



Delivering innovation that matters to you

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IGT Systems Innovation

10 March 2023

Workshop “Demand-pull drivers for Cloud Edge IoT in the Health Sector”

innovation ✦ you



TRANSACT Consortium



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30 Partners:

- 13 SMEs
- 6 Large Enterprises
- 6 Research Institutes
- 5 Universities

5 Industrial Use Case

- Transport and Smart Mobility
- Health and Well-being
- Digital Industry

- **Duration:** 06/2021 – 06/2024



This project has received funding from the ECSEL Joint Undertaking (JU) under grant agreement No 101007260. The JU receives support from the European Union's Horizon 2020 research and innovation programme and Netherlands, Finland, Germany, Poland, Austria, Spain, Belgium, Denmark, Norway.

Project rationale



Safety-critical systems are still deployed as standalone systems because it is currently the only way to ensure the system's **safety, security and performance** simultaneously.

Market trends show the need of:

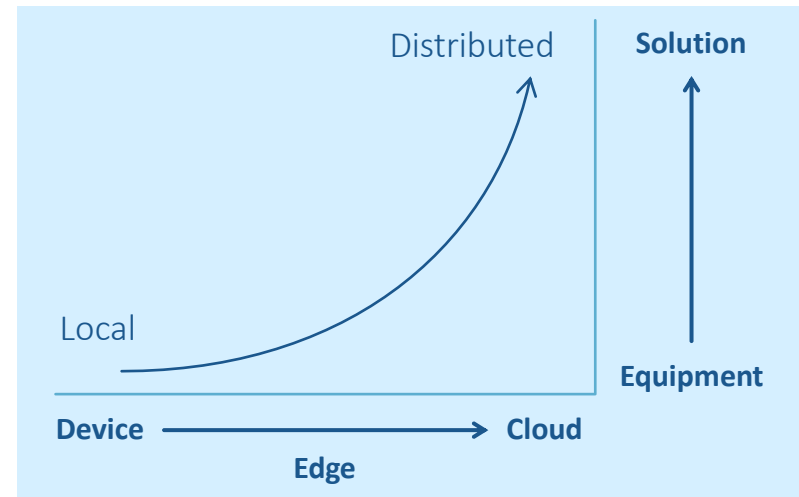
- Novel services based on smart data analytics
- Continuous updates of applications and services,
- Extended lifetime and reduce Bill-of-Material (BoM)
- Reduce operation and maintenance costs.

Project goal



Develop a universally applicable distributed solution architecture, framework and transition methodology for the transformation of standalone safety-critical CPS into distributed safety-critical CPS solutions.

- 1 Transforming CPS' architecture from monoliths to distributed solutions
- 2 Ensuring CPS' performance in the device-edge-cloud continuum
- 3 Ensuring CPS' security and privacy in the device-edge-cloud continuum
- 4 Devising business models for CPS deployed in the device-edge-cloud continuum



Use Case Background



- Minimally invasive clinical procedures
- Live low-latency imaging for patient treatment
- Supported by advanced pre-, intra- and post-procedure clinical applications
- Integrated solutions combining X-ray, IVUS, UltraSound, IT systems

Image based
diagnosis

Pre-treatment
planning

Image guided
treatment

CT or MRI scans

Physician's
office

Multi
Disciplinary
team

IGT-lab
Control room

Image Guided Therapy Exam room
(e.g. Cathlab)



Use cases Value



Today's challenges

- Need to go to the operating room for planning
- Difficult to share information with staff or peers
- Availability of latest clinical tools at all locations
- Upgrade/ updates means downtime of the lab
- Difficult to add 3rd party tools
- Limitations in computation resources
- High initial investments, especially in multi-operating room environments (CAPEX)

Tomorrow's Value

- Planning **data accessible** to anyone, **everywhere**
- **Seamless data workflow** from planning to live use
- **Latest versions of clinical tools** immediately available everywhere
- Open and secure platform supporting **integration of tools** into one platform
- Computation intensive **algorithms** in a (local) cloud
- **Distributed solutions** with subscription model which lowers initial investment (OPEX); **pay per value** (clinical outcome)



Improved patient experience



Better health outcomes



Improved staff experience

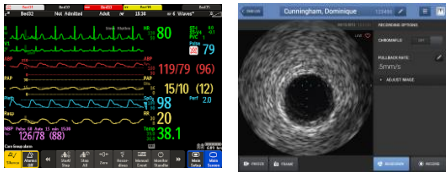


Lower cost of care

Innovation direction

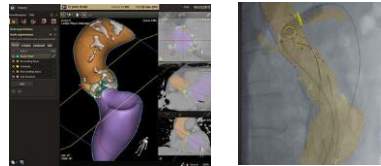


Device tier



Safety critical, real-time image & data acquisition and viewing

Edge tier



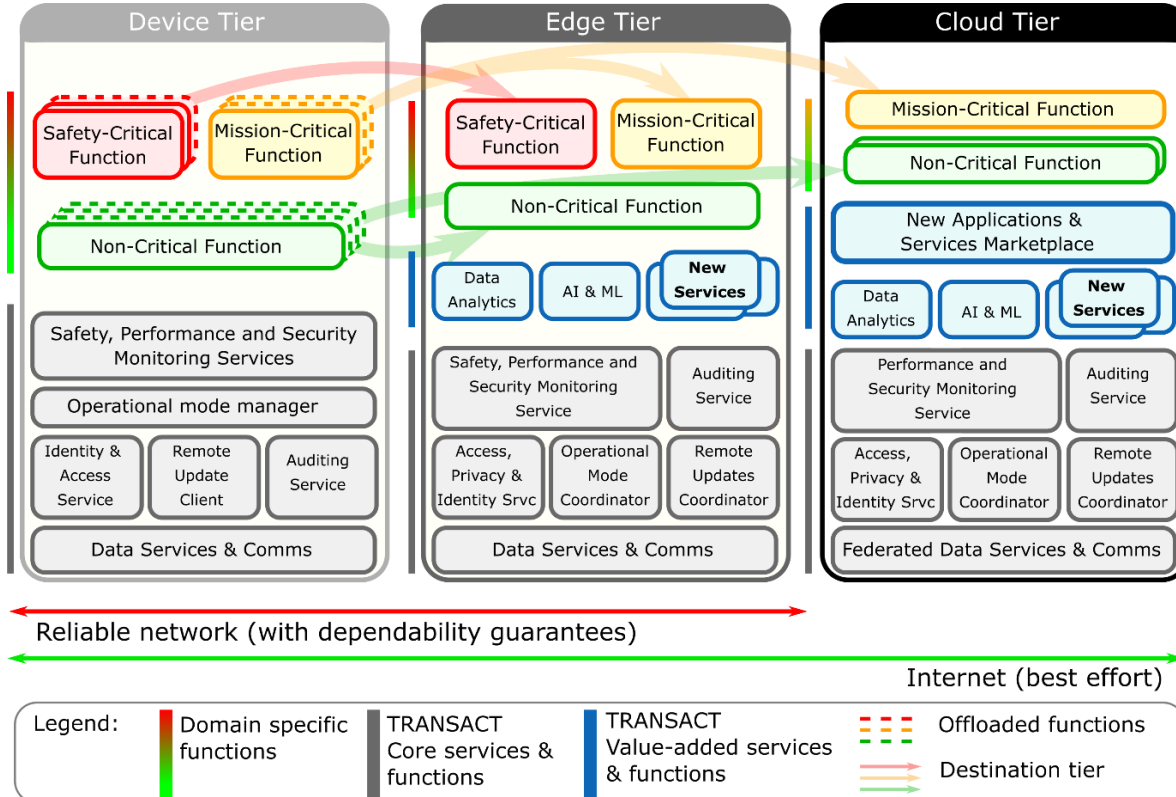
Pre interventional planning or off-line reviewing, cloud enhanced intervention applications

Cloud tier



3rd party integration and enhanced services, interventional application algorithms, data access enabler for AI applications

TRANSACT Reference architecture



- Allocation of mixed-criticality functions over the computing continuum of device-edge-cloud
- Both off-device tiers (edge and cloud) are multi-application, multi-device, possibly multi-tenant
- Applications can be flexibly deployed over this distributed architecture
- Novel services and applications can share the edge and cloud infrastructures

For info about the TRANSACT project please visit our [website](#) and [LinkedIn](#) page

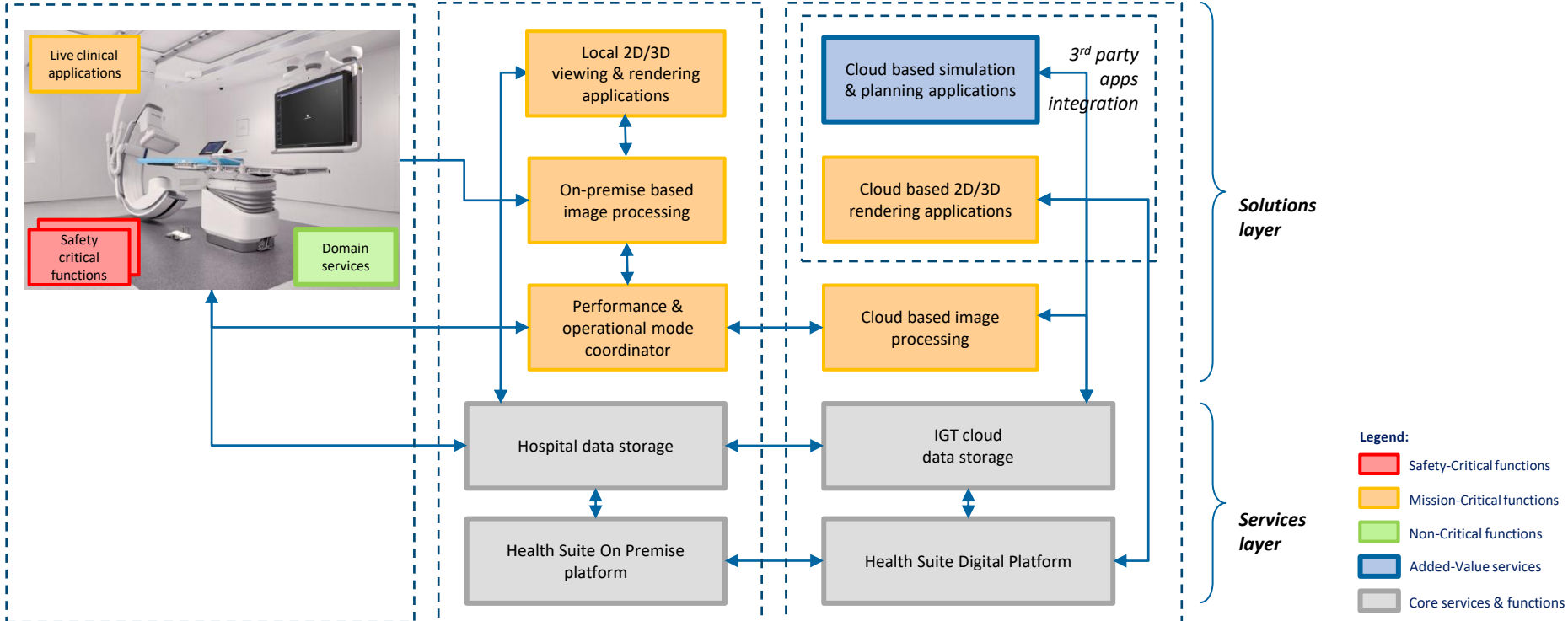
Edge-cloud-based clinical applications platform



Imaging room
(Device tier)

Hospital IT
(Edge tier)

Philips Cloud
(Cloud tier)



- Legend:**
- Safety-Critical functions
 - Mission-Critical functions
 - Non-Critical functions
 - Added-Value services
 - Core services & functions

Philips HealthSuite Digital Platform



For info about the Philips HSDP platform please visit our [website](#).