



Bringing efficiency to emergency care processes with the help of SafeMove



BACKGROUND

According to new research, up to one-fourth of a doctor's time is wasted because of insufficient patient information. The research, conducted by the Lappeenranta University of Applied Sciences in 2006, revealed that the work time lost daily ranges from 12 to 25 percent.

Separate research, the CreaProc project conducted by the Department of Information Processing Science of the University of Oulu, explored how the Birdstep's SafeMove software system serves helped improve the productivity of the staff at the Helsinki and Uusimaa Hospital (HUS) district in their everyday work. The purpose was to create reliable data about the costs and quality of mobile work processes, compared with the previous and current processes. The emergency care process was chosen for closer analysis. The research described the process of the emergency care administrator* before and after SafeMove deployment. The administrator works in three different locations: at home and in two offices, moving frequently among them every day.

CHALLENGES

Before the research project, the challenge was to bring along all necessary material to different work stations (hospital, office, rescue helicopter, meetings, appointments, etc.). Access to email was also occasionally inconvenient, because people had to get to their offices for that. External access to district's internal network was also blocked in some circumstance by the security provisions.

QUICK FACTS

Research

The CreaProc project at the Department of Information Processing science of the University of Oulu is a series of research endeavours in which methods and models are developed for the increased productivity of the service industry and the public sector through communication and information technology.

This study explored how the SafeMove Mobile VPN serves the staff of the Helsinki and Uusimaa Hospital district during their everyday tasks. The purpose was to create trustworthy, comparable information on the costs and quality of work processes, both through individual user experiences and the functions of the organisation. The project was started in the fall of 2006 and ended in March 2008.

Solution

With SafeMove technology, the staff in hospitals, clinics and health centres can be in real-time contact with their information systems, including patient records, laboratory results and statistics, independently of time and place. With mobile computing devices accessing public or private networks, the systems and information can be used and updated by staff while mobile. Examples include: remote use, remote consulting, patient rounds, home care and emergency response in ambulances.

SafeMove enables seamless and secure mobility between IP networks. The secure remote connection does not break when switching among wired or wireless networks, current applications remain in operation, and there is no need to relog into the internal network. The solution employed 3G, WLAN and Ethernet networks, and all data communications were secured according to international standards (IPsec, IKE, PKI).

Results

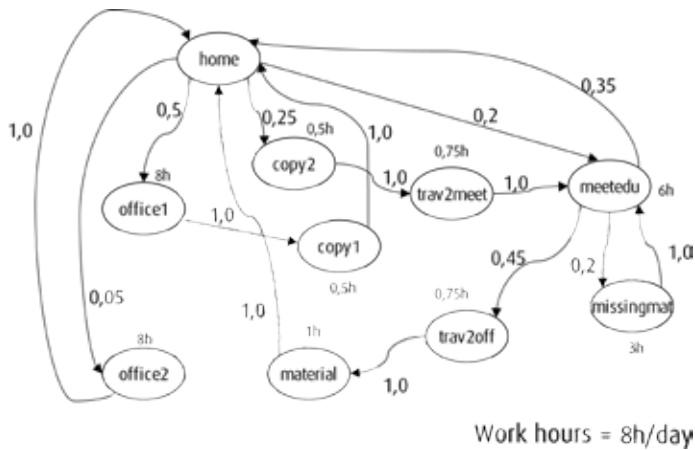
Staff productivity was increased by almost 30 %. Time previously wasted time (for the collection of material, copying of information and travelling) was recovered completely because all of the material, documents and emails were now continuously available.

* Emergency care team's critical care consultant in anaesthesiology

RESEARCH PROGRESS

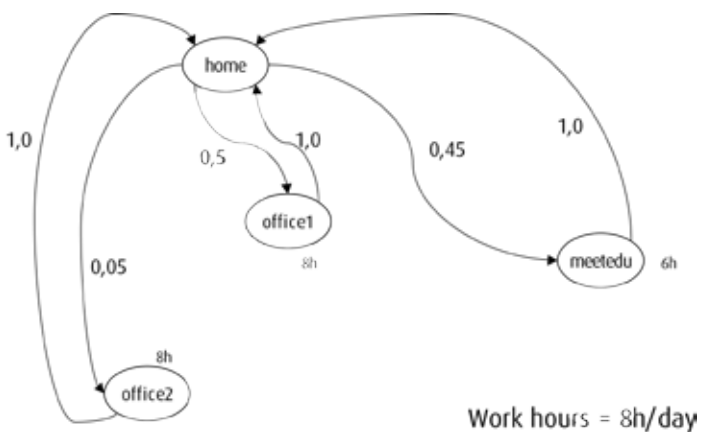
Initially the emergency care administrator did not have the ability to access all the necessary material and email from home. Considerable extra time was, therefore, required for the collection of material, copying and travelling, amounting to 14,8% of the work day being completely wasted. Although email and work on the Web formed a considerable part of the administrator’s work, he could get access to them only at the office. Email, for example, could be accessed only for a quarter (24,1%) of the overall work time.

PICTURE 1: Description of the workflow of emergency care administrator before SafeMove deployment



After the use of the new system, SafeMove, the administrator has been able to access all work related material, including email and other applications on the internal network, independently of physical location. In this way, the administrator’s time-wasting activities involving material collection, copying and travelling were eliminated, and he was able to use more time for actual productive work as a result.

PICTURE 2: Description of the workflow of emergency care administrator after SafeMove deployment



Source of this research: Kaisu Juntunen, University of Oulu and Olli Martikainen, University of Oulu, ETLA

Benefits of SafeMove revealed in the project:

- All work time became efficient, because all applications were accessible regardless of time and place.
- A remote consultant is able to access any patient’s laboratory results and x-rays from a computer at home, then consult with the doctor on duty at the hospital.
- It was possible to conduct work when inspired, even when away from the office.
- Work habits became more flexible with the ability to continue where leaving off earlier, thereby improving work/life balance.
- Seamless and secure wireless access made it easier to work productively in a networked organisation.

Distribution as percentage of working time	1. phase
Efficient working time (office1)	48,2 %
Efficient working time (office2)	4,4 %
Waste time*	14,8 %
Training	37 %
Email accessible	24,1 %

Distribution as percentage of working time	2. phase
Efficient working time (office1)	56,3 %
Efficient working time (office2)	5,7 %
Waste time*	0 %
Training	38 %
Email accessible	100 %

Changes in distribution of working time after SafeMove deployment	
Efficient working time (office1)	+ 28 %
Efficient working time (office2)	+ 29 %
Waste time*	- 100 %
Training	+ 2 %
Email accessible	+ 315 %

* Time spent for collection of material, copying and travelling regarding them