



# The HYDRA project M&C Interplay with home healthcare and AAL



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## M&C interplay with home healthcare

1. Healthcare among the top three applications for networked systems - IoT
2. Home healthcare and AAL have immense societal effects
3. Need for technology to master the complexity
4. Numerous demonstrators and moving into pilots

## Societal trends



- Demography
  - 60+ population from 20% in 1995 to 25% in 2020 and 40% in 2050 (WHO)
  - 80+ population doubles until 2050
- Resources
  - 2008: 4 working for 1 retired
  - 2050: 2 working for 1 retired
  - Shortfall of care staff due to general working conditions
- Costs
  - Healthcare expenditure in Europe is already significant (8.5% of the GDP) and rising faster than overall economic growth itself
  - Cost of pensions/health/long-term care: + 4-8 % of GDP (2025)

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## M&C problems to be solved – what we need

- Needs for better data management for monitoring
  - Innovative wearable, minimally invasive sensors for monitoring physiological data such as blood sugar, skin temperature, pulse, activity, diet, etc.
  - Improved data management with semantic capabilities for interoperability
  - Context aware data management
- Needs for better data communication and control
  - Interoperability across heterogeneous platforms with handover
  - Improved security for correct data addressing also patient authentication and privacy needs
  - Secure and trusted communication and storage of data
  - Resilience in networks and applications
  - Application development tools that hide the network complexity

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# eHealth interplay with smart homes



Monitoring



Drugs and compliance



Smart homes



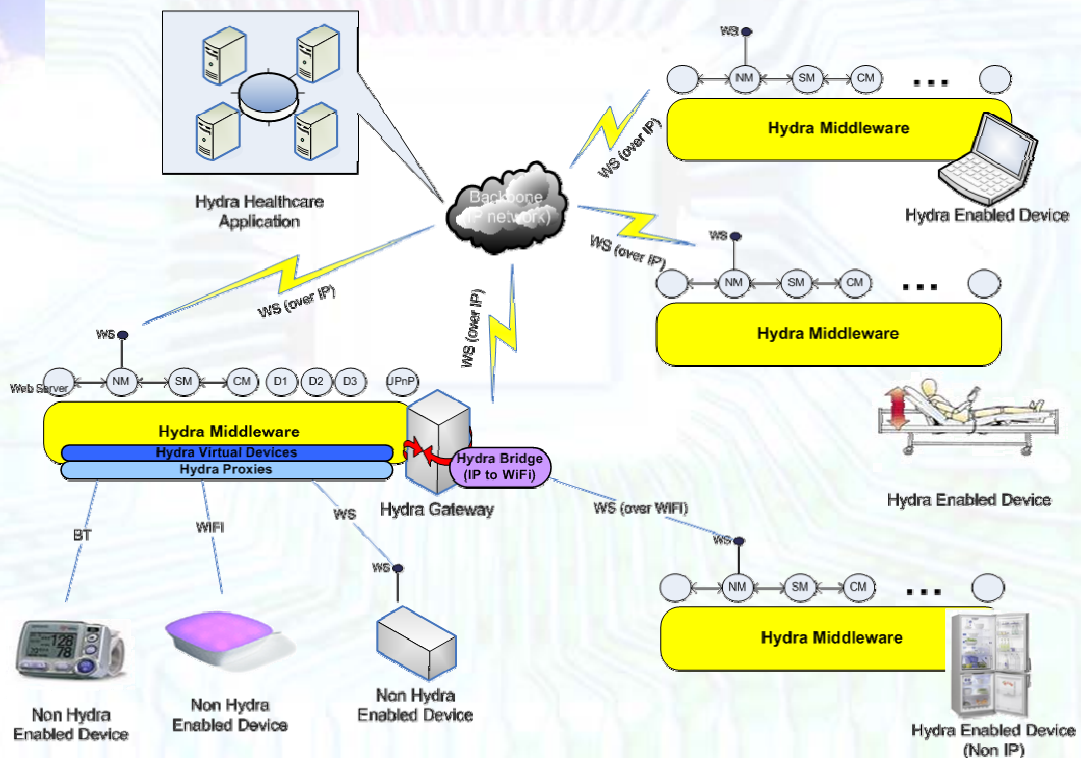
Remote monitoring

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# Interaction using Hydra middleware



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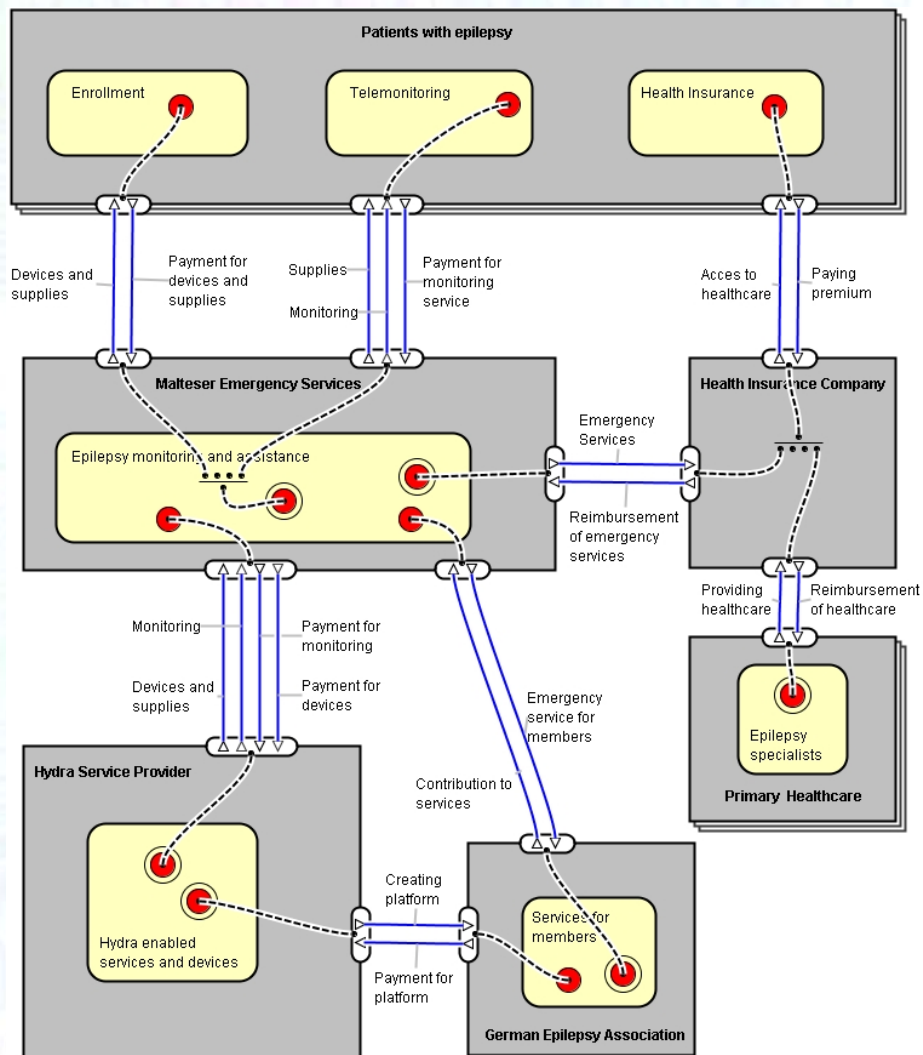
# Contextualised feedback



Source: Courseware, 2006

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Epilepsy model



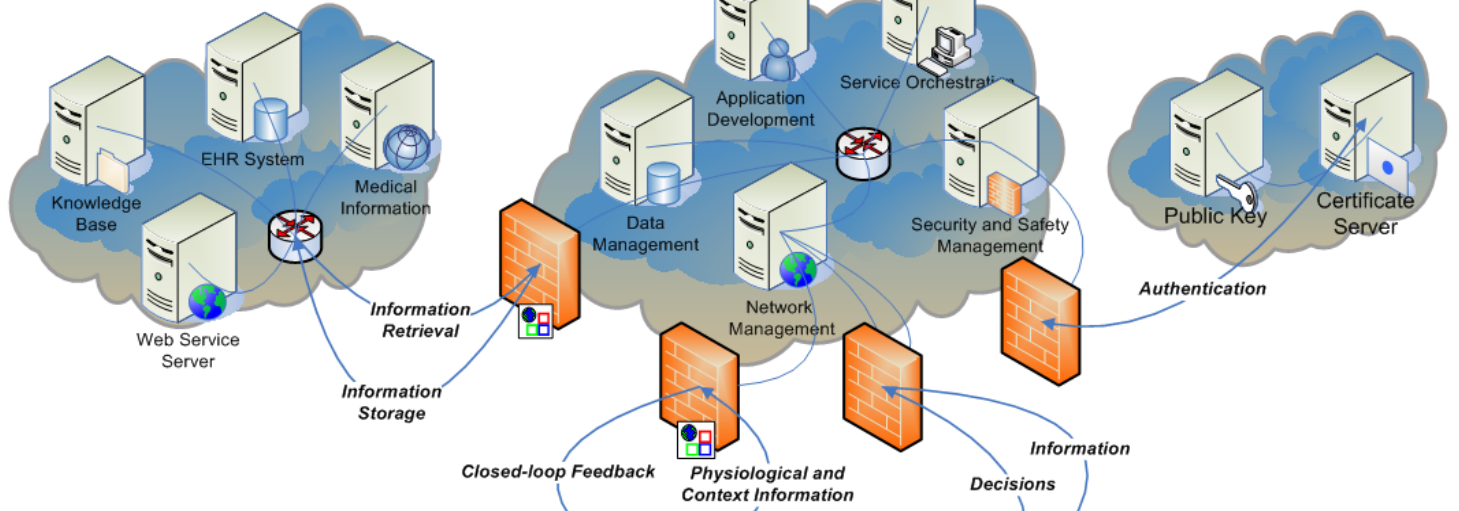
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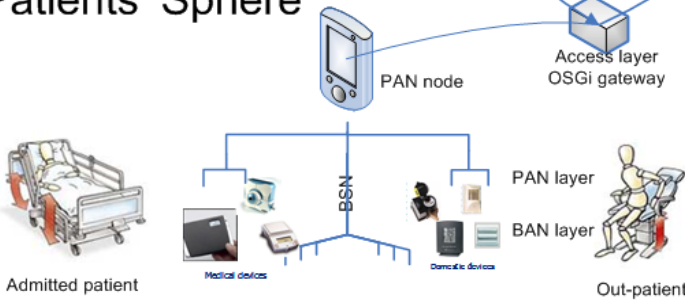
# Health Information Systems

# The REACTION platform

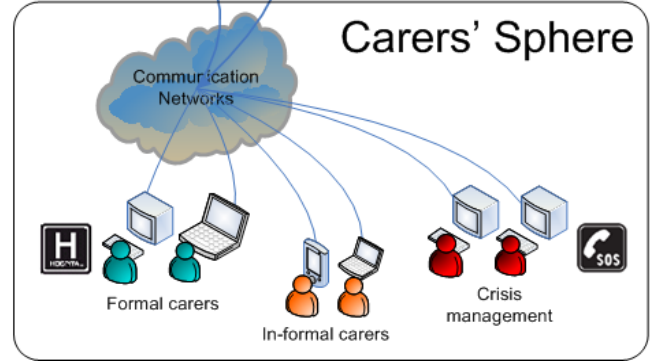
# Authentication



## Patients' Sphere



## Carers' Sphere



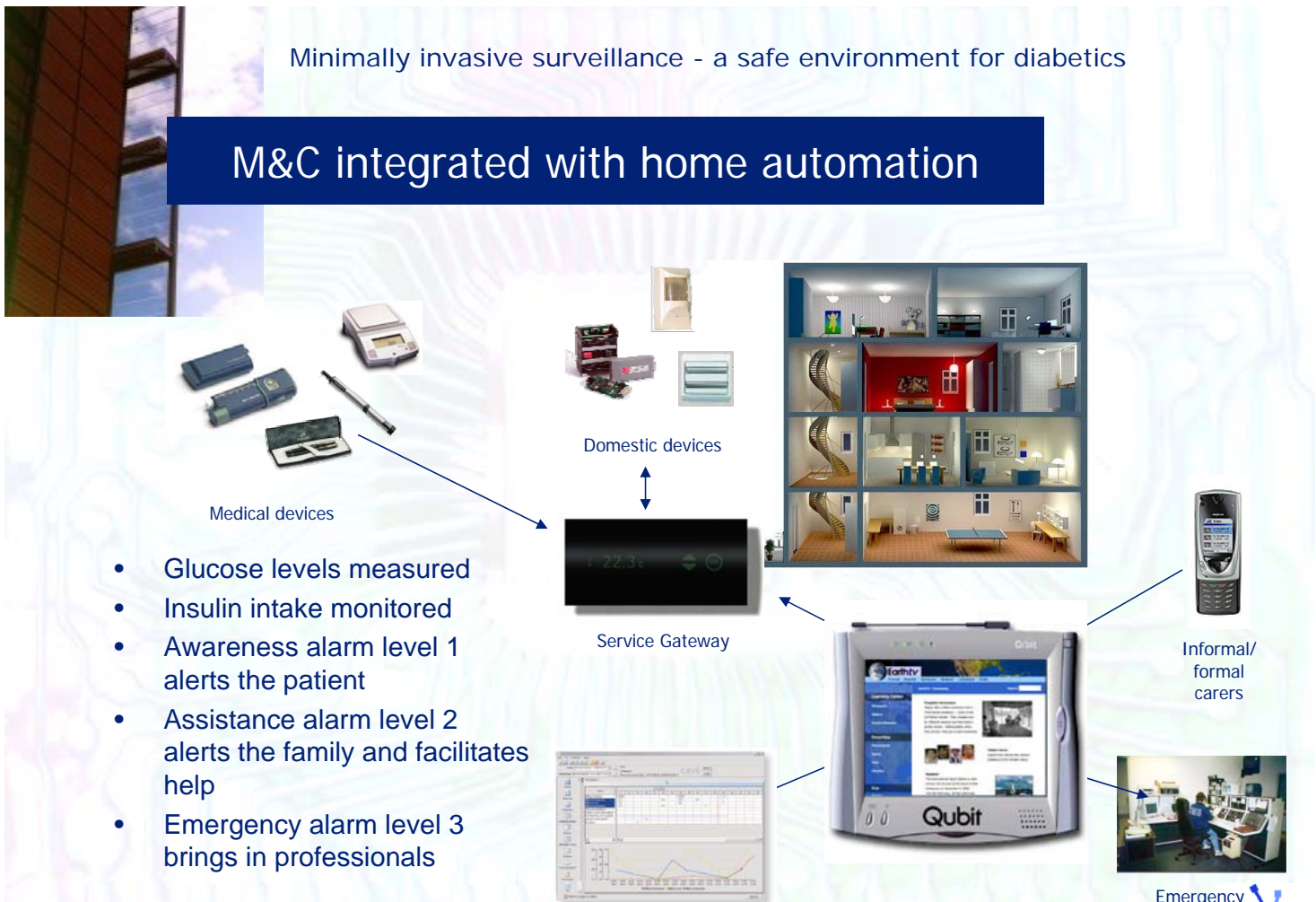
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Minimally invasive surveillance - a safe environment for diabetics

## M&C integrated with home automation












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# System Overview inCASA

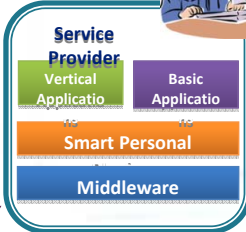
-  Data Interoperability
-  Audio-Video Communications
-  SMS
-  Environment Monitoring
-  Human Monitoring
-  Reminder
-  Touch Screen
-  Base Station
-  Mobile Phone



Healthcare Structures



Public Territorial Services



General Practitioner



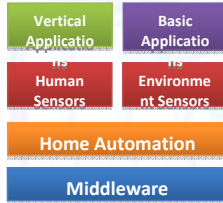
Patient Relatives



Caregiver



User House



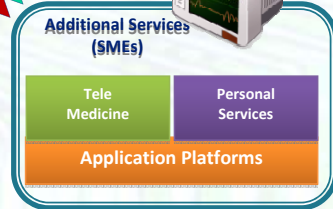
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Relatives



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Please come and visit us...



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