
**ITU Workshop on “Voice and Video over LTE”
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VoLTE and IMS Approach of Türk Telekom Group

Bilgen KAYIN

Core and Transport Network Architecture and Design

Türk Telekom Group

bilgen.kayin@turktelekom.com.tr

Agenda

- About Türk Telekom Group
- VoLTE Approach of Turk Telekom Group
- Future Plans



About Turk Telekom Group



About Türk Telekom Group



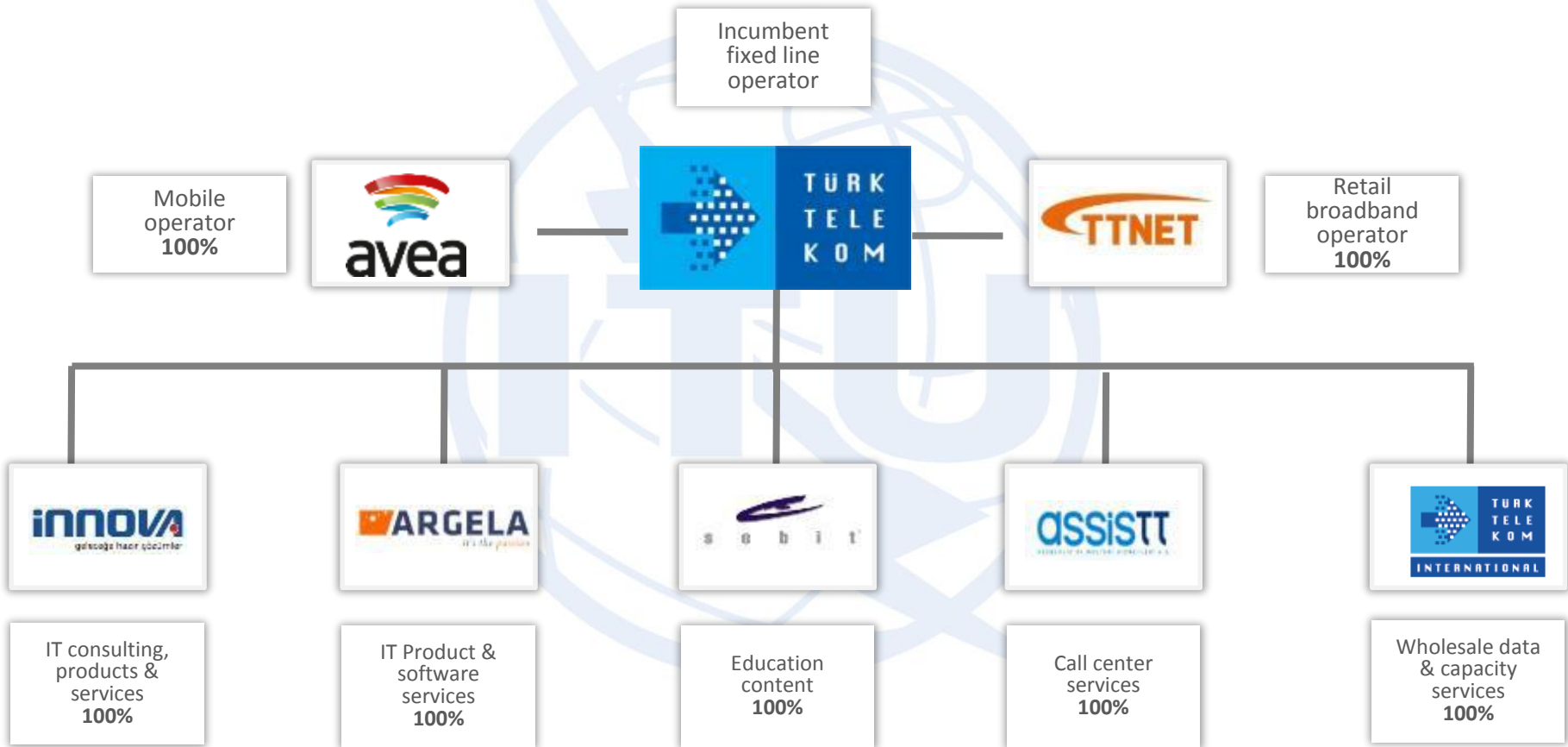
Türk Telekom Group is a world class integrated telecommunications and technology services provider, offering its customers the complete range of fixed line, mobile, data and internet services.

Türk Telekom Group owns country's leading communication and technology companies.

Extensive service and distribution networks of Türk Telekom, AVEA (mobile arm) and TTNET (retail ISP) provide significant opportunities for the group.

Robust revenue and cash flow on a consolidated basis enable the group to invest in promising business segments and support growth.

Türk Telekom Group Main Structure



Türk Telekom Group with Numbers

Türk Telekom is **175** years old

Türk Telekom has been presenting the contemporary communication media to its customers with excitement **since 1840**

Capital 500

Top employer according to the Capital 500 list with a giant team of more than **34 thousand** employees across all of its subsidiaries

More than **100** corporate products and services

Since 2005 consolidated investment will be nearly **20 billion TL**

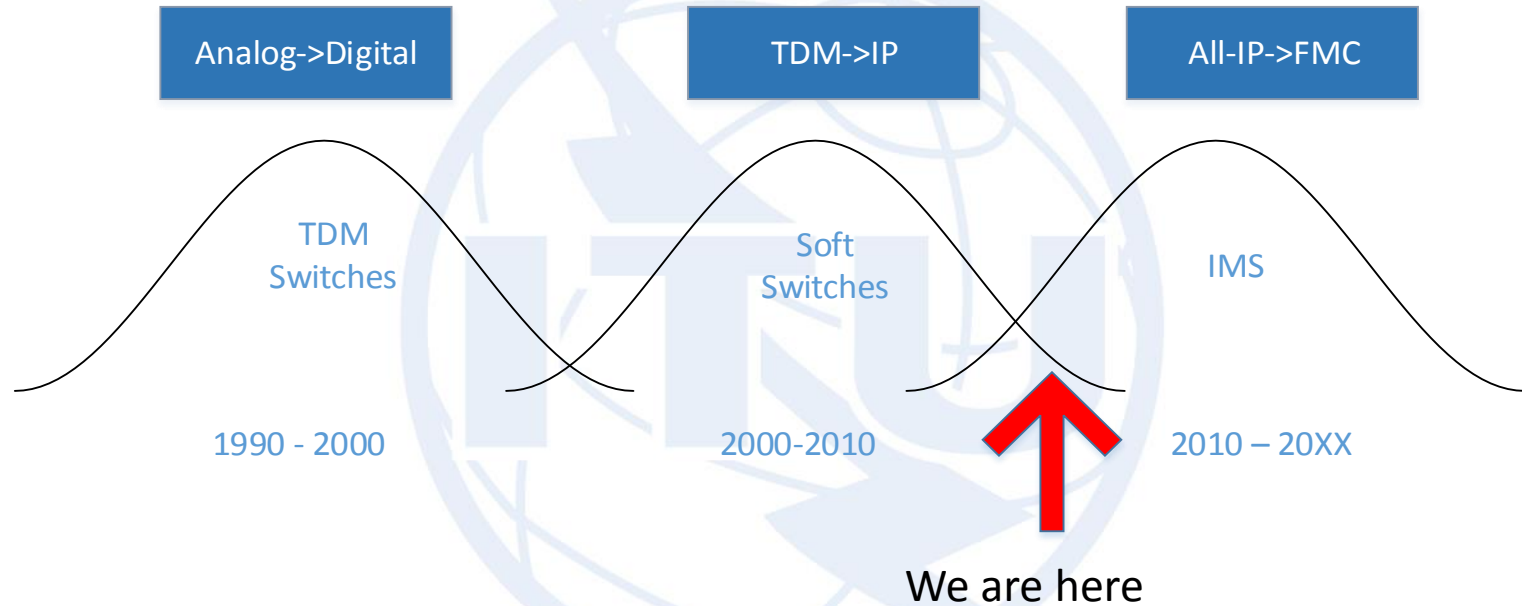
206 thousand km fiber optic infrastructure in Turkey that can round the world **5** times



"Turkey's most valuable telecommunication brand" according to Brand Finance for **7** consecutive years

VoLTE Approach of Turk Telekom Group

Evolution of Voice Switching

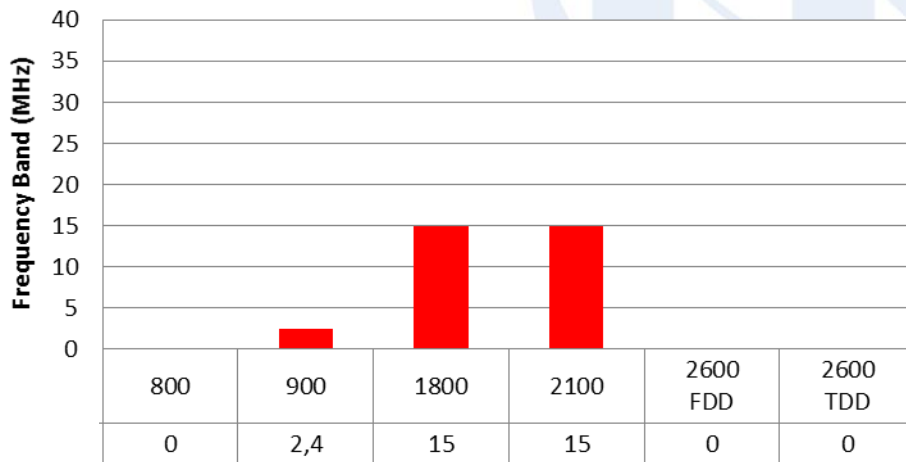


LTE Frequency Allocation in Turkey

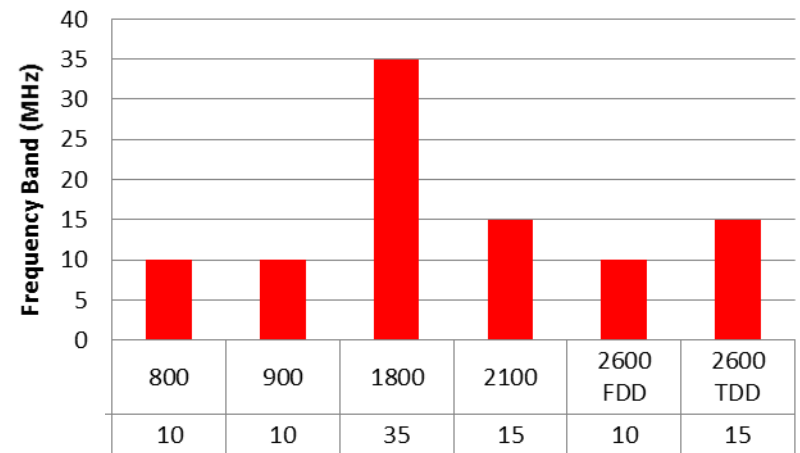
- Below frequencies were allocated and enabled for LTE as of 26th of August 2015:

- 800 Mhz
- 900 Mhz
- 1800 Mhz
- 2100 Mhz
- 2600 Mhz

AVEA Frequency Status Before LTE Allocation



AVEA Frequency Status After LTE Allocation



Türk Telekom Group VoLTE Project

Highligts

- Below important items are evaluated in the project scope:
 - VoLTE
 - ViLTE
 - CSFB
 - E-SRVCC
 - Roaming
 - ICS- IMS Centralized Services

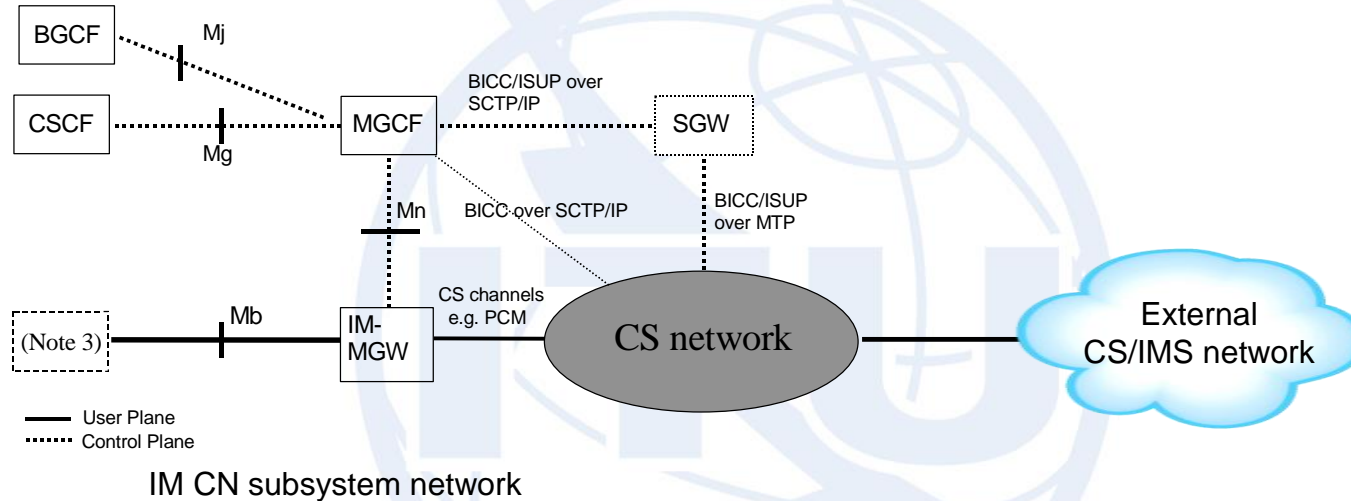
Türk Telekom Group VoLTE Project

Main Considerations

- **Integration of mobile originated and terminated services.**
 - Single mode (MT services will be triggered over IMS core network)
 - Dual mode (MO services will be triggered over both CS and IMS core networks)
- **Service synchronization (IR.92) between HLR and HSS by one subscriber database**
- **Voice and video interconnection for VoLTE and ViLTE**

Interworking with CS Networks

(Phase1- 3GPP 29.163)

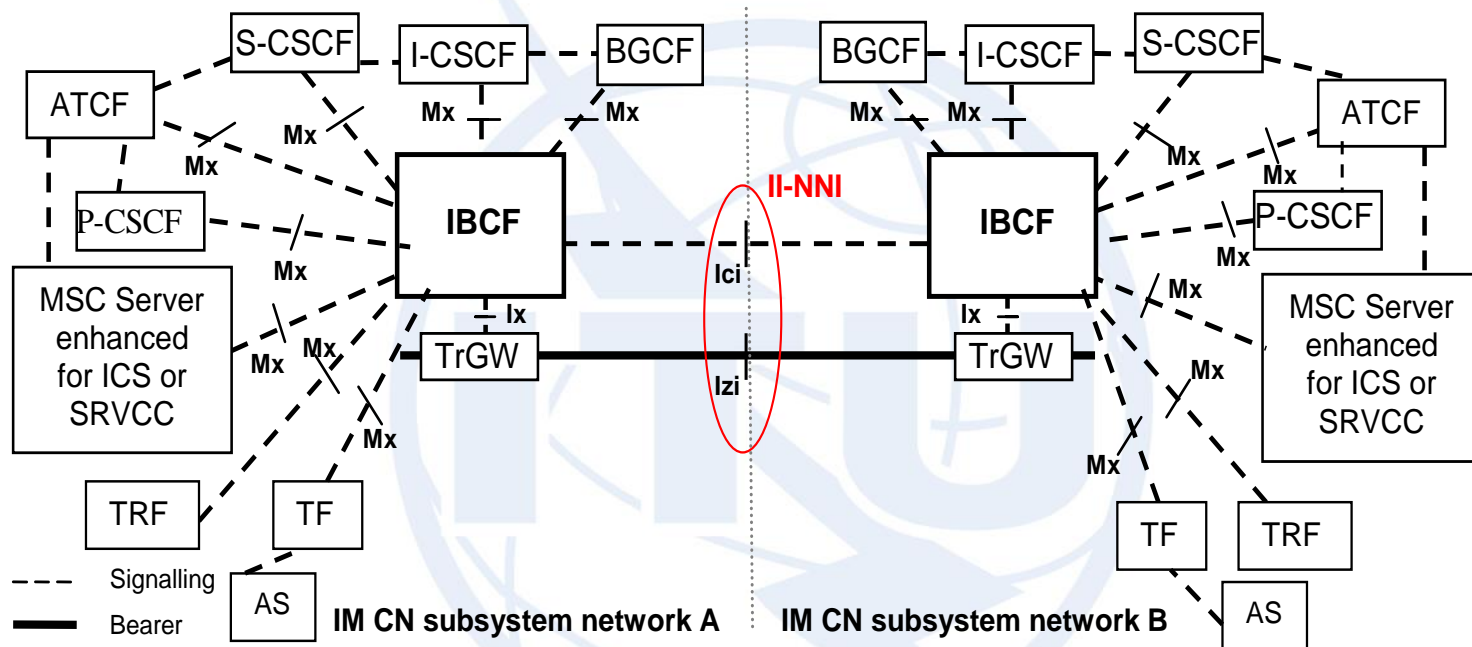


- **IMS network will interwork with CS network by MGCF/IM-MGW.**
- **IMS network will interconnect with external IMS network via CS network, existing CS interconnection reused.**

Architectures, diagrams and figures are provided to reflect general perspective and vision.

IMS NNI Interworking

(Phase2- 3GPP 29.165)



- **IMS network will be directly interconnected by IBCF/TrGW(I-SBC).**

Architectures, diagrams and figures are provided to reflect general perspective and vision.

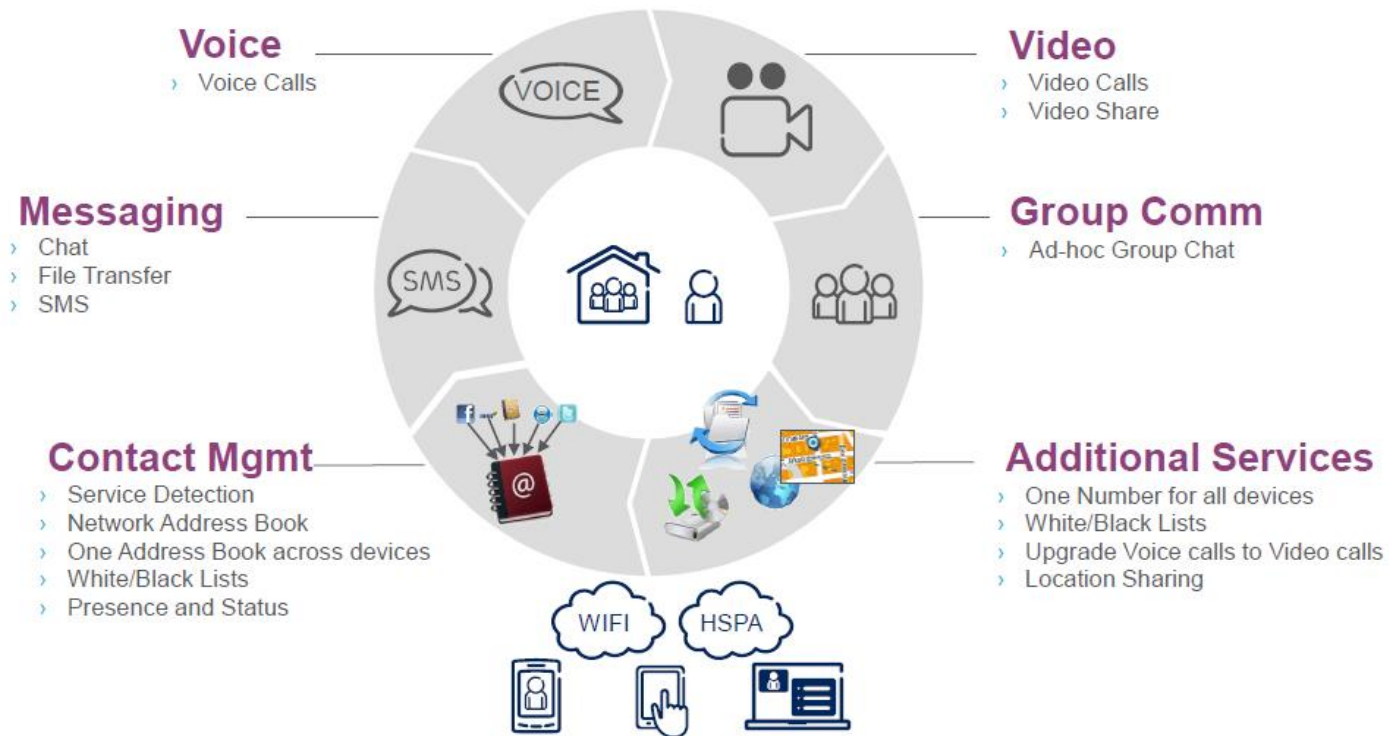
Future Plans

NFV

RCS

FMC

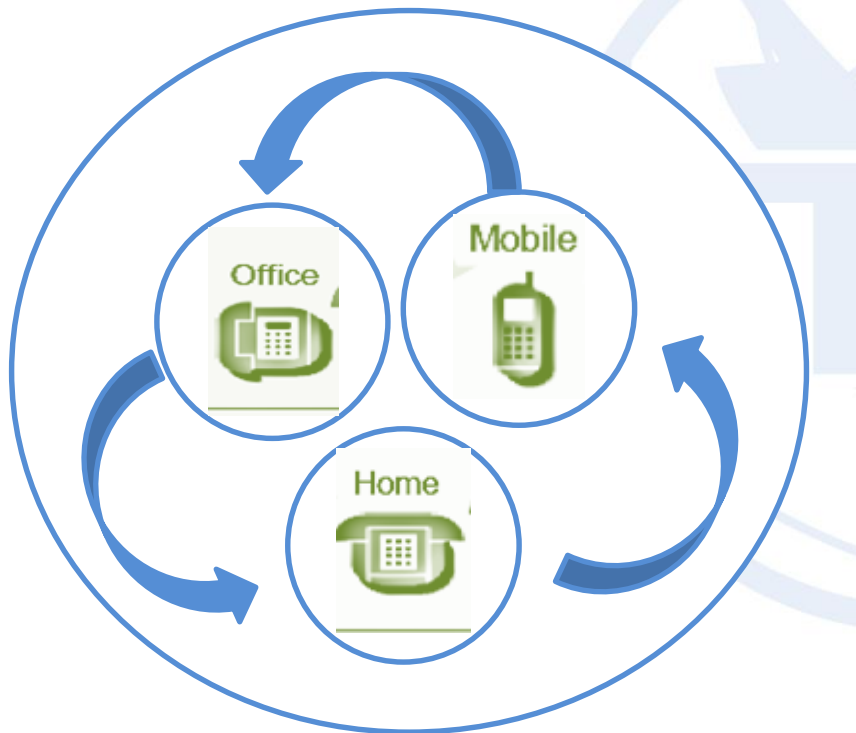
RCS is Under Evaluation



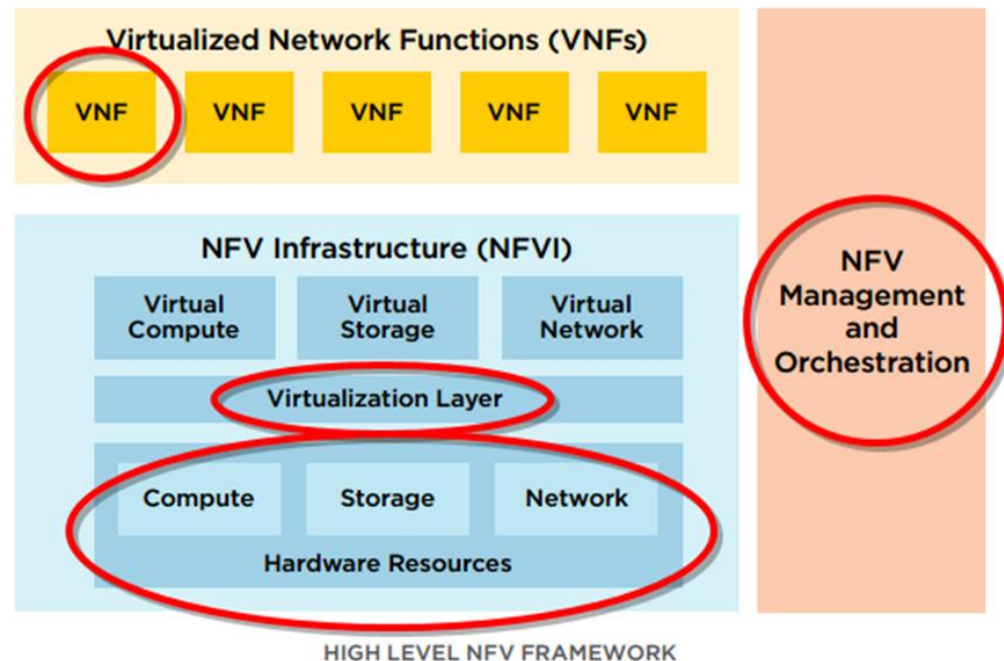
Architectures, diagrams and figures are provided to reflect general perspective and vision.

FMC

- Single Number
- Simultaneous ringing
- Call Move



Virtualized Network Functions (VNFs) on NFVI is best option for FMC.



Architectures, diagrams and figures are provided to reflect general perspective and vision.

NFV is Coming...

Architecture:

- Control plane VNFs – centralized
- Data plane VNFs – distributed

VNFs :

- DSLAM, LAC / LNS / BRAS / SSG
- EPC (SGSN,GGSN, MME, SGW,PGW)
- IMS (P/S/I/E-CSCF, MRfX, MGCF, TAS, xAS, ...)
- PCRF (Fixed, mobile, VoLTE PCRFs)
- Media plane processing (DPI, PCEF, TDF, video opt, media gateway, CGN ...)

MANO:

NFV Orchestrator:

- On-boarding of new Network Service (NS), VNF-FG and VNF Packages
- NS lifecycle management (instantiation, scale-out/in, performance measurements, event correlation, termination)
- Global resource management, validation and authorization of NFVI resource requests
- Policy management for NS instances

VNF Manager:

- Lifecycle management of VNF instances
- Overall coordination and adaptation role for configuration and event reporting between NFVI and the E/NMS

Virtualized Infrastructure Manager (VIM):

- Controlling and managing the NFVI compute, storage and network resources, within one operator's infrastructure sub-domain – collection and forwarding of performance measurements and events



Thank You