

Project Achievements



Management of the Outer Edge

Magneto provides a new level of service assurance and network management support to the “Outer Edge” domain i.e. the point of attachment of home area networks and other restricted area networks to help Operators, OEMs and Service Providers to deal with the increasing complexity and ever increasing number of connections at the Outer Edge. We define Outer Edge as “user networks” such as Home Area Networks, Small-Office, Hotel networks etc. These networks are attached to operator’s network through the access network but operators do not have direct or full control of these Outer Edge networks.

Main focus

Magneto has developed an innovative Network and Service management framework that enables integrated service and network management for outer edge devices in emerging networks. The Magneto framework enables the management of home networks to be incorporated into telecommunication service provider management systems to provide end-to-end service management. The framework facilitates the scalability of the management systems to scale to deal with the expansion into millions of connected outer edge networks using an autonomic approach to self management. Magneto has developed novel solutions to service and network management to help operators meet the challenges posed by the outer edge in a secure manner. In particular Magneto has delivered a scenario based architecture and software proof of concept in the areas of service configuration and assurance, supported by an Autonomic framework for self management of outer edge devices.

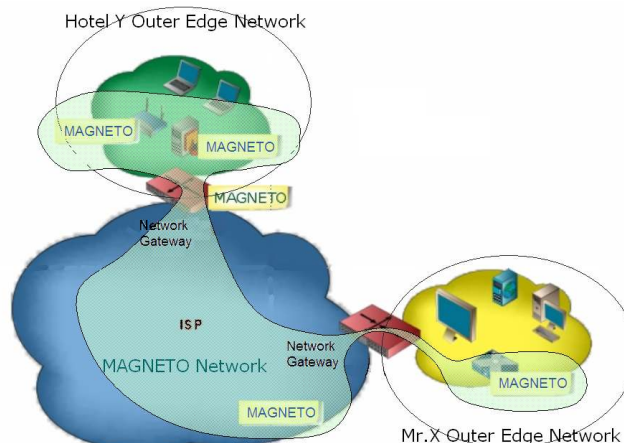
Approach

Magneto has implemented the use of intelligent systems and process automation in its Autonomic framework to minimise human intervention at the outer edge. Inherent in this approach is a greatly increased emphasis on secu-

urity and Magneto has adopted an end-to-end approach to incorporating security in all aspects of the system. Magneto is access network neutral and can be applied in both fixed and mobile networks. A number of service based scenarios in the context of consumer demand for ‘Anytime, Anywhere’ Omnipresent Virtual Networks (OVNs) have formed the basis to the approach including:

- ◆ **User subscription and OVN creation.** This deals with subscription process to OVN service and creating a specific OVN for a user.
- ◆ **Joining and content sharing.** Once an OVN is created other users can join that specific OVN and share content among other users in the OVN
- ◆ **Service Breakdown.** This topic deals with fault management; more precisely probabilistic fault identification
- ◆ **Service Quality Degradation.** This aspect covers scenarios where the service quality is degraded and monitoring of service quality levels and SLA in such situations
- ◆ **Device addition to an existing session.** Users can add devices to an OVN and the OVN should recognize the newly added device; in addition existing service sessions should be portable to other capable devices.
- ◆ **Real-time sharing.** Sharing of external content between OVN initiator within his HAN and another OVN user.

Magneto has developed a common man-



Magneto

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www.celticplus.eu/projects/celtic-projects/call5/magneto/magneto-default.asp

agement framework to address these scenarios and prototypes have been demonstrated for the major scenarios.

Achieved results

Magneto has delivered a new management solution which integrates the outer edge as a network and service centric component addressing Omnipresent Virtual Network services. Magneto has developed an Autonomic framework for Outer Edge management, which allows easier service specification and deployment and reduces management costs (OPEX) and help operators meet the challenges posed by the outer edge. For service providers, especially convergent ones, the outer edge is becoming the unique service portal which allows the customers access to a huge variety of services. The technological innovations in Magneto particularly address:

- ◆ extension of self - management principles to the outer edge, e.g. the management of home area networks can be autonomic.
- ◆ application of probabilistic techniques to deal with the very large and increasing levels of data that must be analysed for efficient service assurance.
- ◆ implementation of Complex Event Processing and correlation of data and events for service assurance in a decentralized way, close to the event location.
- ◆ Quality of Service (QoS) estimation using lower level Network

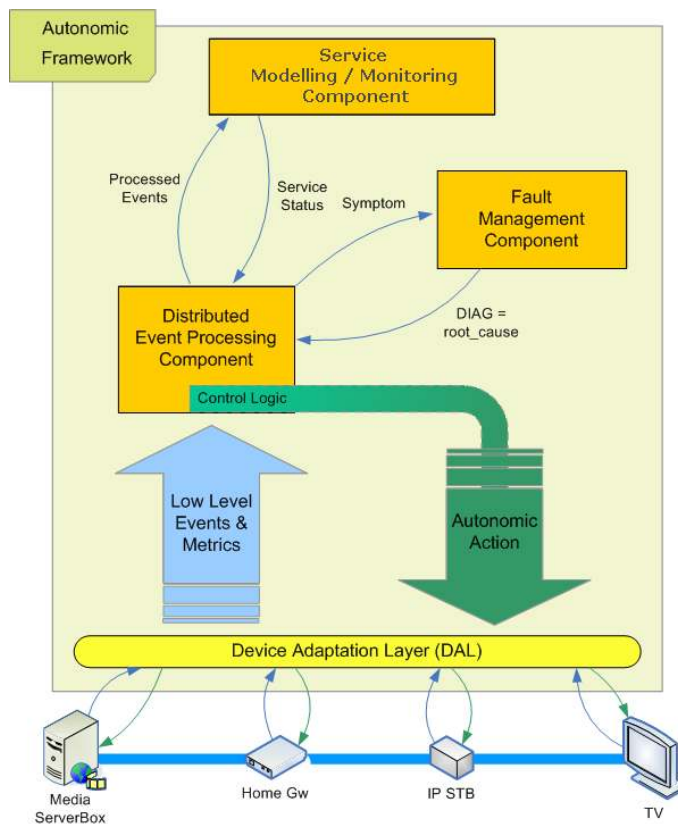
Key Performance Indicators (N-KPIs).

The Magneto design of an innovative and autonomic outer edge management solution and its integration of the outer edge management in a global management

and services are managed at the outer edge.

Impact

Research results from the Magneto research have been reviewed and accepted by the Research



framework provide service providers with a global and innovative solution for end-to-end management of multimedia services. The Magneto autonomic framework provides an integrated approach to network and service management and proposes a fundamental change to the way that networks

community through journal and book publications and at major conferences including IMS 2010, BcN 2010, MACE 2010 and IM 2011.

Results from Magneto have been disseminated through contacts with the Autonomic Future Internet (AFI) and Measurement Ontology for IP traffic (MOI) industry specification groups at ETSI, and magneto partners have participated in a panel discussion at TMF.

By carrying out the work at a European level, the results of the Magneto project offers an opportunity for European companies to take a lead in outer edge management. The diversity of the partners taking part in Magneto facilitates the exploitation and dissemination of the results both across Europe and beyond, and will maximise the intellectual and commercial potential of the project. Magneto industrial partners are currently considering the commercial impact of the concepts on existing product roadmaps and the introduction of new products based on the research results.

About Celtic

Celtic is a European research and development programme, designed to strengthen Europe's competitiveness in telecommunications through short and medium term collaborative R&D projects. Celtic is currently the only European R&D programme fully dedicated to end-to-end telecommunication solutions.

Timeframe: 8 years, from 2004 to 2011

Clusterbudget: in the range of 1 billion euro, shared between governments and private participants

Participants: small, medium and large companies from telecommunications industry, universities, research institutes, and local authorities from all 35 Eureka countries.

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