LF Edge Akraino Project Annual Review to LF Edge TAC

January 13th, 2021

Ike Alisson

LF EDGE TAC Akraino Annual Review Agenda

1. Akraino Project R3 Overview
2. Akraino Technology Information flow
3. Akraino 2021 API related activities

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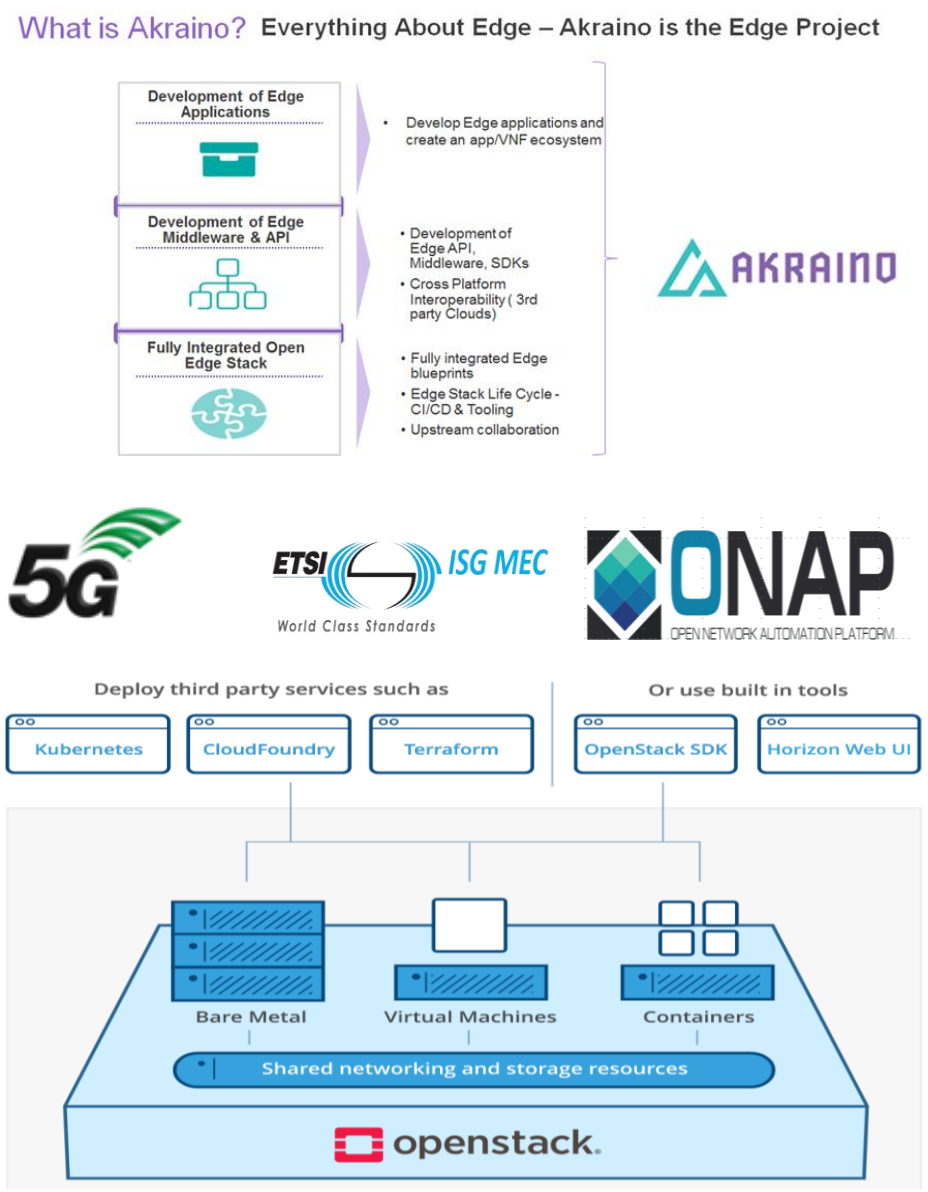
1. Akraino Project R3 Overview - 1

- 18 Blueprints (BPs), 4 BPs Proposals & 10 Development Projects
  - set of Open Infrastructures & Application Blueprints (BPs)

- Coordination & Co-operation with Multiple Upstream Open Source Communities/SDOs as:
  - Airship,
  - OpenStack,
  - ONAP,
  - ETSI MEC,
  - GSMA,
  - TIP,
  - CNCF
  - O-RAN

Objective: To deliver a fully integrated stack

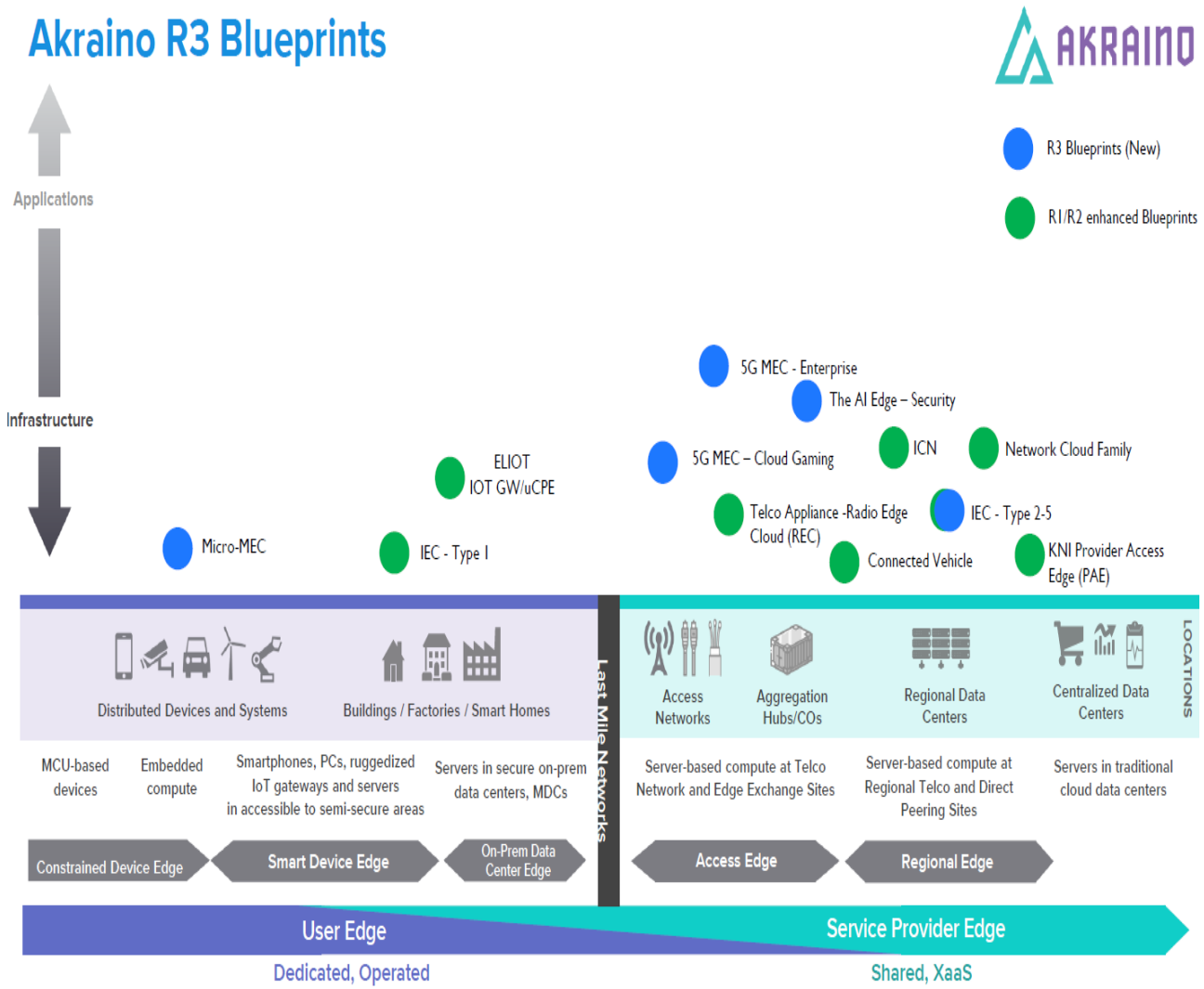


1. Akraino Project R3 Overview - 2

- Akraino Release 3 (R3) - approved in August 2020

- Akraino Release 3 (R3) included 6 new Blueprints:

1. 5G MEC/Slice System to Support Cloud Gaming, HD Video and Live Broadcasting Blueprint
2. The AI Edge: Education Video Security Monitoring;
3. Micro-MEC
4. IEC Type 3: Android Cloud Native Applications on Arm servers on the Edge
5. IEC Type 5: SmartNIC for Integrated Edge Cloud
6. Enterprise Applications on Lightweight 5G Telco Edge



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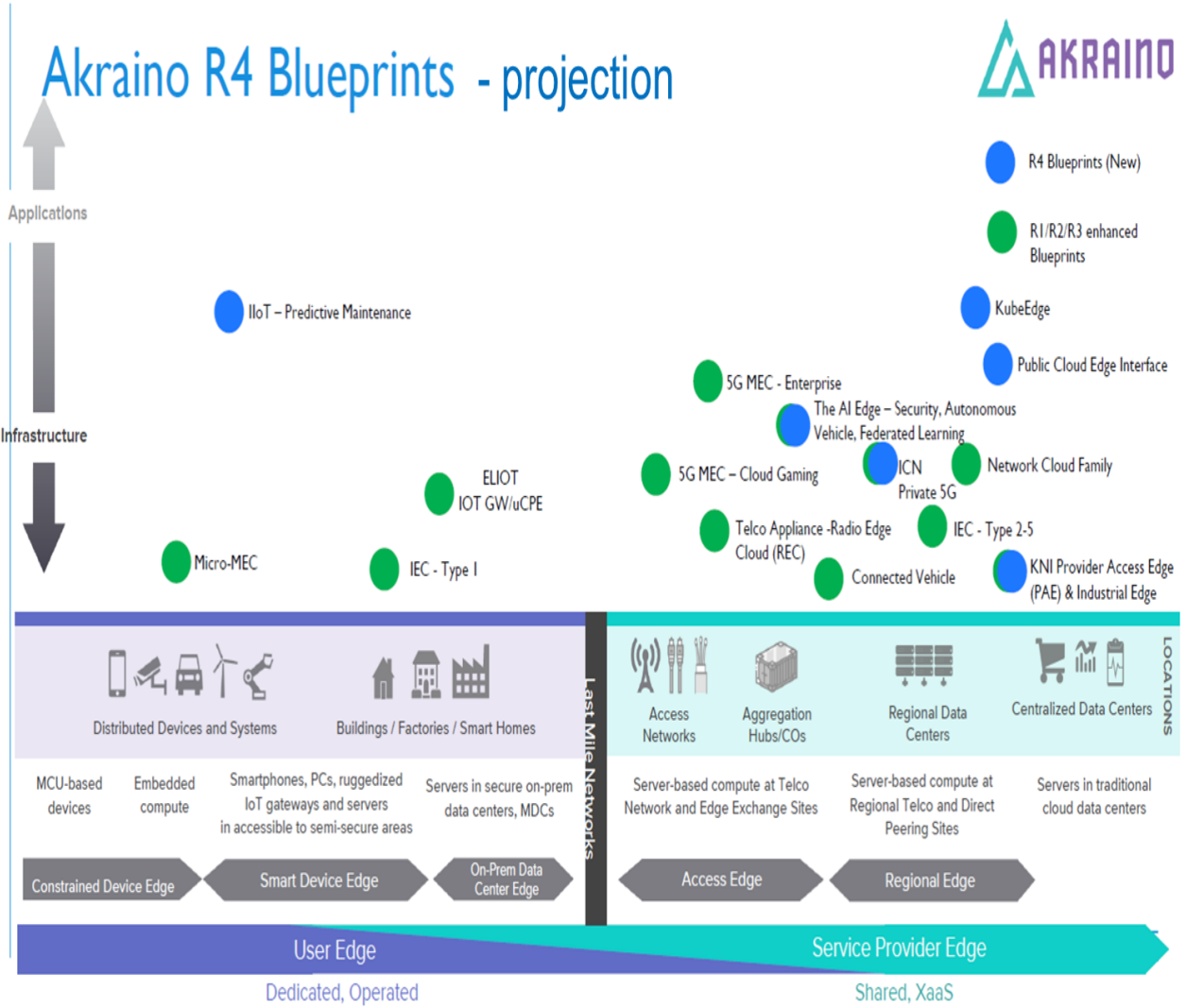
1. Akraino Project R3 Overview - 3

- Akraino Release 4 (R4) - projected early Q1 2021
  - Connected Vehicle,
  - AR/VR oriented Edge Stack for Integrated Edge Cloud (IEC),
  - Radio Edge Cloud (REC),
  - The AI Edge: Intelligent Vehicle-Infrastructure Cooperation System(I-VICS),
  - 5G MEC/Slice System to Support Cloud Gaming,
  - HD Video and Live Broadcasting,
  - IEC Type 3: Android Cloud Native Applications on Arm Servers in Edge for Integrated Edge Cloud (IEC),
  - Enterprise Applications on Lightweight 5G Telco Edge, Public
  - Public Cloud Edge Interface (PCEI),
  - The AI Edge: Federated ML Application at Edge,
  - Private LTE/5G ICN
  - IoT Workloads at the Smart Device Edge - Predictive
  - Maintenance (with a Thermal Imaging Camera, Vibration Sensors).



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2. Akraino Technology Information flow - 1

ETSI
The Standards People

ETSI MEC: An Introduction

(almost) everything you want to know about ETSI MEC

Presented by: **Alex Reznik, ISG Chair**
ETSI MEC Leadership Team

For: **Public consumption**
Akraino TSC
Sept 23-24, 2020

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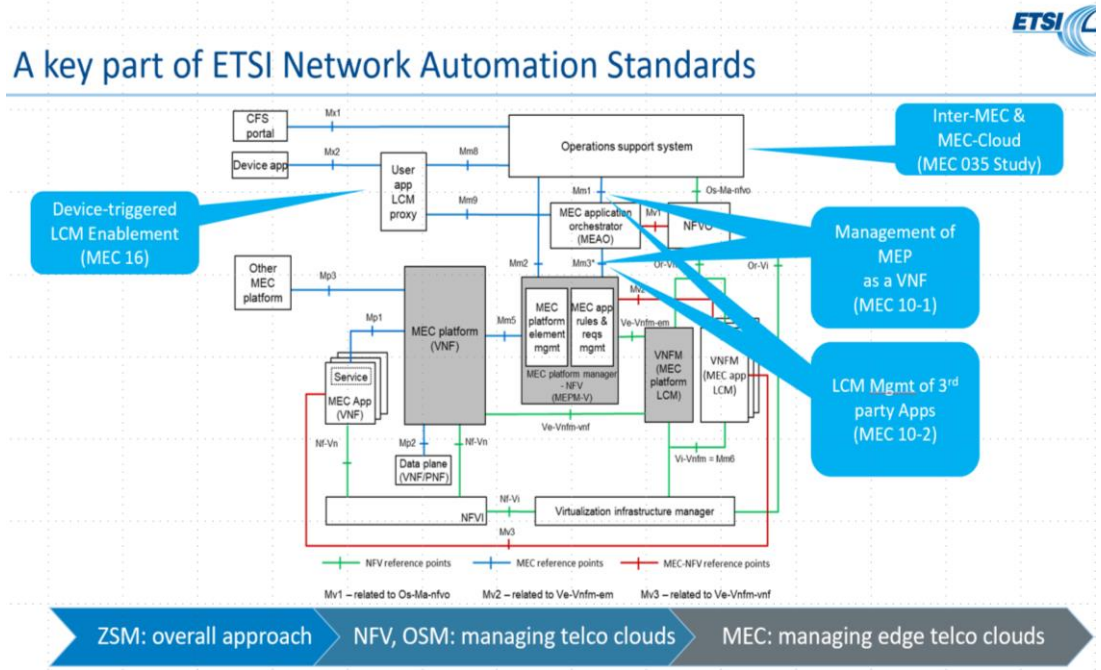
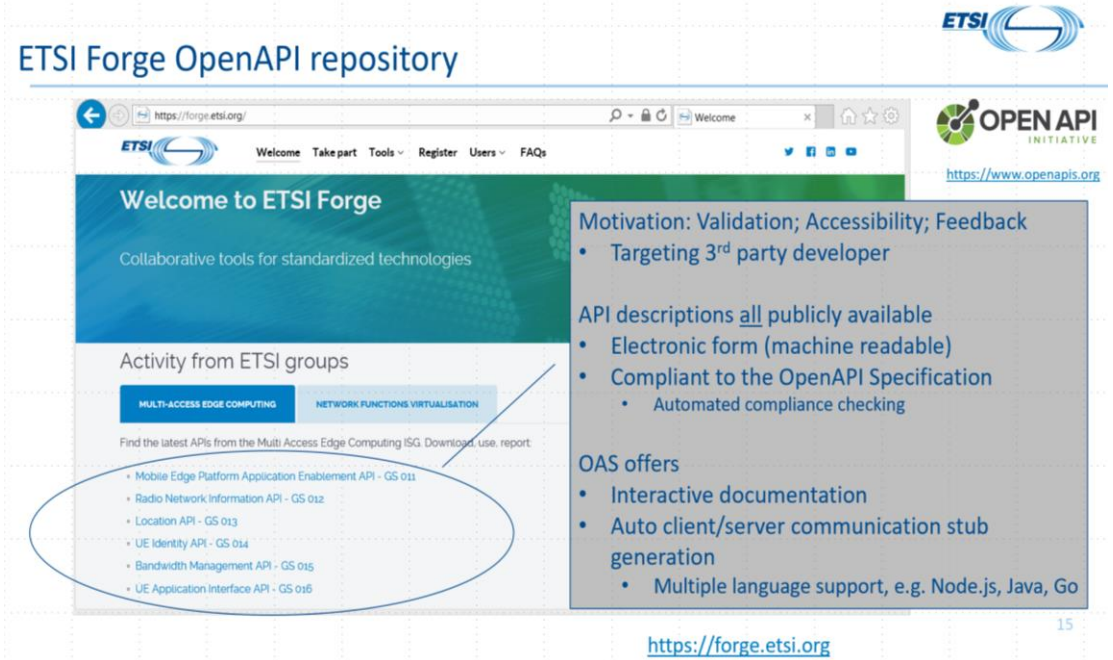




2. Akraino Technology Information flow - 2

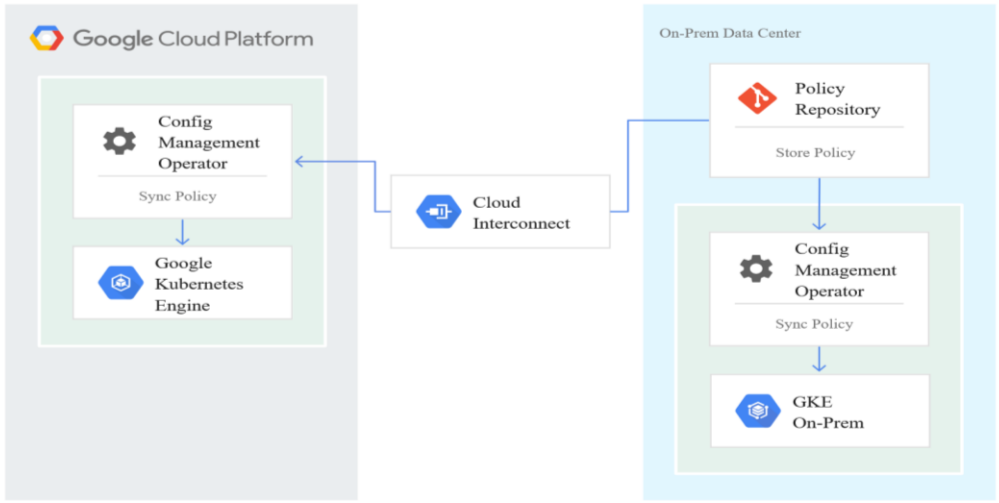
Google Anthos

by

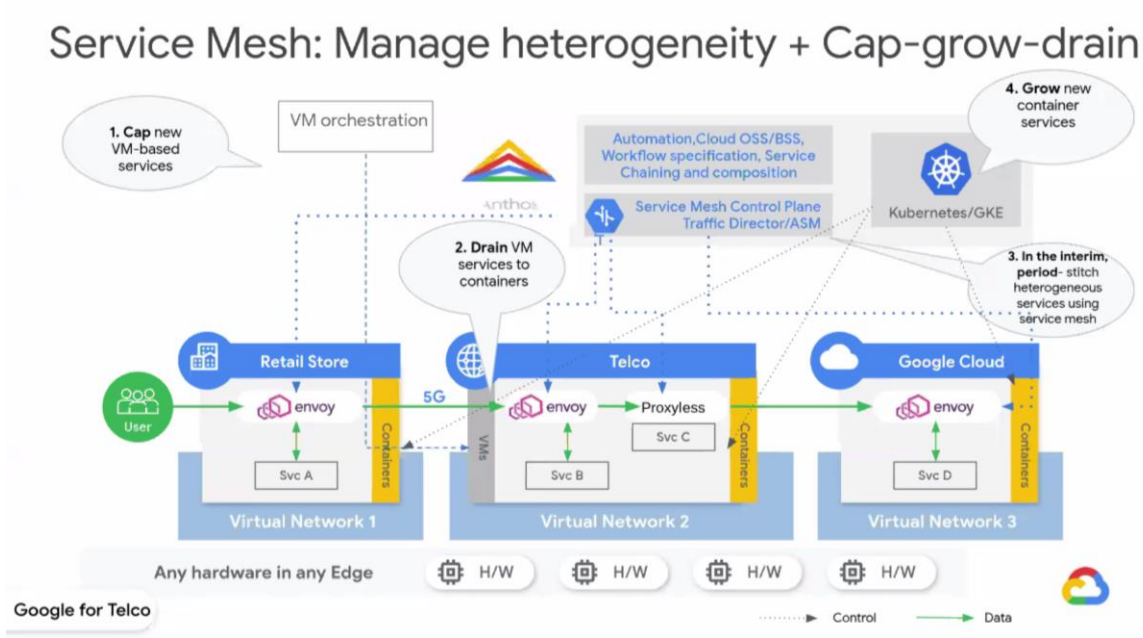
Prajakta Joshi

Akraino TSC
2020-10-06

Centralized config management



Anthos Config Management architecture (click to enlarge)



2. Akraino Technology Information flow - 2

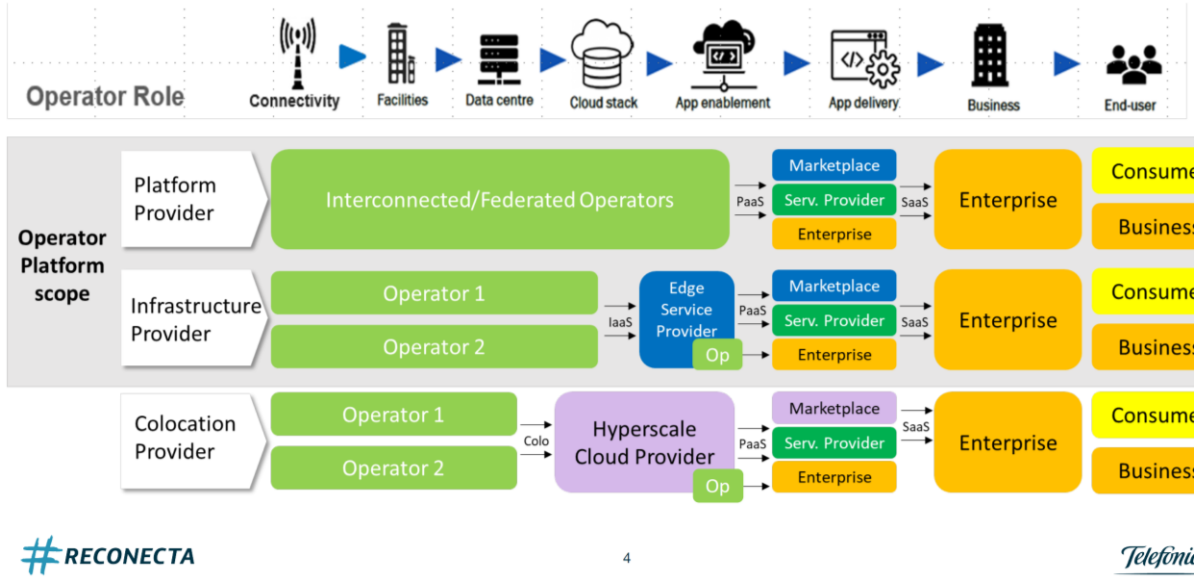
Telefónica

Telco Edge Cloud Goals and Enablers

Diego R. López
Telefónica

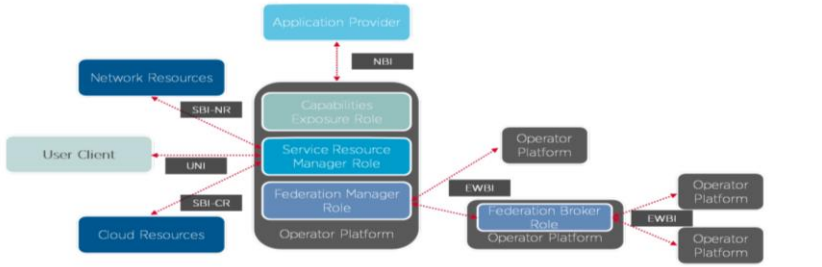
Akraino TSC
2020 - 11 - 06

The Value Chain



#RECONECTA 4 Telefónica

The Framework



#RECONECTA 5 Telefónica

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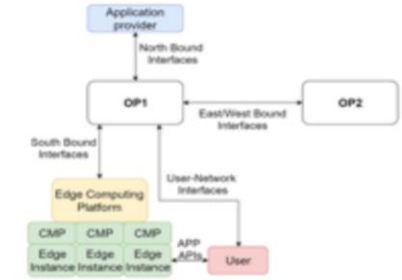
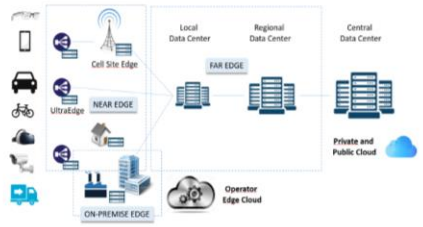
The Unified Edge Theory

- The edge environment has to work as a single cloud provider
  - Consistent APIs for developers: *Build once, run anywhere*
  - Support for different deployment styles
  - Multi-dimensional openness
- The Ultimate Goal: In-Network Computing
  - A service continuum based on
    - Programmable network devices
    - Languages and abstractions to implement network functions
    - Data-plane abstractions and new network protocols to efficiently federate decentralized computing
    - Decentralized security and discovery mechanisms
  - End-to-end orchestration of all kind of resources and functionalities





#RECONECTA 12 Telefónica

2. Akraino Technology Information flow - 3

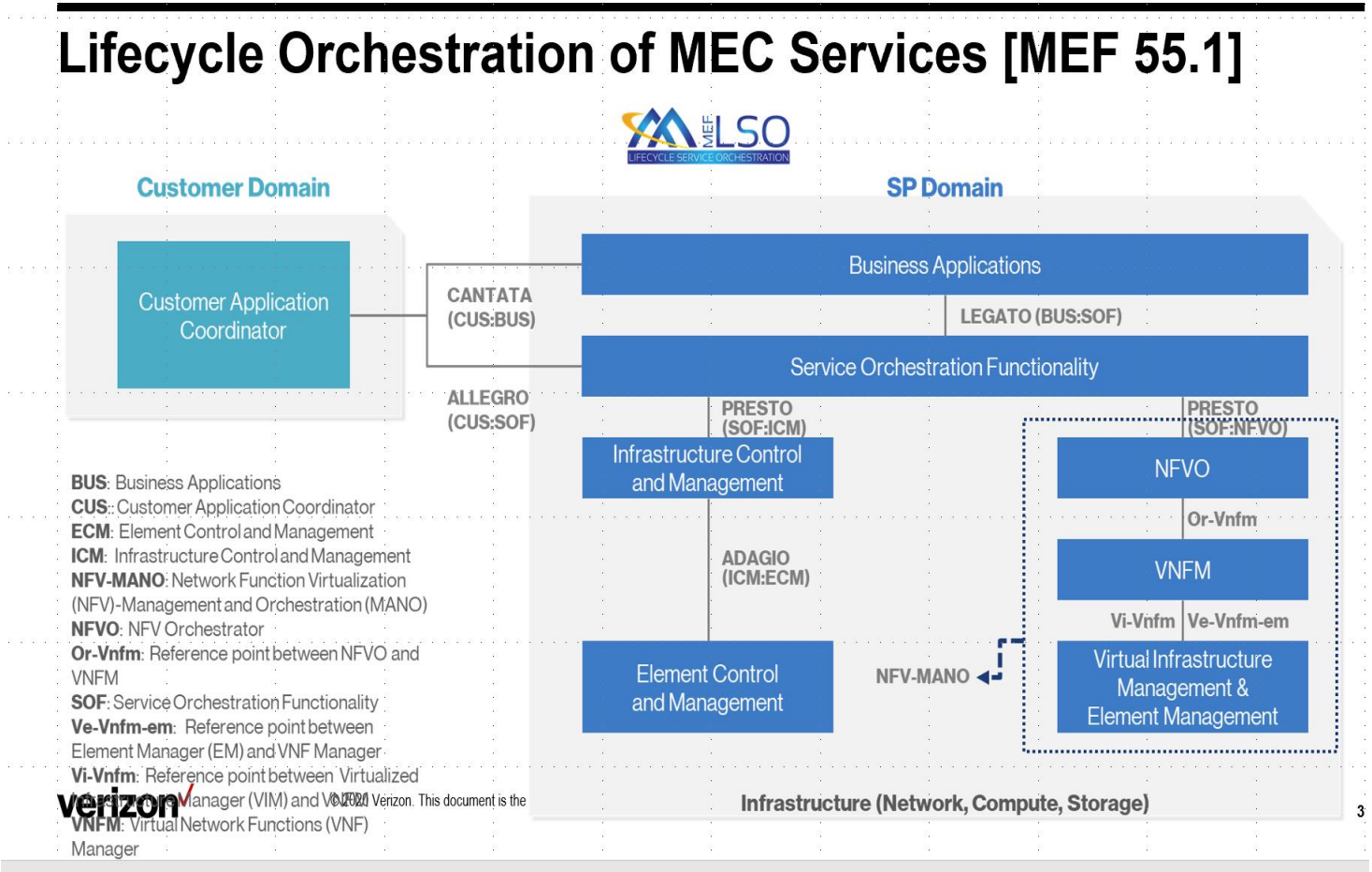
Mapping ETSI MEC Architecture to MEF LSO Architecture

Mehmet Toy, Ph.D
Ass. Fellow
Verizon

December 2020

verizon

Lifecycle Orchestration of MEC Services [MEF 55.1]



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2. Akraino Technology Information flow - 4

Anuket – Telecom Reference Infrastructure for SDN Functions

Project Update

Sukhdev Kapur, Distinguished Engineer, Juniper Networks
Beth Cohen, Verizon

December 17, 2020

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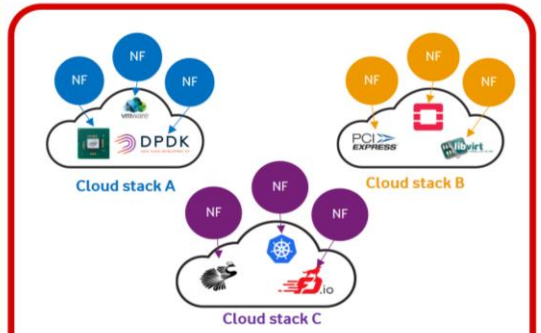
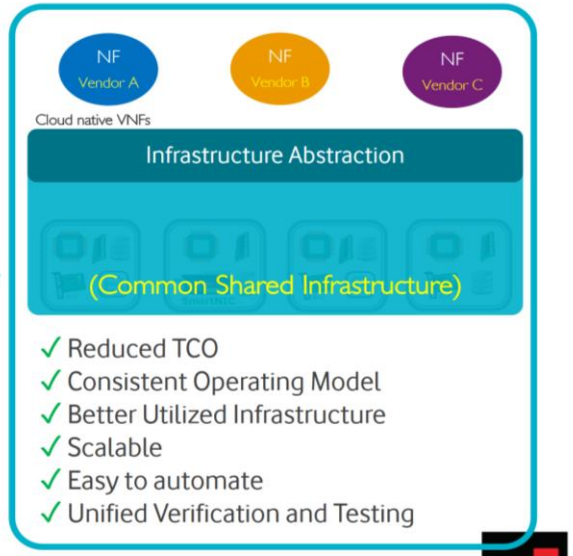
Anuket | Problem Statement





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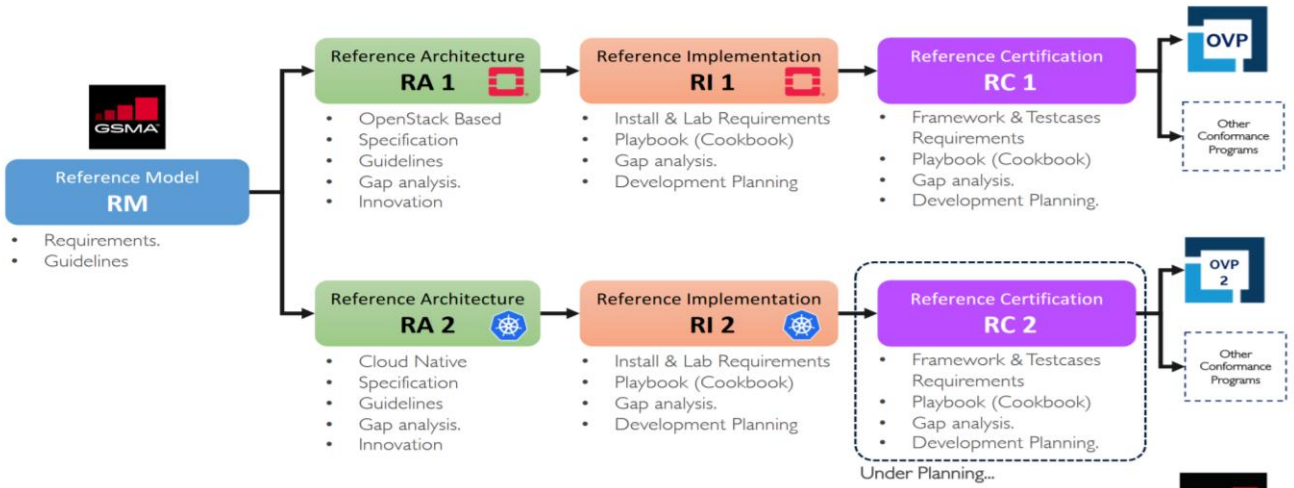
Anuket | Workstreams (WS)



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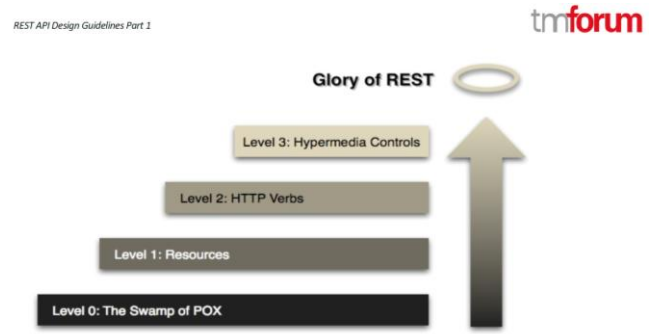
3. Akraino 2021 API related activities - 1

Akraino API Sub-committee TSC Mission:
Chair: Jeff Brower Co-Chair: Jane Shen

Develop an API Plan for the Akraino BPs Collaboration + Development.



The TSC has asked the API subcommittee to identify commonality between APIs, and possibly identify a “base” set of Akraino Edge Computing APIs.

This is future work, under discussion.

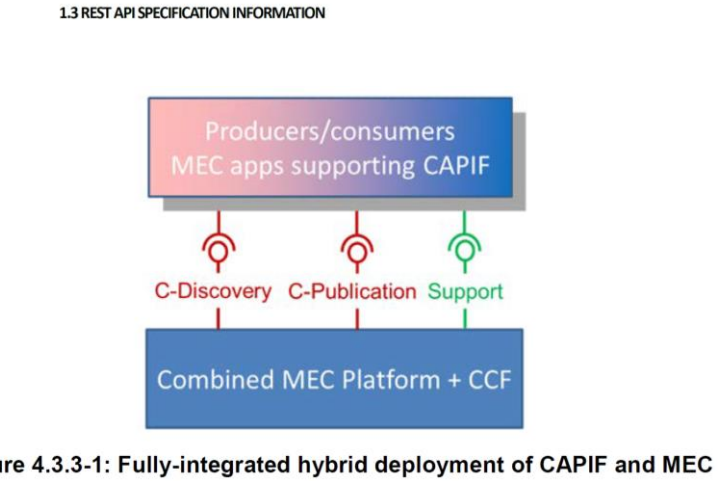


Figure 4.3.3-1: Fully-integrated hybrid deployment of CAPIF and MEC

3. Akraino 2021 API related activities - 2

Akraino Blueprint Projects R4 API Reporting Requirements

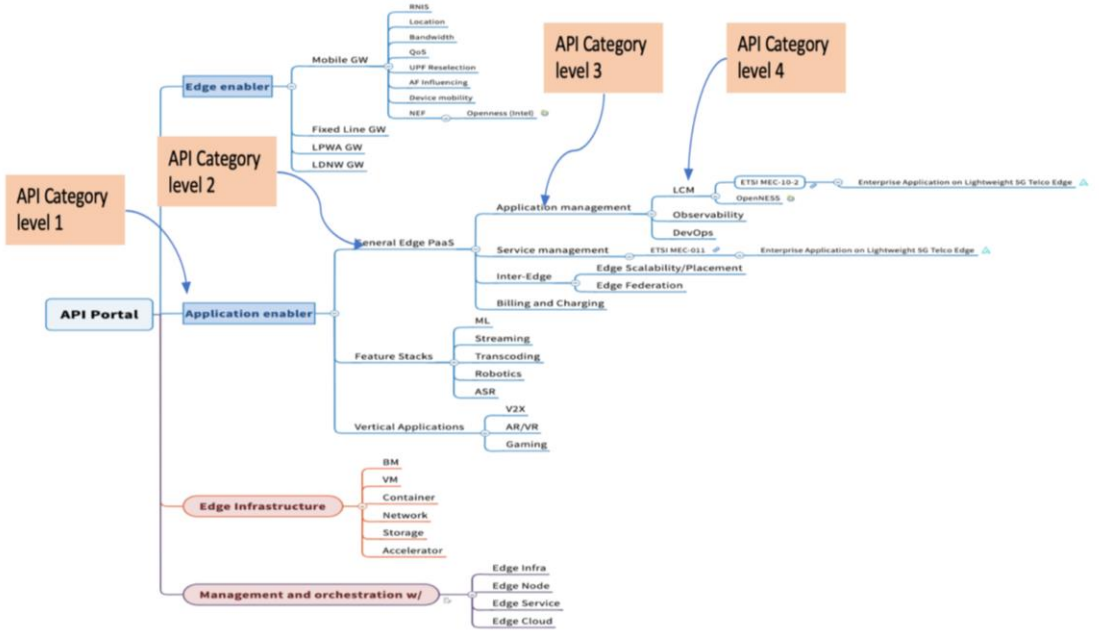
- All R4 BPs Project APIs will be organized and published on the API map page of the Akraino API Portal.

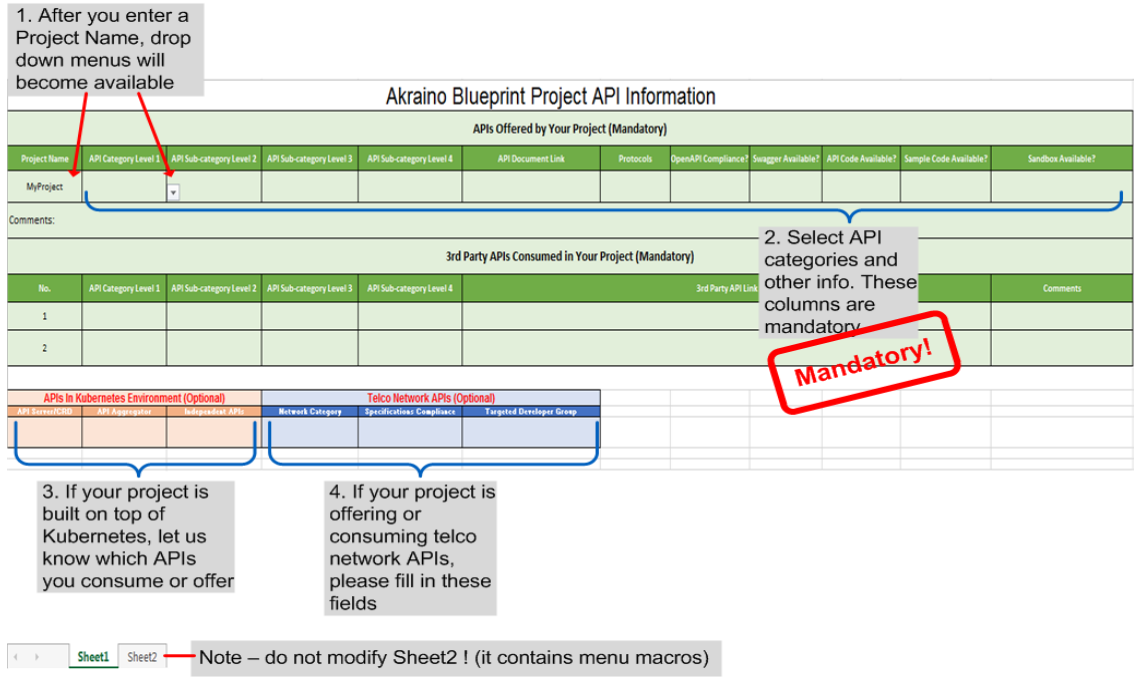
- The API Portal will include both:
  - API Map Navigation and
  - Search Capability

- In addition to BP Projects' mandatory baseline API info, optional information about:

(a) Telco Network Interface APIs, and
(b) Kubernetes Environment APIs Info will be collected.

This will be used to support:
- One-stop API Presentation,
- Analysis, Comparison, finding similar APIs, and
- Sandbox/Sample Code.





Questions?

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