

Tuesday, 10 June

11:00 – 12:30

## Session 1: Shared-Care Systems for Health Care Professionals and Patients *Tromsøsal 1*

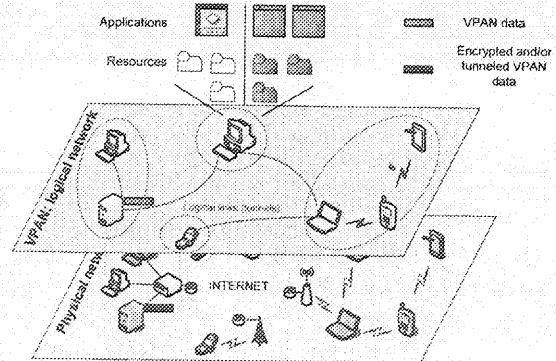
### 1.1 A New Concept Towards Secure Personal Healthcare Platforms

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The ability to fit specific needs and the adequate trust level that people require during the use of eHealth applications is a presumed determinant for the large-scale uptake of the technological solutions already under development in many trial projects [1]. Solutions for security and privacy protection have to be convincing and adequate, without burdening the user friendliness. Next to security mechanisms at the application level, network layer techniques often complement and enhance both the trust-level and the user friendliness of the application.

Within the IBBT- TranseCare project, the concept of VPAN (Virtual Private Ad Hoc Network) is introduced for eHealth applications. This concept enables the participation of both local and distributed devices in one or multiple secure and fully self-organizing virtual networks deploying their own private addressing and routing mechanisms [2]. Through this technology, multiple devices that serve the same purpose and therefore need easy access to each other's data and services are grouped in a logical network (see figure). Based on a trust relationship, the devices in each other's neighborhood authenticate each other and establish secure links. This results in the formation of clusters. The interconnection of clusters at different locations, forming the complete VPAN, is realized through the establishment of tunnels. Through the exchange of routing information over the secure links and tunnels, all devices can securely communicate with each other within the VPAN. Moreover, all mechanisms are fully self-organizing and VPAN service discovery is foreseen. As such, applications can be easily deployed on top of the VPAN without complex maintenance and management procedures regarding mobility, security, device and network settings... Every VPAN device now becomes a portal to the virtual network, giving users in an easy and transparent way access to their data and services at any location.

A proof-of-concept implementation of the VPAN concept has been realized and is being deployed in a health-care scenario that is now being evaluated. This scenario will be used to explore user experience concerning the communicated trust and other aspects of this solution and will make use of proxy technologies during field research. In this scenario, a man with a dependency on help for daily activities is living at home with the assistance of his wife and his children. Sometimes he spends the day at a specialized day-care centre where he meets other seniors and where professional caregivers are present. The man has a portable device that is part of a Personal VPAN and a Family VPAN. His Personal VPAN allows him to use his portable device to gain in an easy, secure and transparent way access to his devices at home, which have organized themselves into a VPAN cluster. As such, he can continue to enjoy all activities he otherwise would only have at his disposal at home (watching pictures, listening to



music, playing games...). Also, he can easily obtain information relevant for the caregivers, even when stored remotely. Through his Family VPAN, the man can view family pictures that have been uploaded by his family on their devices and show them to his friends at the day-care centre. He can talk with his grandchildren or setup a video conference with his children. The VPAN platform takes care of all technological complexity, security and connectivity, making technology accessible to this man, at any location and at any time. In the future, the VPAN technology can be extended to enable regional health-care networks that offer general practitioners the possibility to easily interact and exchange information related to their patients with hospitals, caregivers, day-care centers... at any time and from any device while guaranteeing authentication and safeguarding privacy. Of course, extending the VPAN technology to such a larger scale imposes additional challenges that will be investigated in the future in order to further extend the VPAN concept as a next-generation health-care platform.

*TranseCare is a project of IBBT (Interdisciplinary institute for BroadBand Technology) in cooperation with the following companies and organizations: Androme, Custodix, In-Ham, Solidariteit voor het Gezin, Televic, UZGent. IBBT is a research institute founded by the Flemish Government in 2004 (more info: [www.ibbt.be](http://www.ibbt.be)).*

[1] IBBT projects Coplintho, E-HIP and IM3, [www.ibbt.be](http://www.ibbt.be)

[2] J. Hoebeke et al. "Virtual Private Ad Hoc Networking", *Wireless Personal Communications*, 38(1), ISSN 0929-6212, 2006, pp. 125-141.

## 1.2 Net- Based Guidance for Improving Ulcer Care

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### **Background:**

The Department of Dermatology at the University Hospital of Norway, in collaboration with Norwegian Centre for Telemedicine, offers Net-based guidance to health staff in the municipal health service. **Project period:** 1 Jan. 2006 – 30. December 2008

### **Aim:**

The objective of the study is to investigate whether an offer of regular Internet guidance helps to improve the quality of ulcer treatment in the home-care service. The hypothesis is that systematic collaboration between wound management professionals and those who provide ulcer care in the home has a positive effect on the quality of ulcer treatment. A key question concerns the significance of visualization using photographs combined with written guides for the progression of treatment and the development of competence in ulcer treatment.

### **Method:**

The project includes 16 patients with chronic leg ulcers. The participants were recruited from patients with leg ulcers who were receiving treatment from the Department of Dermatology. Participation in the project included a consultation at the Department of Dermatology together with the health practitioner with primary responsibility in the municipal health service, before the Internet guidance began.

The participants, both health staff in the municipal health service and patients with chronic ulcers, answered a questionnaire at the start and at the end of the guidance period. A selected number of participants were interviewed.

### **Results:**

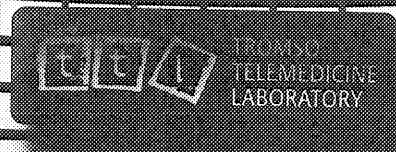
Internet communication with attached photographs made it possible to intervene immediately if the status of the ulcer changed. For many ulcer patients, rapid intervention resulted in faster improvement in the condition, and in certain cases it is assumed that the intervention prevented the need for hospital admissions.



# TTeC 08

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