

TSC 2023-02-16 (Thursday) 7:00 am Pacific

Meeting Time: 07:00 AM PST / 03:00 PM UTC (See [call time in different zones](#))

BRIDGE: <https://zoom.us/j/184289009?pwd=aWRuMUUs2dW5kUTNodS95UTZpTWh6QT09>

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Meeting Recording: TBA

(Example of collaborative meeting minutes, using Presos/Notes/Links : <https://wiki.onap.org/display/DW/TSC+2020-03-12>)

Attendance

Attended	Proxy (w/ @name)	Gov. Holiday	Did Not Attend
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Attendance is taken purely upon #info in Zoom Chat (Extended TSC)

Fukano Haruhisa	Fujitsu	Peter Pouliot	Ampere Computing
Ike Alisson	Alicon	Bai Changming	Alibaba Cloud
Jim Xu	Zenlayer	Rong Huang	China Unicom
Jeff Brower	Signalogic	Manik Sidana	Coredge.io
Yu, Liya	Baidu	Thor Chin	PGTalk
Bart Dong	Tencent	Leo Li	Socnoc AI Inc.
Deepak Kataria	IEEE Future Networks	Tina Tsou	Arm
Jianfa Shen) proxy by Jiangliu	ByteDance	xinhui	Salesforce
Yin Ding	Google	YanJun Chen	China Mobile Research Institute
Moshe Shadmon	AnyLog	Davy Zhang	Ysemi Computing

Time (mins)	Agenda Items	Presented By	Presos /Note /Links/	Meeting Minutes
15	Akraino Spring Summit Planning	Yin Ding	Planning Committee members: Jim Xu Jeff Brower Wenhui Zhang	
5	Release 7 Planning			
10	PTLs and Subcommittee Chair Update			

10	Security when using ML	Ike Alisson and Jeff Brower	<p>Aspects related to Security when using ML:</p> <p>Brief meeting notes about Ike's diagrams:</p> <p>1) DetNet is defined in IETF RFC 8398</p> <p>2) "Subject to User Consent, Operator Policy, and Regulatory Constraints" – this is very broad. I'm not sure what basic assumptions Akraimo should use when reviewing and updating its Security policies</p>	<p>5G Advanced implementation of AI/ML Applications and ML Model Transfer Capabilities</p> <p>In 5G, AI/ML is specified to be used in a range of Application Domains across Industry sectors. In 5G Mobile Communications Systems, Mobile Devices (e.g. Smartphones, Automotive, Robots) are increasingly replacing conventional algorithms (e.g. Speech Recognition, Image Recognition, Video Processing) with AI/ML Models to enable Applications. The 5G System (5GS) can at least support three (3) types of operations:</p> <ol style="list-style-type: none">1. The UE Data Exposure Client (DEC) is responsible for sending Data request to the Data Information AF (IEAF, evolved Rel. 17 DCA/IAF) to collect Data from NWDAF as an input for Application Layer AI/ML operation. The IEAF is always in the MNO Domain & the DEC is based on 3GPP defined Procedures & Security & therefore is also under the control of MNO. The Data Collection Request Application may trigger the IEAF to collect Data from NWDAF (IEAF deployment shown below).2. AI/ML Model/Data Distribution & Sharing over 5GS (the Model Performance at the UE needs to be constantly).3. Distributed/Federated Learning (FL) over 5GS (The Cloud Server trains a Global Model by aggregating Local Models partially-trained by each End Device via 5G UL). The Server aggregates Interim Training results from the UEs & updates the Global Model. The Updated Global Model is then distributed back to the UEs & the UEs can perform the Training for the Next Iteration. Based on Operator Policy, the 5GS shall be able to provide means to predict & expose predicted Network Condition changes (i.e. Bitrate, Latency, Reliability) per UE, to an Authorized 3rd Party. Subject to User Consent, Operator Policy, Regulatory Constraints, the 5GS shall be able to support a Mechanism to expose Monitoring & Status Information of an AI/ML Session to a 3rd Party AI/ML Application & be able to expose information (candidate UEs) to an Authorized 3rd Party to assist the 3rd Party to determine Member(s) of a Group of UEs (e.g. UEs of a P. Group). Depending on Local Policy or Regulations, to protect the Private Data, the Data Collection, ML Model Training & Analytics generation for a Subscriber/User Id, Internal or External Group, Id or any UE may be subject to User Consent bound to a Purpose, Analytics or ML Model Training. The User Consent is "Subscription Information" stored in the 5G CN, which includes: A) where the User authorizes the Collection & Usage of its Data for a Particular B) the Purpose for Data Collection, e.g. Analytic or Model Training. <p>5GS (System) proposes a Common Solution Framework to assist various Application AI/ML Operations with Assistance Info & Procedures from 5GC. In this Framework, the similar Service Requirements/Operational behaviours are organized into various Application AI/ML Assistance (AaML) Service Profiles where Each Profile defines specific AaML Service. The AaML Services are a Set of Collects Extensions to the existing 5GC Services & the new 5GC Services which are defined specifically to assist the Application Layer AI/ML Service Operation. An AaML Service Profile is composed of 3 main information: A) Objective of Target AaML Operation B) Input of Provisioned Service Parameter(s) (e.g. Minimum One Way Delay, Predicted QoS Performance within the next 5 min., C) Output (e.g. Candidate UEs, Event Report for the Group of UEs) Backward Consumption.</p> <p>Figure 5G System Service Architecture with AaML NF</p> <p>Figure 5G Application AI/ML Service Assistance Framework</p> <p>Figure 5G IEAF (Data Information AF)</p> <p>5G Advanced for 5G System interworking with IETF DetNet (Deterministic Networking) Architecture</p> <p>5GS Advanced release proposes an enhanced Architecture that supports the interworking between 5G System (5GS) & IETF specified DetNet (Deterministic Networking) Architecture to achieve Deterministic Forwarding Mechanism in 5G Mobile Network. The 5GS supports IETF DetNet by abstracting the whole 5GS as a "DetNet Node" (shown below). The Architecture, based on 5GS QoS Framework, maps the DetNet flow (through DetNet YANG model) to 5GS QoS Flow (shown in Fig. below). It supports DetNet IP Data Plane & Forwarding Sub-Layer Operations with specific QoS & Management Capabilities that are exposed to DetNet Controller. No UE impact is required. While the UE is logically part of the 5GS DetNet Node, the DetNet Controller may also act as a separate DetNet Capable IP Router Node. The 5GS supports the DetNet Node Functions & DetNet Forwarding Sub-Layer related Functions except for Sub-Layer Functions. It uses DetNet Flow-Related Parameters from the DetNet Controller as DetNet Configuration Parameters for DetNet Traffic. DetNet Controller determines the E2E ensures the E2E Requirements of the DetNet flow & 5GS should strictly ensure the Requirements as e.g. - The DetNet IP flow description identifies the DetNet flow & can be mapped to Filter Set under 5GS QoS Framework (extended in TSCTSP) & using the following methods: - The Minimum Guaranteed Bandwidth is mapped to GBR in QoS Profile, - The Maximum mapped to 5QI-PDB in QoS profile, - The Maximum Packet Loss is mapped to 5QI-Error Rate in QoS Profile. The TSCTSP converts DetNet Configuration Parameters for DetNet Traffic QoS Parameters & TSCTSP, such as Interval into Periodicity & MaxPacketsPerInterval & MaxPayloadSize combined into MDBV. Due to the lack of any minimum values for Payload Size Packets in the 5GS, MinPayloadSize & MinPacketsPerInterval cannot currently be mapped into 5G Parameters. In DetNetFlowRequirements, the MaxLatency, MaxLatencyVariation, MaxLoss, MaxConsecutiveLossTolerance, & MaxMisordering attributes specify Requirements not in a Single DetNet Node but throughout the DetNet Flow Path. 5GS provisions & enables DetNetFlowRequirements as specified in IETF DetNet Architecture. Currently, the 5GS may allow for the translation of MinBandwidth to GBR, MaxLatency to PDB, & MaxLoss to PER. DetNet defines the Packet Replication, Elimination, & Ordering Functions (PREOF) as a way to provide Service protection (through 4 Capabilities, such as: 1. Sequencing information, a Sequence Nr or Time Stamp as part of DetNet (typically done once, at or near the Source); 2. Replicating Packets into Multiple DetNet Member Flows, & sending them along Multiple Paths to the Destination(s); 3. Eliminating Duplicate Packets of a DetNet Flow based on the Sequencing Information & a History of Received Packets; 4. Reordering DetNet Flow's Packets received out of order; Packet (Hybrid) ARO, Replication, Elimination and Ordering (PAREO) is a superset of DetNet's PREOF, defined in RAW (Reliable & Available Wireless), that Radio-specific Techniques such as Short-range Broadcast, MU-MIMO, Constructive Interference & Overhearing, which can be leveraged separately or combined to increase the Reliability multiple Scenarios & UCs that might involve Multiple Technologies &/or Administrative Domains in DetNet & RAW, e.g. several UCs, where Service "Reliability" & "Availability" are important.</p> <p>Figure 5G System (as DetNet Node) Enhanced Architecture and Network Function (NF)</p> <p>Figure 5GS QoS Management Framework mapping with DetNet flow using the TSCTSP (Time Sensitive Communication and Time Synchronization Function)</p> <p>Figure: DetNet Architecture Multidomain S Reference Model</p>
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Action Items ([Open Action Item Tracker](#))

Votes (template below)

Zoom Chat Log

Voting

SL No.	Voting Member	Member Company	Y/N/A
1	Fukano Haruhisa	Fujitsu	
2	Ike Alisson	Alicon	

3	Jim Xu	Zenlayer	
4	Jeff Brower	Signallogic	
5	Deepak Kataria	IEEE Future Networks	
6	Yu, Liya	Baidu	
7	Bart Dong	Tencent	
8	Davy Zhang	Ysemi Computing	
9	Moshe Shadmon	AnyLog	
10	Yin Ding	Google	
11	Peter Pouliot	Ampere Computing	
12	Bai Changming	Alibaba Cloud	
13	Rong Huang	China Unicom	
14	Manik Sidana	Coredge.io	
15	(Jianfa Shen)	ByteDance	
16	Thor Chin	PGTalk	
17	Leo Li	Socnoc AI Inc.	
18	Tina Tsou	Arm	
19	xinhui	Salesforce	
20	YanJun Chen	China Mobile Research Institute	