



EVOLVED-5G

NEWSLETTER #6

(April – June 2022)



evolved-5g.eu

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ISSUE HIGHLIGHTS

The sixth issue of EVOLVED-5G Newsletter presents the project activities during the period April - June 2022 focusing on the communication and dissemination activities, upcoming events, and deliverables.

In numbers, the EVOLVED-5G activities are:

- 1 Co-organised Workshop
- 1 Journal Paper
- 1 YouTube Video
- 1 Presentation
- 1 Booth Presentation
- 5G Application Seminar
- Video recordings
- 5G Forum participation
- 1 Interviews
- EuCNC 2022 participation
- 3 Submitted Deliverables
- 3 Upcoming Deliverables
- 1 GA Meeting & 1 Face-to-Face Meeting



Communication and Dissemination Activities

Co-organised Workshop

- The 2nd International Workshop on Advances on Privacy Preserving Technologies and Solutions is co-organised by EVOLVED-5G project and will be held in the context of the 17th International Conference on Availability, Reliability and Security (ARES 2022) from August 23 to August 26, 2022 in Vienna, Austria. Call for papers deadline was on 2nd of May. You may learn more here: <https://www.ares-conference.eu/>

ARES 2022

August 23 - August 26, 2022
Vienna, Austria

Paper

- The EVOLVED-5G journal paper entitled "Towards Zero Touch Configuration of 5G Non-Public Networks for Time Sensitive Networking" by Francisco Luque-Schempp, Laura Panizo, María-del-Mar Gallardo, Pedro Merino and Javier Rivas from UMA was accepted in the IEEE Network Magazine, special issue NEW NETWORK ARCHITECTURES, PROTOCOLS AND ALGORITHMS FOR TIME-SENSITIVE APPLICATIONS magazine. You may find more information online here:
<https://ieeexplore.ieee.org/document/9785739>



YouTube Video

- The University of Malaga and CAFA Tech teams conducted the first Technical Tests on the campus of the University on April 26-28 2022. The aim was to test the connection of a CAFA Robot onboard 5G modem to 5G NSA (Non-Standalone) and SA (Stand-Alone) networks and 4K video streaming over 5G NSA and SA networks directly to the CAFA Video Safety Analysis Application (vApp) running on the University of Malaga platform. 4K video streaming worked over both the 5G NSA and the SA and a number of advances were made in the video analysis vApp deployment.
- The video is available at the EVOLVED-5G YouTube channel here <https://www.youtube.com/watch?v=8VyKktykek>



Presentation

- Dr Harilaos Koumaras (NCSR "DEMOKRITOS"), EVOLVED-5G's technical manager took part and presented "5G programmability and development of Network Applications (NetApps)" in the 1st Open Annual Workshop on Future ICT. The workshop was organised by 8BELLS and took place physically on May 25 in Athens.



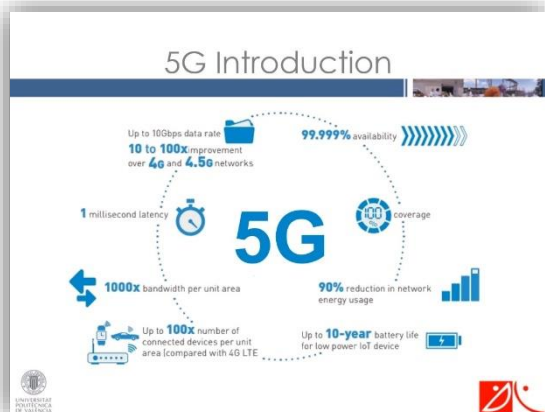
Booth & Presentation

- PAL Robotics, EVOLVED-5G partner took place through a booth in the Advanced Factories 2022 on the 29-31 March 2022. At this event Pal Robotics had the chance to present the EVOLVED-5G project. You may learn more about the event here: <https://www.advancedfactories.com/en/af-show/>



EVOLVED-5G seminar entitled "5G Application"


EVOLVED-5G seminar entitled "5G Application" took place on May 30th in Universitat Politècnica de València premises. The seminar was hybrid giving the chance to remote participants to participate and present their material. The seminar began with a presentation about the 5G framework by Prof. Carlos Enrique Palau and Regel G. Usach by UPV partner. Then EVOLVED-5G's technical manager took the floor presenting the overall EVOLVED-5G concept. Then, George Makropoulos and Anastasios Gogos, Research Associates, from "NCSR Demokritos" described in detail NetApps and 5G programmability. Finally, the Seminar closed with two demo sessions performed by INFOLYSiS – Researcher Engineer Ms. Theoni Dounia, (Chatbot Assistance NetApp) and IMMERSRION – Charles Bailly (Remote Assistance in AR for industry 4.0) SMEs of the project.



Use-case

French SME working on collaborative tools and Mixed Reality

Use-case in Evolved-5G: **Remote assistance in Augmented Reality (AR) for Industry 4.0**



Helps and guides

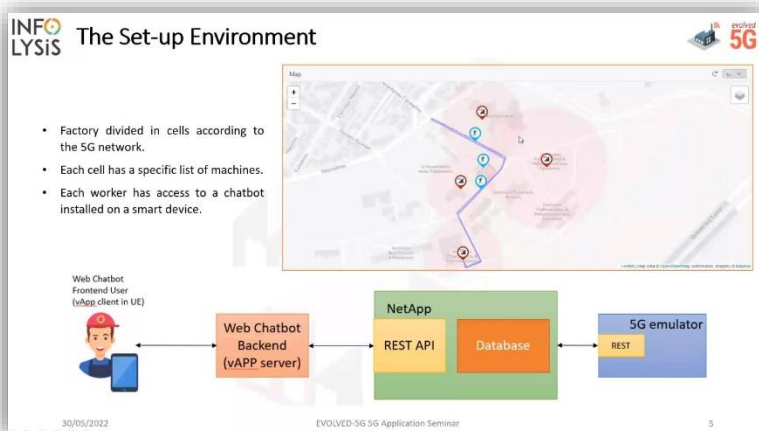
Remote expert

Example of remote assistance in AR

30/05/2022 EVOLVED-5G – 5G Seminar 4

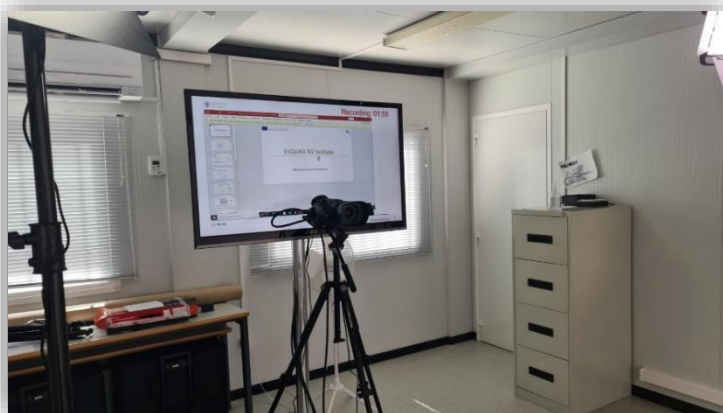
EVOLVED-5G framework

Dr. Harilaos Koumaras
NCSR Demokritos
Technical Manager



Video Recordings

- During May, EVOLVED-5G's technical manager Dr. Harilaos Koumaras from NCSR "DEMOKRITOS" along with Nikolaos Vrionis from INFOLYSiS partner visited the Universitat Politècnica de València (UPV) premises to record training videos about EVOLVED-5G NetApps and project's framework. These videos have been created in the context of WP6 and will be uploaded in the official UPV's channel in EDX. Additional content for this activity was also provided by ATOS and MAGGIOLI partners who shared their videos remotely and also UPV who coordinated and fully supported this activity.



5G Forum 2022

- EVOLVED-5G partners from Telefonica and University of Malaga organized an EVOLVED-5G Special Session during 5G-FORUM 2022. The special Session, organized by EVOLVED-5G, took place on the 12 of May with the following presentations:
- "EVOLVED-5G CAPIF core function", along with other 5G uses cases that TID is implementing with UMA in Málaga,
 - "EVOLVED-5G Netapp ecosystem, 5G programmability and the Netapp lifecycle",
 - "EVOLVED-5G agricultural use case and Netapp " to demonstrate that EVOLVED-5G activities go even beyond i4.0.



Interview

- EVOLVED-5G Technical Manager, Dr. Harilaos Koumaras (NCSR DEMOKRITOS) gave an interview at the Greek Network magazine (May issue) on '5G private networks and the business opportunities' that are created for novel and innovative services, also making a special reference to 5G-PPP EVOLVED-5G Project that deals with building the ecosystem which will accelerate this digital transformation for the SMEs and the interested stakeholders.



EVOLVED-5G in EuCNC & 6G SUMMIT 2022

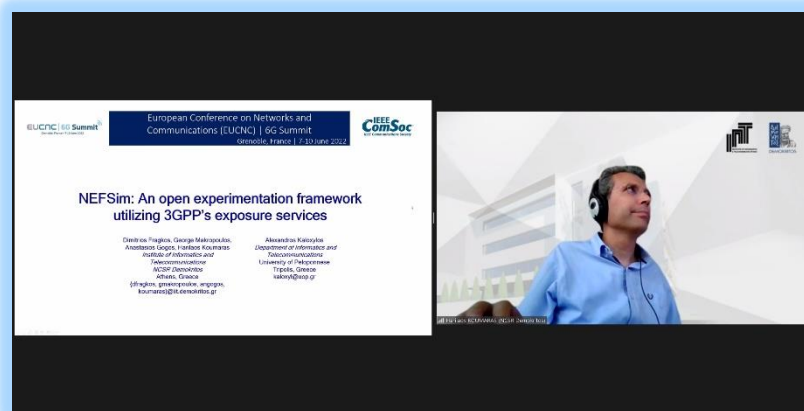
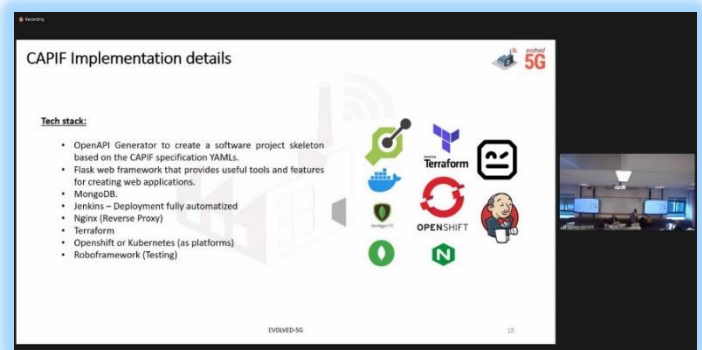
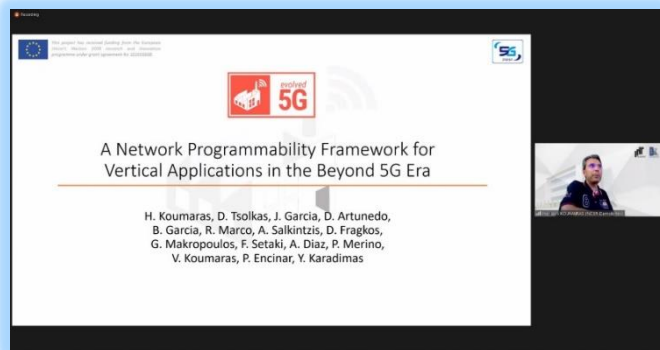
EVOLVED-5G project participated in the 2022's version of EuCNC & 6G Summit with 3 conference papers and the respective presentations in different special sessions of the event. EVOLVED-5G also participated in the 'NetApp for Verticals' Special Session. At this special session Dr. Harilaos Koumaras (NCSR) EVOLVED-5G's technical manager had the chance to present the overview and the NetApp architecture of the project, in colleagues from the rest ICT-41 projects.



In detail the following activities took place on the EuCNC & 6G SUMMIT 2022:

• Papers & Respective Presentations

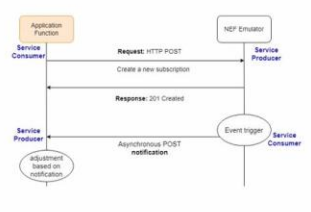
- **"NEFSim: An Open Experimentation Framework Utilizing 3GPP's Exposure Services"** by Dimitrios Fragkos (National Centre for Scientific Research Demokritos (NCSR) & University of Peloponnese, Greece), Georgios Makropoulos, Anastasios Gogos and Harilaos Koumaras (NCSR Demokritos, Greece), Alexandros Kaloxylas (University of Peloponnese, Greece & The 5GIA, Belgium).
- **"Offering the 3GPP Common API Framework as Microservice to Vertical Industries"** by Alejandro Molina Sanchez (Telefónica I+D, Spain); Anastasios-Stavros Charismiadis and Dimitris Tsolkas (Fogus Innovations & Services, Greece); David Artuñedo Guillen (Telefónica, Spain); Javier Garcia Rodrigo (Telefónica I+D, Spain)
- **"Network Programmability Framework for Vertical Applications in the Beyond 5G Era"** by Harilaos Koumaras (NCSR Demokritos, Greece); Dimitris Tsolkas (National and Kapodistrian University of Athens, Greece); Javier Garcia Rodrigo (Telefónica I+D, Spain); David Artuñedo Guillen (Telefónica, Spain); Bruno Garcia (University of Malaga, Spain); Ricardo Marco (Atos Spain, Spain); Apostolis K. Salkintzis (Motorola, Greece); Dimitrios Fragkos (National Centre for Scientific Research Demokritos (NCSR) & University of Peloponnese, Greece); Georgios Makropoulos (NCSR Demokritos, Greece); Fotini Setaki (COSMOTE Mobile Telecommunications S.A. Greece, Greece); Almudena Diaz Zayas and Pedro Merino (University of Malaga, Spain); Vaios Koumaras (INFOLYSIS P. C., Greece); Paula Encinar Sanz (Atos Spain, Spain); Yannis Karadimas (National and Kapodistrian University of Athens & Maggioli Spa, Greece).



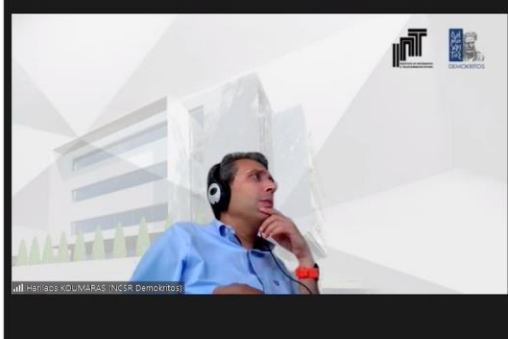
• NetApp for Verticals Presentation

NEFSim – Adaptation of 3GPP's Northbound APIs

- Service consumer and service producer as client and server
- Besides direct HTTP request – response, callback notifications are supported
- Monitoring Event API supports location reporting event
- AsSessionWithQoS API to ensure better service experience and avoid service interruption



Source: 3GPP TS 29.500 "Technical Realization of SBA"



Harilaos Koumaras EVOLVED-5G technical manager presented the nature and the NetApp architecture of the EVOLVED-5G in the 'NetApp for Verticals' Session of EuCNC 2022 on June 8, 2022, co-organised by all ICT-41 projects. The session focused on discussing how NetApp empowers the verticals on-boarding on 5G and reinforce the fact that 5G is a platform and not a pipe. Different actors from diverse vertical

List of Projects



5G Infrastructure PPP
The European path towards global next generation communication networks



5G IANA

5G A S P

5G INDUCE

5G SOLUTIONS

evolved 5G

5G-EPICENTRE

5G ERA

Smart5Grid

VITAL 5G

5Media HUB

5G PPP

The image shows a presentation slide with a white background. At the top left is the European Union flag logo. Next to it is a small text box stating: "This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101019719". To the right of this is the NCSF 5G logo, which consists of a red square containing a white house icon and the text "nctsf 5G". Further right is the 5G NR logo. In the center, the title "5G programmability and development of Network Applications (NetApps)" is written in a large, black, sans-serif font. Below the title is a horizontal orange line. Underneath the line, the name "Dr. Harilaos Koumaras" is displayed in bold, followed by "NCSR Demokritos" and "Technical Manager" in a smaller font. On the far right, there is a small rectangular inset photograph showing a dimly lit control room or server room with several computer monitors displaying various graphs and data.

EVOLVED-5G Overall concept

5G

11 IMTs grouped in 4 industry 4.0-related pillars bring their vertical apps

The Project targets 10 IMTs for the industry 4.0 sector with 5G-specific use cases

5G Enabled vertical apps with the aid of Networks that ensure 5G core backbone 4G/LTE access from the edge

Network development environment from 5G IMT, validation framework from 5G IMT and the Network design from 5G IMT 4.0

WORKSPACE
Customer and End-user
Device 4.0/Smart
5G-ENRDC
5G-ENRDC

CERTIFICATION AREA
Device 4.0/Smart
5G-ENRDC
5G-ENRDC

MANAGE TRACE
Customer
Network
Device 4.0/Smart

INTEGRATION FRAMEWORK
5G-ENRDC
5G-ENRDC

5G INFRASTRUCTURE
5G-ENRDC
5G-ENRDC

DEFINITION PLATFORM
5G-ENRDC
5G-ENRDC

Enterprise building, training and services solution on 5G (EVOLVED Global) and supporting technologies: Cloud, ML, 5G/4G integration forum, 5G/4G integration forum, 5G/4G integration forum

Innovation in the interaction of employees and machines through AR features and remote control capabilities

Efficiency in IT operations with novel predictive maintenance applied on digital factory twin

Security guarantees and risk analysis for the IT communication and management systems

Agility in the production line infrastructure through automation and robotic parts

30/04/2021

SGPP Architecture WG, EVOLVED 5G

5

Submitted Deliverables

D4.2 EVOLVED-5G FoF NetApps (Public, M17): Initial release of NetApps based on the early prototypes provided by SMEs partners for the four pillars.

D1.4 Report on Ethics, Legal Aspects and Data Management (Confidential - M18): Updated report on the data management plan and ethics, legal aspects considering requirements and specifications for the Industry 4.0 NetApps to be developed and tested in the context of the project.

D3.2 NetApp Certification Tools and Marketplace development (Intermediate, Public - M18): This deliverable reports on the intermediate version of the Task 3.4 results with respect to the certification tools and marketplace development.

Upcoming Deliverables

D5.1 System level evaluation and KPI analysis (Intermediate, Public – M20): Intermediate report on system evaluation specifying the KPIs and analysing initial monitoring data.

D5.2 NetApps Validation and onboarding to Open Repository (Intermediate, Public – M20): Intermediate report on the use of validation tools and open repository (first release)

D7.3 Dissemination, Communication and 5GPPP Engagement Activities (Intermediate - Public – M20): Intermediate report on the dissemination, communication and 5G-PPP engagement activities.



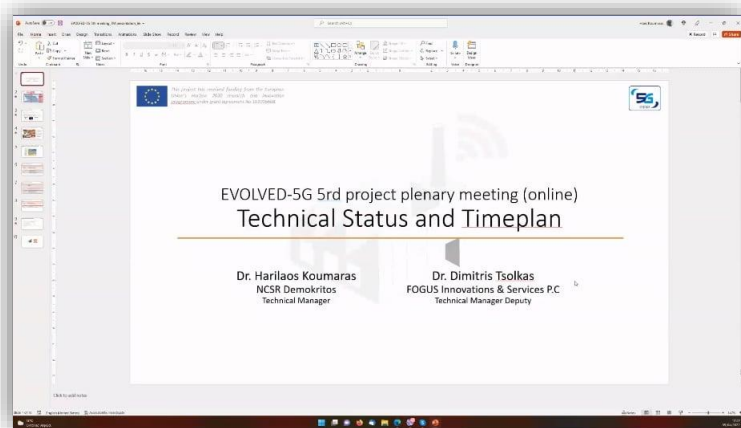
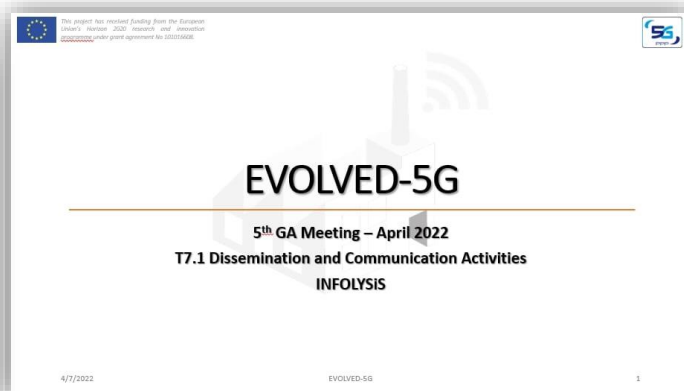
EVOLVED-5G First Face-to-Face Meeting

For the first time, in the COVID-19 era, EVOLVED-5G partners met face-to-face in Madrid for focusing on the review preparation. The meeting lasted two days (10 - 11 May 2022). The discussions were mainly about work-packages progress, demonstrations, and review preparation. In this EVOLVED-5G meeting, partners had the chance to meet each other for the first time. Group photos were taken this time in the traditional way! Also, partners had the chance to test Mixed Reality environments through the augmented reality headset of Immersion, part of EVOVLED-5G test cases.



5th GA Plenary Meeting

The EVOLVED-5G 5th GA virtual meeting took place on the first days of April (5 - 7 April). The discussions on this GA meeting were about the Work Packages and deliverables statuses, upcoming activities as well as the update on the communication and dissemination processes. At this GA meeting there was also discussion and planning about the first EVOLVED-5G face to face meeting that took place on May. Group photos from the consortium members were also taken in a rather virtual and remote way.



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Type of Action: Innovation Action
Duration: 36 Months
Start Date: 1 January 2021

