5G Network Slicing for Verticals

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5G for Verticals – Technology Disruption Point

Connected Society

Paradigm Shift
Virtualization

Connected Devices

1990

2G 3G 4G 5G

2025

Revenue
- New Customer Segments
- Tech: Network Slicing

CAPEX/OPEX
- Reduce Operational Costs
- Tech: SDN/NFV

Automation
- Unified E2E Management
- Tech: MANO

Novel Services
- Fast Service Deployment
- Tech: Service/NW Program

Fixed/Mobile Convergence
- Assets Consolidation
- Tech: Protocol Convergence

No Vendor Lock-in
- Foster Vendor Competition
- Tech: Open-Source Platform

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Orchestrating a brighter world
ONETS: On-demand 5G Network Slice Broker

Automated solution to decide in real-time on network slices requests

- Continuous Resource Forecasting and Learning
- Admission Control Decisions
- Network Slices Provisioning
- Per-Slice SLA Monitoring

3GPP Developments

- SA2 Next Gen
- SA5 MANO
ONETS: 5G Network Slice Broker Solution

5G Network Slice Broker features:

- Resource monitoring: e.g., resource blocks, MCSs
- Machine Learning operations for traffic forecasting: online reinforcement learning
- Admission Control for network slice requests (based on forecasting info)
- Support for multiple classes of Network Slices SLAs
  - Heterogeneous QoS traffic requirements (data rate, latency, …)
ONETS: 5G Network Slice Broker: Feasibility Study

- 2 eNBs
- vEPC
- 3 slices
  - eMBB – VoIP
  - eMBB – FTP
  - PS – NeoFace
ONETS: 5G Network Slice Broker: Feasibility Study

Mobile Traffic Forecasting for Maximizing 5G Network Slicing Resource Utilization, IEEE INFOCOM 2017
5G Mobile Transport Platform for Verticals

- (Federated) Network Slicing
- Vertical MANOs

Operators
- Telefonica
- Orange

Vendors
- NEC
- Ericsson
- Nokia

Verticals
- Automotive: Chrysler Fiat
- E-Health: SAMUR (Emergency)
- Media: ATOS (Olympics)

Dates
- 01/06/2017 - 30/11/2019

Funding
- €8,510,582.50
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