Chapter 2.2
Connectivity

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ECS

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Scope – No major changes

	LAYER	DATA UNIT	FUNTION
HOST LAYERS	7. Application		Network process to application.
	6. Presentation	Data	Data representation, encryption and decryption, convert machine-dependent data to machine-independent data.
	5. Session		Interhost comunication, managing sessions between applications.
	4. Transport	Segments	Reliable delivery of segments between points on a network.
MEDIA LAYERS	3. Network	Packet/Datagram	Addressing, routing and (not necessarily reliable) delivery of datagrams between points on a network.
	2. Data link	Bit/Frame	A reliable direct point-to-point data connection.
	1. Physical	Bit	A (not necessariliy reliable) direct point-to-point data connection.

Connectivity support to application domains and SoS

- Updates to the frequency scope of wireless
  - Down playing significant higher frequencies

- Support for efficient engineering of application solution connectivity

- Support to SoS integration and interoperability

Major challenges updates

- **Major Challenge 1**: strengthening the EU connectivity technology portfolio to maintain leadership, secure sovereignty and offer an independent supply chain.
- **Major Challenge 2:** investigate innovative connectivity technology (new spectrum or medium) and new approaches to improving existing connectivity technology to maintain the EU's long-term leadership.
- **Major Challenge 3**: autonomous interoperability translation for communication protocol, data encoding, compression, security and information semantics.
- **Major Challenge 4**: architectures and reference implementations of interoperable, secure, scalable, smart and evolvable IoT and SoS connectivity from edge to cloud
- **Major Challenge 5**: network virtualization enabling run-time and evolvable integration, deployment and management of edge to cloud network architectures.

Time line update

- The updates reflects achieved advancements and expected progression