

Outlook into the Future

21 February 2014

1. Changing Internet



- Changing Lifestyles
- Distributed architecture
- Increasing connectivity
- Decreasing Cost

2. Internet of things



“More than nine billion devices around the world are currently connected to the Internet, and the estimations show that by the end of 2020, there will be one trillion connected devices world-wide”

J. Manyika, “Disruptive technologies: Advances that will transform life , business , and the global economy” 2013

“Could be defined as a dynamic global network infrastructure with self configuring capabilities based on standard and interoperable communication protocols where physical and virtual ‘things’ have identities, physical attributes, and virtual personalities and use intelligent interfaces, and are seamlessly integrated into the information network.”

Internet of Things Strategic Research Roadmap. CERP-IoT.

Libelium Smart World

Air Pollution

Control of CO₂ emissions of factories, pollution emitted by cars and toxic gases generated in farms.

Forest Fire Detection

Monitoring of combustion gases and preemptive fire conditions to define alert zones.

Wine Quality Enhancing

Monitoring soil moisture and trunk diameter in vineyards to control the amount of sugar in grapes and grapevine health.

Offspring Care

Control of growing conditions of the offspring in animal farms to ensure its survival and health.

Sportsmen Care

Vital signs monitoring in high performance centers and fields.

Structural Health

Monitoring of vibrations and material conditions in buildings, bridges and historical monuments.

Quality of Shipment Conditions

Monitoring of vibrations, strokes, container openings or cold chain maintenance for insurance purposes.

Smartphones Detection

Detect iPhone and Android devices and in general any device which works with Wi-Fi or Bluetooth interfaces.

Perimeter Access Control

Access control to restricted areas and detection of people in non-authorized areas.

Radiation Levels

Distributed measurement of radiation levels in nuclear power stations surroundings to generate leakage alerts.

Electromagnetic Levels

Measurement of the energy radiated by cell stations and WiFi routers.

Traffic Congestion

Monitoring of vehicles and pedestrian affluence to optimize driving and walking routes.

Smart Roads

Warning messages and diversion according to climate conditions and unexpected events like accidents or traffic jams.

Smart Lighting

Intelligent and weather adaptive lighting in street lights.

Intelligent Shopping

Getting advice in the point of sale according to customer habits, preferences, presence of allergenic components for them or expiring dates.

Noise Urban Maps

Sound monitoring in bar areas and seismic zones in real time.

Water Leakages

Detection of liquid presence outside tanks and pressure variations along pipes.

Vehicle Auto-diagnosis

Information collection from CanBus to send real time alarms to emergencies or provide advice to drivers.

Item Location

Search of individual items in big surfaces like warehouses or harbours.

Waste Management

Detection of rubbish levels in containers to optimize the trash collection routes.

Smart Parking

Monitoring of parking spaces availability in the city.

Golf Courses

Selective irrigation in dry zones to reduce the water resources required in the green.

Water Quality

Study of water suitability in rivers and the sea for fauna and eligibility for drinkable use.



3. M2M communication



- Machine to Machine Communication
- Self Controlled
- Large Scale required interoperability
- Type of communications used for smart meters.

M2M World of Connected Services

The Internet of Things

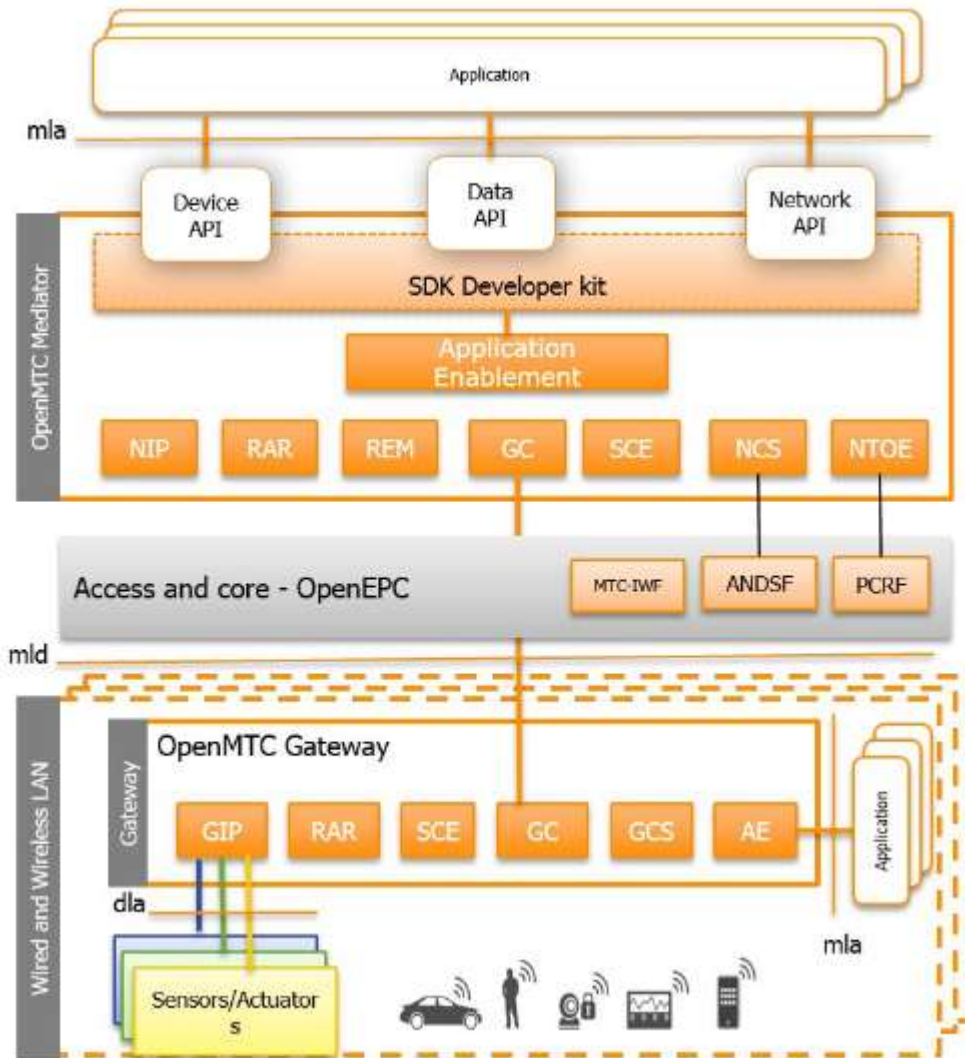


4. ETSI/ONEM2M



“The purpose and goal of oneM2M is to develop technical specifications which address the need for a common M2M Service Layer that can be readily embedded within various hardware and software, and relied upon to connect the myriad of devices in the field with M2M application servers worldwide. “

5. OpenMTC



“OpenMTC platform is to provide a standard compliant middleware platform for M2M oriented applications and services enabling Smart City implementation”

- ETSI/oneM2M standards