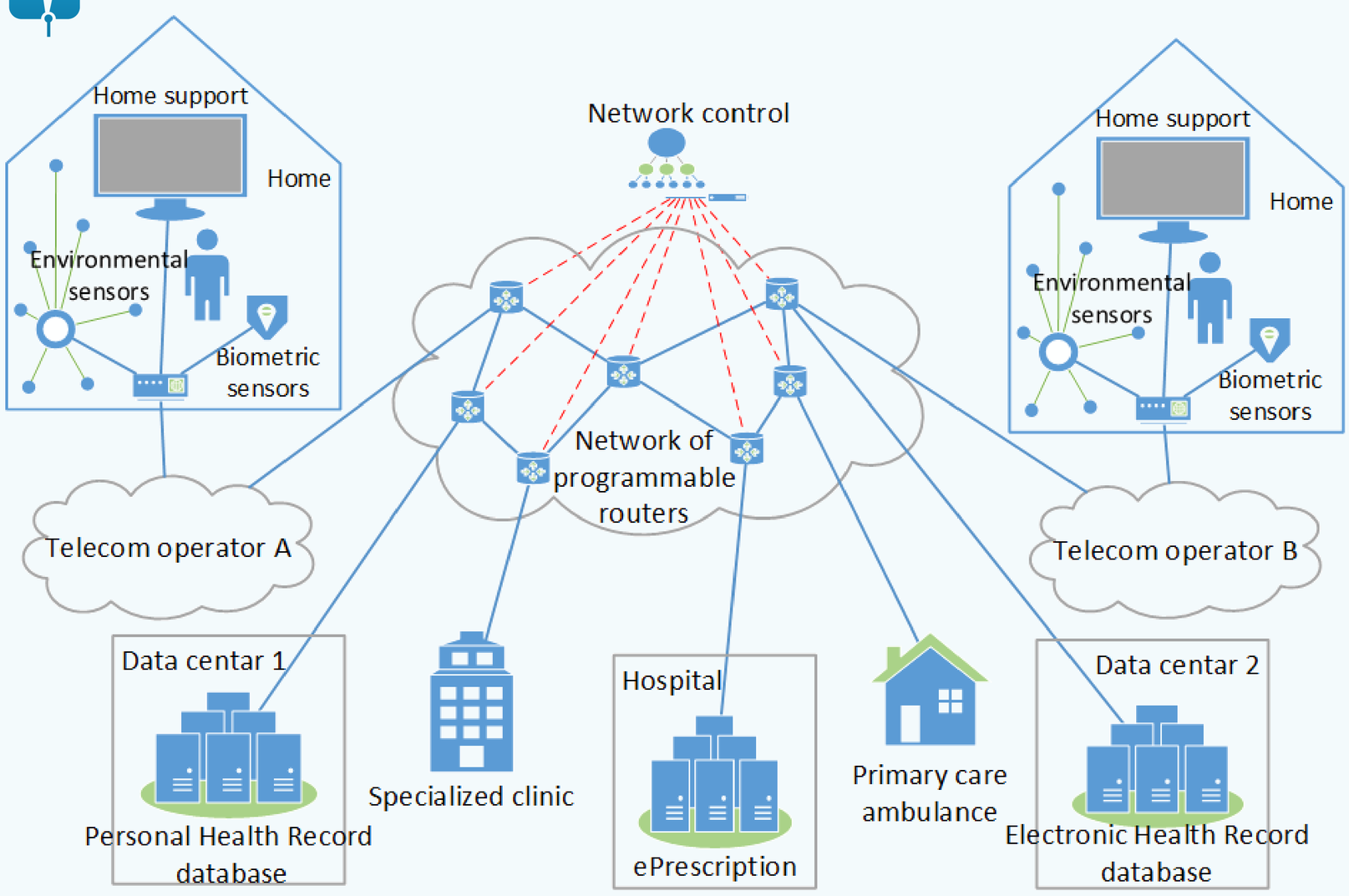
Information and communication technology for generic and energy-efficient communication solutions with application in e-/m-health

ICTGEN

Research objectives

- To design a solution for integration and interoperability of Electronic Health Record (EHR) with imaging/radiology e-health systems and m-health systems
- To develop generic components of software-defined networking infrastructure for ICT services delivery with optimal user experience
- To optimize energy efficiency of software-defined networking elements based on model and measurements gathered using sensor network from user environment
- To build laboratory environment and integrated demo solution for conducting functional validation of designed application scenarios in controllable network environment

Functional elements of laboratory prototype



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Project partner
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5.475.405,45 HRK

Intermediate bodies
Ministry of Science, Education and Sports
Central Finance and Contracting Agency

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Software-defined networking infrastructure for complex ICT services

Research goal: to improve the routing process in a communication network by considering quality of ICT services as perceived by end-users (i.e., quality of experience, QoE) and exploiting the software-defined networking (SDN) paradigm

Expected results:

- A routing optimization model that considers knowledge on end-users, ICT services, and the network infrastructure to select the best available QoE-aware paths for delivery of different traffic types
- Implementation of the proposed model integrated with an SDN controller so as to realize a reusable component that can be utilized for controlling different networking environments
- Showcase of the targeted model application in the context of the e-health/m-health and IP television case studies

Complex ICT e-/m-health and multimedia services

Research goal: to design a model and develop software support for referencing medical images in Electronic Health Record (EHR) systems that will allow access to medical images over network infrastructure

Expected results:

- Functional demonstration system for referencing medical images
- Tools needed for visualization of medical data in e-health systems
- Architecture and software solution for storing data gathered from partner's m-health solution directly to patient's Electronic Health Record

Energy efficiency and network resources sustainabillity

Research goal: to develop and implement

- A novel framework for building and managing large interconnected sensor networks based on widely used open-source technologies
- Energy-aware protocols and energy-reducing algorithms for low-power health-monitoring networks

Expected results:

- Experimental test environment for validation of currently available wireless low-power devices and the associated data processing and aggregation infrastructure
- An experimental testbed based on commercially available low-power wireless sensor network solutions for validation of the proposed energy-saving protocols and algorithms
- A unified framework for the reduction of energy expenditure in a generic telecommunication network

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Investing in future