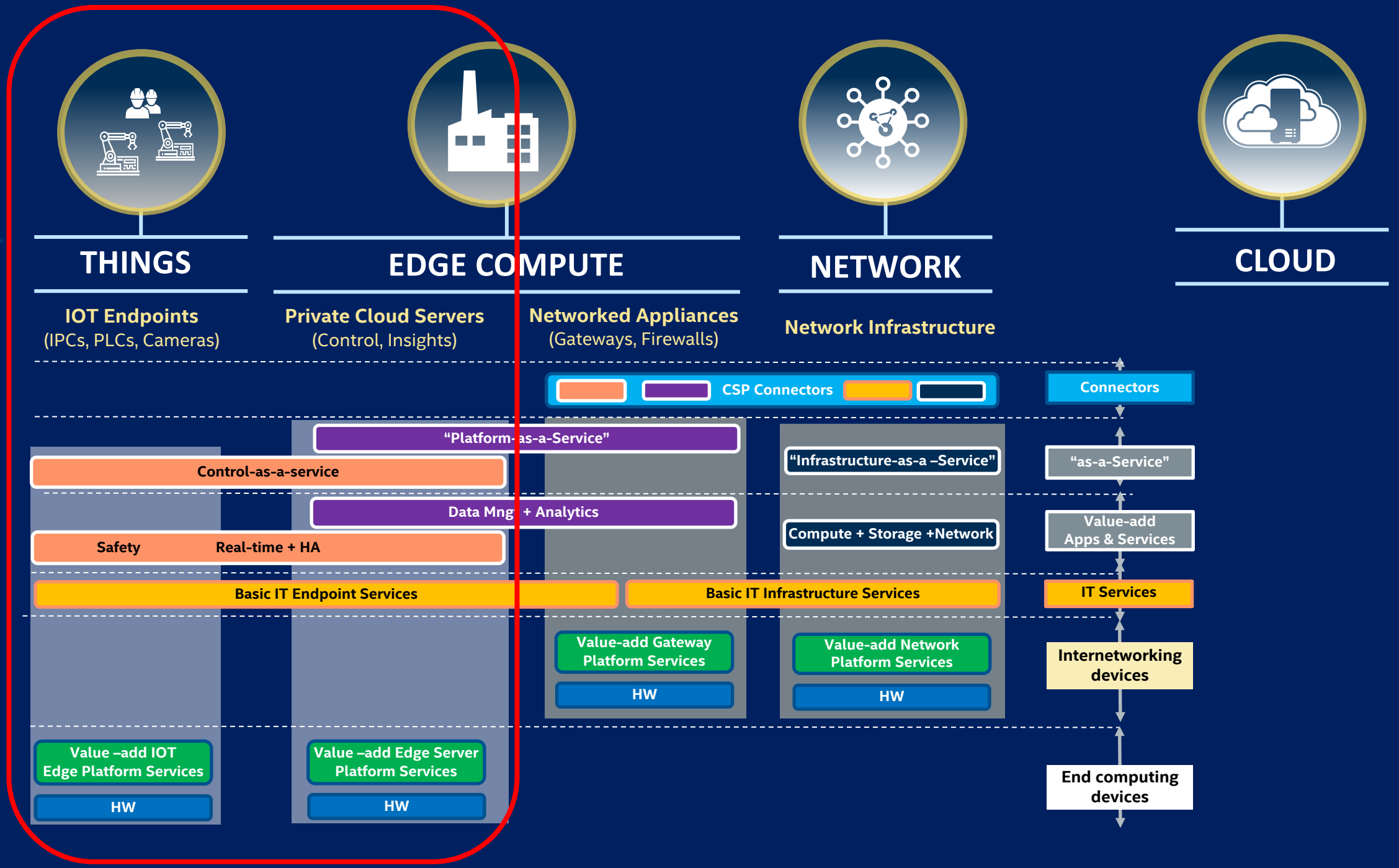
Time-critical Edge Compute blueprint

https://wiki.akraino.org/display/AK/Time-Critical+Edge+Compute


THINGS
EDGE COMPUTE
NETWORK
CLOUD
IOT Endpoints
(IPCs, PLCs, Cameras)
Private Cloud Servers
(Control, Insights)
Networked Appliances
(Gateways, Firewalls)
Network Infrastructure
CSP Connectors
Connectors
"Platform-as-a-Service"
"Infrastructure-as-a –Service"
"as-a-Service"
Control-as-a-service
Data Mng + Analytics
Compute + Storage +Network
Value-add Apps & Services
Safety
Real-time + HA
Basic IT Endpoint Services
Basic IT Infrastructure Services
IT Services
Value-add Gateway Platform Services
Value-add Network Platform Services
Internetworking devices
HW
HW
Value –add IOT Edge Platform Services
Value –add Edge Server Platform Services
End computing devices
HW
HW

Time-critical Edge Compute Blueprint: Use Cases

- Use cases in Manufacturing, Smart Buildings, general IIOT
  - Virtualized PLC
  - Computer vision inference
  - Machine, sensor data inference
  - Process or discrete manufacturing closed loop control
  - Ethernet TSN
- Functional Safety capable use cases
  - Discrete manufacturing soft PLC
- Onramp for 5G-URLLC

*Other names and brands may be claimed as the property of others

Time-critical Edge Compute Blueprint

- SW Contributors
  - Intel
  - IOTech
  - Huawei
  - WiPro
- Hardware Contributors
  - Dell (x86), HPE (x86), Huawei (ARM)

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Containerized edge workloads

- Containerized workloads orchestrated via Kubernetes tuned for embedded deployments
- Sample workloads include
  - Tensorflow via Kubeflow
  - OpenVINO for Video and Inference
  - Closed loop control (e.g. IEC 61131)
  - EdgeX Foundry
  - Building automation controller

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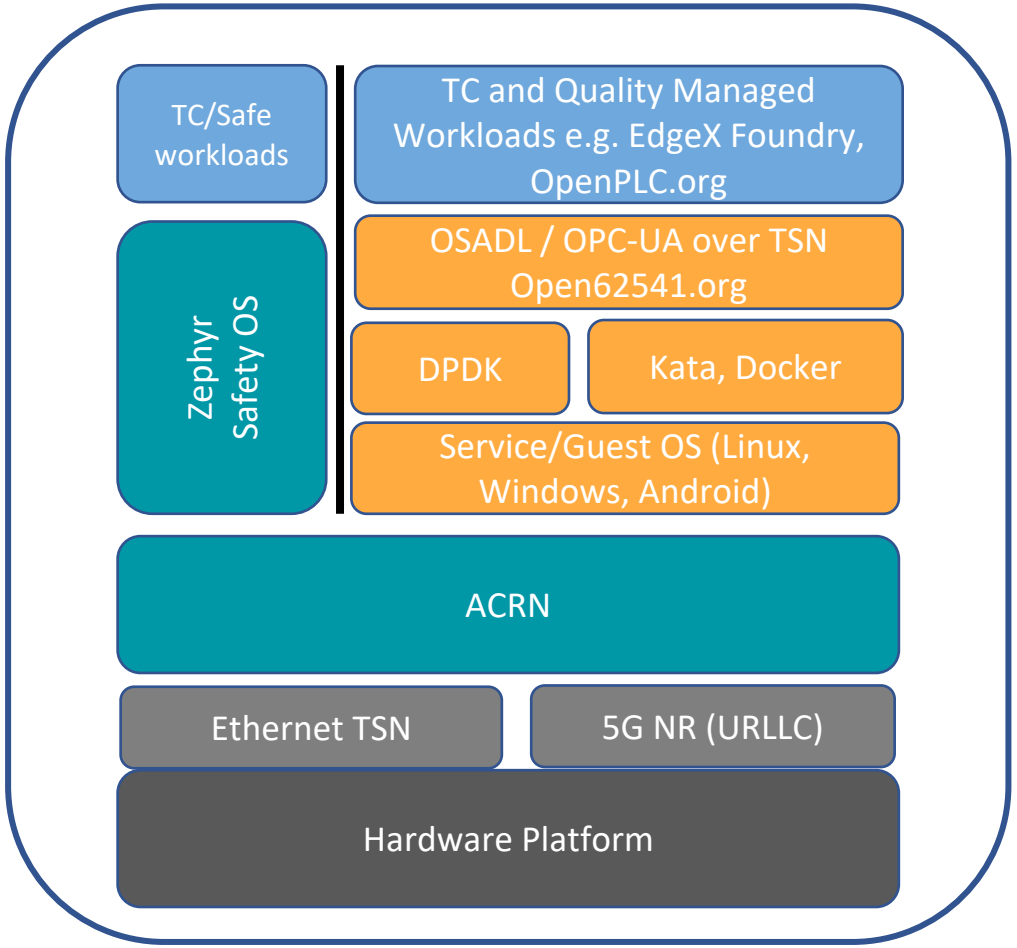
Time-critical Edge Compute Blueprint: Base Architecture



Open Source or potentially proprietary

Open Source

Open Source and Functionally Safe capable

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