THE NEXT FRONTIER FOR COMPUTING CONTINUUM - OPTICAL NETWORKS AS A KEY ENABLER -

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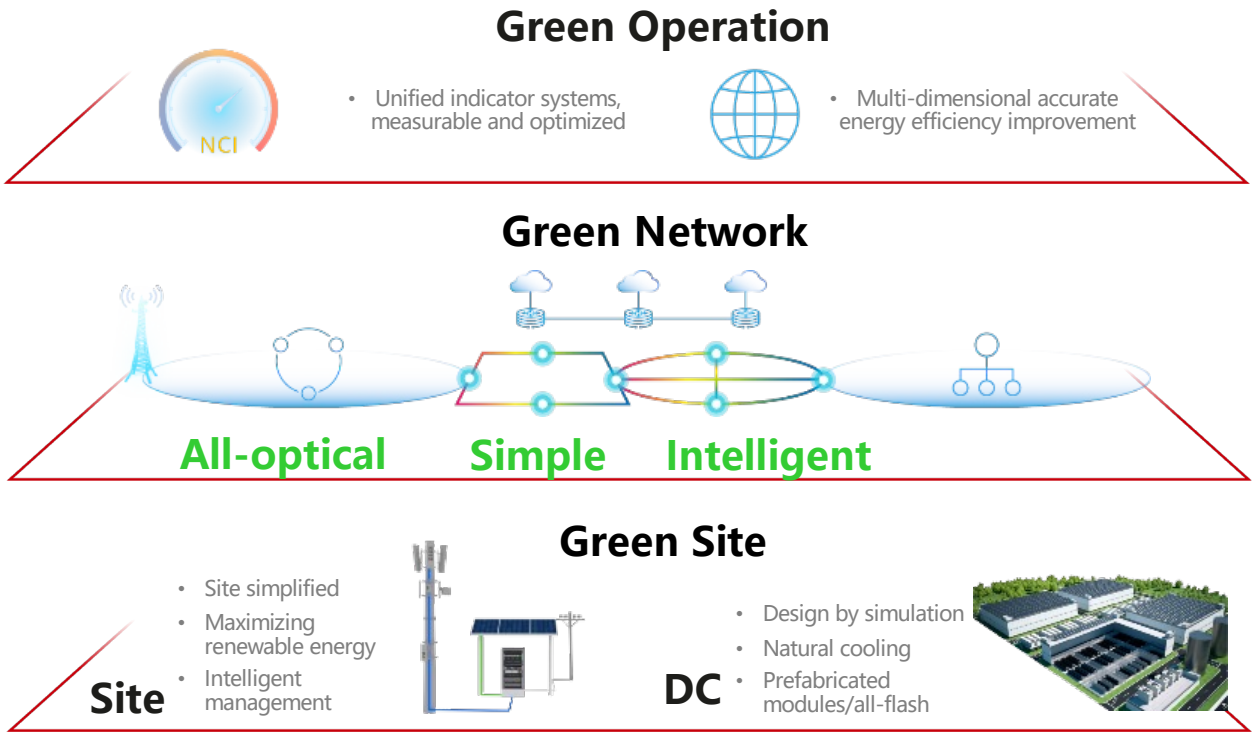
More Bits, less Watts



- The World Economic Forum reports: by 2030, ICT technology will help to reduce industrial emissions by nearly 10 times the amount they emit.

Source: More Bits, Less Watts: Energy efficient digitization - Verdict

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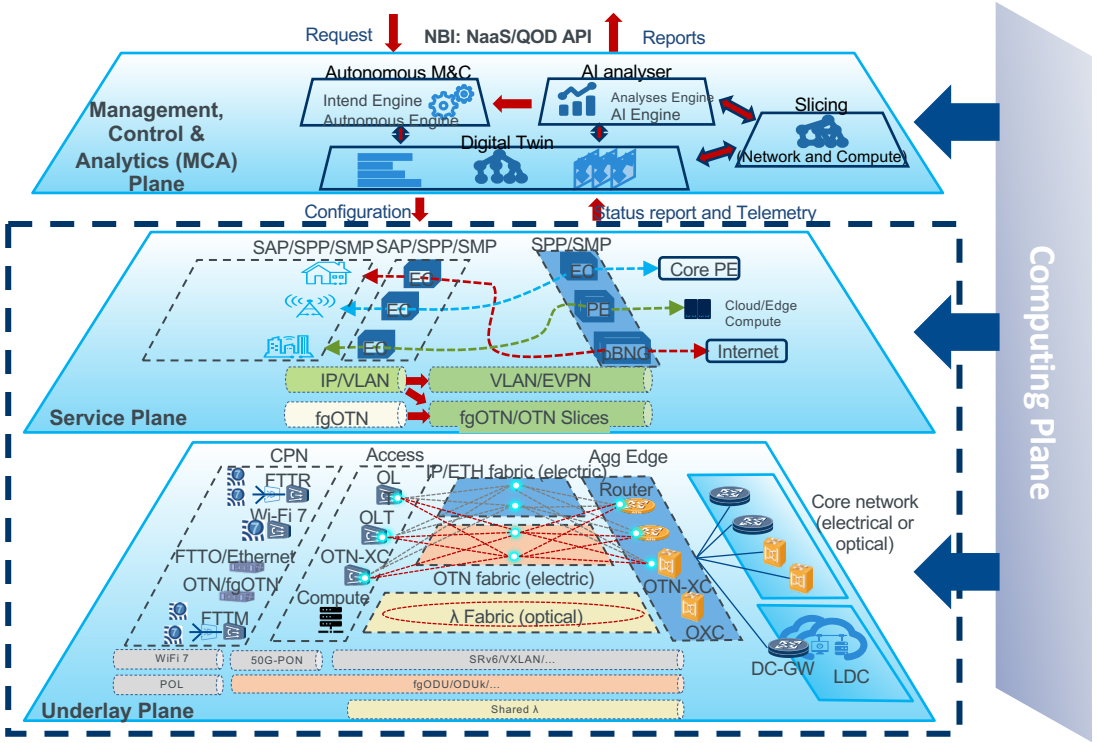
Standardisation of a Reference Architecture

F5G Advanced Architecture (in progress)



- **Underlay Plane**: OTN + IP/Eth dual plane
- **Service Plane**: decoupled, fgOTN for high-quality cloud services
- **MCA Plane**: AN L4, intelligent network operation
- **Cross-layer computing resources** for:
  - AI analyser & Digital Twin @ MCA Plane
  - Service Processing & Mapping Points @ Service Plane
  - NE-level AI training & inference @ Underlay Plane

Source: ETSI, F5G

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5th Generation Fixed Networks

Evolving F5G to F5G Advanced for 10Gbps Everywhere

Gigabit Society — 10Gbps Everywhere

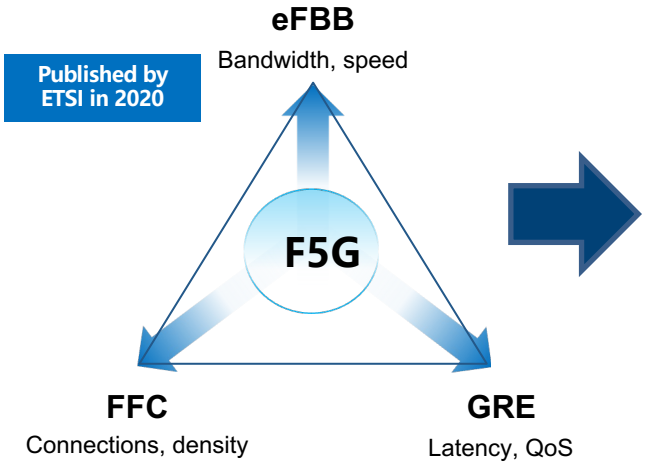
F5G (2020) → **F5G Advanced** (2025) → **F6G** (2030)

Extension (existing scenarios)

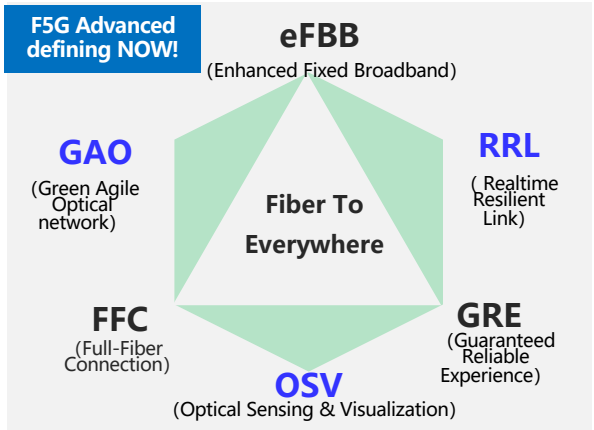
Expansion (new scenarios)

Source: ETSI, F5G

Published by ETSI in 2020



F5G Advanced defining NOW!



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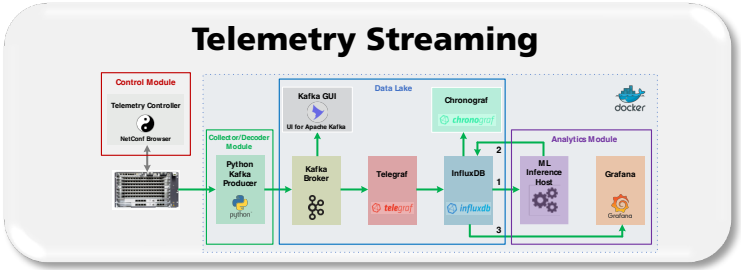
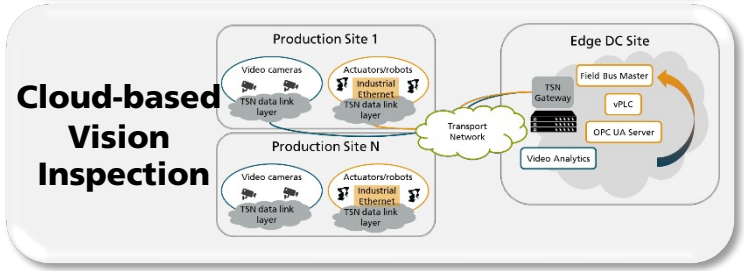
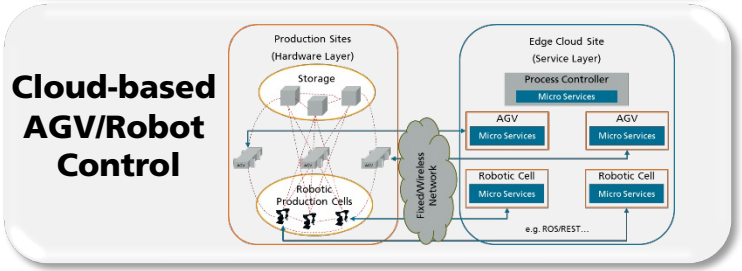
ETSI ISG F5G Proof-of-Concepts @ F5G OpenLab







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ETSI

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中国电信 CHINA TELECOM

POST LUXEMBOURG

Fraunhofer IPK

DENSO Crafting the Core

GERMAN EDGE CLOUD

HUAWEI

F5G OpenLab

AIOTI

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F5G OpenLab

Vision

- Contribute to a green and sustainable ICT industry
  by promoting Fiber to Everything
- Accelerate digital transformation by highly reliable and trustworthy autonomous networking

Mission

- Provide an ecosystem for validating networking solutions for twin transition
- Offer a vendor agnostic facility to verticals for evaluating their use cases
- Empower the development of fiber-based solutions

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WE PUT SCIENCE INTO ACTION.

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F5G Advanced Evolution, Key drivers and Enablers

Drivers

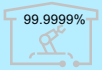
Digitalization & cloudification of applications


UHD Immersive

10 times bandwidth


Enterprise Digitalization

One-hop to cloud



FTTM

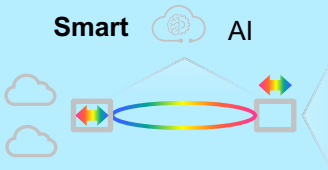
Higher reliability


Metaverse

New capability

+

Network Infrastructure



Sensing

Optical Fibers

Autonomy

Computing + Connectivity

Green

Zero-X, Self-X

Enabling technologies

(https://www.etsi.org/media-library/white-papers)

Network

- 800G OTN
- 50G-PON
- Wi-Fi 6e/7

Fiber to everywhere

- FTTRoom
- FTTOffice
- FTTMachine

Latency control

- Deterministic networking
- End to end slicing

Distributed computing

- Elastic resource scaling
- Latency aware process dispatching
- Network and processing optimization

Energy efficiency

- Energy aware switching/routing
- Power saving equipment modes
- Dynamic load shifting

Autonomous network

- Intent-based service modelling
- Knowledge graph for fault management
- Improved network information gathering

Network-based sensing

- Fiber cable digitization
- Distributed optical fiber sensing
- Wi-Fi sensing

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