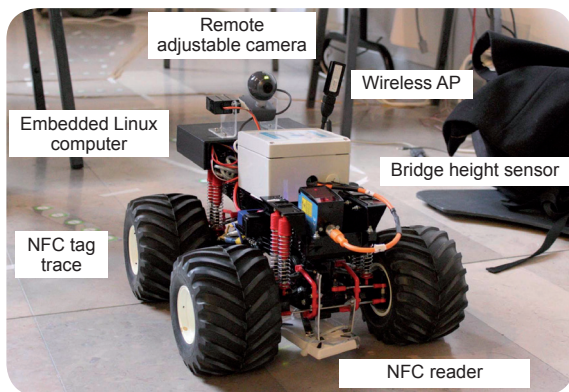


Project Results

Ubiquitous machine-to-machine networking

Pioneering a horizontal approach to M2M service applications



Machine-to-machine (M2M) communication is increasing rapidly. The ITEA 2 UseNet project focused on a horizontal M2M specification for ubiquitous service networks in interaction with domain-specific applications. Such a horizontal approach overcomes the limitations of a highly fragmented vertical market which had been missing any interoperability between domains. The outcome is driving global standardisation and is already resulting in a range of products and applications for the domestic, industrial, transport and well-being sectors.

While M2M network applications have been developing rapidly, they have been limited to vendor- or domain-specific closed systems. This has resulted in high developments costs as solutions have had to be developed and implemented separately for each domain or even specific business case, with the wheel being invented over and over again in different contexts.

UseNet set out to develop ubiquitous M2M service networks, where the infrastructure is able to connect and combine services produced in different domains. The overall objective was a universally applicable service infrastructure enabling interoperation between devices and

applications in wired and wireless systems, regardless of the supplier.

SERVICE-ORIENTED ARCHITECTURE APPROACH

UseNet's technological focus was the development of a common infrastructure, environments and network elements based on the use of service-oriented architecture. The consortium consisted to 13 industrial companies – both large and small – and four research organisations.

Key goals were to:

- Enable interoperable M2M applications;
- Specify generic service infrastructures for M2M services to be applied and reused in different application domains;
- Enable communication over heterogeneous M2M networks such as all IP-converged public networks and ad hoc wireless networks;
- Develop and apply advanced M2M endpoints such as devices, sensors and actuators, smart and electronic identity cards and RFID tags;
- Enable smooth and convenient M2M mobile services;
- Provide end-user services for smart applications; and
- Clarify and enhance the roles of the different stakeholders in the M2M domain.

The horizontal M2M infrastructure specification and software were evaluated in a range of applications such as: remote metering and control of built infrastructure; maintenance and control of mobile machines; ubiquitous mobile client for consumer devices; and wired and wireless mobile telematics systems.

WIDENING BUSINESS POSSIBILITIES

The resulting M2M systems widen business possibilities and offer advantages for companies, especially when information systems controlling their core processes are using the real-time information produced by the M2M system.

UseNet (ITEA 2 ~ 06004)

Partners

Alcatel-Lucent
Bull
CNRS-LAAS
DFC
Fagor Electrodomesticos
Foreca Consulting
IBBT
Ideko
IKERLAN
Navicron
Ouman
Plenware
Polar
RMONI wireless
Soraluece
Thales Communications
VTT Technical Research Centre of Finland

Countries involved

Belgium
Finland
France
Spain

Project start

March 2007

Project end

November 2010

Contact

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Project website :

<http://usenet.erve.vtt.fi>

Project Results

In consequence, a company can increase service quality, reduce costs and increase customer satisfaction. Exploitation has already started with commercial products coming onto the market. Products include the Ounet centralised remote-control system for building automation from Ouman and a range of wireless products including logging sensors, bridge detectors, ZigBee roaming sensors, M2M web services and a sensor gateway from RMONI.

Fagor Electrodomesticos is using results to develop improved domotic products, new services and new business opportunities, including monitoring domestic appliances in the home for better technical assistance. And computer giant Bull has created a specific offer for the transport industry to enable the tracking and geo-localisation of vehicles.

Thales plans to exploit UseNet outcomes in several areas – such as use of M2M devices to collect data on incidents and fraud, and to track public transport vehicles

to improve tramway management and control solutions. UseNet results are also being used to improve security of critical infrastructure at airports and major events, as well as to increase border surveillance.

Alcatel Lucent is making use of UseNet results to evolve M2M networking from information management systems to representational state transfer (REST) and web technologies. It is also exploiting the results for its mobile wireless networks.

DRIVING GLOBAL STANDARDISATION

Overall, UseNet has been a major success. It pioneered work on horizontal M2M infrastructure specifications and pushed Europe to the forefront of M2M core architecture standardisation through the European Telecommunications Standards Institute (ETSI). It has also encouraged fast exploitation of results and opening up new research routes in complex and dynamic M2M asset networks and in the technical details of various layers in the system.

Major project outcomes

DISSEMINATION

- 50 papers (14 journals & 36 conference papers)
- 31 presentations/demos at events (14 presentations, 9 workshops, 5 symposia and 3 seminars)
- 26 other dissemination activities like technical reports, masters theses and PhD dissertation
- 4 magazine articles
- 2 press releases
- 1 book chapter in Handbook of Ambient Intelligence and Smart Environments. ISBN: 978-0-387-93808-0_42

EXPLOITATION

- 5 new products
- 3 new services
- 6 new systems

STANDARDISATION

- High impact on the M2M standardisation within ETSI

PATENTS

- 4 patent application filed

SPIN-OFFS

- Geosparc N.V.

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■ ITEA 2 – Information Technology for European Advancement – is Europe's premier co-operative R&D programme driving pre-competitive research on embedded and distributed software-intensive systems and services.

As a EUREKA strategic Cluster, we support co-ordinated national funding submissions and provide the link between those who provide finance, technology and software engineering. Our aim is to mobilise a total of 20,000 person-years over the full eight-year period of our programme from 2006 to 2013.

■ ITEA 2-labelled projects are industry-driven initiatives building vital middleware and preparing standards to lay the foundations for the next generation of products, systems, appliances and services. Our programme results in real product innovation that boosts European competitiveness in a wide range of industries. Specifically, we play a key role in crucial application domains where software dominates, such as aerospace, automotive, consumer electronics, healthcare/medical systems and telecommunications.

■ ITEA 2 projects involve complementary R&D from at least two companies in two countries. We issue annual Calls for Projects, evaluate projects and help bring research partners together. Our projects are open to partners from large industrial companies and small and medium-sized enterprises (SMEs) as well as public research institutes and universities.



UseNet

(ITEA 2 - 06004)

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