# AUTONOMOUS DIGITAL INFRASTRUCTURE VIRTUAL WORKSHOP

**13:00 - 15:30(BST)**
**July 07th**

## EXECUTIVE SUMMARY

Luigi Licciardi
5GSA

The ICT industry is going through a deep Digital Transformation, driven by changing customer demands and by the extension of the Ecosystem to new Business Partners (Verticals) as well as the advent of new technologies such as 5G, Artificial Intelligence and Multi-access Edge Computing.
The increasing complexity of Networks and Platforms supported by innovative technologies require to introduce a very high level of Automation in the Management and provisioning of services and Networks, in order to provide end to end solutions customized to the Customers and Business Partner needs.
Autonomous Networks are the beginning; full Autonomous Digital Infrastructure is a further step forward.

## KEY POINTS FROM SPEAKERS

George Glass
TM Forum

The Autonomous Networks consist of a simplified network architecture, virtualized components, automating agents, intelligent decision engines and present self-dynamic capabilities to create intelligent business and network operations based on the concept of closed-loop controls.
TM Forum is developing the framework/blueprint/customer centricity architecture (ODA – Open Digital Architecture) for the management of tomorrows IT and networks, which will be increasingly controlled by AI, where new services are created around Cloud Native IT Components to unlock the potentiality of Autonomous Networks. The TMF work principles are: Simplification, Automation, Intelligence.
The key requirements for AN can be clustered as Architectural requirements (simplified architecture, closed loop, autonomous domain, intent based interaction) and Capability req. (self-serving, self-fulfilling, self-assuring, self-healing).
Telstra, BT, DT & Airtel (TM Forum members) have already developed solutions based on TM Forum ODA principles, achieving significant advantages in cost reduction.

ETSI through several ISGs (Industrial Specification Group) is providing important inputs to Autonomous Networks: F5G (5th Generation Fixed Network), SAI (Securing Artificial Intelligence), ENI (Improve operator Experience through close-loop AI), NFV (Network Function Virtualization), ZSM (Management/Automation of emerging and future networks and services), MEC (Interoperable Multi-Access Edge Computing) to name but a few.
AN requires coordination and knowledge sharing between all the SDOs, cross vertical organizations, open source alliances and event research and innovation groups involved. He recommended to share and re-use results and APIs and to focus on security and GDPR in the evolution of Autonomous Networks.

David Boswarthick
ETSI

Jing Zhang
CAICT, IMT 2020

AI based network slicing management and orchestration are two important leading technologies for 5G and AN. Currently Intelligent Network Slicing is under standardization. The overall architecture of intelligent slicing has been presented, including all the steps of the process: creation, operation and update.

5GDNA, an Alliance that counts more than 100 members from Verticals, Operators, Partners, alliances, Industry leaders targets to provide a Private Network based on public mobile network resources from Operators with predictable and deterministic service experience. 5G Dynamic Slicing for 5GDN- as a Service developed by Huawei and China Telecom on GRID is a use case reported on GSMA White paper. The deterministic Network has to be Cloud native, Unique (Convergence), Automation, Real Time operation and edge computing based.
The collaboration is the key to leverage the digital infrastructure. Collaboration means:

- Working and interact with other SDOs (3GPP MRP, ETSI MEC, CCSA Network Slicing Special Group);
- Open source synergies;
- Accelerates Vertical Solution Incubation through Innovation Center and Joint R&D

Jisheng Dai
5GDNA

Martin Creaner
GIO

Network Slicing, Virtualization and ADN drive the Telecom Industry to a flexible mode of production, offering highly customized services to vertical customers.
The introduction of Cloudified Autonomous Network capabilities will evolve the Telco Business models from the traditional classic services to the most sophisticated Platform business model working with the ecosystem of partners; new services will be introduced: Customized Network Services, On Demand Services, Self Service, Edge Cloud Convergence, Network-as-a-service.

## IN CONCLUSION

The panel, Conclusion with the speakers, moderated by Licciardi underlined the following remarks:

- Autonomous Networks are a great business opportunity not only for CSPs. Operators will benefit in terms of strong cost reduction and new revenue opportunities.
- Autonomous Networks evolution, standardization and deployment require a large industry consensus; SDOs need to collaborate better to reduce the competitions and create the right approach, GIO can help with discussion at all levels: identifying projects to work together and maybe the support of deployment of AN can be the right candidate.
- Network Slicing is a key capability for 5G; evolution and standardization of Autonomous Networks should take care of evolving Network Slicing in order to satisfy the AN requirements and needs.
- AI and Machine Learning will play a key role in AN evolution, these technologies will be everywhere from devices to edge/cloud, they are managed, produced and owned by different players, mixed ownerships is a point of attention and it will require security and trust approaches.
- The evolution from Cloud computing to Edge Computing is the trend and it will be the next battleground where CSPs can play an important role.
- Autonomous Networks/ Digital Infrastructure is a Medium-Long Term evolution the real products deployment with AI everywhere and a significant level of Autonomy (level 4/5) are expected in four/five years, however in 24 month time-frame tangible elements of AN, generating the first benefits, might be available (i.e. at Level 3 – partial autonomy). Standards should move fast to prepare the conditions of interoperability and commercial deployment of Autonomous Networks.

The Standard stabilization should be within 2 year time-frame.

Should you have any thoughts on these proposed project ideas, or be interested in participating either of these suggested projects, feel free to share with Luigi Licciardi on luigi.licciardi@huawei.com