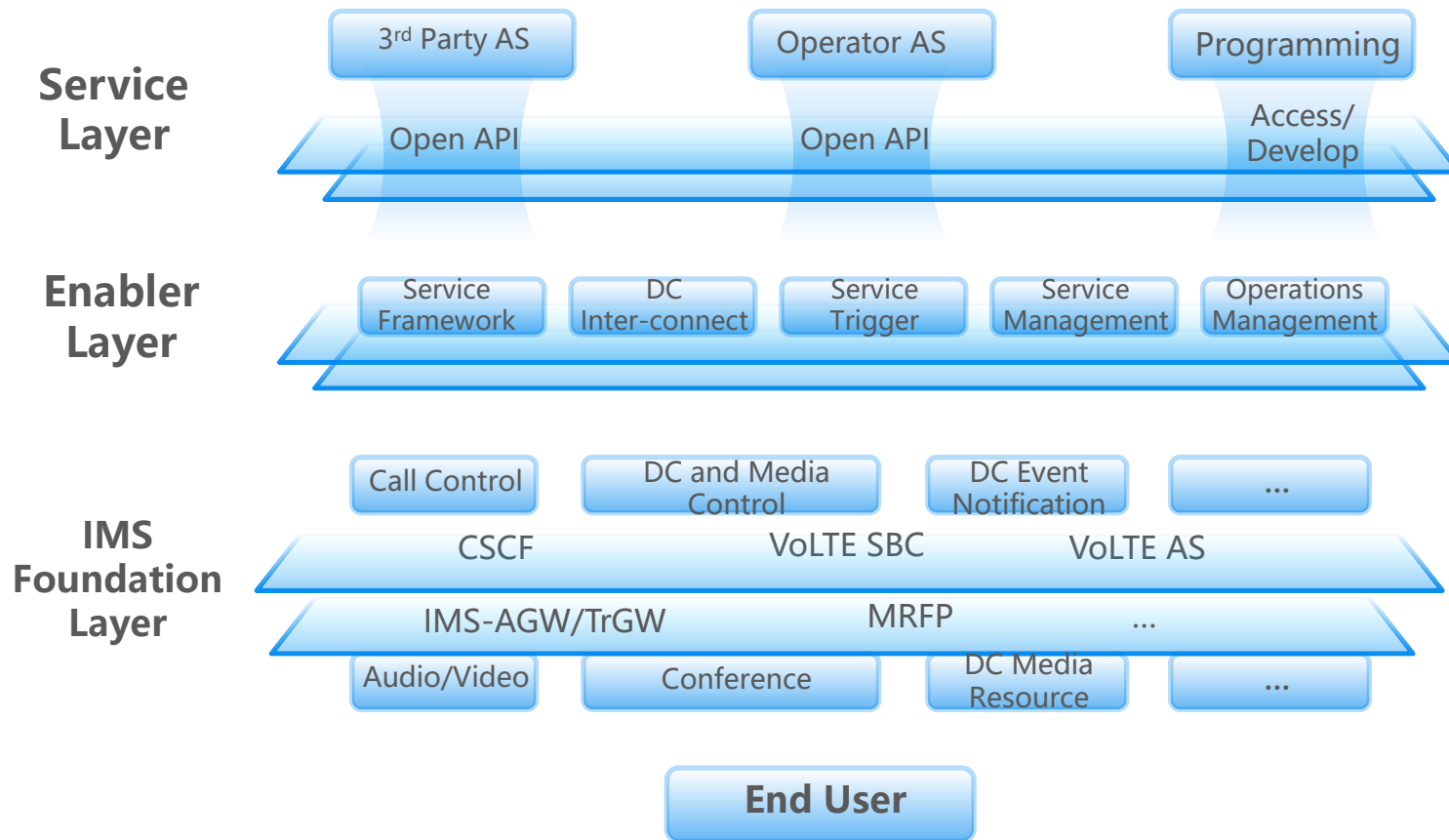
Enrichment | De-couple with data content, supports rich types of data transmission

Efficiency | SCTP based real-time stream can be built up on demands and takes high efficiency usage on network resource

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Data Channel Enhanced IMS Network

Access Network

IPBB

EPC/5GC

PCRF/PCF

End User

Dedicated Bearer(GBR) 5QI=71or 72 73 74 76

Dedicated Bearer(Non-GBR) 5QI=9)

Dedicated Bearer(GBR) 5QI=2

Dedicated Bearer(GBR) 5QI=1

Default(Non-GBR) 5QI=5

IMS APN

DC

IMS

Data Channel Enhanced IMS Network

中国移动 China Mobile

Service Layer

3rd Party AS	Operator AS	Programming
Open API	Open API	Access/Develop

Enabler Layer

| Service Framework | DC Inter-connect | Service Trigger | Service Management | Operations Management |

IMS Foundation Layer

| Call Control | DC and Media Control | DC Event Notification | ... |

CSCF   VoLTE SBC   VoLTE AS

IMS-AGW/TrGW   MRFP   ...

| Audio/Video | Conference | DC Media Resource | ... |

End User

Interactive Calling Use Cases

中国移动 China Mobile

Service

Enterprise

Public Service

Consumer

Stranger

friends

family

work

Consumer telephony with more fun with diversity media, AR, sharing, gaming, etc.

Enterprise telephony with more efficient business support, more safely collaboration through multimedia ID, AI, etc.
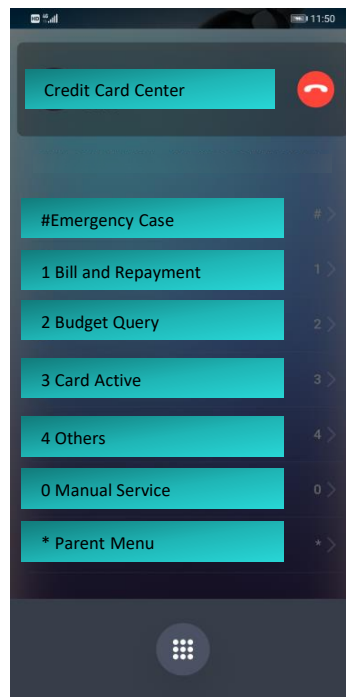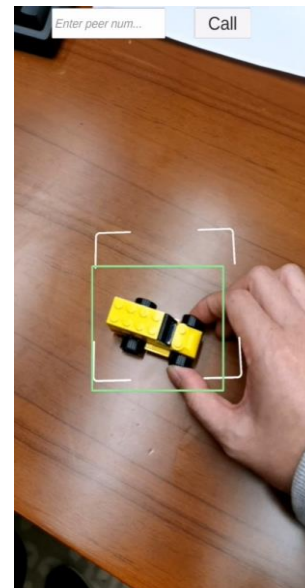
Interactive Calling Use Cases

中国移动 China Mobile

Call in fun

Enterprise ID

138XXXXXXXX

**Meituan
Courier Staff
<CMCC Certified>
Zhang San
ID 10001**

Interaction Menu

Credit Card Center

#Emergency Case

1 Bill and Repayment

2 Budget Query

3 Card Active

4 Others

0 Manual Service

* Parent Menu

Remote Support

Enter peer num...   Call

Thank you!