

Anhang 2**Liste von Funktionen der Komponenten von 5G-Netzen gemäß § 6 Abs. 4****Zugangsnetz****(gemäß 3GPP TS 23.002 V15.0.0 (2018-03), Network architecture)**

4G-Basisstation Evolved Node B (eNodeB, eNB)

Home eNodeB Subsystem (HeNS)

(gemäß 3GPP TS 38.401 V16.0.0 (2019-12), NG-RAN; Architecture description)

5G-Basisstation gNB inklusive gNB Central Unit (gNB-CU) und gNB Distributed Unit (gNB-DU)

Paketvermitteltes Kernnetz**(gemäß 3GPP TS 23.002 V15.0.0 (2018-03), Network architecture)**

3GPP Authentication, Authorization and Accounting (AAA) Proxy

3GPP Authentication, Authorization and Accounting (AAA) Server

Access Network Discovery and Selection Function (ANDSF)

Application Front Ends (AFE)

Application Function (AF)

Border gateway (BG)

Closed Subscriber Group (CSG) List Server

Closed Subscriber Group (CSG) Subscriber Server (CSS)

Equipment Identity Register (EIR)

Evolved Packet Data Gateway (ePDG)

Home Agent (HA)

Home Subscriber Server (HSS)

Local Gateway (L-GW)

Mobility Management Entity (MME)

Packet Data Gateway (PDG)

Packet Data Network Gateway (PDN GW) inklusive PDN GW Control Plane (PGW-C) und PDN GW User Plane (PGW-U)

Policy and Charging Rules Function (PCRF)

Security Gateway (SEG)

Serving Gateway (S-GW) inklusive S-GW Control Plane (SGW-C) und S-GW User Plane (SGW-U)

Signalling Gateway Function (SGW)

User Data Repository (UDR)

WLAN Access Gateway (WAG)

(gemäß 3GPP TS 23.501 V16.3.0 (2019-12), System architecture for the 5G System (5GS))

5G-Equipment Identity Register (5G-EIR)

Access and Mobility Management Function (AMF)

Application Function (AF)

Authentication Server Function (AUSF)

Charging Function (CHF)

DataNetwork (DN)
 Intermediate NEF (I-NEF)
 Location Management Function (LMF)
 NetworkData Analytics Function (NWDAF)
 NetworkExposure Function (NEF)
 NetworkRepository Function (NRF)
 NetworkSlice Selection Function (NSSF)
 Non-3GPP InterWorking Function (N3IWF)
 Policy Control Function (PCF)
 Security Edge Protection Proxy (SEPP)
 Service Communication Proxy (SCP)
 Session Management Function (SMF)
 Short Message Service Function (SMSF)
 Trusted Non-3GPP Gateway Function (TNGF)
 UE radio Capability Management Function (UCMF)
 Unified Data Management (UDM)
 Unified Data Repository (UDR)
 Unstructured Data Storage Function (UDSF)
 UserPlane Function (UPF)
 WirelineAccess Gateway Function (W-AGF)

IP Multimedia Subsystem (IMS)

(gemäß 3GPP TS 23.002 V15.0.0 (2018-03), Network architecture)

Access Transfer Control Function (ATCF)
 Access Transfer Gateway (ATGW)
 Application Server (AS) inklusive Session Initiation Protocol (SIP) Application Server, Open Service Access (OSA) Application Server und Customised Applications for Mobile network Enhanced Logic IP Multimedia Service Switching Function (CAMEL IM-SSF)
 Breakout Gateway Control Function (BGCF)
 Call Session Control Function (CSCF) inklusive Emergency CSCF (E-CSCF), Interrogating CSCF (I-CSCF), Proxy CSCF (P-CSCF) und Serving CSCF (S-CSCF)
 Cellular Text Modem (CTM) inklusive CTM Special Resource Function (CTM-SRF)
 Emergency Access Transfer Function (EATF)
 Home Subscriber Server (HSS)
 IMS Access Gateway (IMS-AGW)
 IMS Media Gateway (IMS-MGW)
 Interconnection Border Control Function (IBCF)
 IP Multimedia Service Switching Function (IM-SSF)
 Location Retrieval Function (LRF)
 Media Gateway Control Function (MGCF)
 Media Resource Broker (MRB)
 Multimedia Resource Function Controller (MRFC)
 Multimedia Resource Function Processor (MRFP)
 Open Service Access Service Capability Servers (OSA SCS-s)
 Service Centralization and Continuity Application Server (SCC AS)

Subscription Locator Function (SLF)
 Telephony Application Server (TAS)
 Transition Gateway (TrGW)

Dienstekomponenten

(gemäß 3GPP TS 23.002 V15.0.0 (2018-03), Network architecture)

Bearer Binding and Event Reporting Function (BBERF)
 Broadcast-Multicast Service Centre (BM-SC)
 Cell Broadcast Centre (CBC)
 Cell Broadcast Entity (CBE)
 Customised Applications for Mobile network Enhanced Logic (CAMEL) Service Environment (CSE)
 Evolved Serving Mobile Location Centre (E-SMLC)
 Gateway Mobile Location Centre (GMLC)
 Generic User Profile (GUP) Server
 Group Communication Service Application Server (GCS AS)
 IP-Short-Message-Gateway (IP-SM-GW)
 MachineType Communication- Authentication, Authorization and Accounting (MTC-AAA)
 MachineType Communication-InterWorking Function (MTC-IWF)
 Mission Critical Push To Talk Application Server (MCPTT AS)
 Multi-cell/multicast Coordination Entity (MCE)
 Multimedia Broadcast Multicast Service Gateway (MBMS-GW)
 Packet Flow Description Function (PFDF)
 Packet Switched Streaming Service Server (PSS Server)
 Proximity-based services (ProSe) Function
 Radio Access Network (RAN) Congestion Awareness Function (RCAF)
 Service Capability Exposure Function (SCEF)
 Short Message Service Router
 Short Message Service Service Centre (SMS-SC)
 Subscription Profile Repository (SPR)
 TCPProxy Function
 Traffic Detection Function (TDF)
 Traffic Steering Support Function (TSSF)
 WebReal-Time Communication (WebRTC) Web Server Function (WWSF)

Number Portability

(gemäß 3GPP TS 23.002 V15.0.0 (2018-03), Network architecture)

Mobile Number Portability/Signalling Relay function (MNP-SRF)
 Number Portability Database (NPDB)

Lawful Intercept

(gemäß 3GPP TS 23.002 V15.0.0 (2018-03), Network architecture)

Administration Function (ADMF)
 Law Enforcement Monitoring Facility (LEMF)
 Mediation and Delivery Function (MDF)

Charging und Billing**(gemäß 3GPP TS 23.002 V15.0.0 (2018-03), Network architecture)**

Billing Domain

Charging Data Function (CDF)

Charging Gateway Function (CGF)

Offline Charging System (OFCS)

Online Charging Function (OCF)

Online Charging System (OCS)

Network Function Virtualisation (NFV), Network Slicing, Software Defined Networking (SDN) und Management and Network Orchestration (MANO)**(gemäß ENISA Threat Landscape for 5G Networks, Version 1.0, November 2019)**

Element Management (EM)

NetworkFunction Lifecycle Management

NetworkFunctions (NF)

NetworkServices Catalogue

NetworkSlice Management Function (NSMF)

NFV Audit Database (NFV-AUD-DB)

NFV Infrastructure (NFVI)

NFV Instances repository

NFV Orchestrator (NFVO)

NFV Security Controller (SC)

NFV Security Manager (NSM)

NFV Security Monitoring Database (NFVSecM DB)

NFV Security Services Agent (SSA)

NFV Security Services Provider (SSP)

NFVI Resources repository

NFVI Security Manager (ISM)

NFVI-based Security Function (ISF)

Operations Support System/Business Support System (OSS/BSS)

Physical Security Function (PSF)

SDN Application

SDN Controller

SDN Resource

Security Element Manager (SEM)

Security Monitoring Analytics System

Virtual Network Functions (VNF)

Virtual Security Function (VSF)

Virtual Security Function VNF Catalog Database (VSF-VNF-CAT)

Virtualised Infrastructure Manager (VIM)

VNF Catalogue

VNF Manager (VNFM)

Multi-access Edge Computing (MEC)**(gemäß ENISA Threat Landscape for 5G Networks, Version 1.0, November 2019)**

Customer facing service (CFS) portal

MEC host inklusive MEC applications, MEC platform und Virtualisation infrastructure

MEC host level management inklusive MEC platform manager und Virtualised Infrastructure Manager (VIM)

Multi-access edge orchestrator

User application life-cycle management (LCM) proxy

Physische aktive Vermittlungs- und Übertragungssysteme

Richtfunk, Switches, Router etc

Komponenten mit physischen Rechner-, Speicher- und Netzwerkressourcen

Server, Cloud-Speicher etc

Telecommunication Management**(gemäß 3GPP TS 32.101 V15.0.0 (2017-09), Telecommunication management; Principles and high level requirements)**

Element Manager (EM)

Domain Manager (DM)

NetworkManager (NM)

NetworkManagement Layer Service (NMLS)