

# DITIS

A Distributed Collaborative System to  
Support the Home-Care Treatment of Cancer  
Patients via Mobile Devices

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# Core Research Team

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At UCY      Research assistant: Georgiadis Dimosthenis  
Student projects: 4 final year projects support research in DITIS

***www.ditis.ucy.ac.cy***

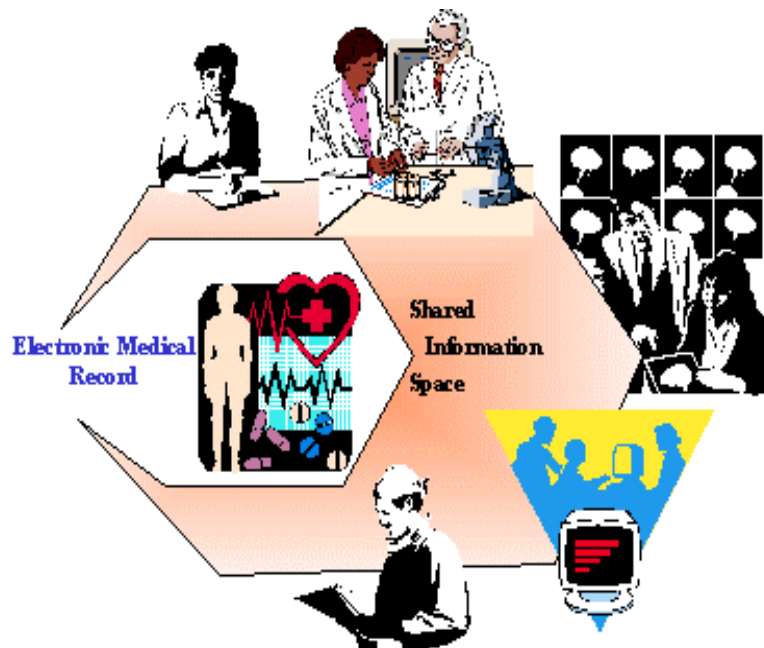
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# Agenda

- Problem Statement
- DITIS' Main Aim
- DITIS' Goals
- DITIS' System Architecture
- Demonstration
- DITIS' Exploitation
- Consortium

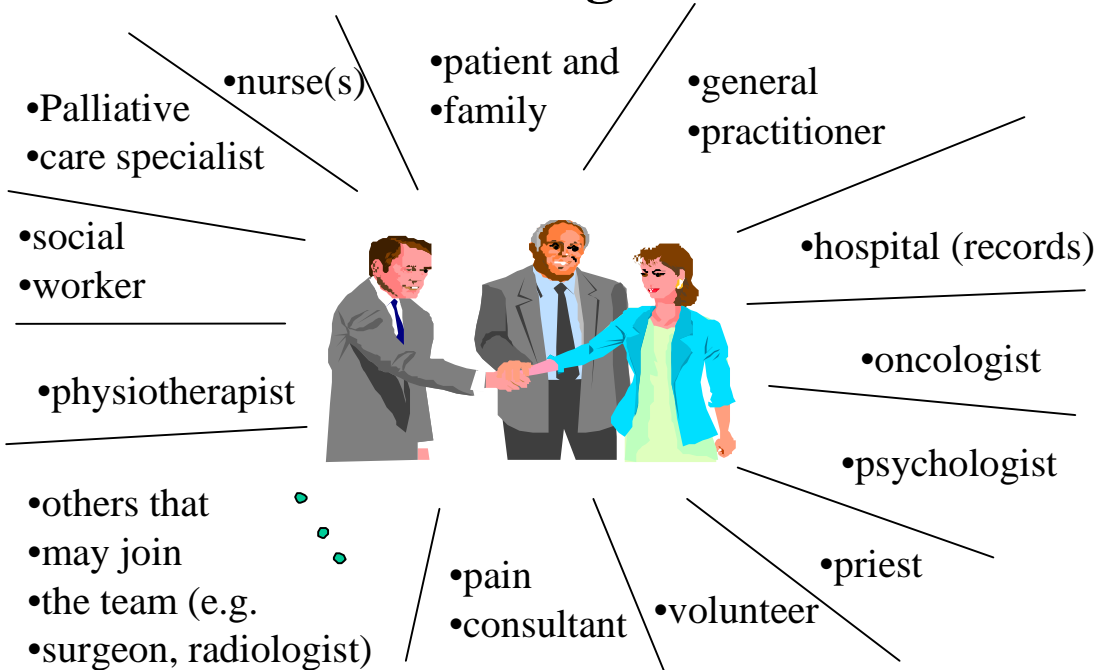
# Problem Statement

The simultaneous physical presence of a healthcare team by the side of the patient, when the patient is at home (demanded by the length of the illness), at all times of need, **is almost impossible**.



# DITIS' Main Aim

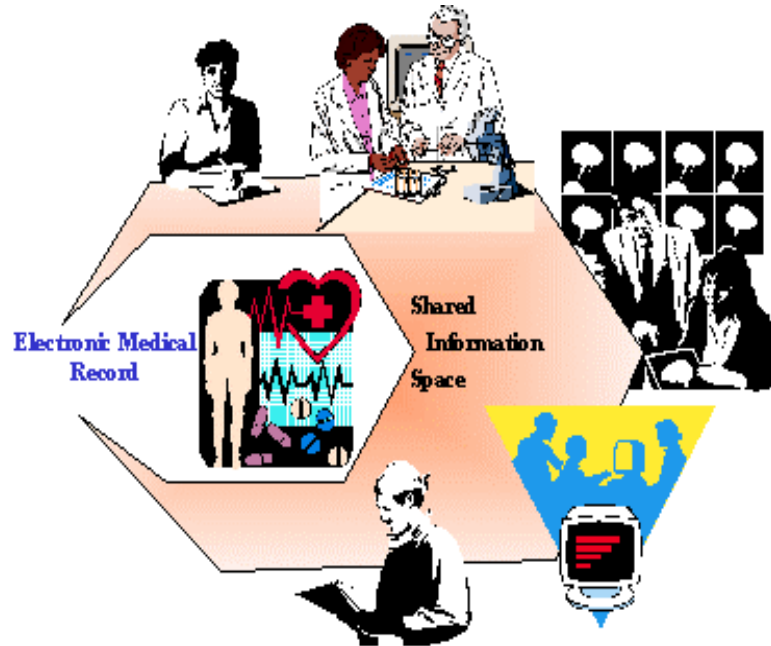
## Co-operative model of the caring team



- Uses *patient centric paradigm* for continuous treatment of patient at home

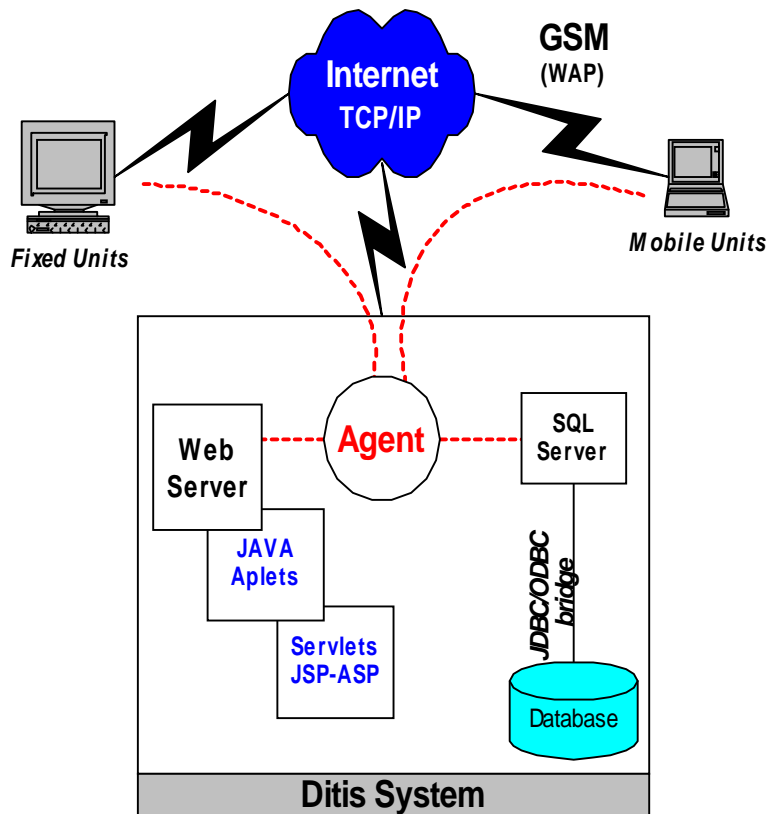
# DITIS' Project Goals

**DITIS** supports the creation, management and co-ordination of virtual healthcare professional teams, for the continuous home-treatment of patients



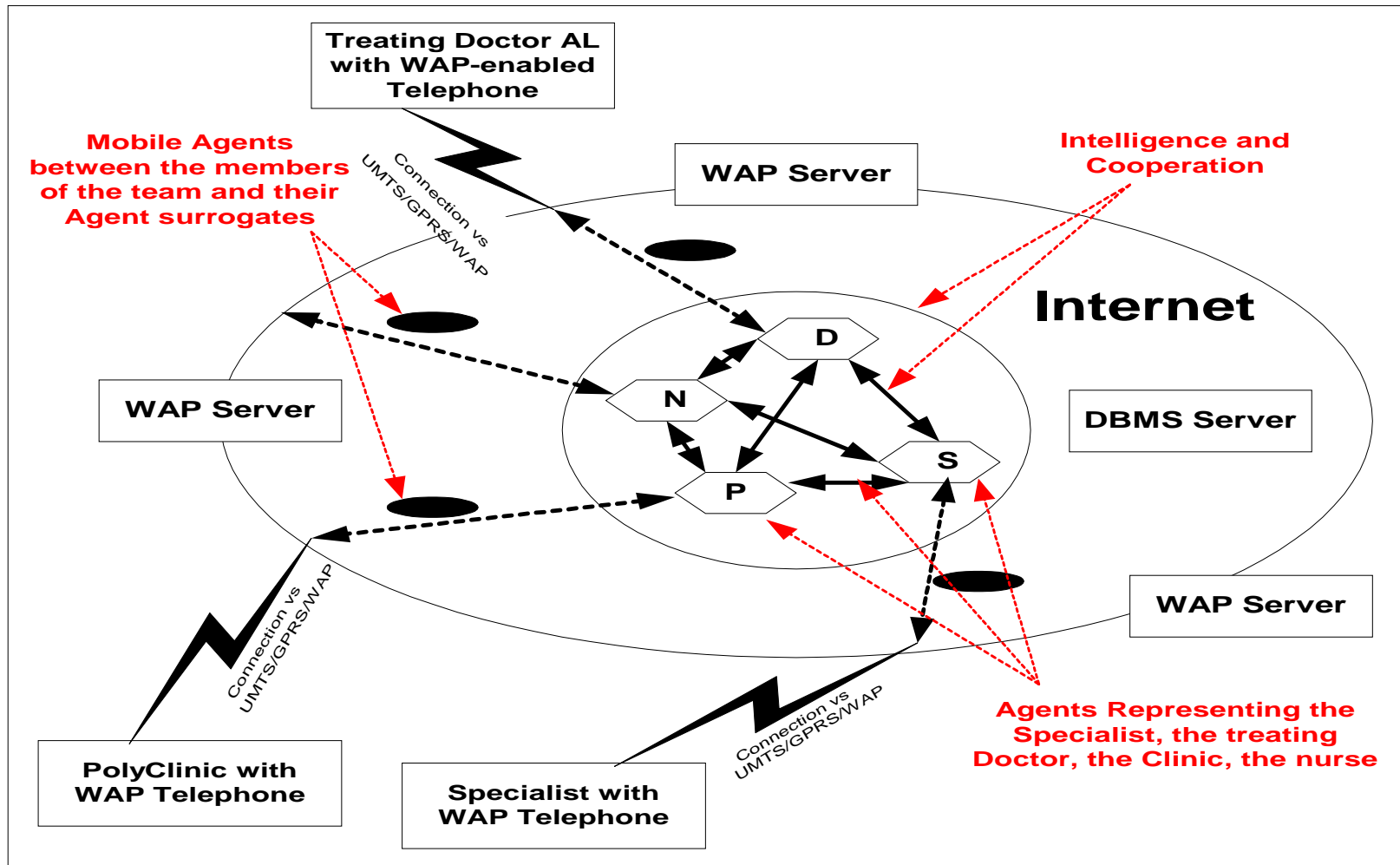
- Improvement of the quality of life of chronic and severe patients
- Flexible communication within a healthcare team
- Flexible access and management of healthcare records at any time and from anywhere

# DITIS' internet-based System Architecture



- **Web based database** (JDBC connectivity)  
For storage and processing of information, including Electronic Medical Record (EMR) pertinent to cancer patients, in accordance with National and International standards (e.g. WHO ICD-10, ICD-O, HL7).
- **Flexible Communication Infrastructure, mobile Agents**  
For the implementation of flexible communication infrastructure for support of mobile users. The mobile agents are extended to offer complex cooperation.
- **Effective and robust Communication protocols**  
Current and emerging protocols (such as the TCP/IP, the Wireless Access Protocol, (WAP) are used.
- **Telecooperation System**  
For sharing of information, team communication, and coordination of team activities.
- **Adaptive intelligent interfaces**
  1. Mobile Computing Units with GSM Internet connectivity
  2. Fixed units with Internet Access supporting Tele-cooperation.

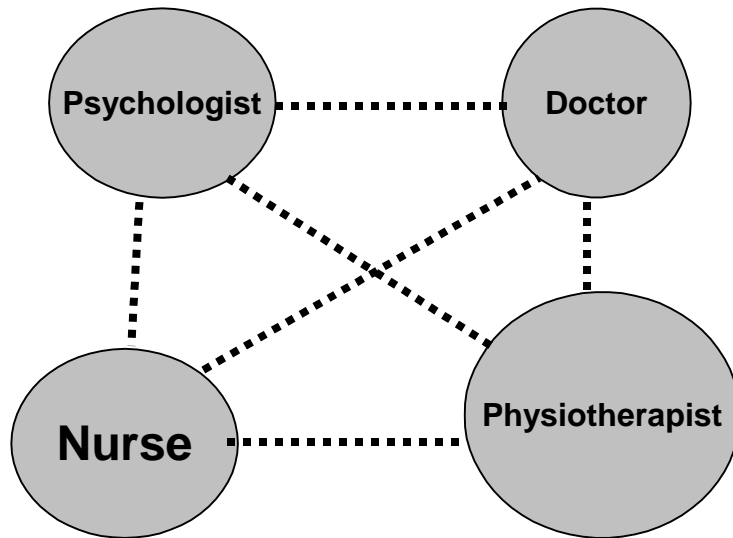
# DITIS' Collaborative Architecture



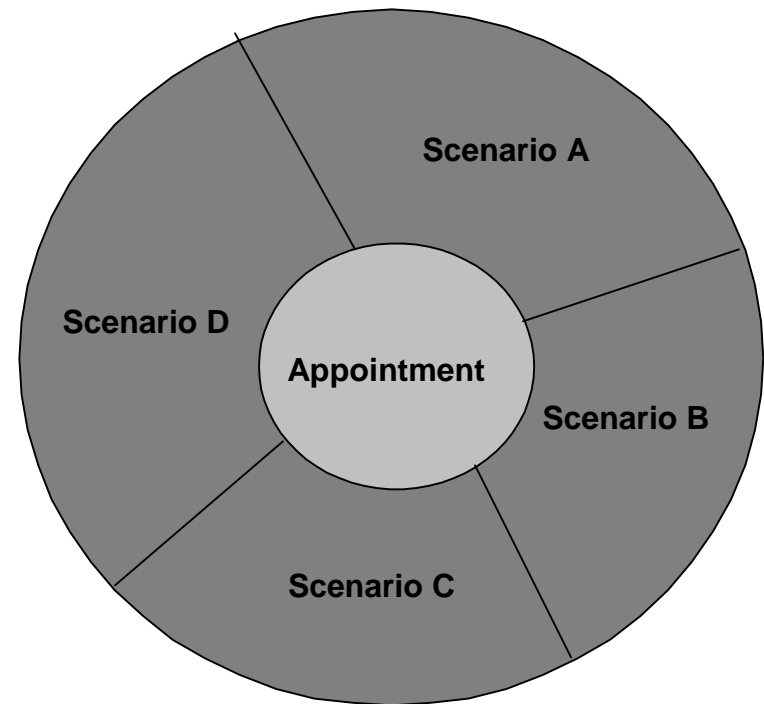


# DITIS' Tele co-operation Architecture

## Tele co-operation



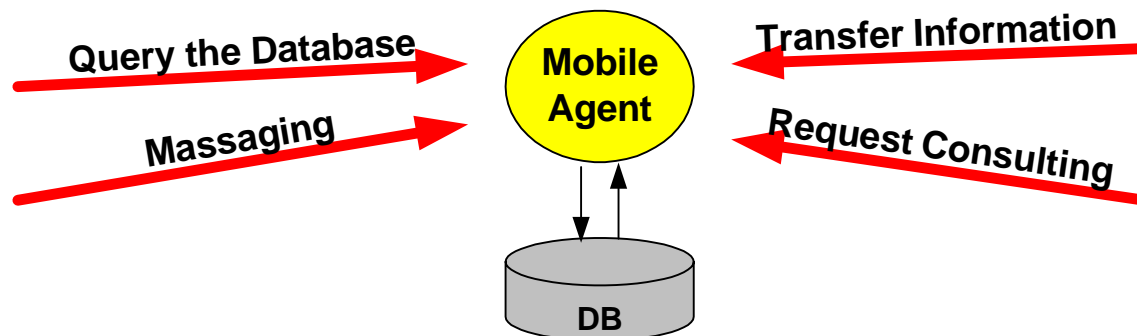
## Scenarios



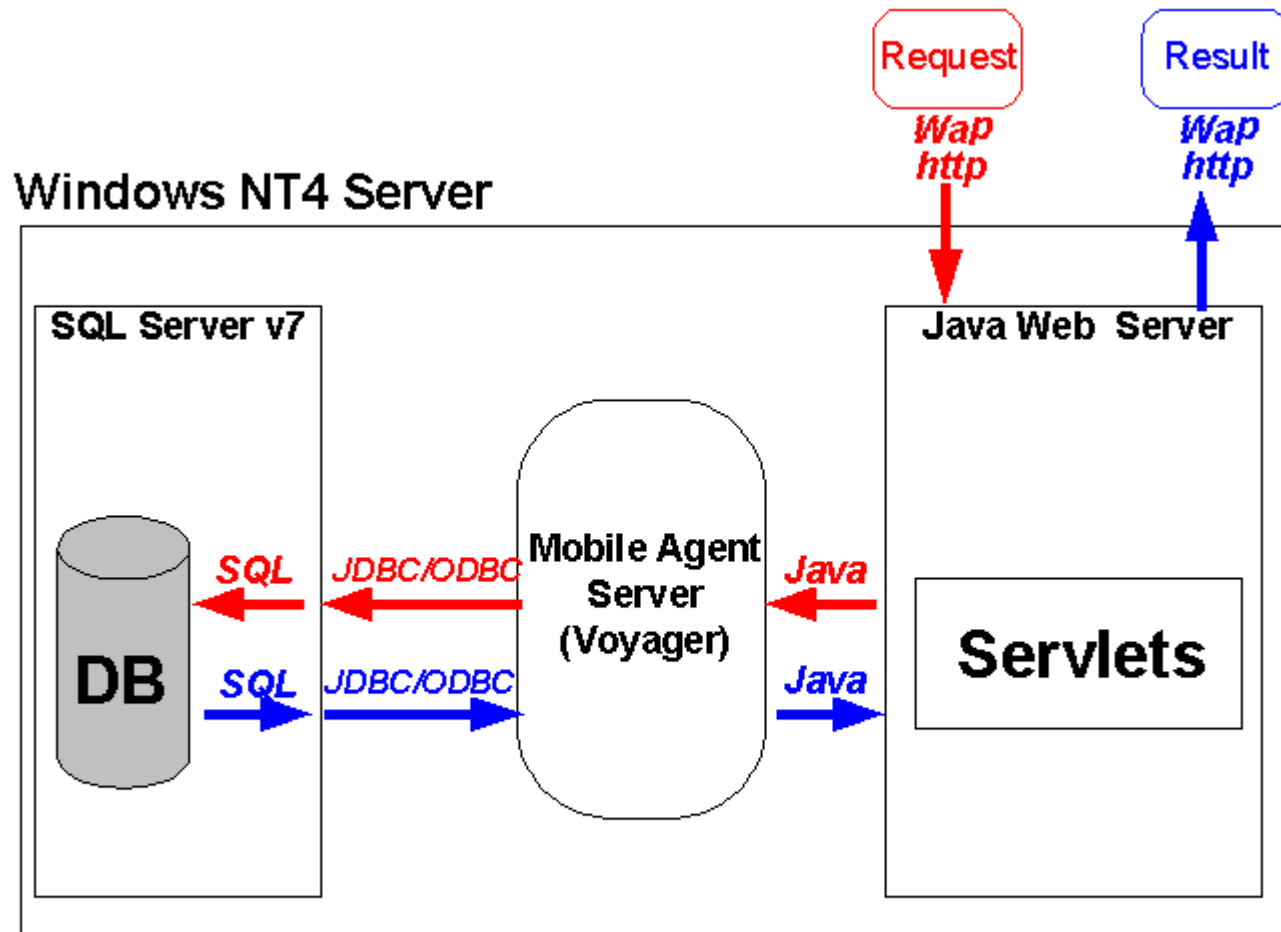
# The Base of DITIS' System Architecture

- **Flexible Communication Infrastructure**

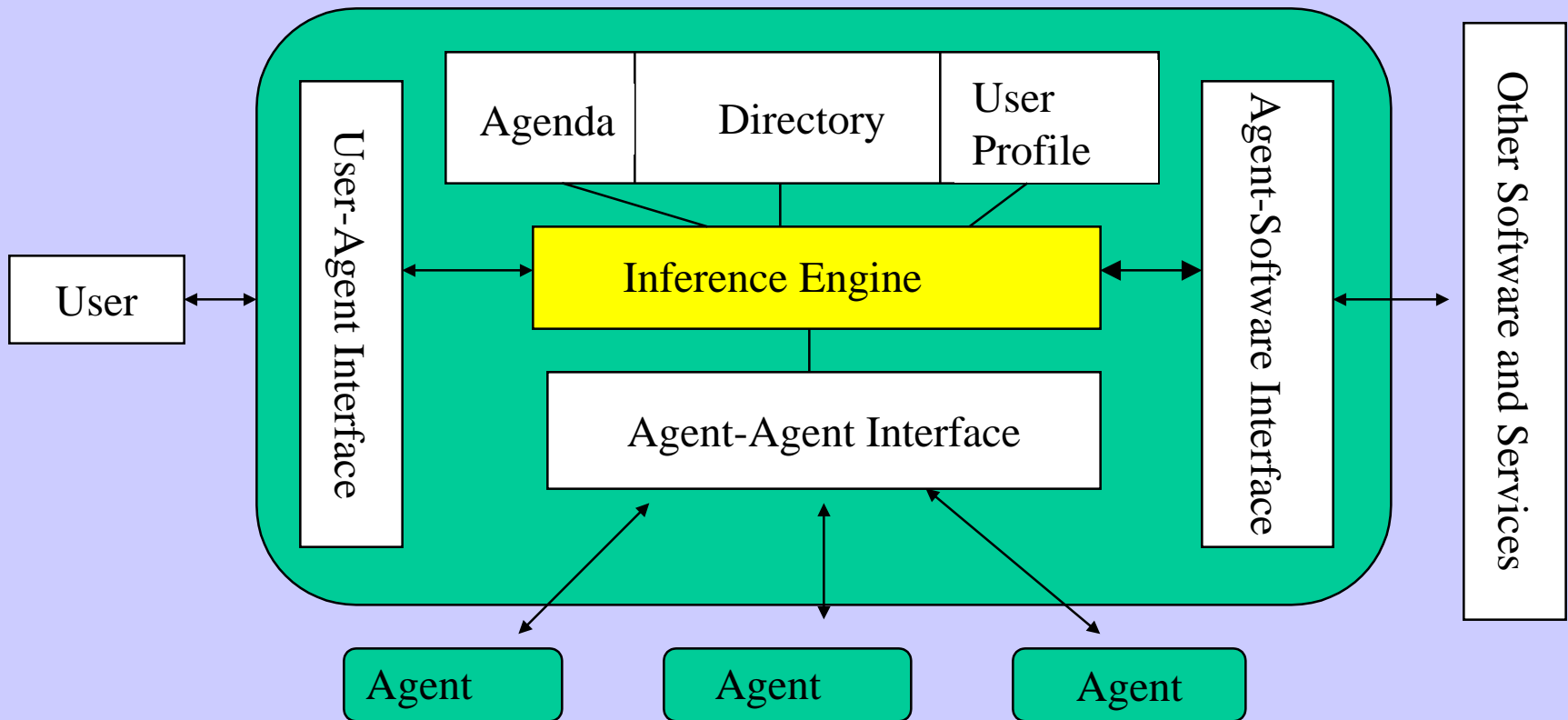
The use of **Mobile Agents**, for the implementation of flexible communication infrastructure for support of mobile users. They allow flexible, asynchronous and from everywhere and anytime exchange of information and advice.



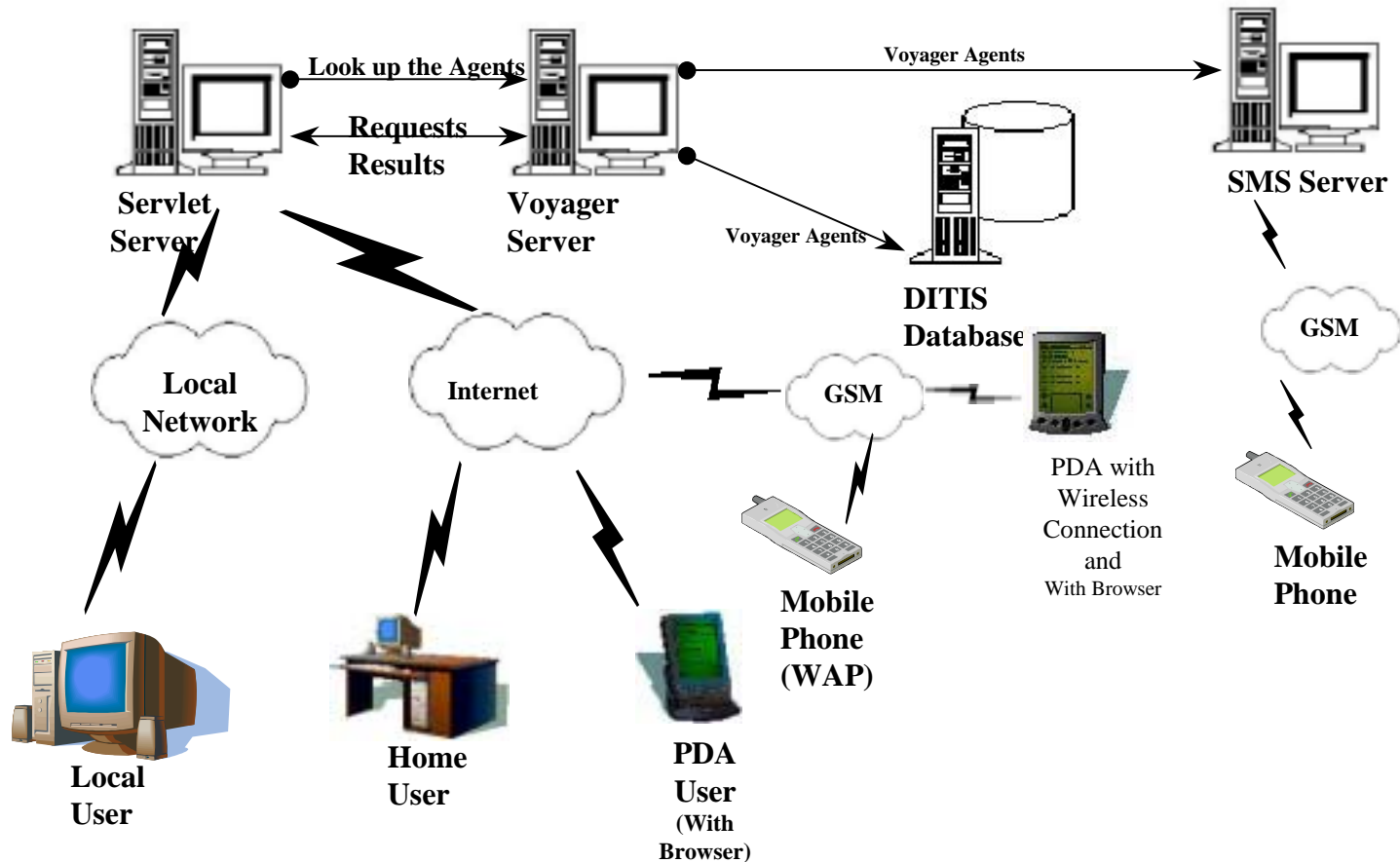
# Web-based Client Structure



# DITIS' Personal Mobile Agent Reference Model (based on FIPA PA Model)



# DITIS' Infrastructure



# Demonstration



# Demonstration

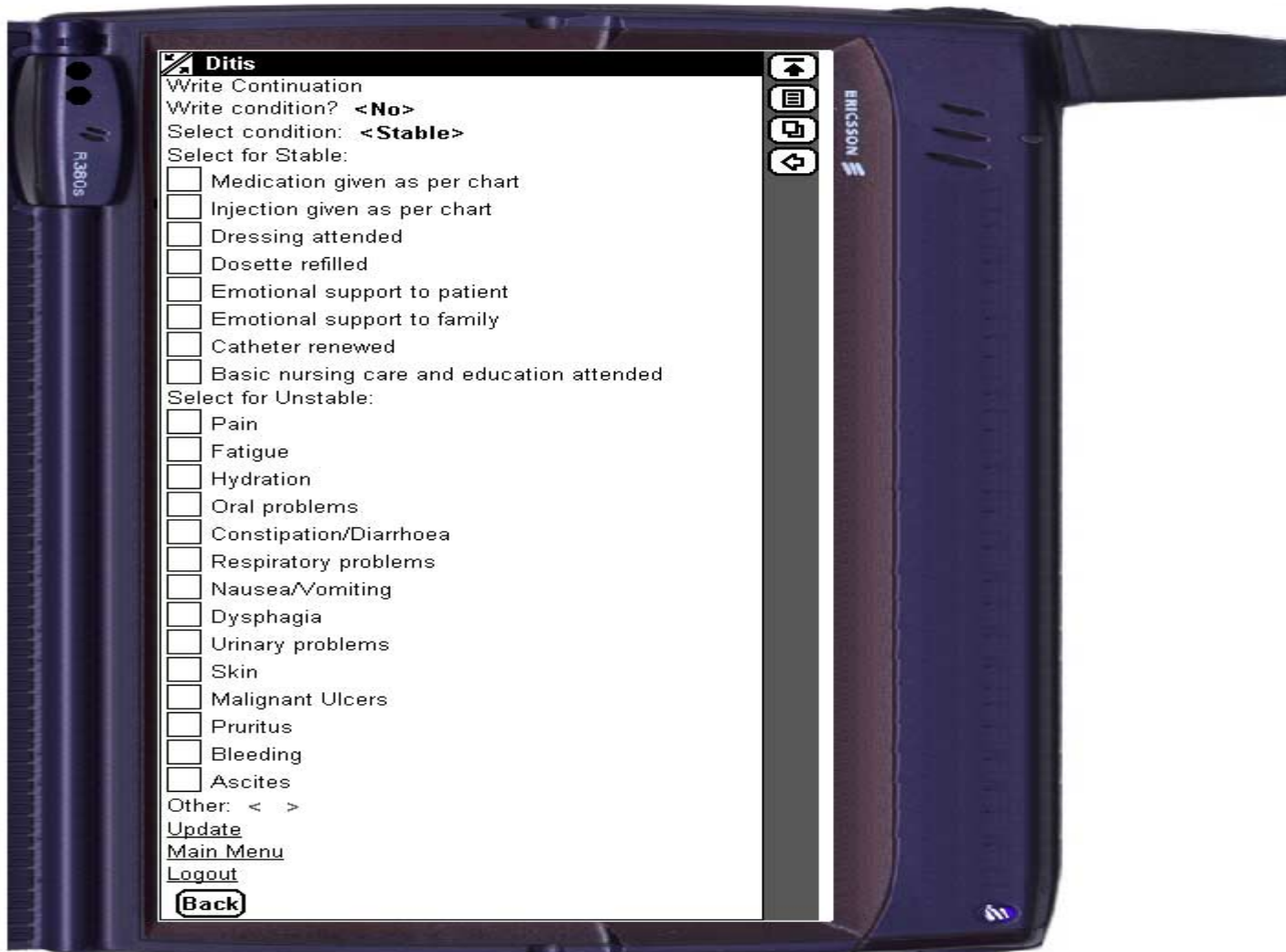


# Demonstration





# Demonstration



# Demonstration



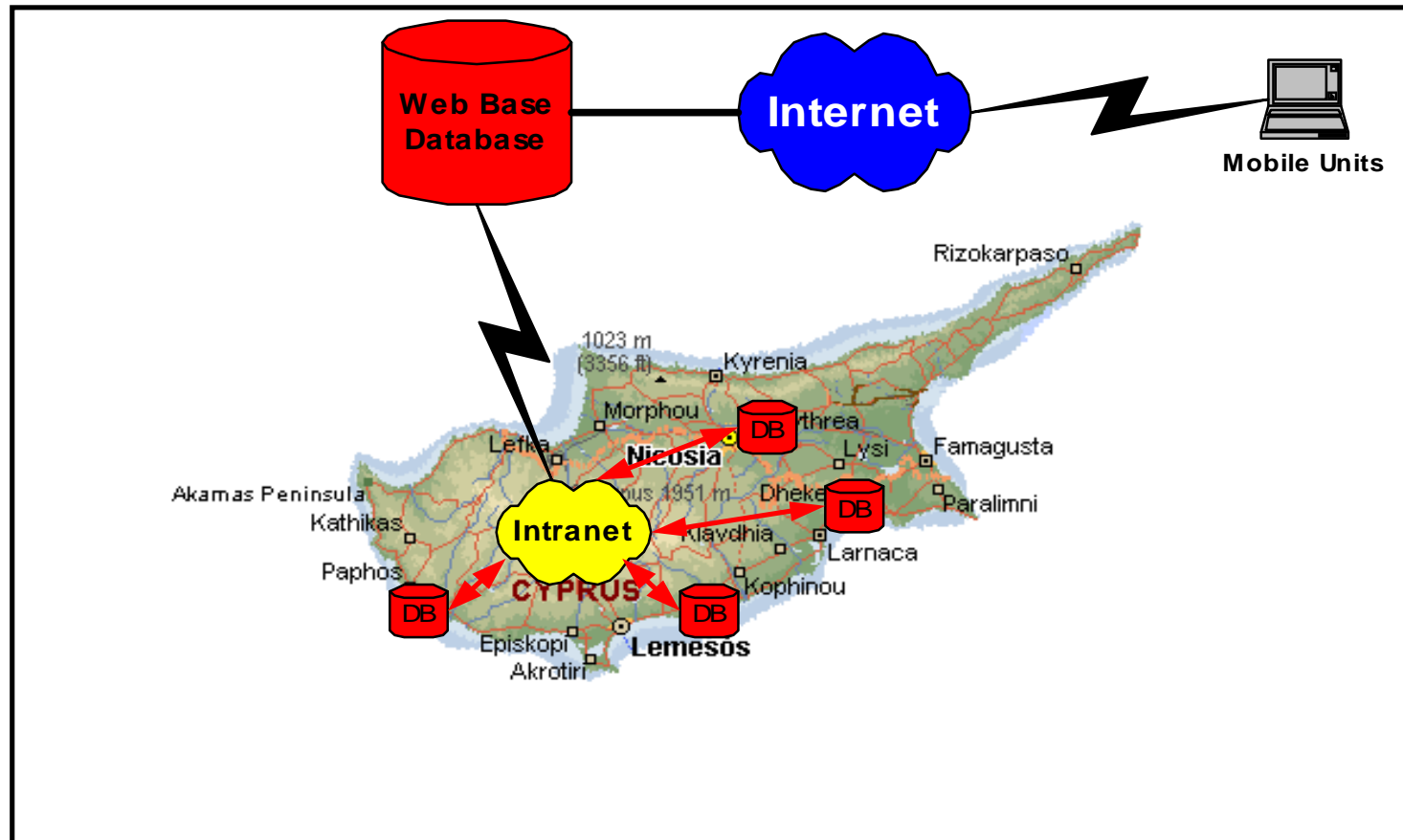
# Demonstration



## **DITIS' Exploitation**

- Used in a pilot to support the activities of the medical and paramedical PASYKAF (Cyprus Association of Cancer patients and Friends) staff that offers care to cancer patients in the home, using a patient centric philosophy

# DITIS' Exploitation



# DITIS

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## CONSORTIUM DESCRIPTION

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### Partner Team



### Sponsors

FOUNDATION OF RESEARCH &  
TECHNOLOGY



Cyprus Telecommunications  
Authority



ERICSSON



# Future Work:

## Intelligent Personal Assistants (*iPA*)

- *iPA* comprises:
  - Rationality (reasoning and planning)
  - Adaptability/learning
  - Interaction capabilities with the user, other agents and services

# DITIS' future *i*PA work

DITIS' *i*PA contains:

- **Optimum reasoning/planning** of user's appointments by taking into consideration the learned/adapted user profile/preferences
- **Support the user by its decision making** by considering the user's **experience** (e.g. decide for treatment, medication)
- **Intelligent collaboration/negotiation** with the team member agents for achieving medical help