Six Major Fields—
"Killer Applications of the Ubiquitous Network Society"

Strategies and Recommendations

April 1st, 2006

Contents

1. Background
2. Current Status Analysis
3. Structure of Killer Applications and Recommendations
4. Topics to be Discussed

Background (1/2)

1. The development of the ubiquitous computing is the result of our government's efforts in implementing an "e-government" and "moving Taiwan toward to the ubiquitous network society." However, our citizens have not yet been able to fully experience the convenience of e-life services.
2. Along with tendency of ubiquitous computing development, Taiwan is working on building infrastructures and killers applications. As a result, how to develop the killer applications for Ubiquitous Network Society will become an important issue for us.

Background (2/2)

3. According to the marketing survey, the industries are not interested to consider issues such as income difference, digital divide, and social concerns etc.. To construct an electronic network environment, the government has to provide a secure and convenient lifestyle, and to initiate plans in diet, medical care, housing, transportation, education, and entertainment in order to develop killer applications on its way towards a ubiquitous network lifestyle in 2010.

Current Status Analysis (1/3)

1. According to the survey, the most important issues that people concerned are ：
   - **Diet**：There is no instant tracing system for the unknown-source products or foods.
   - **Medical care** ：Back-end medical treatment system such as emergency ward do not have enough patient's history. It may cause some regret.
   - **Housing**：Unsafe public security and natural disaster are threatening people's lives.
   - **Transportation** ：People complain about shortage of real-time traffic information.
   - **Education & Entertainments**：Digital learning environment is incomplete. ◦

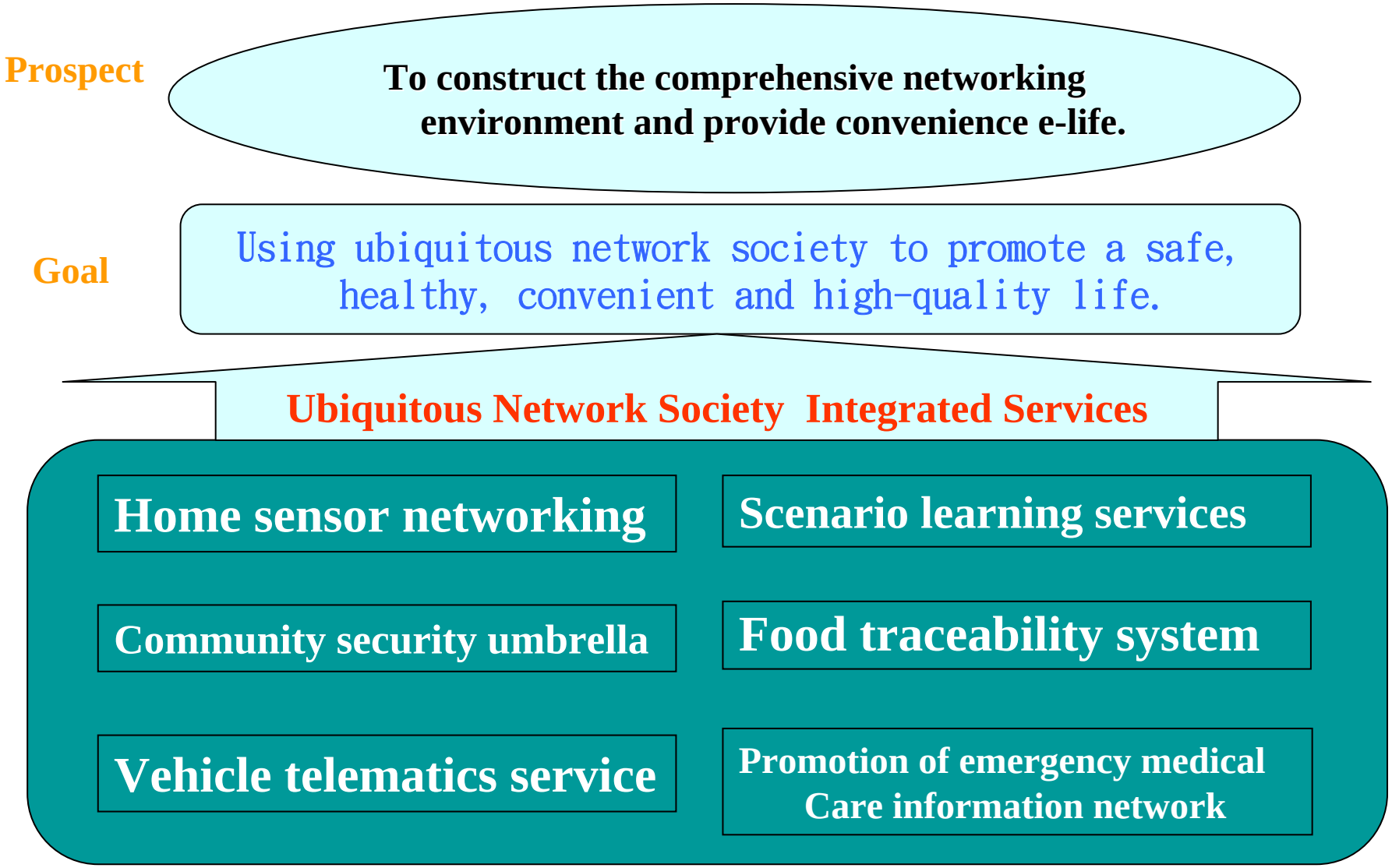
Current Status Analysis (2/3)

2. Although the daily life involved various fields, these fields are highly linked together. Aside from requiring the collaboration between government agencies and private industries. The most important issue would be to develop a wireless sensor network to confront and resolve these issues effectively.

Current Status Analysis(3/3)

3. The digital home appliance provides the public to enjoy more convenient e-life. Through the integration of the sensors and wireless network, we can build up a platform for the base of smart home, and then extend to another application domains. However, the wireless sensor network can not be reached overnight. Hence, the network might delays application development.
4. While utilizing the emerging technology to provide a better e-life, the privacy issue is another challenge we need to pay attention.

Structure of Killer Applications and Recommendations



Home Sensor Networking

Background issue:

1. The integration of home sensor network and digital home appliance is still at early stage.
2. It is lack of commercial interests.
3. Government has to encourage industry to involve in global standard initiation and to invest in research and development which will create mainstream products and increase industrial value.

Home Sensor Networking

Prospect & Goal

To integrate H/W,S/W technology under core project.
To establish a sounded environment in order to support the development of killer applications.

Action

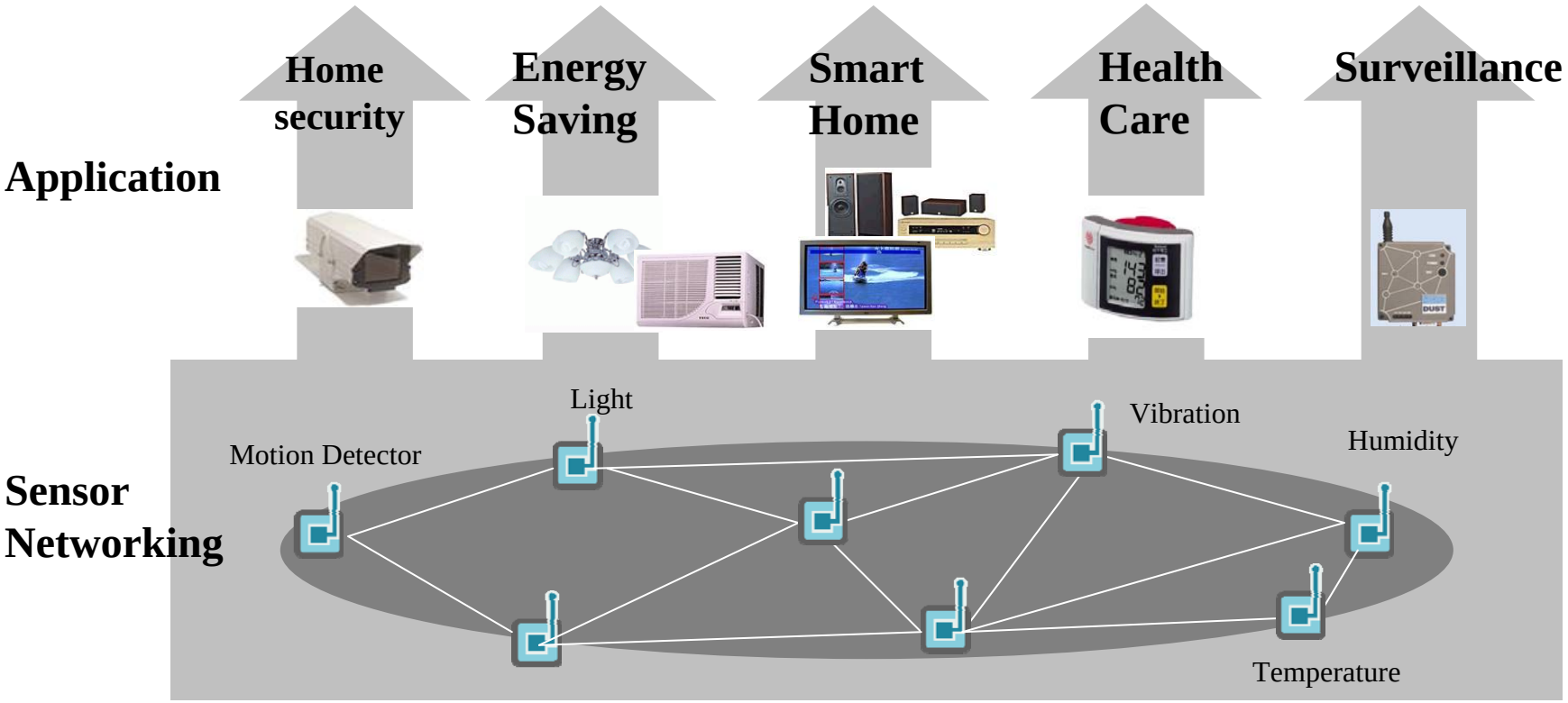
Demonstration site will drive the development of wireless sensor network. The actions are :

(1)To promote applications of digital home appliance sensor network.

(2)To expand domestic market of digital home appliance.

(3)To provide technology support in related to application fields.

Diagram of Sensor Networking at Home



Integration of Sensor Network and Home appliance provides ubiquitous E-service by implementing information technology in our life

Community Security Umbrella

Background issues：

1. There is no consensus on definition of “community ” and no effective organization for management.
2. Most of the national believe the government is responsible for setting up security umbrella. Consequently, private security industries are not interested to promote related systems.
3. Community security umbrella includes law enforcement, firefighting, health care, and social concerns. It also involves widespread domains and is difficult to integrate those resources.

Community Security Umbrella

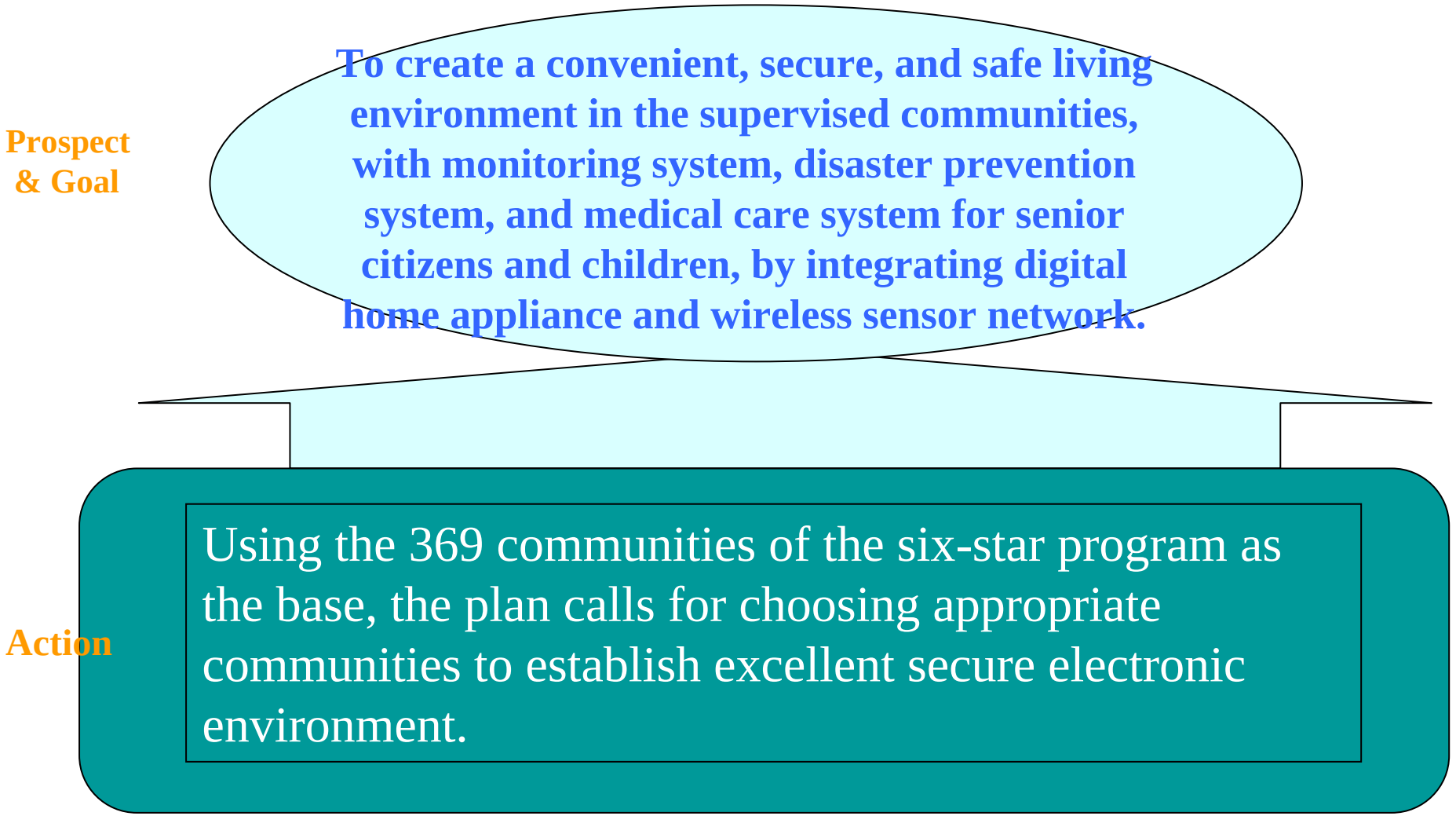
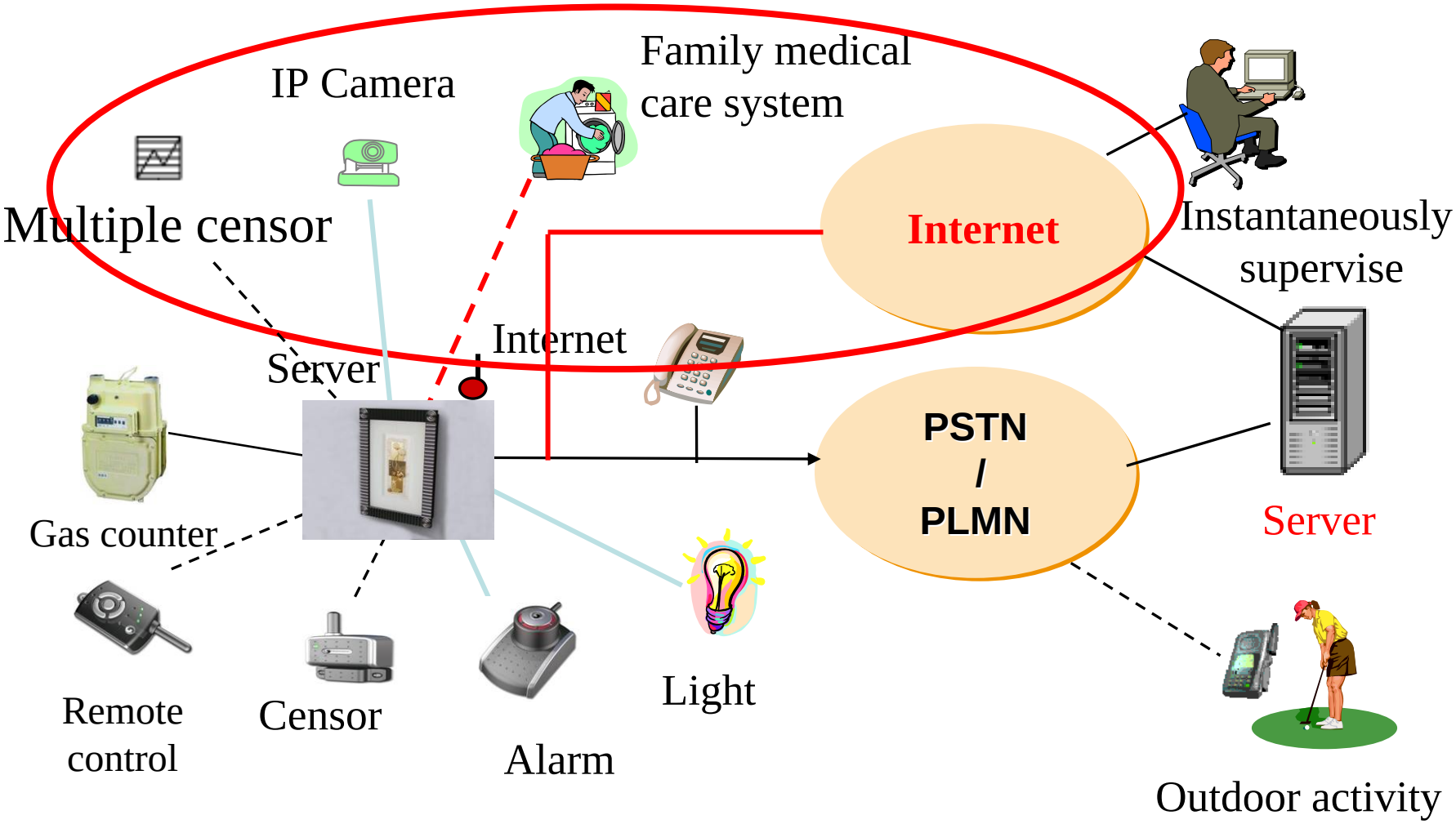


Diagram of Community Security Umbrella



Vehicle Telematics Services

Background issue：

1. Traffic information and life information are developed and provided separately by government sectors and private sectors.
2. Establishing an interchange mechanism and integrated platform is helpful for data interoperatability. However, the quality of information needs to be enhanced.

Vehicle Telematics Services

Prospect & Goal

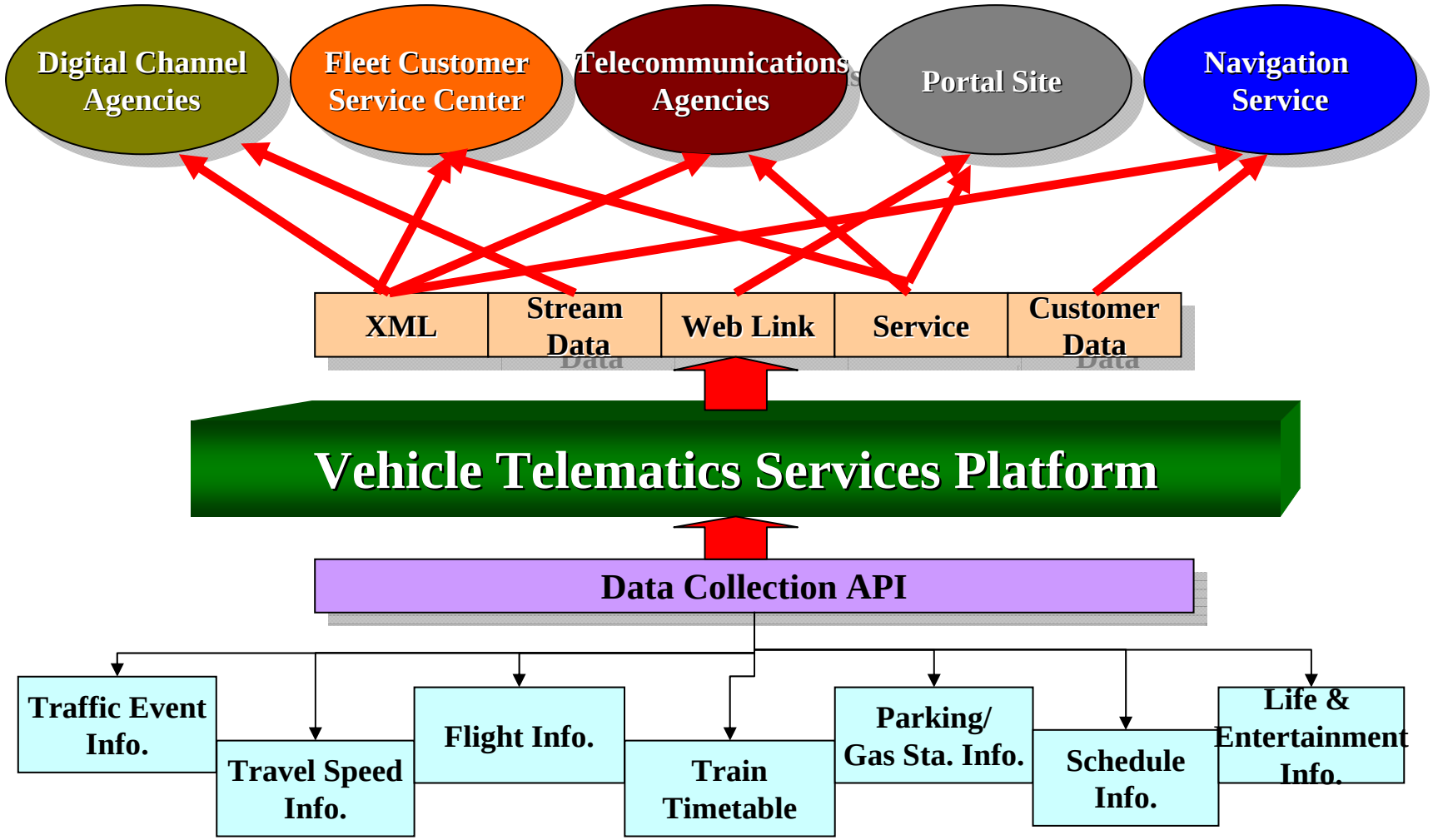
To establish Vehicle Telematics services platform and provide value-added services

Action

(1)To establish vehicle telematics standard interface and develop related services

(2)To develop multiple content telematics services including the integrated traffic information and life information (e.g.; parking, gas station, tourist, mobile and multiple image information, etc.)

Diagram of Vehicle Telematics Services



Scenario Learning Service

Background issue：

The current e-learning for the users is a rather passive learning experience. The effects are not as good as ubiquitous learning service. Some reinforcing tasks are needed as follows：

1. Improvement of the hardware and the environment.
2. The all-encompassing support of e-learning materials and services.
3. The construction of sensor network.

Scenario Learning Service

Prospect & Goal

To construct an environment with ubiquitous learning service for the satisfaction of the public to learn and acquire knowledge at anytime and anywhere, and for the citizens to learn more conveniently and effectively.

Action

(**1**) Developing widely affordable computers.
(2) Integrating telecommunication services, cable and wireless TV, print media, educational or publishing industries and providing situationally accessible information and educational services
(3) Constructing a nationwide sensor network, providing learning materials and support of situational learning service so that in local areas there are as many e-learning stations as convenient stores.
(4) Employing e-learning to aid the minority groups to adapt to the environment, to learn locally (including language acquisition).

Diagram of Ubiquitous Scenario Learning

The application of sensor network

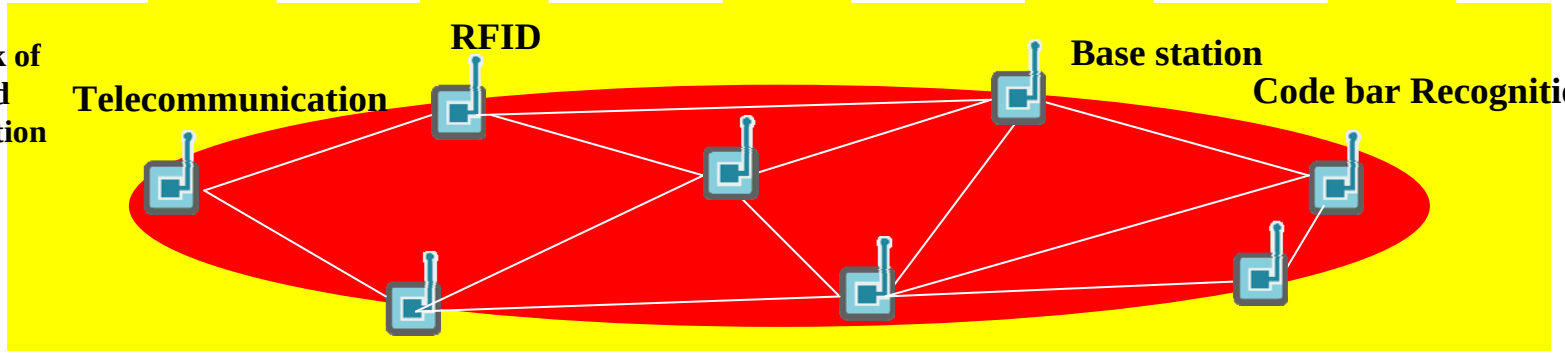
- **Offering situational learning and information query services**
- **Providing information; teaching actively or passively, including information and knowledge delivering, distant service from experts, support from the peer classmates, teachers and parents**
- **Providing learning materials and services**

Seamless learning

Home learning | **Classroom learning** | **Peer discussion** | **Outdoor teaching** | **Learning while commuting**

Supportive learning Apparatus within the sensor network

Sensor Network of information and telecommunication



Sensor Network integrates educational services and active/passive information retrieval and provides the learners an integral learning service

Food Traceability System

Establishing electronic tracing environment for food traceability

Background issues：

1. The history of processed food products are difficult and complicated to be monitored, therefore it will cause concerns to establish a comprehensive food traceability database before setting up integrated certification mechanism.

2. The current key issue of establishing the food traceability system, which should be compellingly implemented through legislation process or market mechanism, is that manufacturer may not willing to provide full information due to cost considerations.

Food Traceability System

(Establishing electronic tracing environment for food traceability)

Prospect & Goal

The transparency of food chain information can be reached through the integration of ICT in order to ensure the food safety. The value of food and information industries can also be added by lowering the possibilities of food safety problems and establishing trust and risk management throughout the dual tracking and tracing of food information.

Action

To establish and trace the product resume database of diary and pork (pig resume management) by electronic food tracing environment and traceability mechanism facilitated by information interfaces and technologies.

Food Traceability System

(Establishing electronic tracing environment for food traceability)

Cultivation / Material Production				Process		Transport / Ship			
Tillage Management	Seedlings Planting	Field Management	Harvest	Manufacturing	Packaging	Products for shipping	Transport	Shipping	Retailing
Council of Agriculture				Department of Health		Ministry of Economy Affairs			

Information of Raw Material Production

Processing Information

Logistic and shipping

Food Traceability Core Information Center

IT application development

RFID

Promotion of Emergency Medical Care Information Network

(Prospect and Goal of Ubiquitous Emergency Medical Care Information Service)

Background Issues：

1. To prepare the enough number of well-trained EMT-P in Emergency medical care system.

2. The measure of patients' privacy protection should be regulated as early as possible.

Promotion of Emergency Medical Care Information Network

(Prospect and Goal of Ubiquitous Emergency Medical Care Information Service)

Prospect & Goal

Constructing the medical care system (i.e. equipment, network, emergency medical care system, and medical care quality) with high quality. The early objective is to give ubiquitous emergency medical care service by providing accident emergency handling information and real-time or latest status of ER patients.

Action

(1) Setting up the ubiquitous emergency medical care system information service platform

(2) Taking the module of e-ambulance as a core element to transfer vital signals of patients, including images, blood pressure, electrocardiogram…etc, into the hospital's emergency medical care system via technologies such as 3G, RFID, wireless network…etc.

(3) Promoting the improvement of e-ambulance equipment for national hospitals and clinics, and integrate it with emergency medical care system.

Diagram of Ubiquitous Emergency Medical Care Information Service

❑Diagram of Information Transmission on ambulance-side

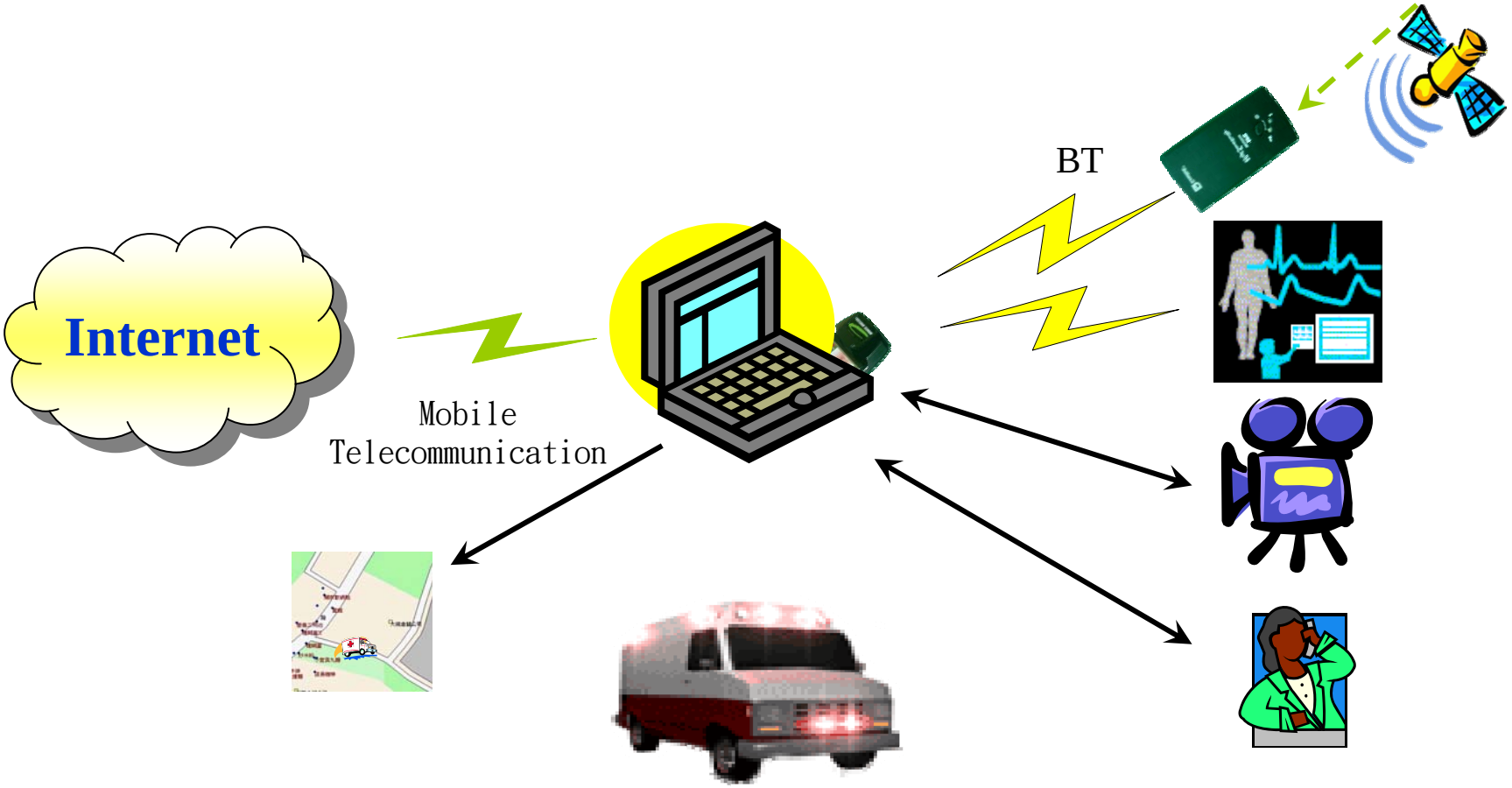
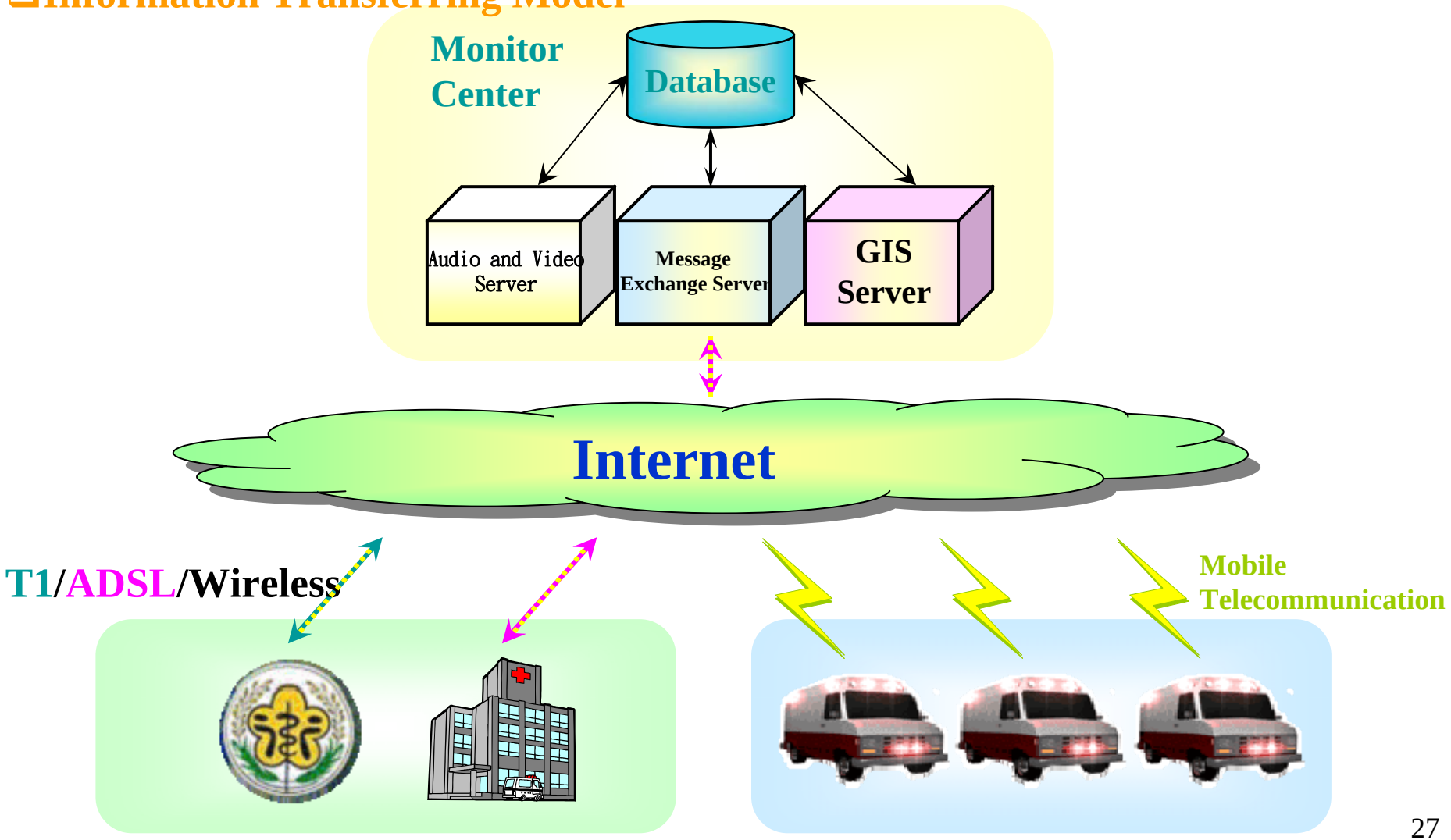


Diagram of Ubiquitous Emergency Medical Care Information Service

❑Information Transferring Model



Topics to be Discussed

1. How is the feasibility for 6 e-life killer applications mentioned above, in terms of their promotion strategies, technologies and concepts proposed?
2. In addition to the proposed applications, are there any strategies or measures which might invite both government sectors and private sectors to develop other killer applications for e-life services?

The End

&

Thanks for your attention