NEARBY COMPUTING

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INDRA

New network paradigms for **critical industries**

Challenges

01

RELIABILITY

Mission-critical industries like aerospace, utilities, defense, transportation, etc. **require ultra-reliable solutions**, designed to deliver under any possible conditions. **IT systems are a key factor** to secure it.

02

EDGE COMPUTING

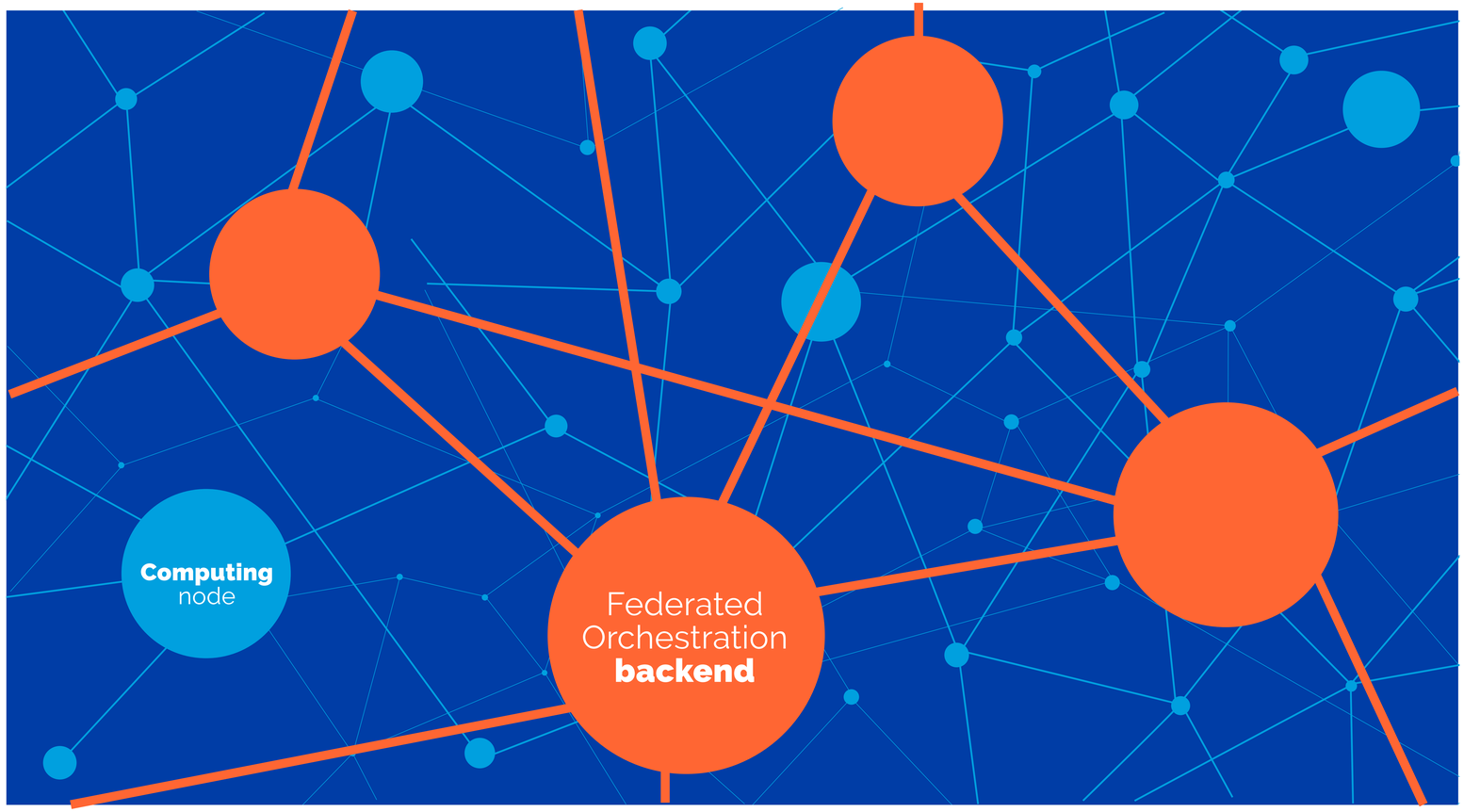
These industries cannot extensively leverage the Cloud Computing capacities as **many workloads require controlled latency** or cannot rely on the availability of the network.

03

FLEXIBILITY

Industrial specific-purpose appliances **are very performant but rigid** and do not offer the basis for a fast introduction of new solutions to constantly improve operations.

Highlevel solution architecture



Mission-critical networks present a **cloud topology** where each node has a computing capacity and a list of connections to other nodes (SAT, 5G, point-to-point, etc.)

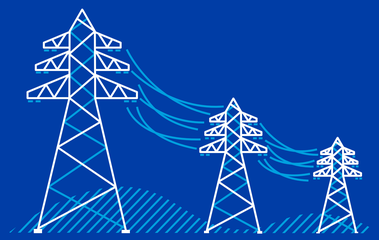
Orchestration and automation tasks are **ensured by a set of federated orchestration backends** that can dynamically take full or partial control of the network and nodes.

Through orchestration, the network uses its aggregated capacities in an optimal way **according to each workload requirements** (processing power, latency, bandwidth).

The Orchestrator ensures **re-routing and network availability** in case of missing links.

Security levels are managed following the workloads of each node, **dynamically**.

Mission-critical Use Cases



Power Grid

- Virtualization of Protection and Control functions.
- Automated substation control through AGV and video analytics via Mobile Private 5G.
- Edge-to-Cloud IoT analytics.
- Mission-Critical Comms.
- Smart meters management.

Connected Vehicle V2X

- Vehicle-to-Infrastructure connectivity management.
- 5G MEC deployment in remote sites: video analytics, CDN, IoT
- Dynamic sizing of resources according to traffic status.
- Neutral host architecture.

Multi-domain Cloud (Defense)

- Distributed data processing.
- Dynamic routing, multi-network management.
- Tactical objectives injection as an orchestration policy.
- Enhanced security.
- Automated service recovery.
- Federated orchestration.
- Tactical 5G.

Outcomes

1 Ultra-performant network, meeting the strongest SLA requirements

2 Continuous network observation

3 Fast reconfiguration capability

4 Managed Security

NearbyOne

Brings the most performant automation and orchestration features, allowing:

- Dynamic orchestration to enable the achievement of defined goals amidst an ultra-changing, managed and unmanaged environment.
- Continuous monitoring and analysis of the network status to re-configure it on-the-fly (core, routing, security, etc.) when needed.
- Multi-network (5G, SAT, etc) coordination.
- Distribution of virtualized apps and related network configuration to guarantee service performance and continuity. Integration of AI workloads.
- Intra-node orchestration to cater for the specific hardware needs of every application and ensure performance in a shared computing environment.