Home Network and Its Related Service
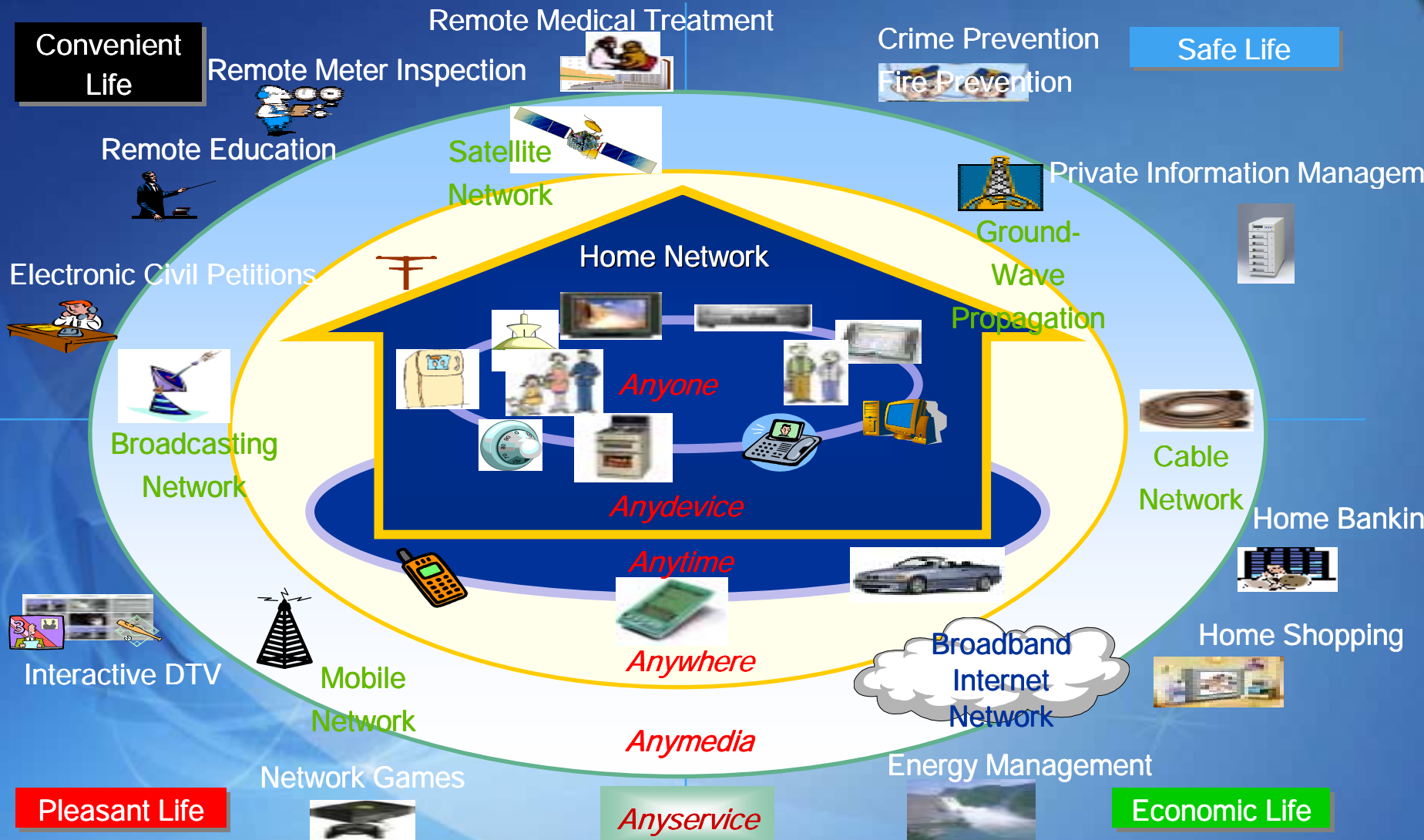
2005.2.21
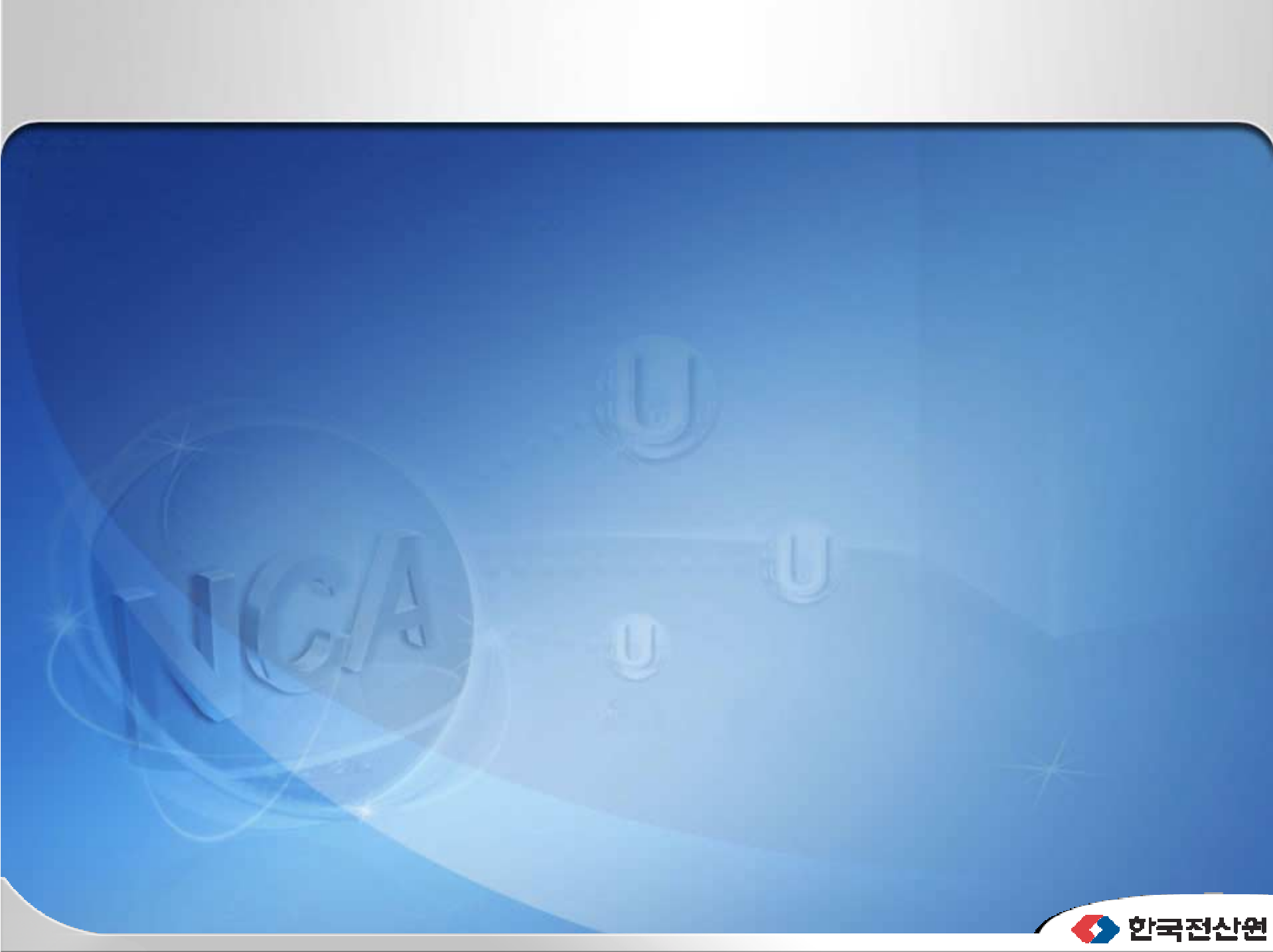
Lee, Yeong-Ro

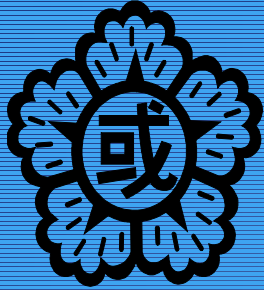Email: lyr@nca.or.kr

한국전산원
National Computerization Agency

Home Network Overview

Concept of Digital Home

Digital Home Realization

Digital@Government

Digital@Office

Digital@School

Service Connection
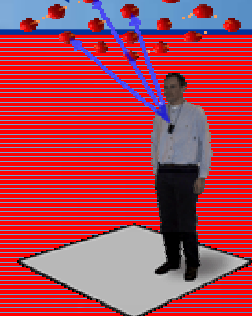
Service Connection
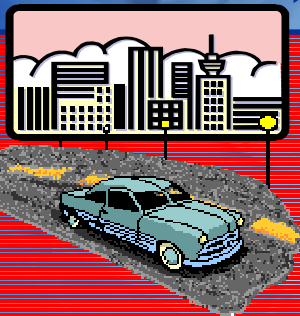
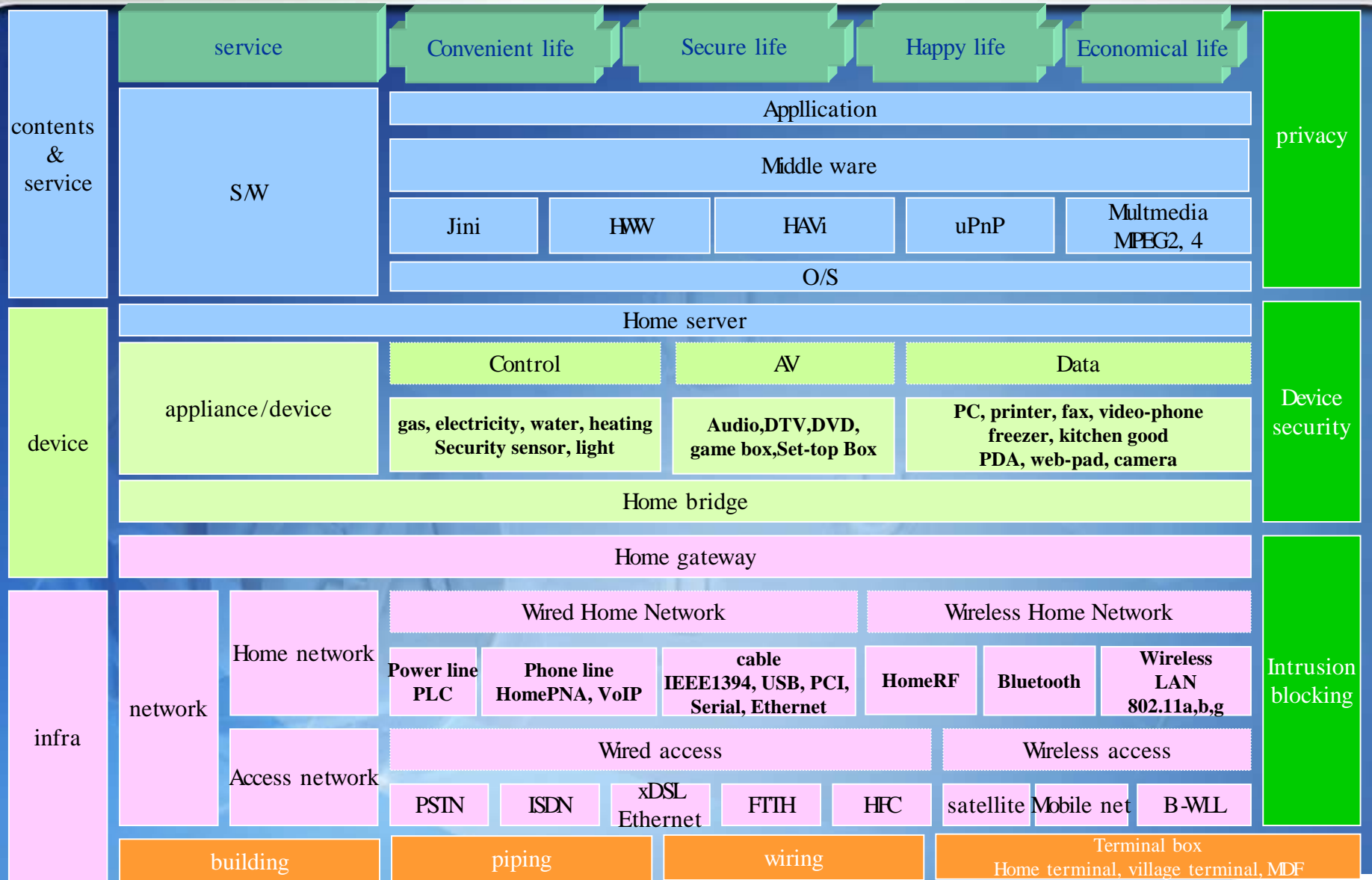Digital@Home

Digital@Vehicle

Digital@Street

Digital Home is content provider & consumer

한국전산원

Home Network Component

contents & service	service	Convenient life	Secure life	Happy life	Economical life	**privacy**

	S/W	Appllication				
		Middle ware				
		Jini	HWW	HAVi	uPnP	Multmedia MPEG2, 4
		O/S				

device	Home server			
	appliance/device	Control	AV	Data
		gas, electricity, water, heating Security sensor, light	Audio,DTV,DVD, game box,Set-top Box	PC, printer, fax, video-phone freezer, kitchen good PDA, web-pad, camera
	Home bridge			

Device security

Home gateway

infra	network	Home network	Wired Home Network	Wireless Home Network
			Power line PLC	Phone line HomePNA, VoIP	cable IEEE1394, USB, PCI, Serial, Ethernet	HomeRF	Bluetooth	Wireless LAN 802.11a,b,g
		Access network	Wired access	Wireless access
			PSTN	ISDN	xDSL Ethernet	FTTH	HFC	satellite	Mobile net	B-WLL

Intrusion blocking

building	piping	wiring	Terminal box Home terminal, village terminal, MDF

한국전산원

Major Services on Home Network

Service	Summary	Service Type
Home Automation	Automatic and remote management of various convenient facilities at home	◈ Home appliances control/ lighting devices control ◈ Digital meter inspection/ energy management ◈ Automated entrance/exit control
A/V Service	Digital audio/video broadcasting and various extra services	◈ Digital satellite broadcasting ◈ VOD/AOD/GOD services
Data Service	Information providing services such as news, weather, fortune telling, etc., and transaction processing services such as T-Commerce, etc.	◈ SMS/MMS ◈ Messenger ◈ News/Weather/Fortune Telling/ T- commerce
Application Service	Remote medical consulting with a doctor and health examination/ Health management services	◈ Remote medical consulting ◈ Health examination/ Health management

Major Services on Home Network

Service	Summary	Service Type
Internet Service	Online and TV services on the Internet by using broadband Internet network	◈ Broadband Internet services ◈ Internet TV
Home Security System	Safety services through various sensors (UV detectors, front door magnetic detectors, gas detectors)	◈ Front door detection/ Fire detection ◈ Gas/ short-circuit detection ◈ Emergency notice/surrounding areas detection
Public Service	Public services through connection between the national information network and the administration network	◈ Internet administrative services ◈ T-Government ◈ Roads/transportation/location information services

한국전산원

Home Network Direction

Location-based Digital Home Service	Situation Recognizing Digital Home Service	Intelligent Digital Home Service

2003 *2005* *2007* *2012*

Information Home Appliances

DTV

Tablet PC

Home Gateway

Game Machine

Home Server

integration

Intelligence

Set-top-box integrated Home Server

DTV integrated Home Server

Mobile Home Server

ZigBee

UW

Sensitive Home Server

Residential Gateway

Home Appliance integrated Home Server

RFID

Sensor Network

High-Resolution Video Service

Home Appliance Wireless Service

Intelligent Home Network

Ubiquitous Home Service

Infrastructure

IP	IPv4	IPv6

Wired: ADSL/Ethernet → VDSL/Giga Ethernet → Optic Fiber (FTIH)

Wireless: 11, 54Mbps WLAN → 200Mbps Wireless Tech. → 500Mbps level or higher wireless technologies

Cellular, PCS → IMT-2000(3G Mobile Telecom) → 4G Mobile Telecom

Broadcasting: Analogue Broadcasting → Digital Broadcasting → Data Broadcasting → Experience Broadcasting

한국전산원
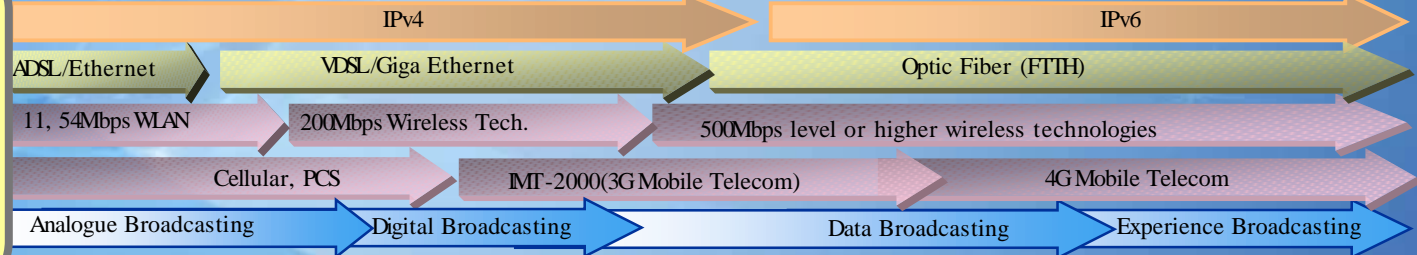
Home Network Trial Projects

Industry Dynamics

Telco(Mobile)

"Triple Play Service"

Telphone Svc.

Telecom area

Mobile Internet svc.

Construction

Broadband Internet

Telephone(VoIP)

HA-based digital home svc.

CATV

Telco(wired)

Digital Home

Broadcasting service

Broadcasting area

Broadband Internet service

Telephone service (VoIP)

Telecom area

Broadcasting Svc.

Broadcasting area (svc. Not avail.)

Broadband Internet

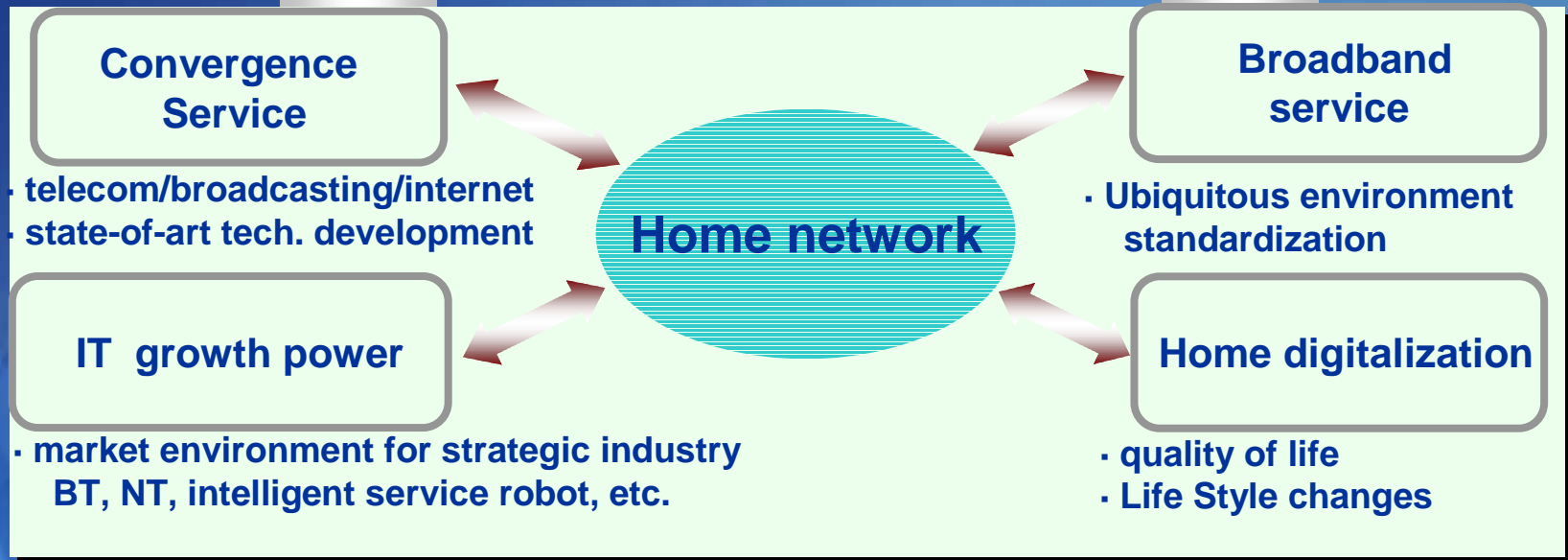**Telephone Svc.**

Telecom area

한국전산원

Why Home Network is Important

- **Home is the source of New Info-comm services**
  - **- Mobile, Home, Office(Work)**
  - **- Many info-comm devices at the Home**
  - **- New service chances from Home**

- **Home Network (Digital Home) has 'Integrated' feature itself, once introduced then huge impacts on industries**
  - **- Construction, Home Appliances, Energy, Telecom, Broadcasting(Cable), Security, etc**

- **Broadband Home Access is one of the BcN's Goal**
  - **- Quality Guaranteed Service can change people's life style in the Future**

한국전산원

Vision

10M households Home Network diffusion

Convergence Service
- telecom/broadcasting/internet
- state-of-art tech. development

Home network

Broadband service
- Ubiquitous environment standardization

IT growth power
- market environment for strategic industry BT, NT, intelligent service robot, etc.

Home digitalization
- quality of life
- Life Style changes

Trial project cooperation with 2 consortium

Service model development	**Home network emblem**
Broadband access(wired, wireless)	**Long-term tech. development**
Device/service Standardization	**Consolidate legislation**

한국전산원

Goal & How

Goal

- **Service model development, market promotion**
- **Verify Compatibility and interoperation among various types of devices, venders, services**

- **Make people realize "home network" is easy to use and useful as commodities**

How

- **Each consortium consists of various industry players**
  - participation of major players from a variety of industries such as construction, home appliance, telecom, broadcasting companies

- **Matching fund b/w Gov. : private consortium (1 : 2+)**

- **Results of trial projects transferred to Standardization activities**

한국전산원

Plan by Stage

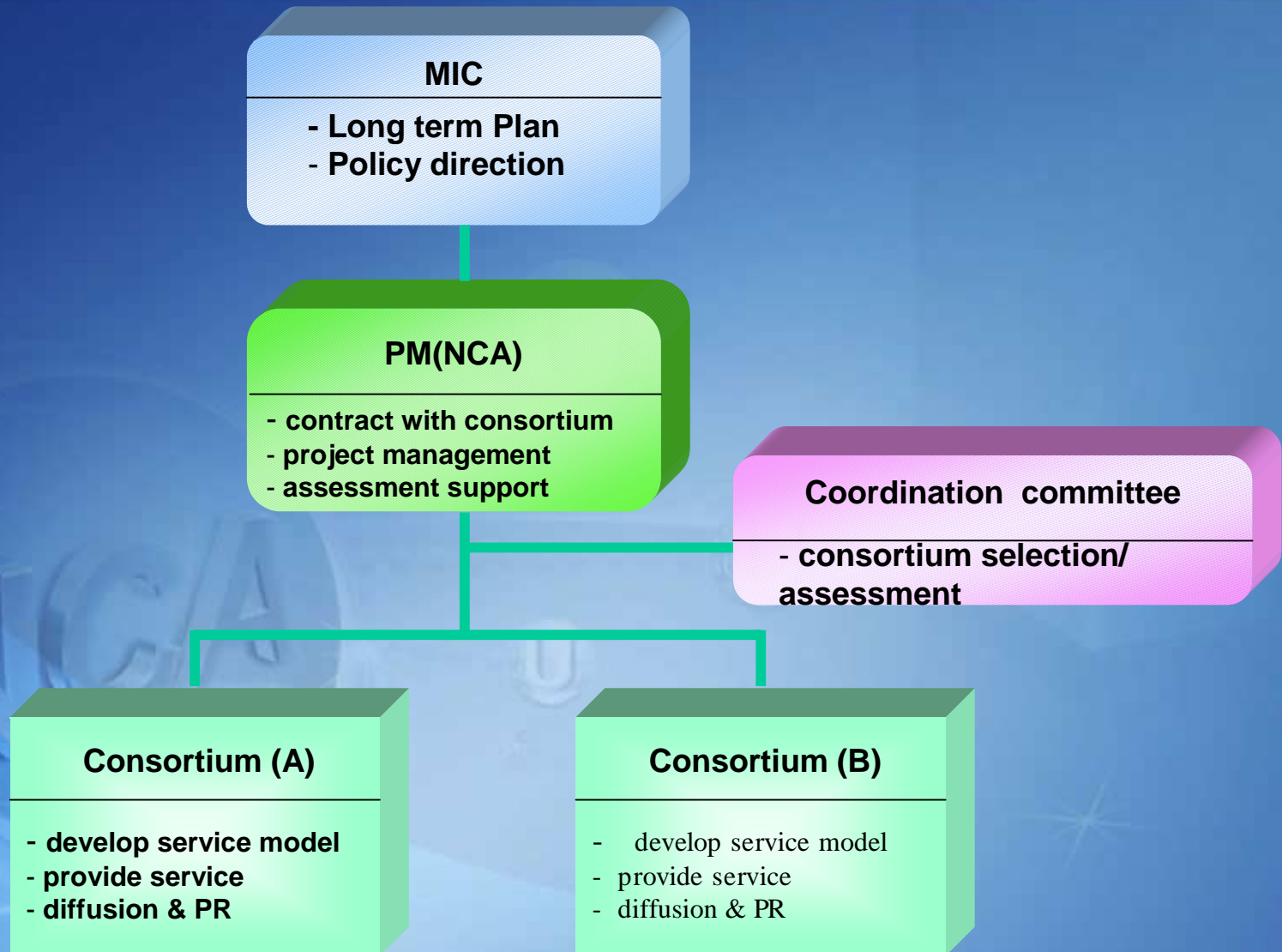- **1st stage : 2003. 7 ~ 2004. 12**

    - **Service model development (home network enabler)**

        . Based on existing IT infra, apply existing tech.

        . Web service on Various non-PC devices

    - find compatibility issues & how-to-solve

- **2nd stage : 2005. 1 ~ 2007. 12**

    - Enhanced Service model development

        . Based on BcN, Ubiquitous & IPv6

        . User friendly services with Intelligence, voice•video recognition

    - apply & verify compatibility solution from 1st stage

한국전산원

Roles

MIC

- Long term Plan
- Policy direction

PM(NCA)

- contract with consortium
- project management
- assessment support

Coordination committee

- consortium selection/ assessment

Consortium (A)

- develop service model
- provide service
- diffusion & PR

Consortium (B)

-    develop service model
-   provide service
-   diffusion & PR

1ˢᵗ Stage Trial Project

Government driven trial project to find Killer Application

Region	5 major provinces including capital city area
users	1,300 homes (Apartment complex, private house)
Providers	2 consortium (KT, SKT) 80 participating companies
funding	32.5Million (Government : 4.5M, Consortium : 28M)
service	45 services (HA, Home security, Interactive DTV, Infotainment

한국전산원

Consortium Status

Category	K T	S K T
Funding	15M (Government 2M)	17M (Government 2M)
Partners	42 companies & organizations	37 companies & organizations
Object	700 homes	600 homes
Region	Seoul area(8 sites), Daegu(2 sites), Gwangju(2 sites)	Seoul area(5 sites), Daejon(1 sites), Busan(1 sites)
Service	21 services	24 services

Partners & Roles

Category	K T	S K T	Roles
Telecom	KT, KTF	SKT, Hanaro telelcom	Network & Platform
Broadcasting	KBS, MBC, Skylife	SBS, CJ Cable Net	Contents, Convergence technology
Construction	Samsung, Hyundai Construction	Daewoo, Lotte, LG Construction	Site, home infra building
Appliance	Samsung Electronics, Linnai	LG Electornics, Daewoo Electronics	Appliance & device compatibility
Solution	Komax, S-one, Hyundai Home shopping	SKC&C, Bit Computer	service, technology development & deploy
Local Gov.	Daegu city office, Gwangju city office	Busan city office, KU hospital	PR, Administrational support, public service support

한국전산원

Trial Project Services

KT Consortium		
interactive DTV service	T-Commerce	T-Poll
	T-Edu.	T-Mobile
	T-Gov..	ESG
Infotainment Service	Smart Card	
	Local information, domestic information management	
	Customized Information	
	Customized A/V	
	Network games	
	IP-multicast Broadcasting	

SKT Consortium		
Remote control	Lighting, temperature, curtains	IHA
	Intelligent robot automatic control	
Remote meter inspection	Electricity, gas, water supply	
Entertainment	HDTV, network game, personal broadcasting	
VOD	Movies, EOD, COD	
Home safety	Security, remote monitoring, officers dispatch	
Remote medicine	Health management	
Protection	Pets, children, the elderly, etc.	
Fire prevention	Short-circuit, water leakage and gas leakage deterrence	

한국전산원

Trial Project Services

KT Consortium		SKT Consortium	
Medicine/ Health	Health exam/ health management, remote medical consulting	Communications and messaging	VoIP, wired/wireless connected video conference
Home Automation	Living devices control, information home appliances, visitors		SMS, MMS
	Energy management, remote meter inspection	Information Providing	Local information, customized information, remote education
		Remote e-commerce	T-Commerce, T-banking, T-stock
Home Security	Home viewer/Home monitoring	Telematics	Bus schedules, vehicle security, vehicle anti-theft
	Intrusion detection and officers dispatch/ fire prevention and officers dispatch	Public services	e-Government services

한국전산원

Device Location in Home

Disaster Prevention/Intrusion detection

Outdoor Network

Home viewer

Device control consent/switch

Home Gateway

STB

Tele-medicine/consulting

IR

HA

Intelligent Running machine

WLAN AP

한국전산원
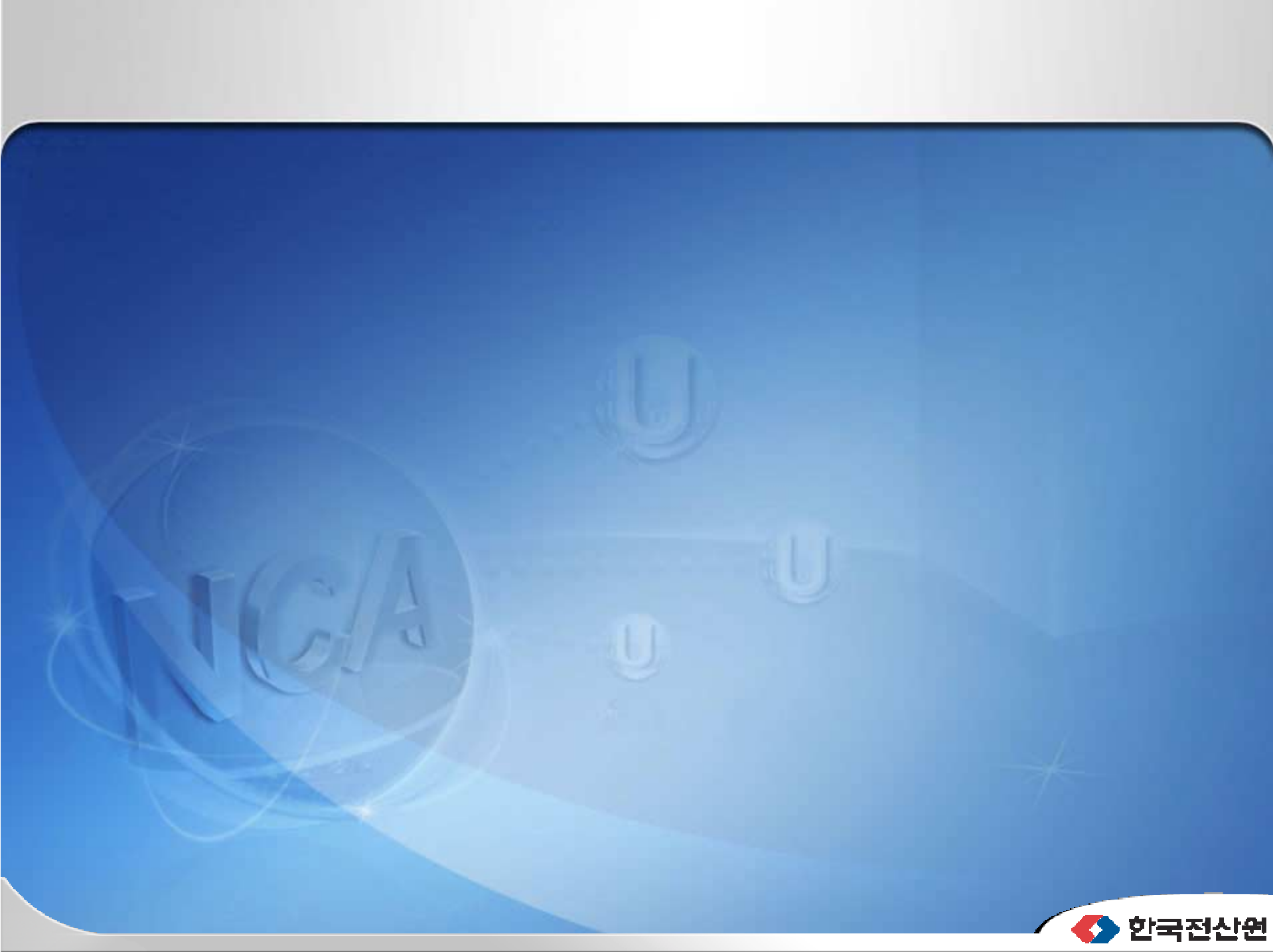
Service UI (example)

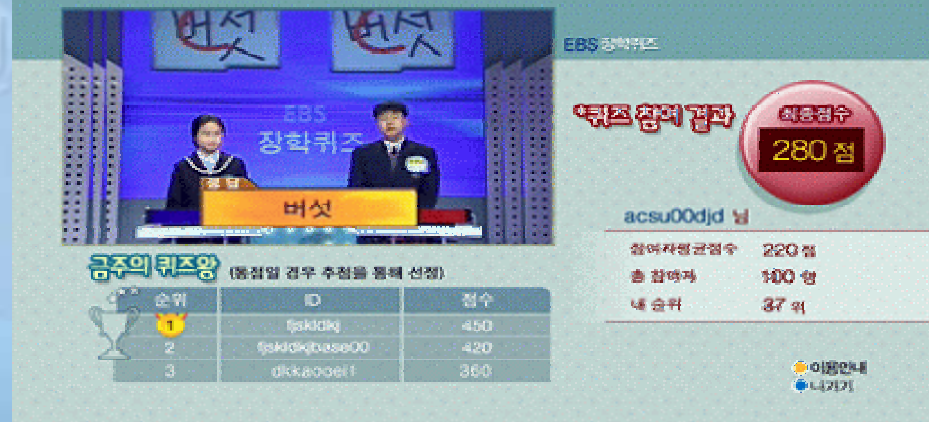❑ Interactive DTV service : ACAP data broadcasting standard

T-Commerce

T-Mobile

T-Poll

T-Education
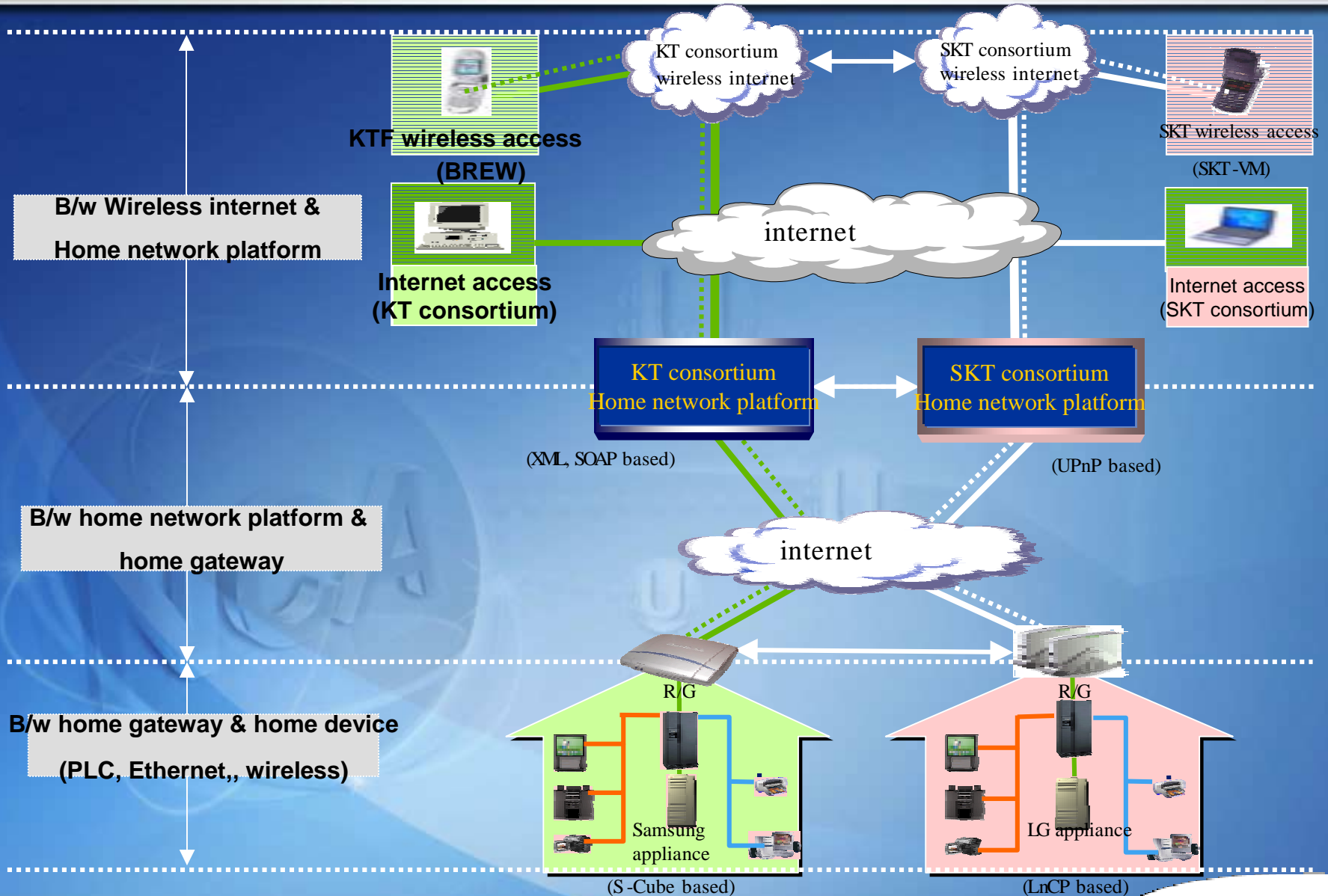
Appliance (example)

Pet care

Digital door lock

Gas control

Tele-medicine

Compatibility Issue

B/w Wireless internet & Home network platform

B/w home network platform & home gateway

B/w home gateway & home device (PLC, Ethernet,, wireless)

KT consortium wireless internet

SKT consortium wireless internet

KTF wireless access (BREW)

SKT wireless access (SKT-VM)

Internet access (KT consortium)

internet

Internet access (SKT consortium)

KT consortium Home network platform

SKT consortium Home network platform

(XML, SOAP based)

(UPnP based)

internet

R/G

R/G

Samsung appliance

LG appliance

(S-Cube based)
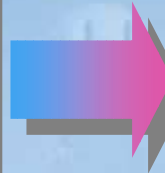
(LnCP based)

한국전산원

Expected Result

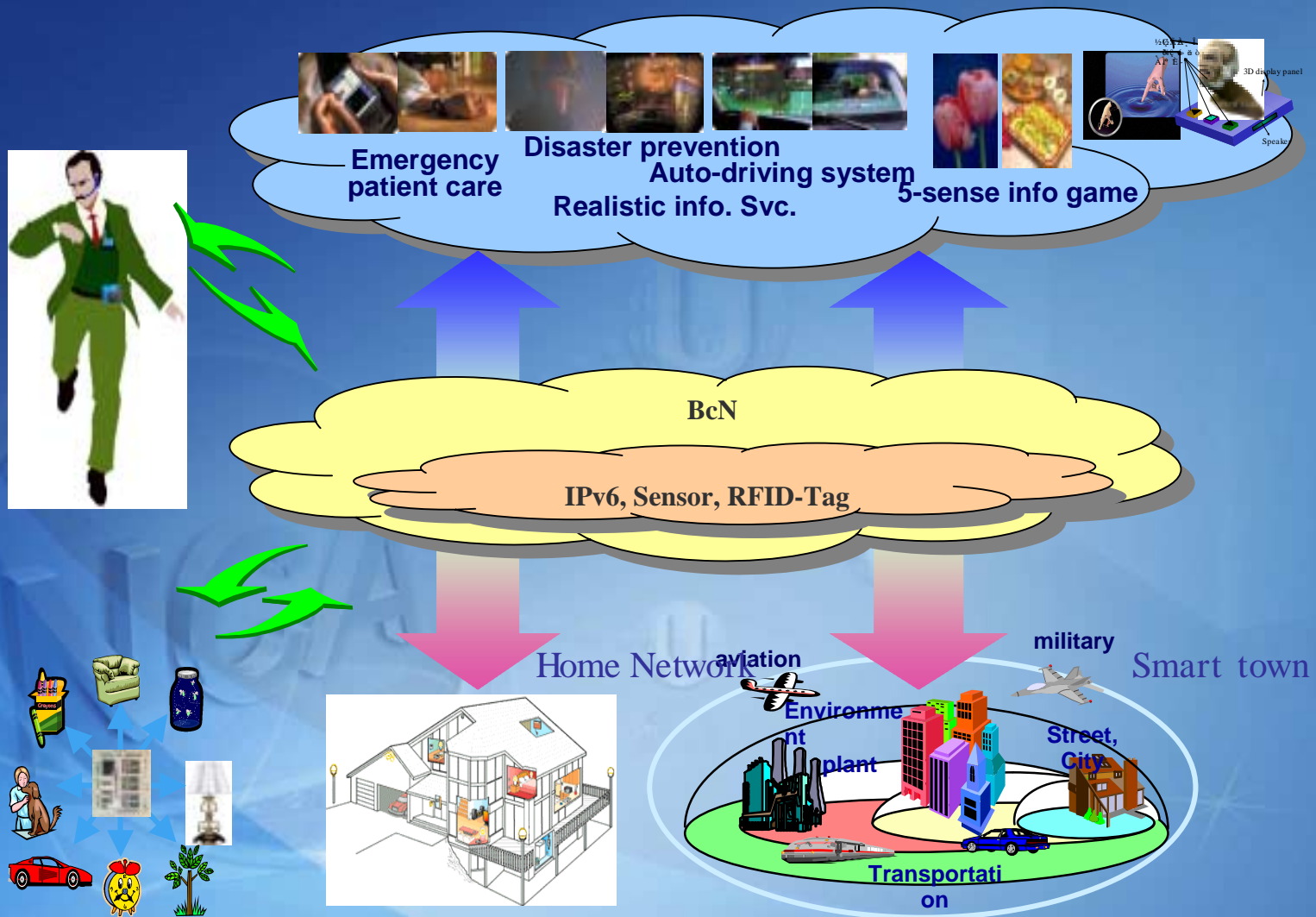Home : Pleasant & Convenient Info. Life Space

Individual : Real Digital Life

Today   **Home Network**   *Tomorrow*

한국전산원

Expected Result

Emergency patient care

Disaster prevention

Auto-driving system

Realistic info. Svc.

5-sense info game

3D display panel

Speaker

BcN

IPv6, Sensor, RFID-Tag

Home Network

Smart town

aviation

military

Environment plant

Street, City.

Transportation

한국전산원

Thank You!

한국전산원
National Computerization Agency