Project Information

CELTIC
Telecommunication Solutions

Management of the Outer Edge

Magneto has the goal of adding 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 the telecommunication infrastructure.

Main focus

Magneto aims to develop an innovative distributed management framework and service management approach that will enable integrated service and network management for outer edge devices in emerging networks. The framework will provide a means to incorporate the management of home networks into telecommunication service provider management systems to provide end-to-end service management. The framework will also provide a means to organise the management systems to scale to deal with anticipated expansion into millions of connected outer edge networks using an autonomic approach to self management. The frame-

work will also serve as a basis for providing cross cutting security for home networks. Magneto will investigate novel approaches to service and network management to help operators meet the challenges posed by the outer edge. In particular Magneto primarily focuses on the areas of service configuration and assurance, supported by self management of outer edge devices.

Approach

Magneto primarily focuses on the sub areas of

♦ Service assurance

♦ Network management support for outer edge device self management.

Additionally Magneto will consider, in a limited manner,

♦ Network management support for deployment of innovative user to user type services.

Magneto

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Partners:

Blusens, Spain

Data Ductus, Sweden

GMV, Spain

LM Ericsson LTD, Ireland

Siemens AG, Austria

Telefónica I+D, Spain

University of Evry, France

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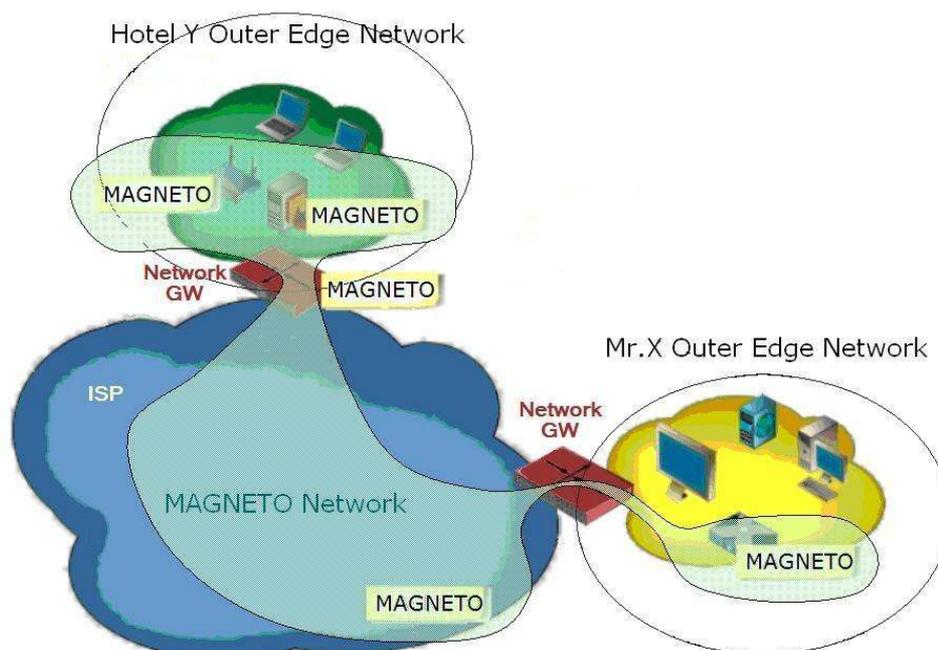
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www.celtic-initiative.org/projects/magneto

Magneto will pursue a 'zero touch' approach i.e. human intervention will be limited to the minimum possible through the use of intelligent systems and process automation. Inherent in such an approach is a greatly increased emphasis on security and Magneto will adopt an end-to-end approach to incorporating security in all aspects of the system.

From a research perspective Magneto will adopt an access network neutral approach and will in particular consider aspects of fixed and mobile networks.

A number of service based scenarios will be defined. Typical scenarios may include various forms of media delivery services (e.g. Internet TV), SOHO services as well as services based on the user to user communication paradigm identified above. The common management aspects of those scenarios will be identified. The requirements on these scenarios will be described and a prototype of each scenario will be designed, implemented, tested, and demonstrated.

Magneto will use the findings and conclusions it draws from examining the management of the selected scenarios to make generalized recommendations for management of other types of networks at the outer edge.

Main results

Magneto provides a comprehensive full system approach to net-work and service management. It will have a fundamental impact on the way that networks and services are managed at the outer edge.

For a service provider, and especially a convergent one, the outer edge is becoming the unique service portal which allows the customers and their associated users getting access to huge variety of services. The design of an innovative and autonomic outer edge management solution and its integration of the outer edge management in a global management framework will provide service providers with a global and innovative solution for end-to-end management of multimedia services.

The expected impact is a new outer edge which facilitates the management of customer services and the deployment of new services.

By carrying out the work at a European level, Magneto project gives Europe the opportunity to take a lead in outer edge management. The diverse organisations taking part in Magneto will facilitate the exploitation and dissemination of the results across Europe and beyond and will maximise the intellectual and commercial potential of the project.

Impact

Magneto addresses the specification and development of new management solution which integrates the outer edge as a network and service component. Magneto will allow us to design and develop the first framework toward an Autonomic Network, which will allow easier service specification and deployment and reduce management costs (OPEX).

The technological innovations in Magneto particularly address:

- The extension of self-management principles to the outer edge, so e.g. that the management of home area networks can be autonomic.

- The application of probabilistic techniques to deal with the petabytes of data that must be analysed for efficient service assurance and with the uncertainty derived from partial knowledge about network configuration and status.

- Magneto will provide a way to process and correlate any data and events relevant for service assurance in a decentralised way, as close as possible to their origin.

- The investigation of novel techniques such as botnets to manage services running on millions of devices.