Results from the MEC Hackathon

Awards Celebration   @Droidcon conference

Speakers

Dario Sabella (INTEL), Francesco Brocero (Synesthesia)

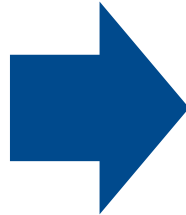*25-26 November 2020 (online event)*
Droidcon MEC Hackathon 2020
endorsed by ETSI

https://www.etsi.org/events/1694-2020-04-droidcon-mec-hackathon
https://it.droidcon.com/2020/hackathon/

Hello to all the MEC developers!

On 25-26 November we held the **final days** of the **MEC Hackathon**!!

MEC Hackathon phases:

- April 2020 – publication of the Call-For-Developers
- June 4th – MEC Webinar
- June 15th Submission Deadline (extended to 30/06)
- July 2020 – remote access to MEC servers offered to admitted MEC Hackathon developers
- July-November – actual WORK ☺
- 25-26 Nov – FINAL DAYS of the Hackathon!

14 submissions received!

The Hackathon Organizing Committee

(intel) CISCO TIM LINKS SMB is 1

EQUINIX synesthesia droidcon

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EDGE COMPUTING WORLD October 12th-15th 2020 //

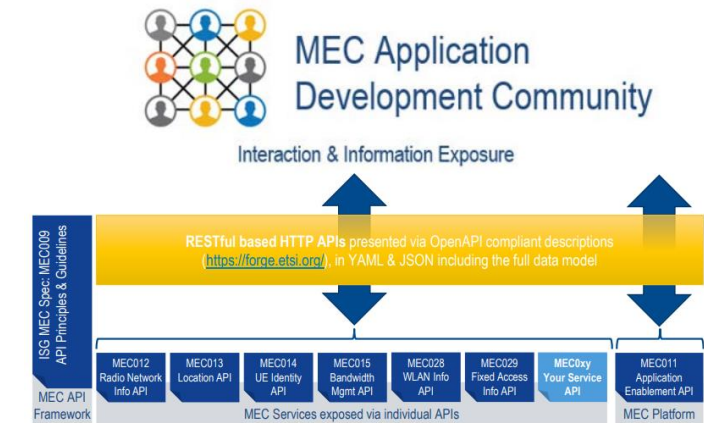under the Patronage of

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A bit more about our droidcon MEC Hackathon

General idea of MEC Hackathons:

Why – promote MEC and Edge Computing technologies to SW developers, feedback to standards, MEC innovation

What – organize MEC competitions, where app developers can use real technology and benefit from the support of experts from the industry

How - offer a set of standard based tools to MEC app Developers (e.g. HW / SW platforms, toolkits, APIs)

Hackathons: not a single event but a multi-year effort

Past MEC Hackathons:

18-19 September 2018: 3 parallel events (link): Berlin (co-located with Edge Computing Congress), Beijing (China), and Turin (Italy);

17-18 September 2019: 2 parallel events (link): London, UK (co-located with Edge Computing Congress) and Shenzhen (China);

18 November 2019, in collab. with LF Edge and Akraino (link): San Diego (USA) (with KubeCon + CloudNativeCon North America);

2020 edition at the Droidcon event:
https://it.droidcon.com/2020/hackathon

MEC Hackathon 2020: the technical challenge

This 2020 edition was fully REMOTE!!
Developers could register also for a Droidcon MEC Hackathon remote participation!

MEC (Multi-access Edge Computing) can serve many key 5G use cases.

Most of them are related to application scenarios specifically targeted to vertical markets of the 5G era.

The purpose of this Hackathon is to demonstrate the usage of MEC system as an enabler for different use cases and business objectives, helping all stakeholders to develop a diverse, open MEC ecosystem.

Examples of MEC-enabled vertical segments applications include (but are not limited to) the following big categories of use cases (here called blueprints):
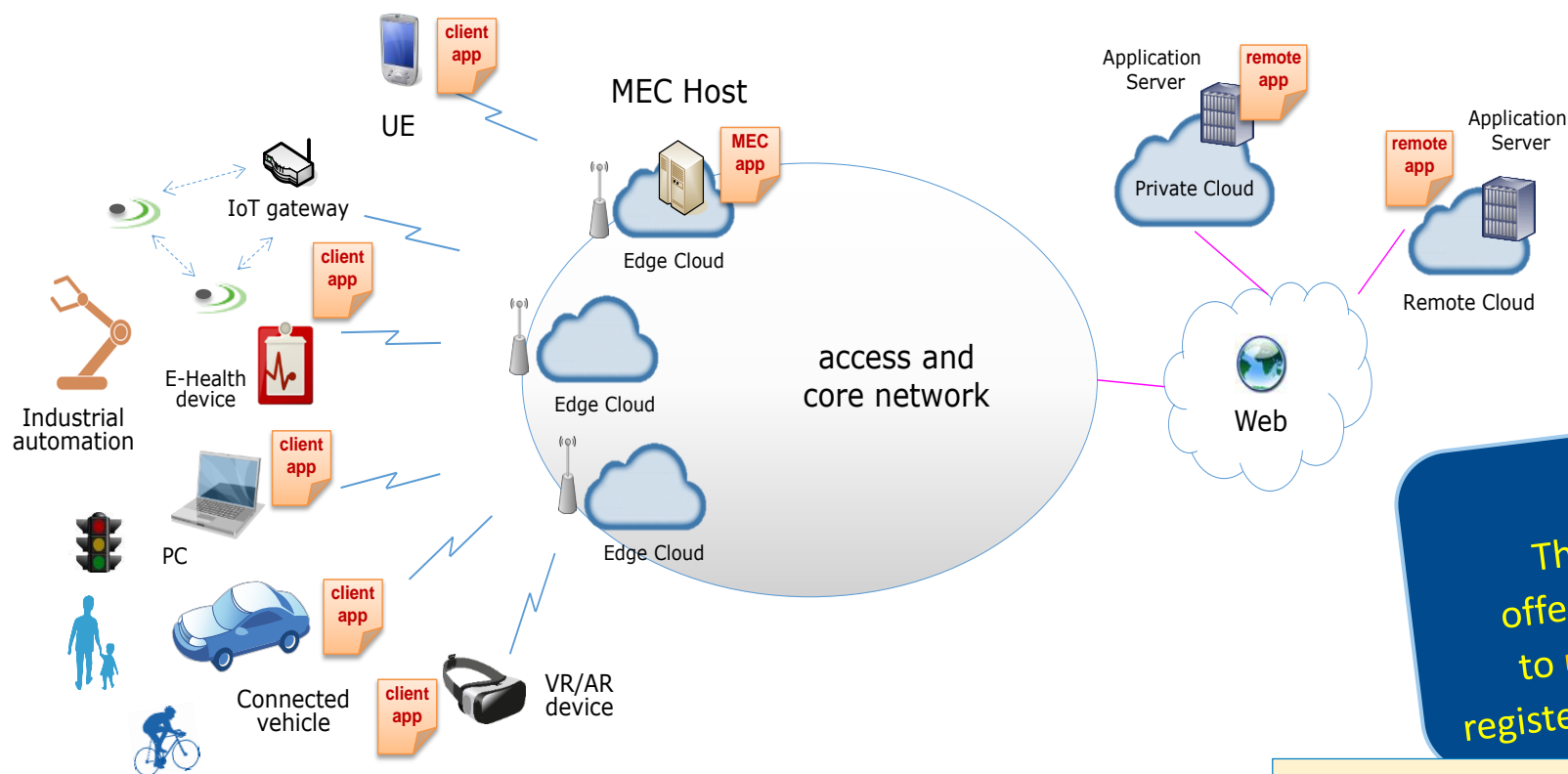
- automotive

- factories of the future

- drones

- consumer, media and entertainment

MEC

Note: the Organizing Committee decided to admit to this Hackathon Teams working on all these different topics

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Ref. to Call-for-developers: https://www.etsi.org/events/1694-2020-04-droidcon-mec-hackathon

MEC Hackathon 2020: the technical challenge

▽ Developers' teams at the Hackathon were tasked to develop Android applications for services in MEC-enabled 5G networks, running on OpenNESS platform and using ETSI MEC technologies.

NEWS:

The organizing committee offered remote servers' access to **up to 2 last-minute Teams** registering for **remote participation!**

For further information, you can contact us at info@droidcon.it

Ref. to Call-for-developers: https://www.etsi.org/events/1694-2020-04-droidcon-mec-hackathon

The Jury of this MEC Hackathon 2020

Dario Sabella — Intel — Intel, ETSI MEC vice-Chair

Alessandro Breccia — CISCO — Customer Solution Architect

Andrea Laganà — TIM — Senior Project Manager

Maurizio Floridia — LINKS SMB STI — Researcher

Guido Coenders — EQUINIX — Director, Global Solution Architecture

Michele Carignani — ETSI The Standards People — ETSI CTI, Technical Expert

Tom Van Pelt — GSMA — GSMA, Future Networks

Nicola Farronato — Città di Torino — Turin City, Innovation Team

Francesco Brocero — synesthesia — Director Events and Training

The whole HOC members:

Dario Sabella, Xavier Simonart, Purvi Thakkar, Sujata Tibrewala, Anish Rawat, Alessandro Breccia, Mirko Berlier, Andrea Laganà, Roberto Procopio, Maurizio Floridia, Edoardo Bonetto, Daniele Brevi, Riccardo Scopigno, Guido Coenders, Jacob Smith, Michele Carignani, Tom Van Pelt, Faisal Zia, Nicola Farronato, Francesco Brocero.

MEC Hackathon: The prizes

At the end of the competition there will be an **award ceremony**, where the Organizing Committee have organized a number of **prizes**:

⩔ The venue host Synesthesia will provide the winners free passes for a future Droidcon conference (2021).

⩔ Synesthesia will also present a customized Hackathon Winners trophy to proudly display in their office.

⩔ The developers from the winner team will be eligible to be part of Intel Software Innovator program (https://software.intel.com/en-us/intel-software-innovators) and their project will be eligible to be featured as an Intel Early Innovation Project. This means that the project will be eligible for stipend to produce/present a tutorial/paper on their project, hardware funds for their project, and other start up mentorship program.

⩔ Special prizes will be offered by the organizing committee in correspondence to particular achievements of the developers teams, for some of the following (optional) challenges: usage of OpenVINO toolkit, or DPC++ framework.

⩔ The winners will be offered the possibility to participate to the Smart Road project (a consortium of partners, from car makers, network operators, universities and the City of Turin), with the aim of proposing their developed solution as possible implementation for testing activities in the urban environment of Turin.

In addition …

The winner will receive an Amazon Echo device ☺

∨ 25 November (Day 1)

Detailed programme for Day1 - morning:

10:30	Registration, Welcome and presentation by the host, Francesco Brocero (Synesthesia)	
10:45	Guidelines for the MEC Hackathon. Dario Sabella (Intel)	
	Track 1 – Technical MEC tutorials and masterclass **WEBEX EVENT** with chat and Q&A https://cisco.webex.com/cisco/onstage/g.php?MTID=eddc29ca0b0d3bd69824b9708af55b8ac Event password: HMrf6pMxT45	**Track 2 - MEC Hackathon** **WEBEX Teams** for the developers and the HOC. (Link provided to Hackathon participants)
11:00	**ETSI MEC Architecture and APIs (Michele Carignani, ETSI CTI)** This presentation will provide a high-level overview of the MEC standard, including the ETSI activities on OpenAPI representations (published at https://forge.etsi.org/), as a useful reference for both developers at the Hackathon and also all attendees at the event.	Developers teams can start their implementation work, getting support from local people belonging to the Organizing Committee.
11:30	**Overview of the MEC Hackathon setup for application developers (Anish Rawat, Xavier Simonart, Intel)** This tutorial is providing an overview of the overall setup offered to Hackathon participants, with MEC servers available and remotely accessible from developers. Registered users will be able to try the OpenNESS and understand how to develop MEC applications.	Dedicated Wifi network will be deployed for the MEC Hackathon application developments. CISCO will provide also a chat (WEBEX Teams) for information sharing.
12:30	Lunch Break	

Detailed programme for Day1 - afternoon:

14:00	**Deepdive on OpenNESS (Archit Agarwal, Wipro, Xavier Simonart, Intel) – online tutorial** The platform enables easy data ingestion on the MEC by abstracting underlying network complexity with open APIs. It has features such support for Cloud Connectors (e.g. AWS Greengrass), and container and VM-based orchestration of the MEC platform.	**MEC Hackathon:** Continuation of the application development. Preparation of use cases, mobile apps and related presentation (developers will be given a brochure with all information needed).
15:00	**Hands-on session with oneAPI (Adonay Berhe and Benjamin J Odom, Intel)** Registered users will be able to try the oneAPI and understand how to use it as support to develop workload accelerations for their MEC applications.	
16:00	**Developers, startups and edge innovators ecosystem in the 5G era (Martin Olczyk, Techstars) – F2F/online keynote** Inspirational presentation related to business aspects for innovators. Insights/considerations on market status, with opportunities and challenges for startups and developers.	**Intermediate Delivery:** by 17.00 (exceptional deadline extension is subjected to a decision of the Hackathon Organizing Committee)
16:30	Coffee Break	
17:00		**Elevator pitch** from **Developers Teams** (only for Jury Members) (**intermediate delivery** and presentation of the project idea from each Team) **ONE SPEAKER per TEAM** (Max 3 mins each)
18:00	end of Day1	

Note: The entire WEBEX event (Track 1) was in live streaming, for both Day 1 and Day 2. After the event, the organizing committee will publish a link for **offline watching**.

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Droidcon MEC Hackathon 2020: The schedule

▽ 26 November (Day 2)

Detailed programme for Day2 - morning:

10:30	Welcome from the host, Francesco Brocero (Synesthesia)	
	Track 1 – Technical MEC tutorials and keynotes **WEBEX EVENT** with chat and Q&A https://cisco.webex.com/cisco/onstage/g.php?MTID=e76ad89a1d9e375651fcbe761a3944fc6 Event password: BKuVbM5nj62	**Track 2 - MEC Hackathon** **WEBEX Teams** for the developers and the HOC. (Link provided to Hackathon participants)
10:45	**Edge computing view (Alessandro Breccia, CISCO) – F2F keynote** Overview of edge computing infrastructure, use cases and monetization	
11:15	**ETSI MEC Location API (Maurizio Florida, LINKS) – F2F/online tutorial** This technical presentation will provide an overview of the MEC Location API developed by LINKS and offered to developers. The simulation environment and also the integration with OpenNESS will allow developers to use these functionalities for their edge applications.	
11:45	**MEC federation: standards overview (Masaki Suzuki, KDDI) – online/F2F keynote** This presentation will provide a technical overview of standardization activities in ETSI MEC on Inter-MEC system communication, in alignment with the work in 5GAA on automotive use cases and in GSMA OPG on the MEC federation.	

Detailed programme for Day2 - afternoon:

	Track 1 – Keynotes and ecosystem panel	**Track 2 - MEC Hackathon**
14:00	**Edge Cloud and innovation on automotive: the Smart Road project in Torino City Lab (Nicola Farronato, City of Turin) – F2F keynote** *The speaker will present the Smart Road project: a consortium of partners, from car makers, network operators, universities and the City of Turin, with the aim of develop, implement and test advanced solutions in the urban environment of Turin.*	
14:30	**Edge Computing Implementation – The Telco Viewpoint (Andrea Laganà, TIM) – F2F keynote** Presentation of the point of view of the mobile operator on edge computing, with special focus on implementation aspects.	MEC Hackathon: Continuation of the application development. Preparation of use cases, mobile apps and finalization of the presentation (videoclip) **Final Delivery:** by 17.00 (exceptional deadline extension is subjected to a decision of the Hackathon Organizing Committee)
15:00	**Operator Platform (Faisal Zia, GSMA) – F2F keynote** This presentation will provide an overview of the Operator Platform Group in GSMA, defining the requirements for the definition of a edge federation infrastructure.	
15:30	**MEC4AUTO: edge computing for automotive (Leonardo Gomes, 5GAA WG1 Vice Chair) – online keynote** This presentation will provide a technical overview of the activities in 5GAA related to the MEC4AUTO work item.	
16:00	**Telco Edge Cloud task force (Juan Carlos Garcia Lopez, Telefonica) – F2F keynote** This presentation will provide an overview of the Telco Edge TF, including the trials deployed with many operators and partners. The speech will also explain how these initiatives are important for edge application developers in the ecosystem.	
16:30	**MEC federation solutions (Himanshu Singh, Altran) – F2F keynote** This presentation will provide an overview of the technical solution to implement a MEC federation in a multi-MNO environment.	
17:00	**Panel Discussion,** *Business opportunities offered by Edge Cloud for the automotive and other industry segments.* Panel moderated by Dario Sabella (Intel) Confirmed Panelists: • Nicola Farronato, City of Turin • Riccardo Scopigno, Links Foundation • Juan Carlos Garcia Lopez, Telefonica • Farid Singh, Tech3innovate • Faisal Zia, Future Networks, GSMA • Leonardo Gomes, Intel, 5GAA WG1 Vice Chair • Shamik Mishra, Altran, OPG Dy. Chair Moderator: Dario Sabella	
18:00	**Wrap-Up & Closing** by the moderator, Dario Sabella (Intel) and event host Francesco Brocero (Synesthesia)	

Keynotes and final panel discussion in Track#1

MEC Hackathon: Developer Team **delivery** phases

- Intermediate delivery
  - by 25th November at 5PM CET

- Live presentation: "elevator pitch on stage"
  - 25/11 on WEBEX Track 2 (only for the HOC)
  - Speech supported with their choice of material (e.g. PPT, videoclip, etc..)

- Final delivery
  - by 26th November at 5PM CET → for the final Jury evaluation
  - Again, use the WEBEX area to upload your material
  - It should consist of a PPT slideset, plus an optional videoclip (2 mins max)

and of course,... the final **Winner Celebration today,** on 27 November !! ☺

And the winner is ….

UNIMORE Team !

The automotive scenario:

Problem: Mobility Issues
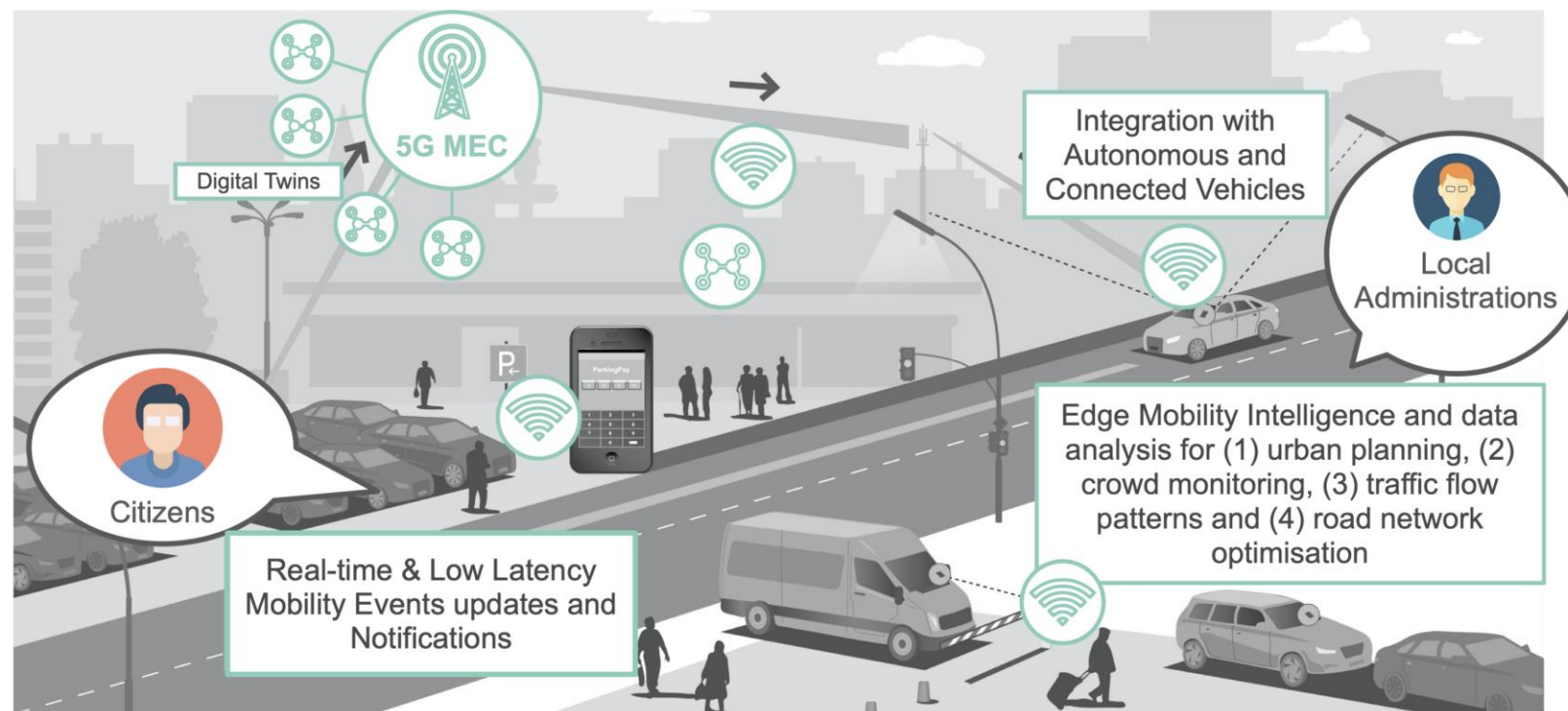
Congestions, Parking, Charging Stations, Road Works ..

Solution: Edge Mobility Intelligence

MEC Edge Infrastructure
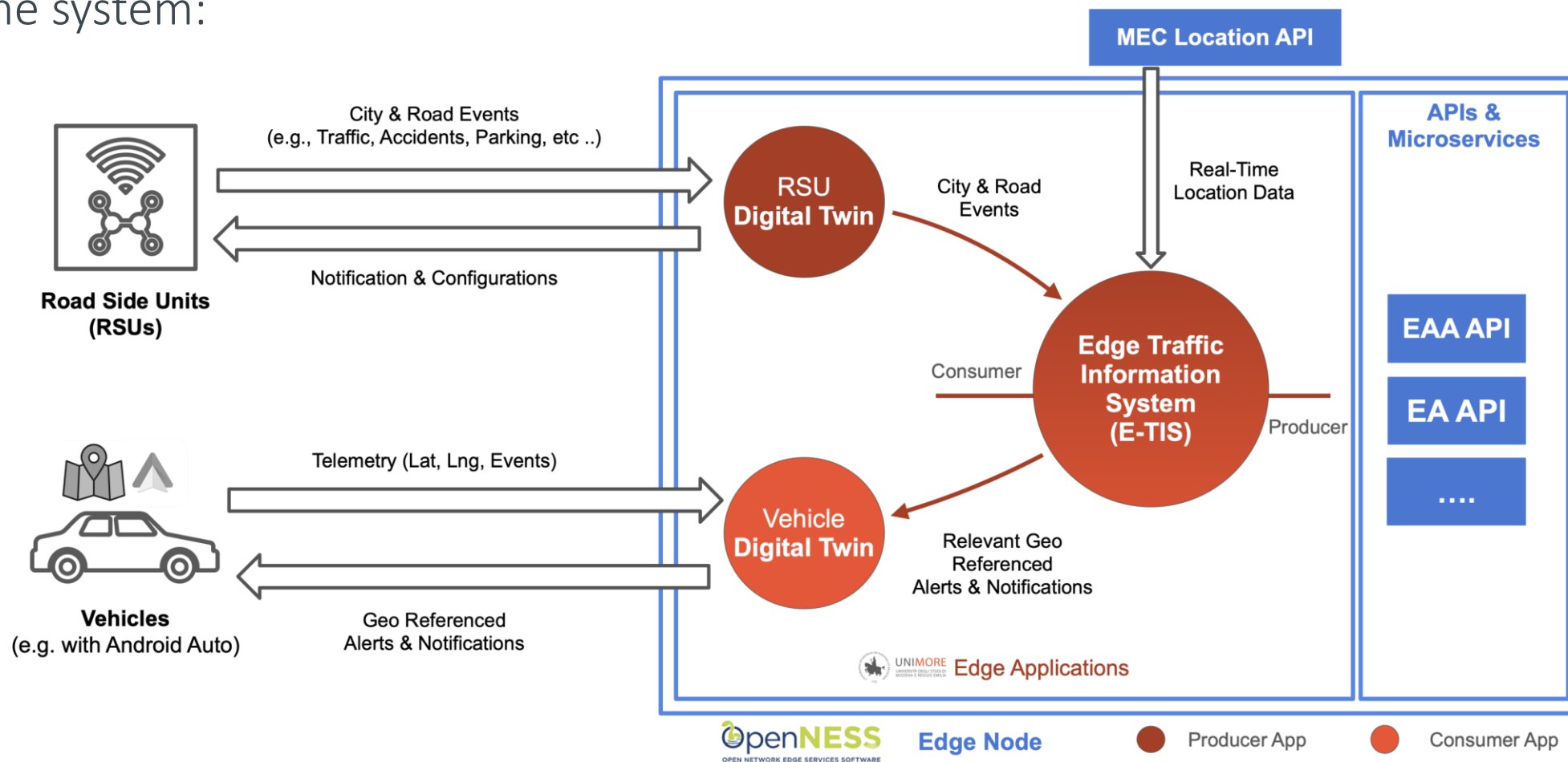
Digital Twin

Mobility Analytics

5G MEC

Digital Twins

Citizens

Real-time & Low Latency Mobility Events updates and Notifications

Integration with Autonomous and Connected Vehicles

Local Administrations

Edge Mobility Intelligence and data analysis for (1) urban planning, (2) crowd monitoring, (3) traffic flow patterns and (4) road network optimisation

UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

- Marco Picone, PhD - https://www.marcopicone.net

- Stefano Mariani, PhD - https://smarianimore.github.io

Distributed and Pervasive Intelligence Group (http://dipi.unimore.it)

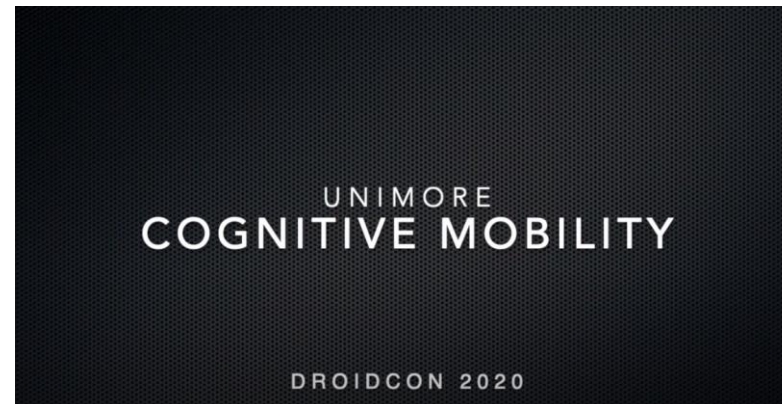# Team UNIMORE – Project name: Cognitive Mobility

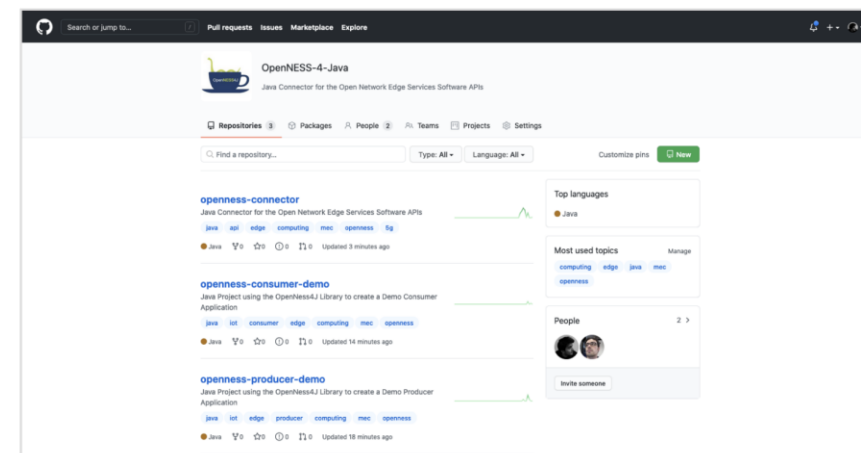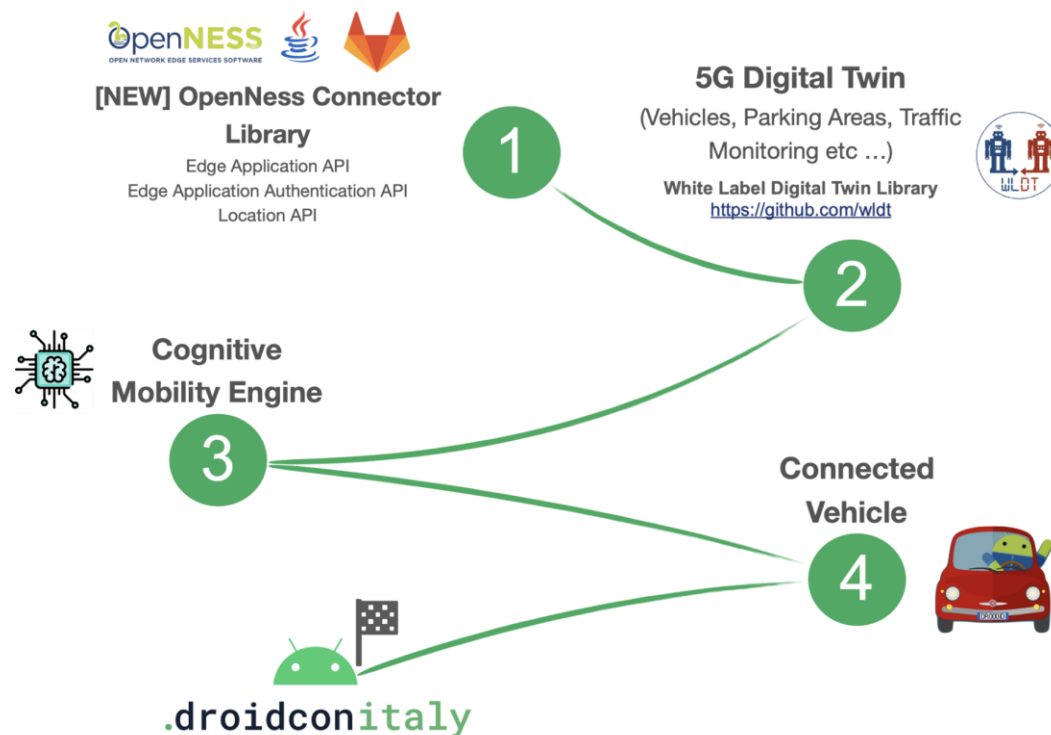The system:

Team UNIMORE – Project name: Cognitive Mobility

▽ Videoclip:

https://www.youtube.com/watch?v=3sy8gz_XTvA&feature=youtu.be

Team UNIMORE – Project name: Cognitive Mobility

In summary:

Thanks !

The Hackathon Organizing Committee

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