

Networks

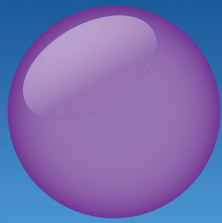


A Connected World



Building networks that support users' communication needs

Fulfilling the promise of unlimited bandwidth



Networks

The way we communicate changes as technology evolves. Today's consumers expect communications services to be easily accessible and available everywhere, on whatever devices they are using. Technically, this means networks must converge.

ETSI provides a comprehensive set of standards for access network technologies, from Digital Subscriber Line technologies (xDSL), fibre and cable, through to the latest developments with Internet Protocol (IP) networking technology and virtualization.

ETSI Groups in the Networks Cluster

- **ATTM** (Access, Terminals, Transmission and Multiplexing)
- **CABLE** (Integrated broadband cable telecommunication networks)
- **IP6** (IPv6 Integration)
- **NFV** (Network Functions Virtualisation)
- **NGP** (Next Generation Protocols)
- **NTECH** (Network Technologies)
- **OSM** (Open Source MANO)
- **3GPP**, the Third Generation Partnership Project, is another contributor to the cluster. It is a collaboration between standards organizations worldwide who develop specifications for advanced mobile communications technologies.

Network Management
(TC NTECH)

Network Access
(TC ATTM, TC CABLE)

Networks

Network Technologies
(NFV, OSM, IP6, NGP
TC CABLE, TC NTECH, 3GPP)

The Networks cluster also co-operates with various fora, consortia and organizations including GeSI, ITU-T, GSMA, OGF, CENELEC, BBF, IEC, IETF, ECMA International, ONF, TM Forum.

Standardization Activities

New demands are driving network developments: the Internet of Things (IoT) and machine-to-machine communications, the growth of user-generated content, video, the increasing use of mobile internet access, social networking, advanced device capabilities, and the ever-growing numbers of connected devices.

Networks need to have the capability to manage complexity, they need to be open to new applications and external service providers, and need to scale for ubiquitous connectivity. Networks then face the challenge to keep their operational costs at a reasonable level.

Our **Network Technologies** committee (TC NTECH) is standardizing current and future network technologies and their application to managed networks. Current areas of work include emergency caller location determination and transport (in support of European Commission Mandate M/493), the Generic Autonomous Network Architecture (GANA) reference model and its application, and naming, numbering and addressing.

The vision of our **Network Functions Virtualisation** (NFV) Industry Specification Group (ISG) is of an open ecosystem enabling rapid service innovation.

With NFV, standard IT virtualization technology is adopted to consolidate many network functions into software running on industry standard high volume servers, switches and storage. This will simplify the roll-out of network services, reduce deployment and operational costs and encourage innovation.

Our second release of NFV standards (NFV Release 2) specifies the functional requirements and information models which provide a basis to facilitate the deployment and operationalization of Virtual Network Functions (VNF) in an interoperable NFV framework. Work on protocols, Application Programming Interfaces and data models will extend into NFV Release 3.

Our **Open Source MANO** (ETSI OSM) is developing Open Source software for the NFV-MANO (Management and Orchestration). This will capitalize on the synergies between the worlds of standards and Open Source, using accepted Open Source working procedures to produce regular versions of a software reference implementation (code) of the ETSI MANO. This approach will maximize innovation, efficiency and time to market, and enable NFV solution vendors to meet users' needs rapidly and cost-effectively.



The public Internet Protocol version 4 (IPv4) address space was completely depleted in February 2011. **IPv6** was developed as a replacement for IPv4 and worldwide penetration of IPv6 should reach 50% by 2017.

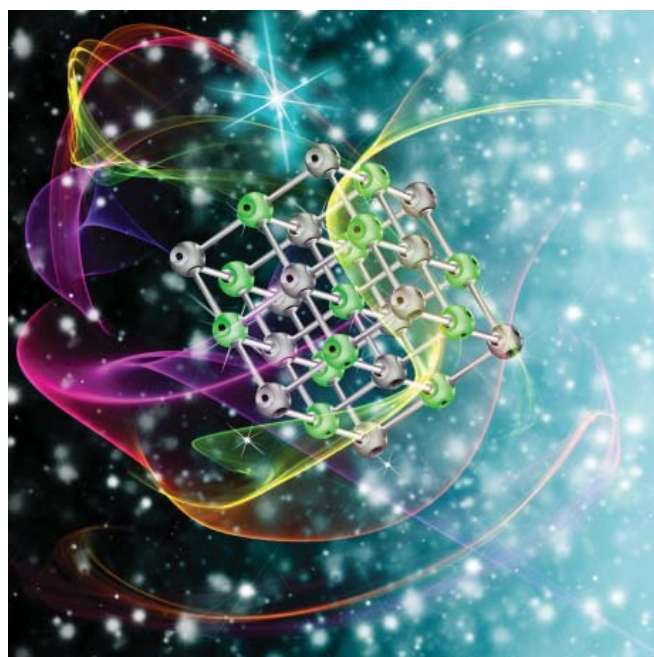
Our ISG on IPv6 Integration (ISG IP6) is addressing the transition from IPv4 to IPv6. Our work includes selecting and defining scenarios where IPv6 could have real critical impact. We are working on 18 Group Specifications (GSs) including those outlining the motivation for the deployment of IPv6 in various areas – enterprise, telecommunications and Internet service providers, public safety and the emergency sector, academia and education, Cloud computing and government.

Many existing communications systems have adopted the TCP/IP protocol suite for networking and inter-networking, but increasingly find these protocols do not meet their demands as well as expected. Over time, there have been incremental improvements, often targeted at specific issues which were not always adequately resolved. In short, these protocols no longer meet the needs of today's connected society.

Our ISG on **Next Generation Protocols** (ISG NGP) is reviewing the future landscape of Internet Protocols, identifying and documenting requirements. The aim is to trigger new activities to create a more efficient Internet that is responsive to the user. ISG NGP is formulating a series of GSs which will include a summary of relevant technologies, architectures and protocols under research, together with an assessment of their maturity and practicality for implementation to begin by 2020.

Network Access specifications are the responsibility of our Access, Terminals, Transmission and Multiplexing committee (TC ATTM). TC ATTM continues to revise our Harmonised Standards for point-to-point fixed radio equipment. ETSI is leading work at the global level on the standardization of reverse power feeding. We are revising our TS on single mode optical fibre systems for home cabling.

Our **Integrated Broadband Cable Telecommunication Networks** committee (TC CABLE) is developing a TS on measurement methods for the network performance of broadband data services. This will enable consumers to compare the performance of different service providers. We have started work on a new TS on the performance characteristics of coaxial cables used for RF signal transmission in hybrid fibre-coaxial telecommunication networks.



To find out more information on this cluster, please contact:

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ETSI produces globally-applicable standards for Information and Communications Technologies (ICT), including fixed, mobile, radio, converged, aeronautical, broadcast and internet technologies and is officially recognized by the European Union as a European Standards Organization. ETSI is an independent, not-for-profit association whose more than 800 member companies and organizations, drawn from 66 countries across 5 continents, determine its work programme and participate directly in its work.

For further information, please visit: www.etsi.org

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