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Problem statements and requirements of CATS on the Industrial Internet

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CATS and Industrial Internet

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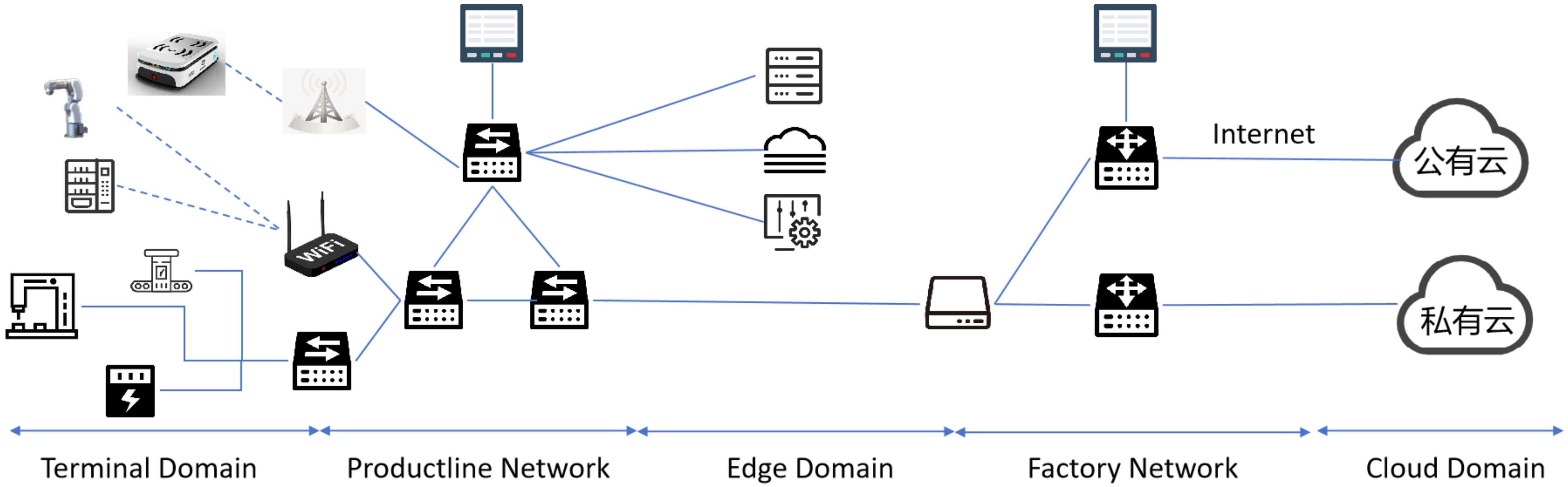
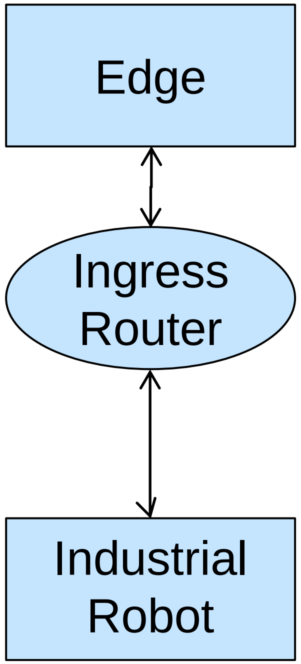
The Industrial Internet is **a new infrastructure**, application mode and industrial ecology with the deep integration among the new information technology, communication technology and the industrial economy.



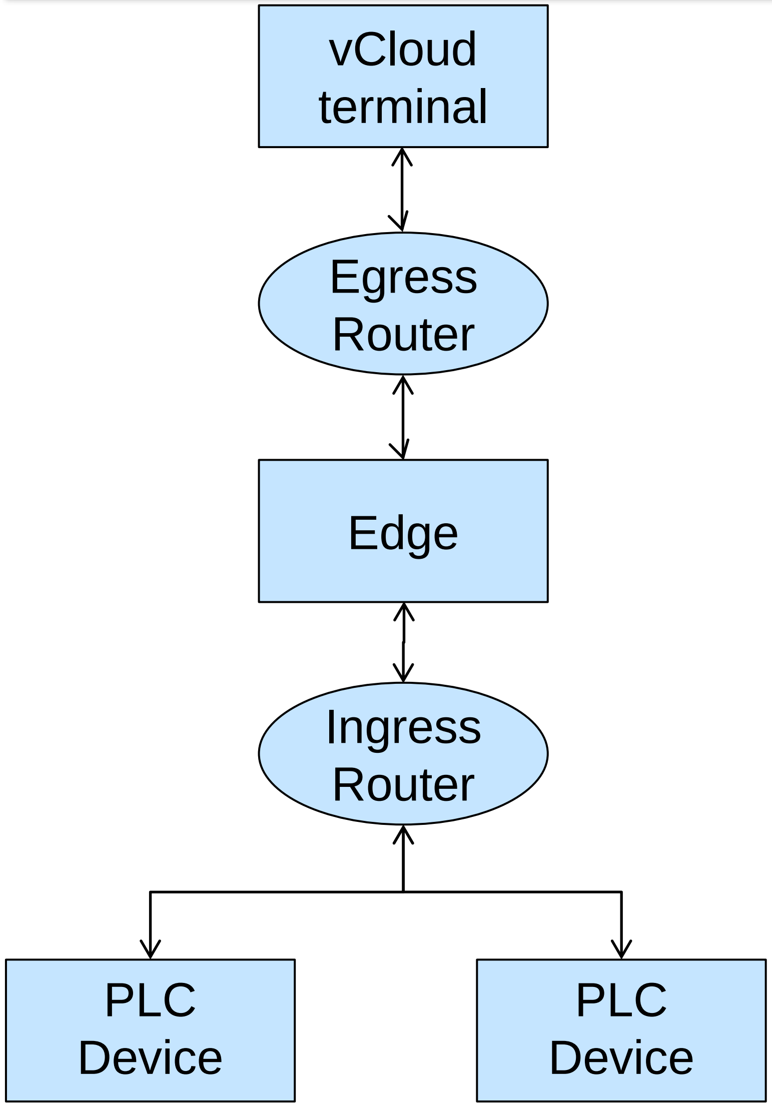
Industrial production tasks are **time-sensitive**, which put forward high requirements on networks and computing power. We **mainly focus on the application scenarios and requirements of CATS in the industrial sector**, which are not present in the current working group document.

Use Cases 1: Computing-Aware Industrial robots



- The automatic manufacturing of soft materials has always been a difficult problem in industrial manufacturing. For the sake of unpredictable deformation of materials, it brings difficulties to the traditional equipments, unless it can recognize real-time states of the deformation for producets.Furthermore, productlines need to accurately perform operations and correct the negative effects of the deformation.
- The execution of complex assembly tasks in intelligent manufacturing requires the cooperation of multiple robots.
- In this use case, we need to consider the impact of the robot's machine learning on the network transport. In flexible manufacturing, the difference in the processing tasks of the robot application will affect the use of computing power, which in turn affects the routing of CATS.

Use Cases 2：Computing-Aware vCloud terminal



- Cloud services are control functions migrated from physical devices to Industril cloud, datacenter or edge, dramatically reducing production line costs. The requirements of network cooperation are proposed to reflect the exact requirements from end to end at the application level, This requires the network to connect the computing power of physical production equipments and cloud applications.
- Cloud services change flexibly, creating challenges for network adaptation.
- To Meet the application's high performance requirements such as communication delay, bandwidth, and cloud computing power. Typical scenarios for cloud X services include on-site production line equipment control, robot control, automatic guided vehicle control, 5G PLC, etc.

Use Cases 3: Computing-Aware Multi-Application collaboration

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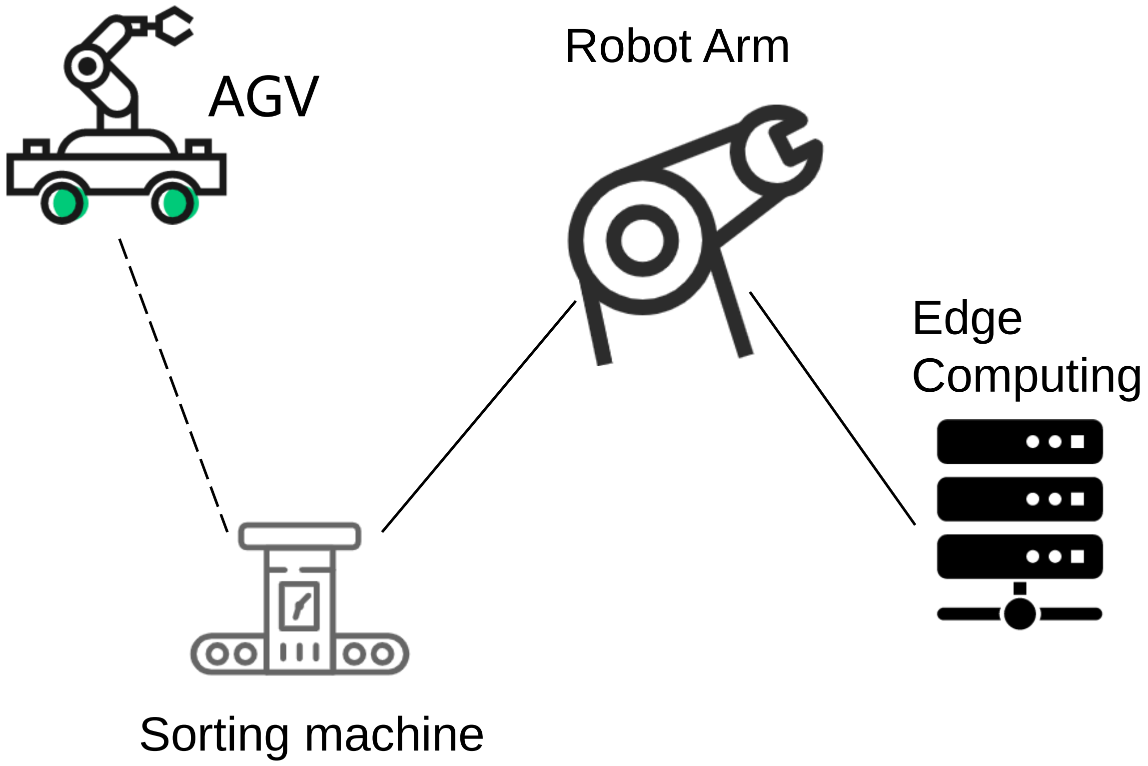
Industrial applications and computing services work together to implement the entire production process, affecting the performance of the entire production process as the computing power changes on the edge side and the cloud side.



- **By awaring the status of computing power used by multiple applications, cats can adjust the network configuration to optimize the entire production process.** In order to ensure the certainty of the entire production business, it is necessary to globally manage a series of applications and network transmission.

Our use cases are CATS working in the industry

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Table of Contents

1. Introduction
2. Definition of Terms
3. Problem Statement
   3.1. Multi-deployment of Edge Sites and Service
   3.2. Traffic Steering among Edges Sites and Service Instanc
4. Use Cases
   4.1. Computing-Aware AR or VR
   4.2. Computing-Aware Intelligent Transportation
   4.3. Computing-Aware Digital Twin
   4.4. Computing-Aware SD-WAN
   4.5. Computing-Aware AI Large Model Inference
5. Requirements
   5.1. Support dynamic and effective selection among multipl service instances
   5.2. Support Agreement on Metric Representation
   5.3. Support Moderate Metric Distributing
   5.4. Support Alternative Definition and Use of Metrics
   5.5. Support Instance Affinity
   5.6. Preserve Communication Confidentiality
6. Security Considerations
7. IANA Considerations
8. References
   8.1. Normative References
   8.2. Informative References

Industrial Use-cases of CATS

Industrial Requirements of CATS

Security of Industrial CATS

Method to add draft to existing working group

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1. Add our information to the corresponding chapter with the same name. In the future, we continue refine use-cases and requirements.

2. We add an industrial use case to the use case chapter, and then we present several modes in it.

Next plan

Enrich and improve the use cases

Supplement the requirements

Explore CATS technology in the Industrial Internet

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Thank you!

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