

Applicability of 5G Industrial Edge Computing at 5G ACIA

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5G Alliance for Connected Industries and Automation 5G-ACIA | Speaker Introduction

- Samita Chakrabarti, Verizon, Technology Strategy & Planning, USA
 - Standards Architect, Industrial IoT/5G
- 5G-ACIA
 - Technical Lead Delegate
 - Rapporteur of Industrial Edge Use cases and Requirements Study in WG1
- GSMA IoT Manufacturing Group
 - Technical Delegate
 - Steering Committee member
- IETF
 - IOT-Directorate co-chair
 - 6lo WG co-chair (2013-2018)
 - Co-authors of RFCs

5G Alliance for Connected Industries and Automation 5G-ACIA Mission and Structure



Mission

Ensure the best possible applicability of 5G technology and 5G networks for the manufacturing and process industry by addressing, discussing and evaluating relevant technical, regulatory and business aspects.

	5G-ACIA Office				
	Regular F	Plenary Meetings (4-	S per year)		
Working Group 1	Working Group 2	Working Group 3	Working Group 4	Working Group 5	Daily Operations
Use Cases & Requirements	Spectrum & Operating Models	Architecture & Technology	Liaisons & Dissemination	Validation & Tests	
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5G Alliance for Connected Industries and Automation 5G-ACIA Goal towards Edge Computing Studies



- 5G-ACIA is evaluating and understanding Edge Computing benefits in Industrial 5G
- A strategic goal on Edge Industrial use cases, requirements and Deployment architecture has been introduced in 2020 in 5G-ACIA
- We start by analyzing the use cases and requirements on 5G Industrial Networks in WG1. Following the Edge computing use-cases and requirements, a study on deployment and reference architecture in the Industrial Networks and Manufacturing will be done in 5G-ACIA WG3.
- Understanding the benefit of Edge use cases in Industry 4.0 using 5G
 - Latency (low or ultra-low)
 - Compute and storage needs at the Edge
 - Performance
 - Bandwidth
 - Security requirements between the applications & devices and 5G systems
 - Location of Edge and data-path, control function and application locations

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5G Alliance for Connected Industries and Automation 5G-ACIA Goal towards Edge Computing Studies



- The use-case and requirements studies are considering input from 3GPP TS 22.104, TR 22.832 and TR 22.804, ETSI MEC Enterprise use-cases and ACIA defined key use-cases:
 - Understanding the Edge applicability
 - Need for virtualization and offloading of applications on the premises
 - Impact of Edge computing on AR/VR applications and AI processing
 - Use-cases on Automatic Mobile Robots control, local processing using AI and computer vision
- Examples:
 - Use on-premise Computer vision and AI technologies to detect objects
 - Using Computer vision and AI technologies to detect fault in manufacturing or warehousing Assembly lines and taking actions in a feedback loop
- At the end of the study, 5G-ACIA will do the gap analysis of use-cases, service requirements, 5G system requirements, need for new API etc. and plan to work with 3GPP groups and other relevant SDO (i,e., ETSI MEC, GSMA etc.) via liaison statements and contributions via member companies
- 5G-ACIA Testbeds on Edge computing will be consulted as well

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5G Alliance for Connected Industries and Automation Questions for Edge Computing Contributions



- In future, findings from 5G-ACIA edge studies may bring new 5G Industrial Edge use cases and requirements which might require updates to TR22.804, TS 22.104 or TR22.832. – is there a possibility that 3GPP might add a separate document on Edge use-cases and requirements on different verticals?
- 5G-ACIA Industrial Edges can range from SNPN to PNI-NPN with machine to machine, machine to controller, APP to device communication. TR 23.748 and TR 23.758 will be useful guidance for the architecture part of the study. Does 3GPP have a plan to move forward towards a solution architecture document for Edge computing for different verticals? How would 5G-ACIA Edge computing use-cases, requirements and architecture outcome collaborate with SA sub-groups?

5GACIA

5G-ACIA | Members

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| Shaping the Industrial 5G Revolution







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