Multi-national initiative for cloud computing in health Care [MUNICH]

An open, user centric research initiative presented by Celestor.

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Abstract

Healthcare models are changing from the hospital-based, specialist-oriented approach, which dominated the 19th and 20th century towards a distributed, patient centric care model. This transition is driven by the demographic development and socio-economic change in most westerly societies. However, following the formula: distributed patient centered care = distributed patient centered computing the pace of the shift in care models will depend on the availability of next generation integration and virtualization tools and novel, emerging computing strategies such as cloud computing. The MUNICH project, which has been founded by Celestor Ltd., an Edinburgh based provider of ehealth consultancy and services in 2010 is an innovative, open research project based at the Technical University Munich, Klinikum rechts der Isar, Munich, Germany. The project aims to develop and provide cloud-based strategies for hardware and network virtualization and service integration across several domains and physical networks.

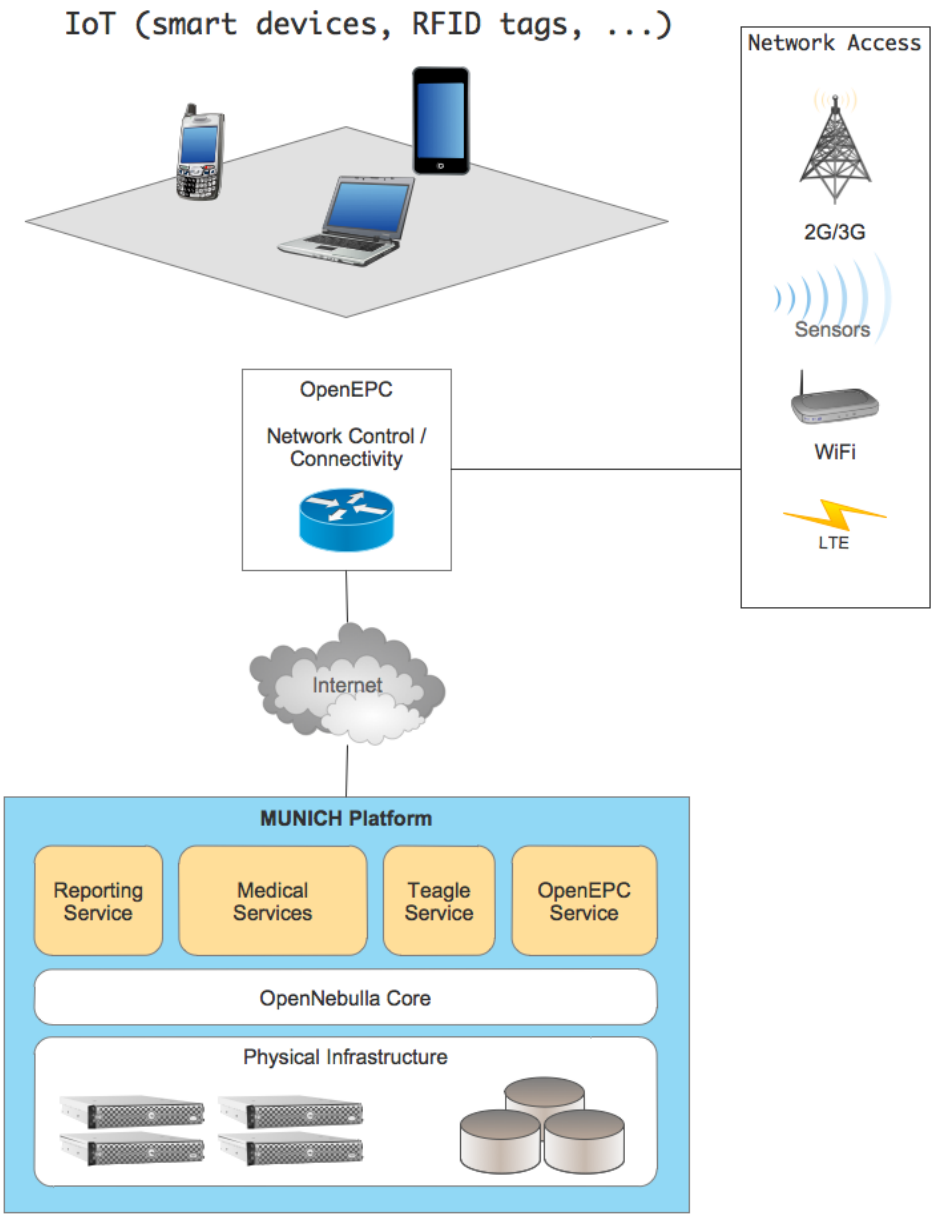
The group is running the MUNICH platform, an ehealth-cloud platform prototype and is in the process of developing real world applications based on dynamic integration and service aggregation, aiming at the global market in the health care, wellness and ambient assisted living industry. Through its members the MUNICH project is well interlinked globally with industry and academia.

Aims and Objectives

- Hardware and network virtualization and service integration and aggregation (link data with third party services using a dynamic network architecture)
- Highest levels of trustworthiness (safety, security, resiliency) and full compliance with ISO/IEC 80001
- Development and application of a dynamic risk assessment tool to benchmark the objective risk level hardware, software and services pose for a given medical data network
- Development of other competitive, commercial solutions for the health care, wellness and ambient assisted living industry with regards to the development of the “Future Internet”
- Submission and acquisition of significant research grants to reduce the financial bourdon for MUNICH members and create a stable basis for research on the European Ehealth Cloud (EEC)

- Development and validation of business models and online billing systems
- Provision of evidence based scientific support for the enlargement of the market size and global deployment
- MUNICH aims to maintain and augment their leading role in the development and deployment of the European Ehealth Cloud (EEC)

Table 1



MUNICH members

The following organizations and individuals are currently members of MUNICH:

- Celestor Ltd
- Siemens AG
- CipherLab UK
- Technical University Munich, Klinikum rechts der Isar, MITI group
- Technical University Berlin
- Edinburgh Napier University
- Kodit Ltd

The following organizations have declared an interest in becoming members of MUNICH:

- Motorola
- Microsoft
- Hitachi

Technology

The MUNICH platform is an experimental ehealth cloud based on Open Nebula 2 open source software [1,2]. The idea behind the MUNICH platform is to provide virtualization and integration to create novel customized, user centric services in a Future Internet and by bridging the gap between the Internet of Things and the Internet of Services. For the virtualization we are going to use open source software such as "TEAGLE" which has been developed under the ECs Future Internet Research initiative (FIRE) [3]. Network virtualization is currently under investigation in order to make sure that an "always best connected" (ABC) paradigm can be realized where smart devices and smart tags may use different kind of networks to communicate (GPRS, GMS, 3G, WLAN, 4G, etc). The use of alternative networks could also optimize the utilization of the bandwidth available at any given point in time. The Munich platform is continuing the successful work which has been done so far under national research projects such as the data capture and auto-identification reference project which is a member of the IERC and has been presented to the cluster members on an earlier occasion [4,5].
The MUNICH platform has laid the foundation for a further reaching proposal under the 8th call entitled: The European Ehealth Cloud [EEC] - Closing the gap between the Internet of Things and the Internet of Services, later the year.

References

1. www.munichplatform.eu
2. http://opennebula.org/
3. http://www.fire-teagle.org/
4. www.dacar.org.uk
5. Sundmaeker H, Guillemin P, Friess P, Woelffle S (Editors) (2010) Vision and Challenges for realizing the Internet of Things, ISBN 978-92-79-15088-3