

ISDB-T seminar in Brazil

Seminar #10

**Perspective of digital terrestrial
Broadcasting in Japan**

1st April, 2005

Digital Broadcasting Expert Group (DiBEG)

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1. Expansion of cover area
2. Increase of receiver market and various type of receiver
3. Policy and Strategy for DTTB
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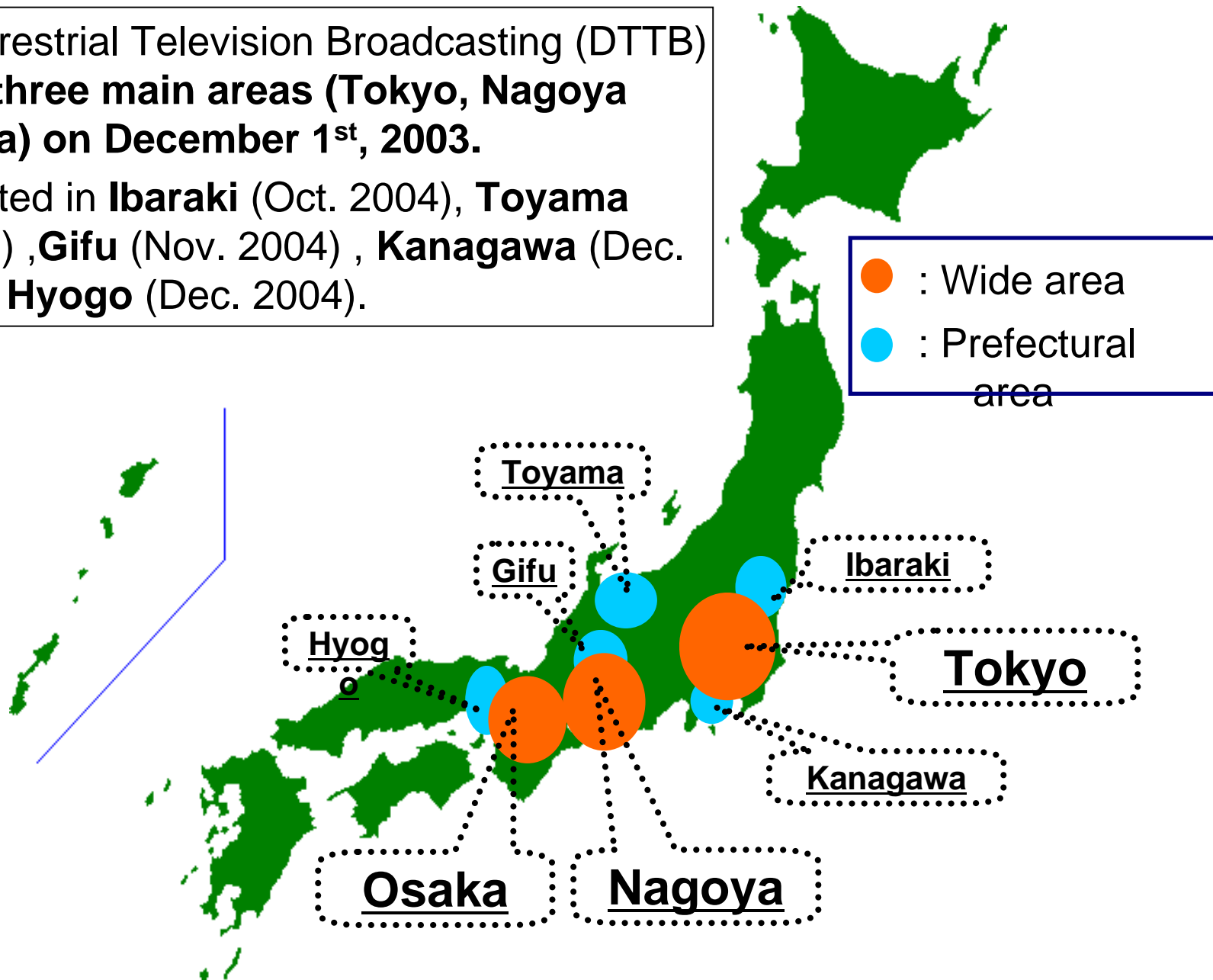
(note) main part of Chapter 4. is presented by DTV workshop held in Inter BEE last November at Makuhari

1. Expansion of cover area

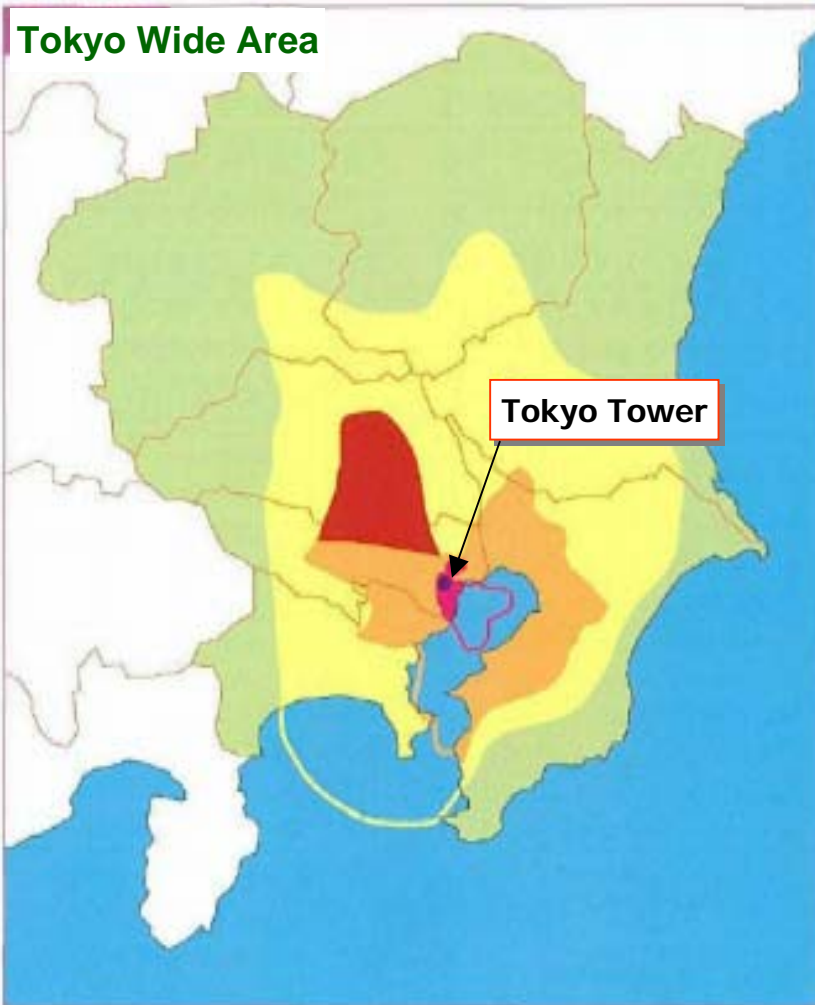
Service area of DTTB in Japan

Digital Terrestrial Television Broadcasting (DTTB) started in **three main areas (Tokyo, Nagoya and Osaka)** on **December 1st, 2003**.

DTTB started in **Ibaraki** (Oct. 2004), **Toyama** (Oct. 2004), **Gifu** (Nov. 2004), **Kanagawa** (Dec. 2004) and **Hyogo** (Dec. 2004).



Approach to the DTTB in Tokyo Wide Area



Dec. 1st, 2003

- NHK General
- NHK Educational
Private Network(6)

**Sept. 22nd,
2004**

- NHK General
- NHK Educational
Private Network(6)

**In 2005
(maximum
output)**

- All Broadcasters

Population Coverage of DTTB in Japan

Approximately over **18 million** households
(**38%** of total household in Japan)

Expansion of population coverage (households)

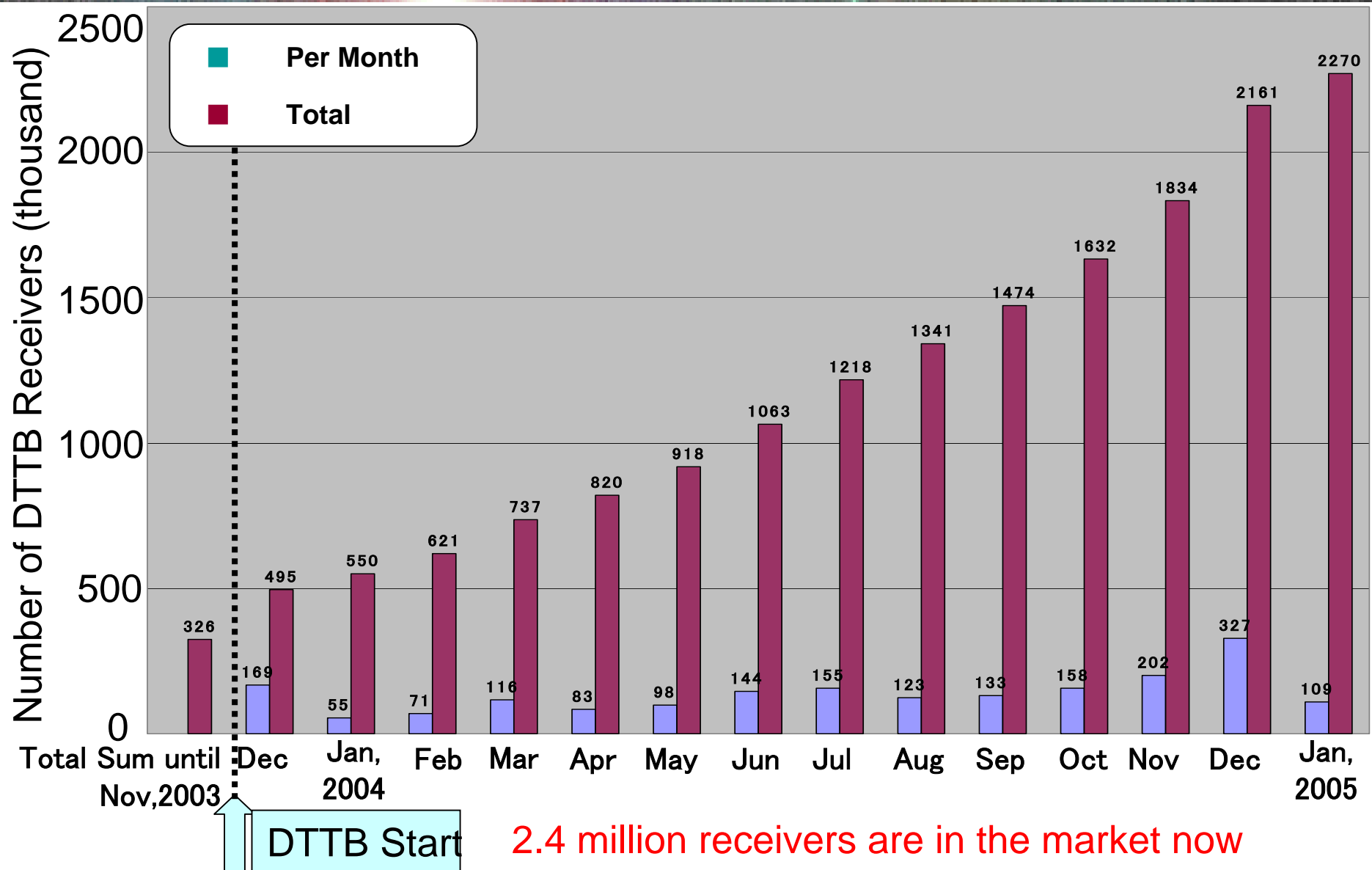
2005 27 million (57%)

2006 available at all prefectures (80%)

Number of potential households via CATV networks
10 million households in total (Sep.2004)

2. Increase of receiver market and various type of receiver

Rapid increase of DTTB Receiver Shipment



Digital TV Products (Flat and wide screen)



Plasma

HITACHI



SONY



Panasonic

PDP



Pioneer



Victor-JVC



SANYO



TOSHIBA

Digital TV Products (Flat and wide screen)

LCD



Panasonic



SONY



SHARP



TOSHIBA



Victor JVC



SANYO



MITSUBISHI



HITACHI

Digital TV Products (other type)

CRT



Panasonic



SONY



mitsubishi



TOSHIBA

STB type



SONY



Panasonic



More manufactures are entering the market!

All-in one DTTB Receiver

94% of DTTB receivers are all-in-one DTTB receivers

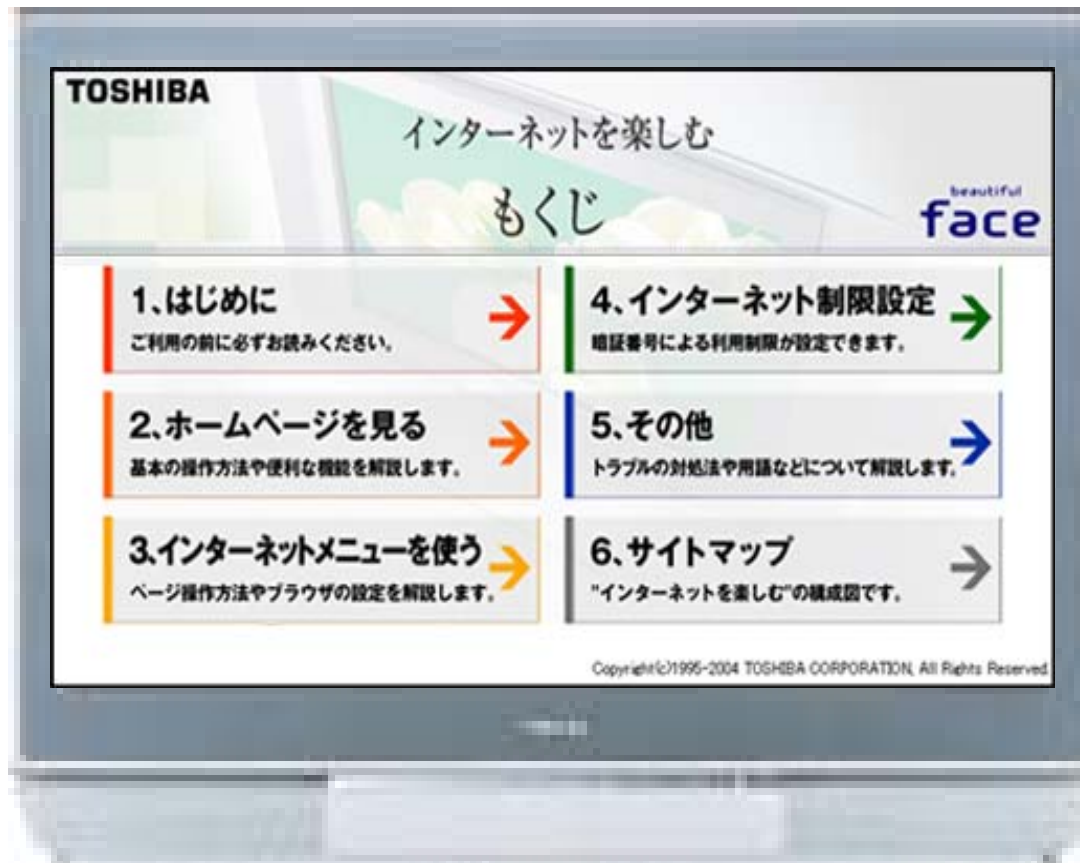
- Equipped with digital terrestrial and satellite tuner
- Compatible with HDTV (1080i)
- Equipped with data broadcasting decoder
- Capability to connect network

Many models have internet web browsing function

In addition, more than **3 million of HDTV ready TVs** (HDTV display without DTTB tuner) have already shipped.

Example of Internet TV

Portal Site



TOSHIBA



Example of Internet Function

Internet Screen

One Screen Mode



Internet Screen



TV Mode



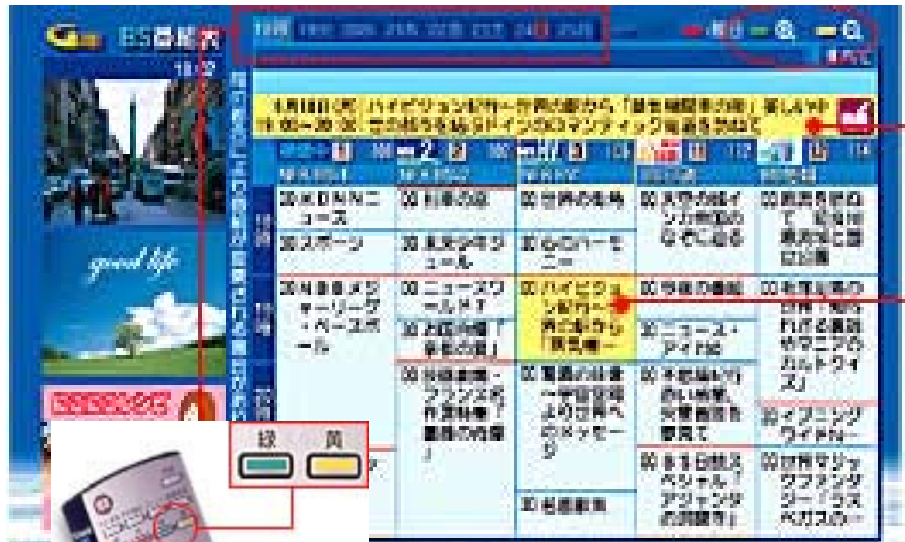
Two (TV + Internet) Screen Mode

TOSHIBA

Example of Internet TV

EPG and T-navi Portal Site

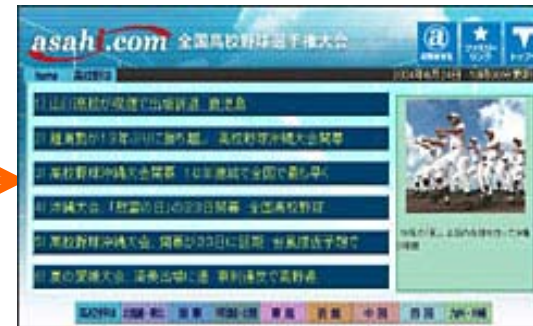
T-navi: dedicated sites for TV internet viewers



Panasonic

Example of Internet TV

T-navi Menu List



NEWS



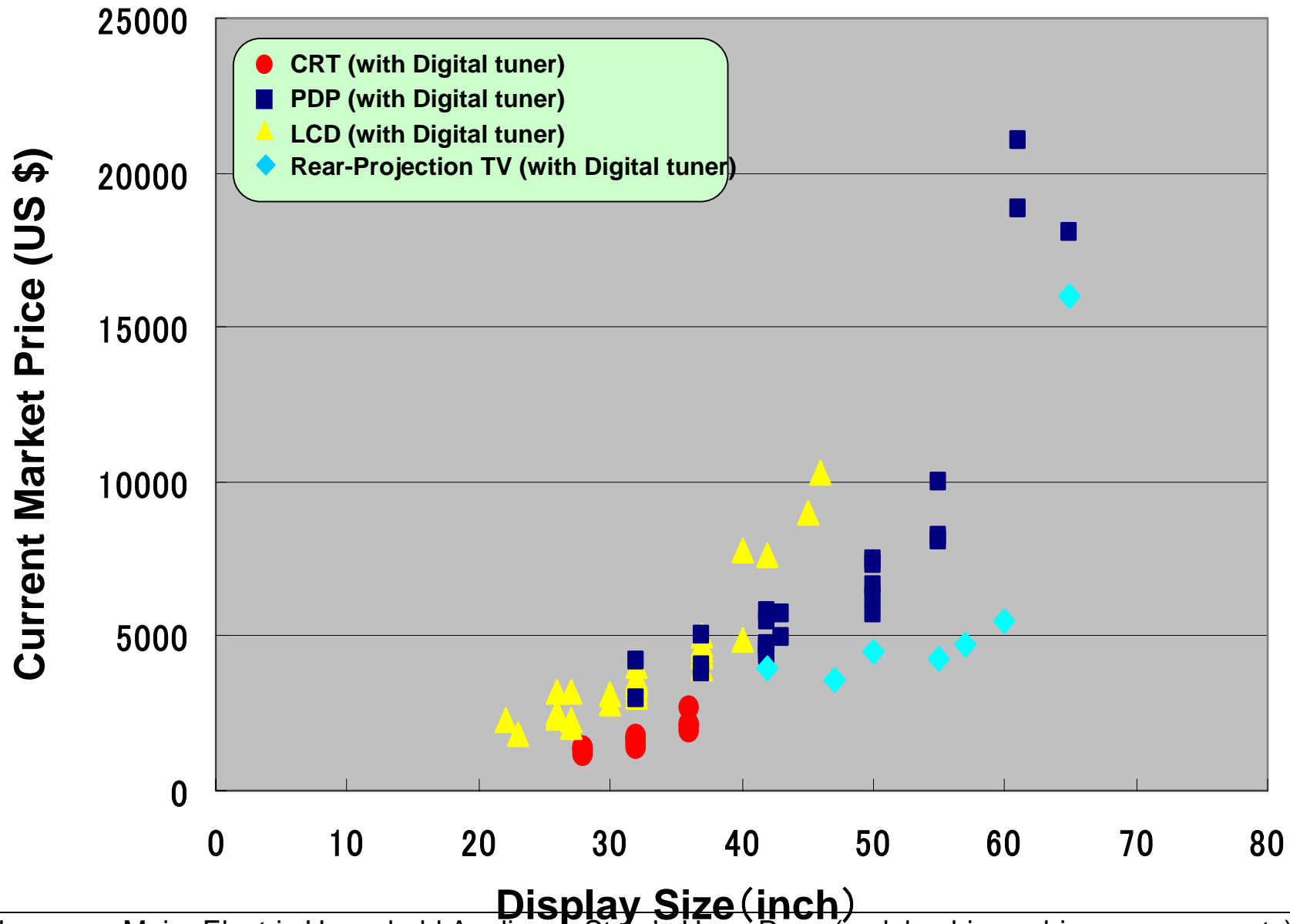
Travel



Shopping

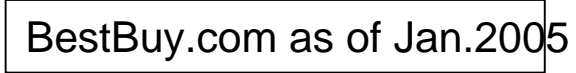
Panasonic

Price Trends of HDTV Receiver in Japan



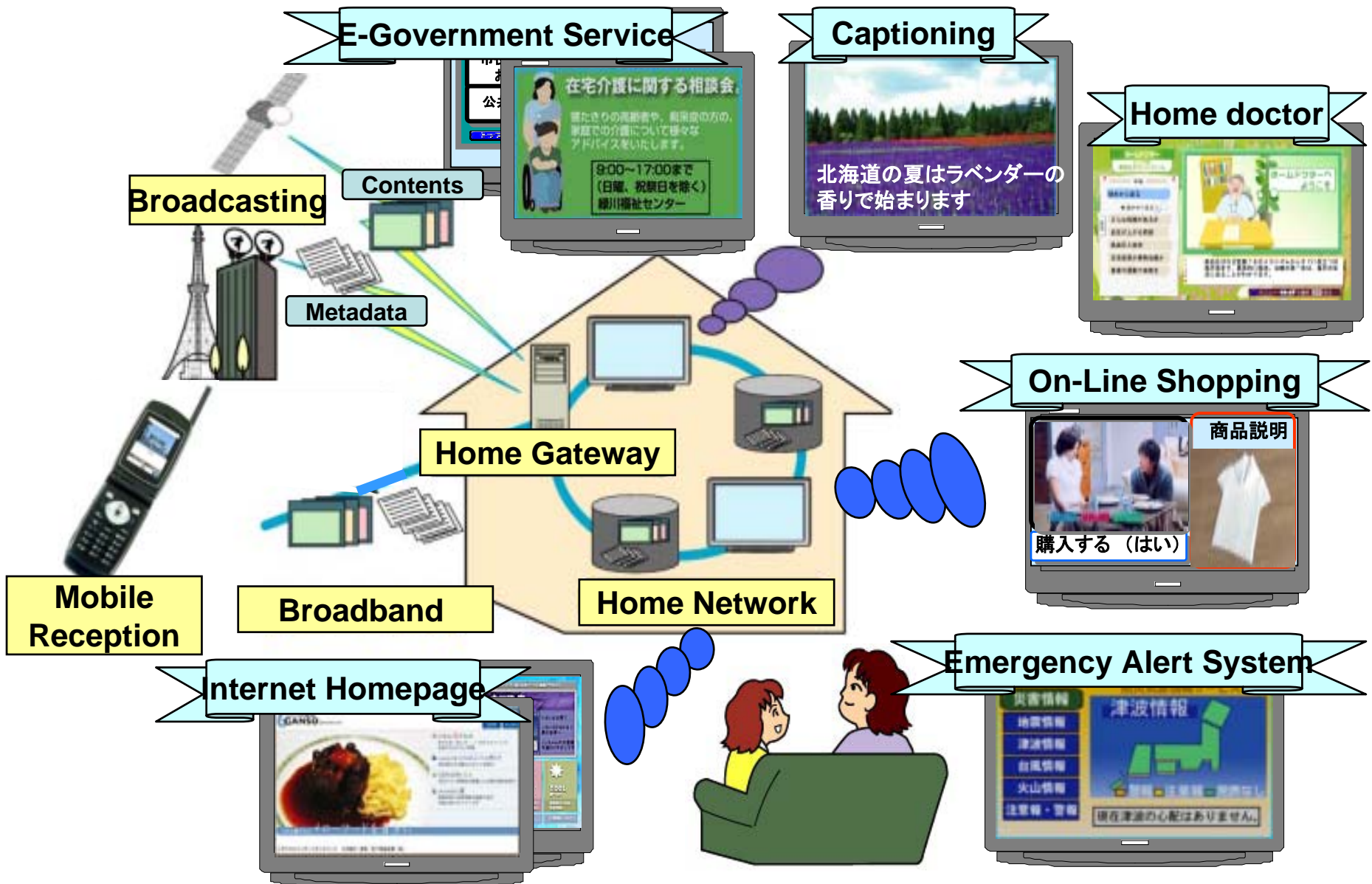
Japanese Major Electric Household Appliance Store's HomePage (yodobashi.com, biccamera.com etc) as of

Jan 2005



Digital TV

~ Home gateway to the ICT society ~

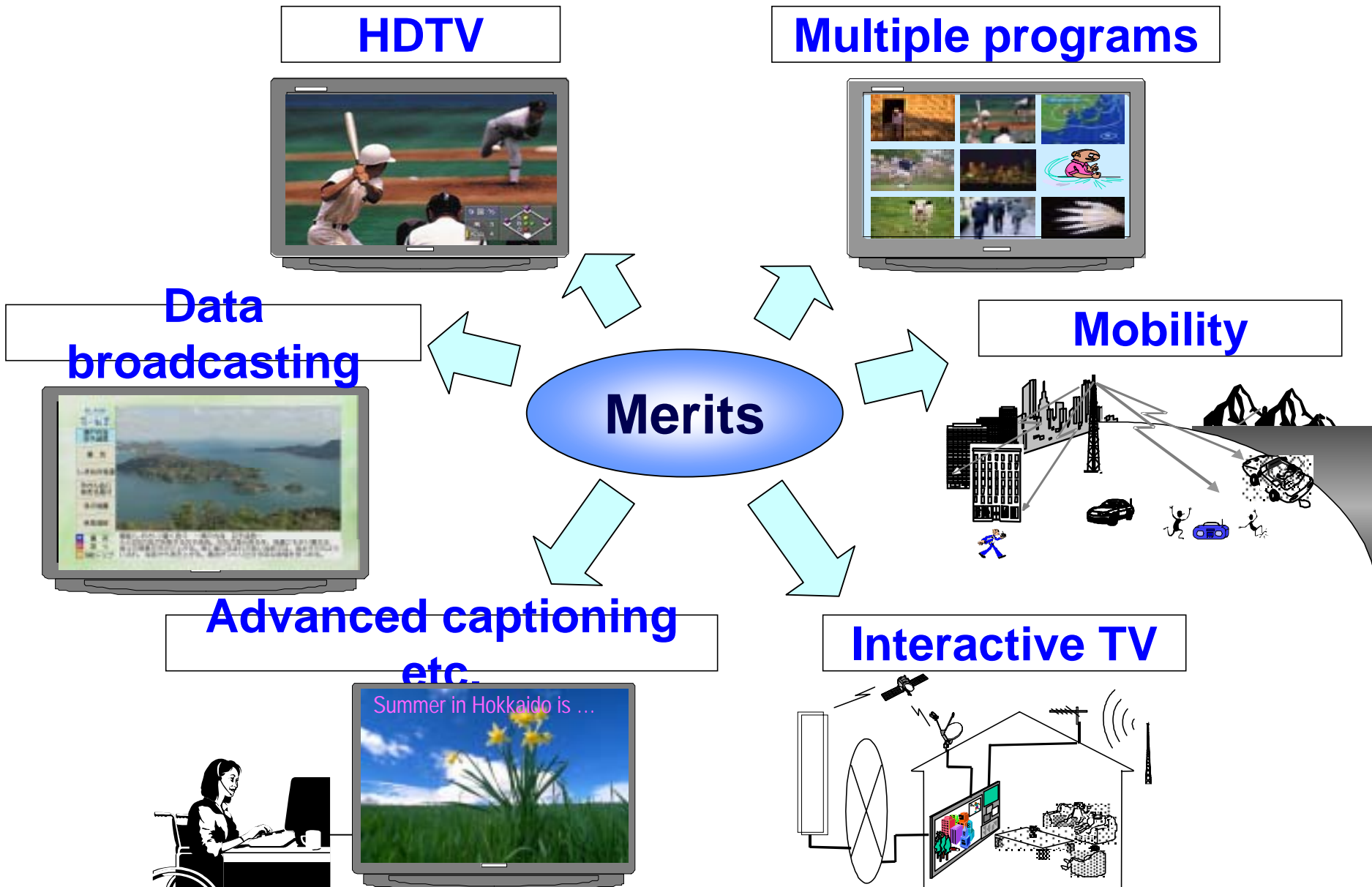


3. Policy and Strategy for DTTB

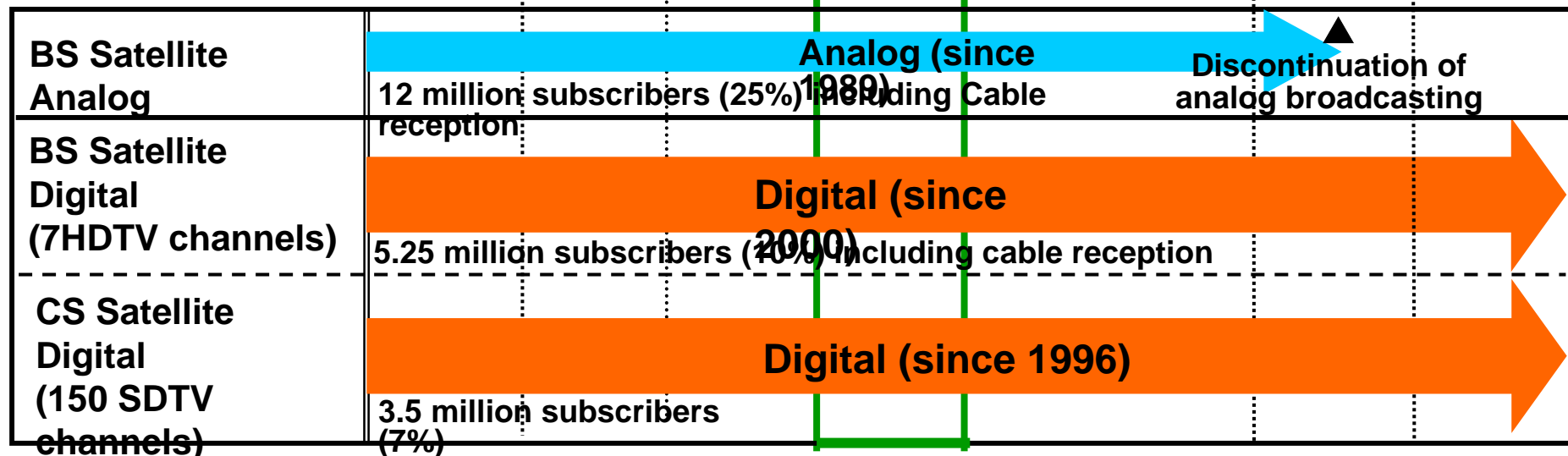
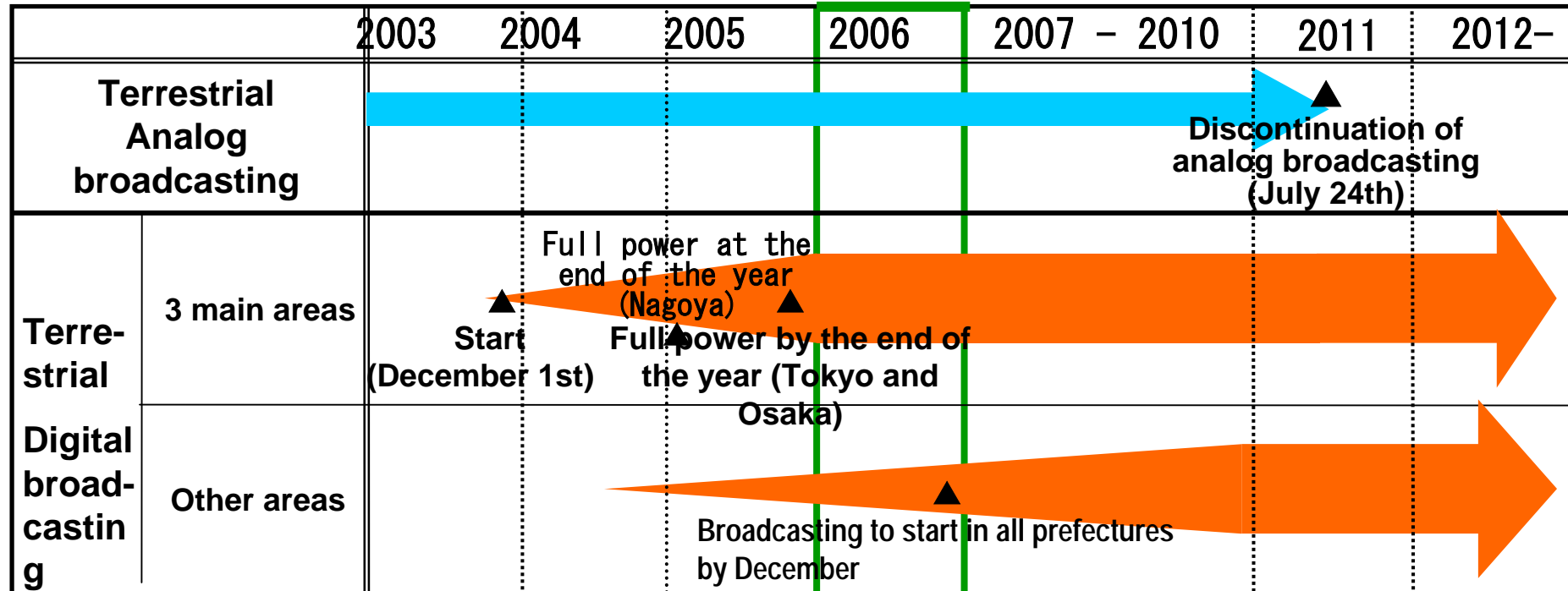
Policies and Bottleneck for DTTB

- Assign 6MHz channels for incumbent terrestrial broadcasters
- Simulcast of Analog, but something more values ; i.e. HDTV, SDTV multichannels, datacast, etc
- Different and additional value more than satellite digital TV ; i.e. local information, etc.
- Digital Television set as integrated home information terminal
- Massive reallocation of existing relay station channels

Example of New lifestyle for Viewers



Schedule for Digital Broadcasting in Japan



Implementation Schedule of Digital Terrestrial Television Broadcasting in Japan



Dec 1.st 2003

Start of DTTB !
(Tokyo, Nagoya and Osaka)

Apr. 2003
awarded

Provisional licenses were

Feb. 2003

Start of Analog channel relocation

Sep. 2002

MPHPT established license
conditions and requirements

1999-2003

Real Scale Experiment Broadcasting

1999

standard

MPT established technical

1998

Report

Issue of Digital Broadcasting Study Group

1994

requirement

MPT asked to Council for technical

Conditions and Requirements for DTTB licensee in Japan

- Over 2/3 simultaneous as analog per day
- **HDTV is more than 50% of all programs**
- Broadcasting using subtitles and commentary
- Covered same areas as analog
- Updating the receiver's by data broadcast

Expansion of DTTB services

- **Dec. 1st 2003: Start of Digital Terrestrial Television Broadcasting (DTTB) in Japan (Tokyo, Osaka, Nagoya)**
- **Population coverage of DTTB (households)**
 - Now: 18 million (38%)
 - 2005 27 million (57%)
 - 2006 available at all prefectures
- **The number of shipment DTTB receivers**
2.27million sets as of January 2005

Strategy to promote DTTB

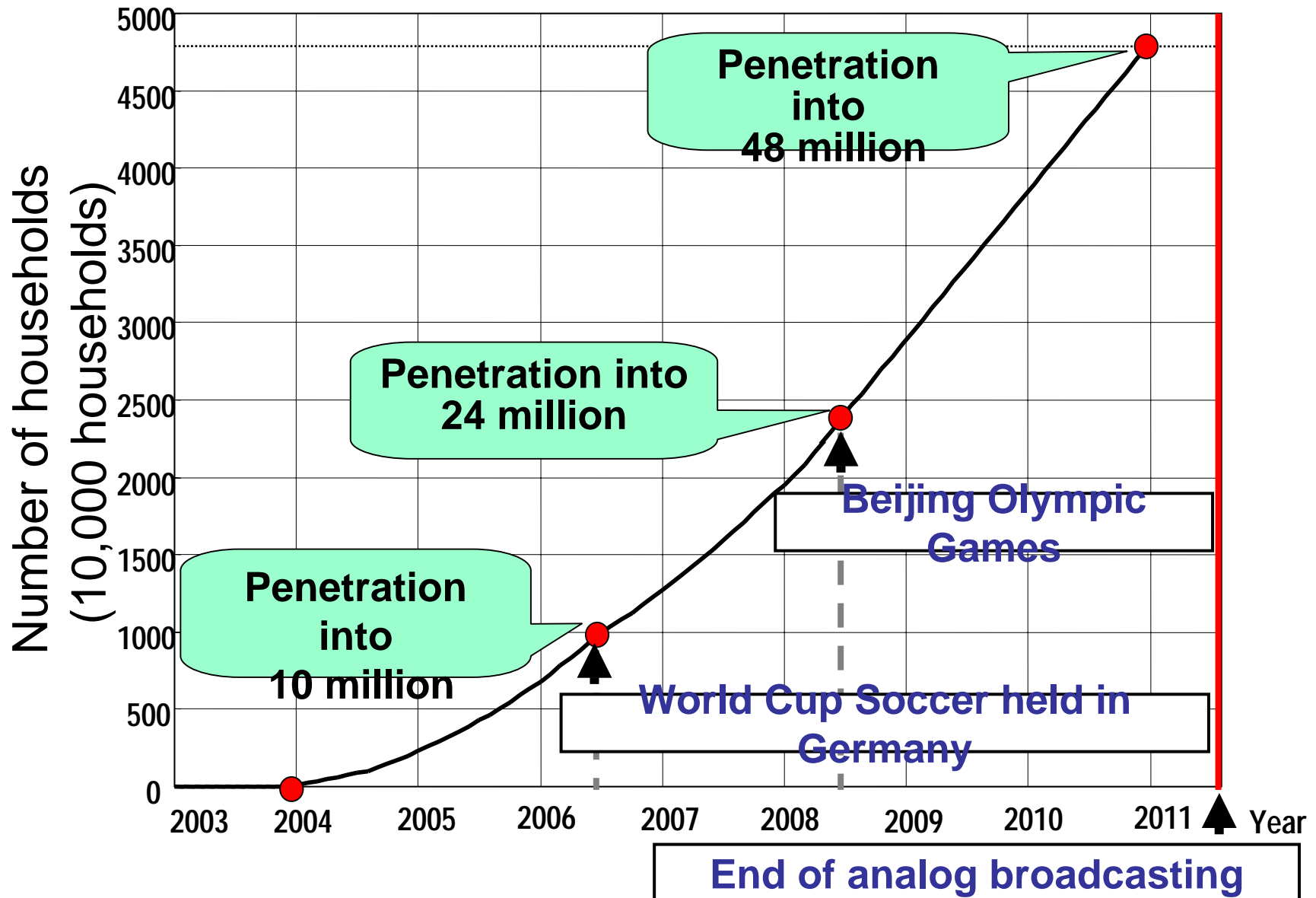
- End of Analog Broadcasting; **July 2011** mandated by Radio Law
- Replace analog receiver into digital by the time
- **Need of collaborative work among government, broadcasters and industry**
- Promote DTTB receivers
- DTV as integrated home information terminal

Action Plan to Promote DTTB

Decision of the "DTTB promotion conference (Oct 31th 2003)

- **Set objectives for the penetration of DTTB receivers including cable reception**
- **Set objectives for expansion in the coverage rate of digital broadcasting in the three main areas (Tokyo, Osaka and Nagoya)**
- **Action items for government, broadcasters, manufactures, retailers**

Objectives for the penetration of terrestrial digital broadcasting receivers (households)



4. Penetration of Digital TV to household

In this section, mainly explain the penetration to household from several aspect.

Because of copyright, the text for this section(note) should be prepared separately

(note) the text of this section is a part of “**Transition from Analogue Television Broadcasting to DTV**”, which was presented by DTV workshop held in Inter BEE last November at Makuhari

5. Expectation for new service in digital era

For new service of digital terrestrial broadcasting, details was presented in seminar #9. Therefore, in this section, summary of these new service are presented

But, final item “ Usage for disaster prevention” is just original in this seminar. Text for this item is prepared separately. (note)

Broadcasting to Portable Terminals

Example :

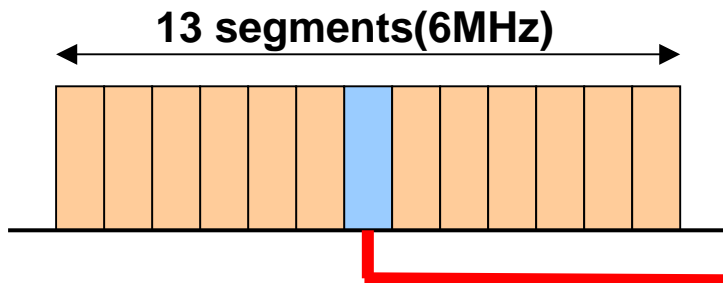
modulation 16QAM

code ratio 1/2

guard interval 1/4

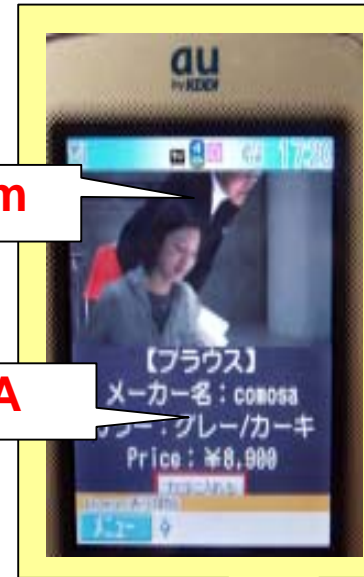
bit rate 630

kbps



TV program

BML DATA



1 segment

An example of
KDDI



Prototype of Mobile Phone receiver (May, 2004)

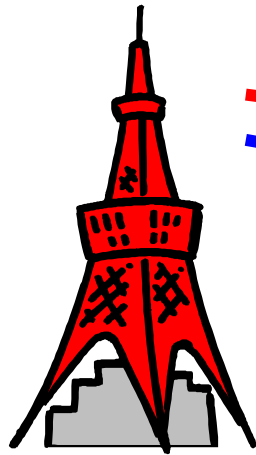
Implementation Schedule toward portable reception of DTTB

- **Video compression system: MPEG4 AVC/H.264**
- **Patent agreed in March 2004**
- **Prototype receivers already developed by manufactures**
- **Service will start in early 2006**
- **TV viewing on Cellular phone while commuting**

HDTV mobile reception (1)

Broadcasting station

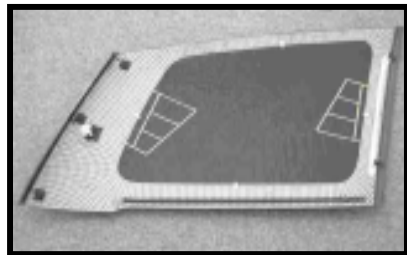
HDTV mobile reception for bigger screen in buses and trains



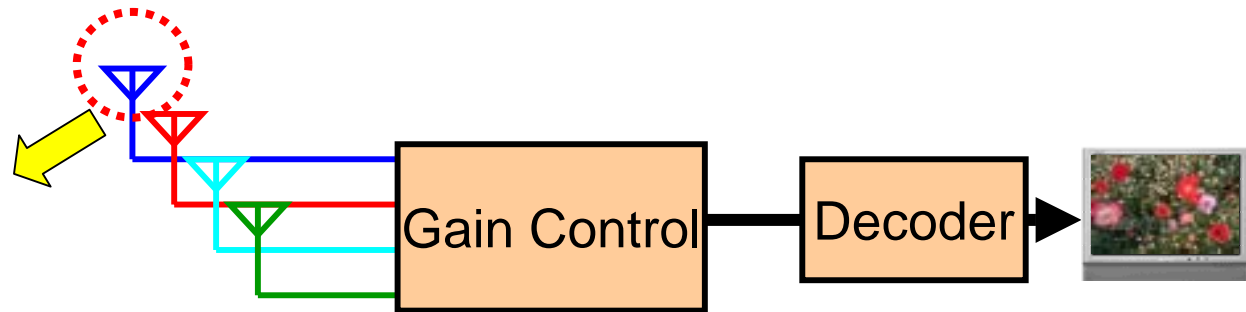
Direct Wave

Reflection Wave

Mobile Receiver



Adaptive Array Antenna
on the vehicle's window



Antenna Gain Control Technique

HDTV mobile reception (2)



HDTV Broadcasting



Data Broadcasting



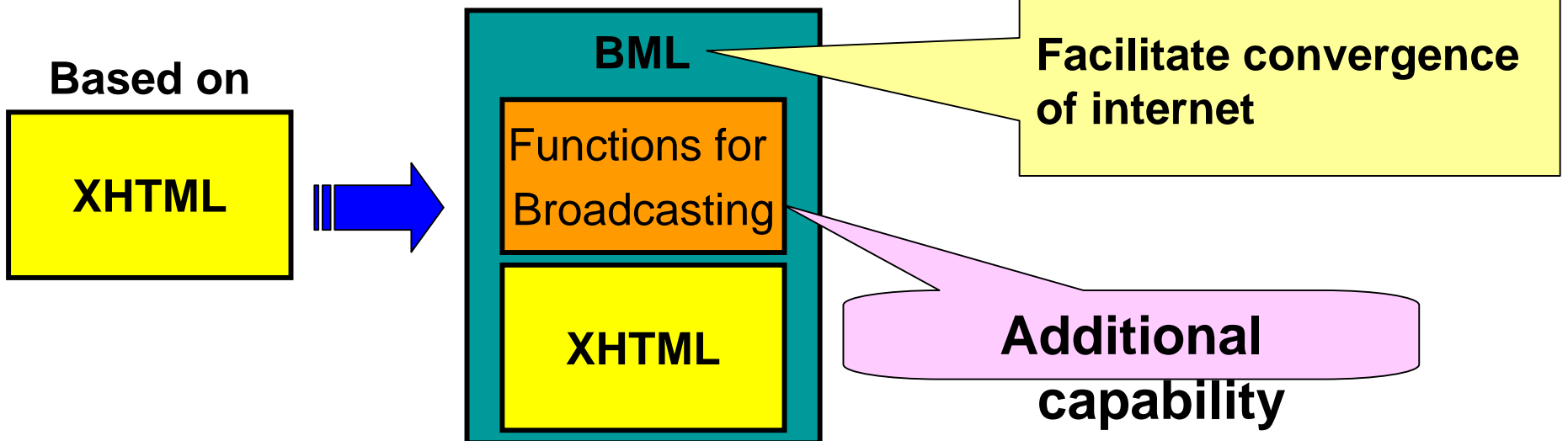
Data Broadcasting

All DTTB Broadcasters and BS Broadcasters providing Data broadcasting (datacast) now

Program related information
Weather information

Anytime news
Report of sports game etc,

Currently the description language is BML format



Example for Data Broadcasting (1)

Top menu



Example for Data Broadcasting (2)

Weather news

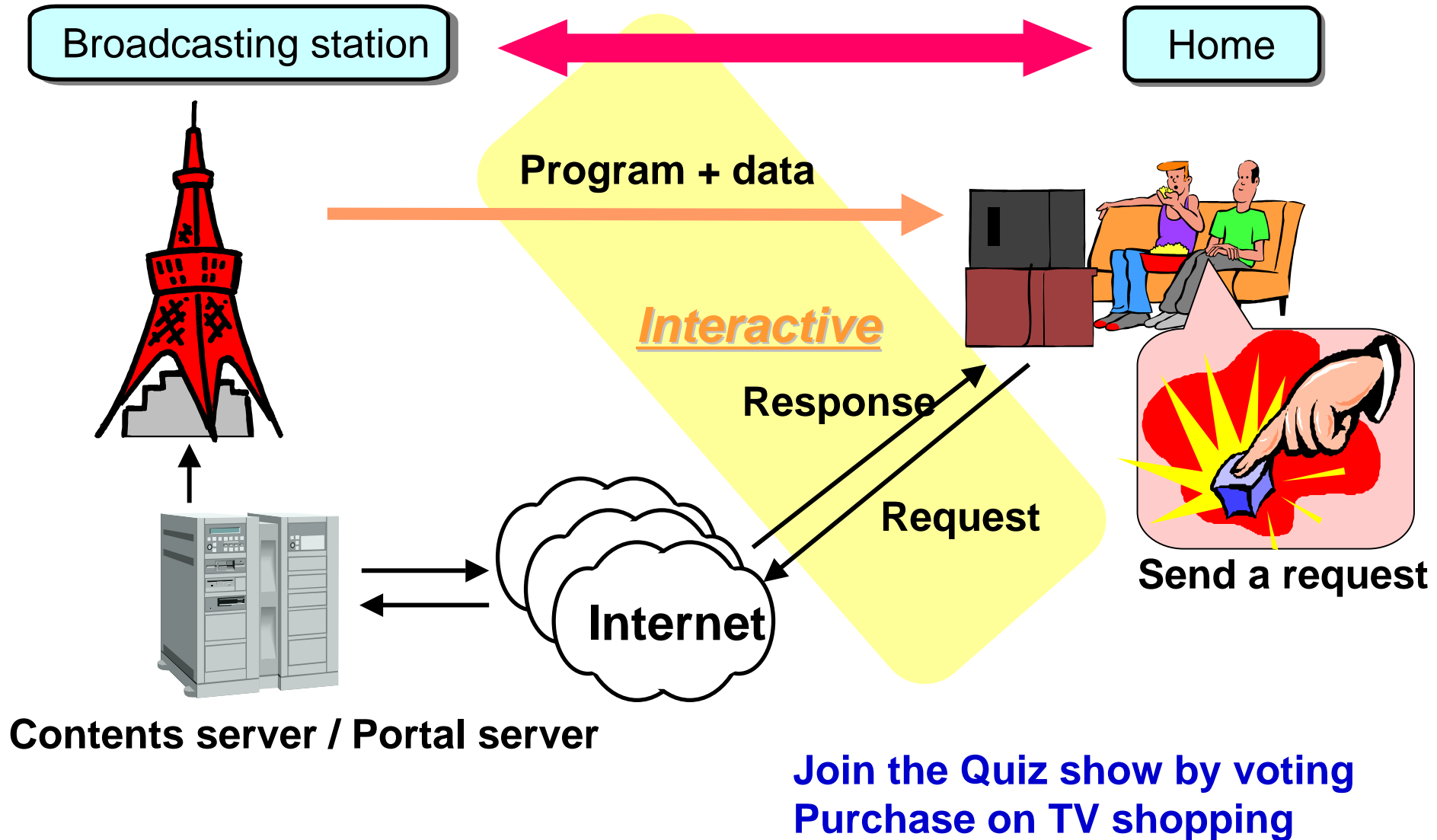


Example for Data Broadcasting (3)

Program related data



Interactive Broadcasting



Interactive data service

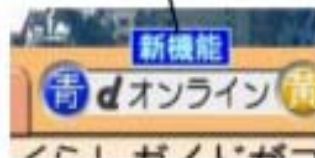
NHK Data Online service available from April 2004



Top menu of Data broadcasting



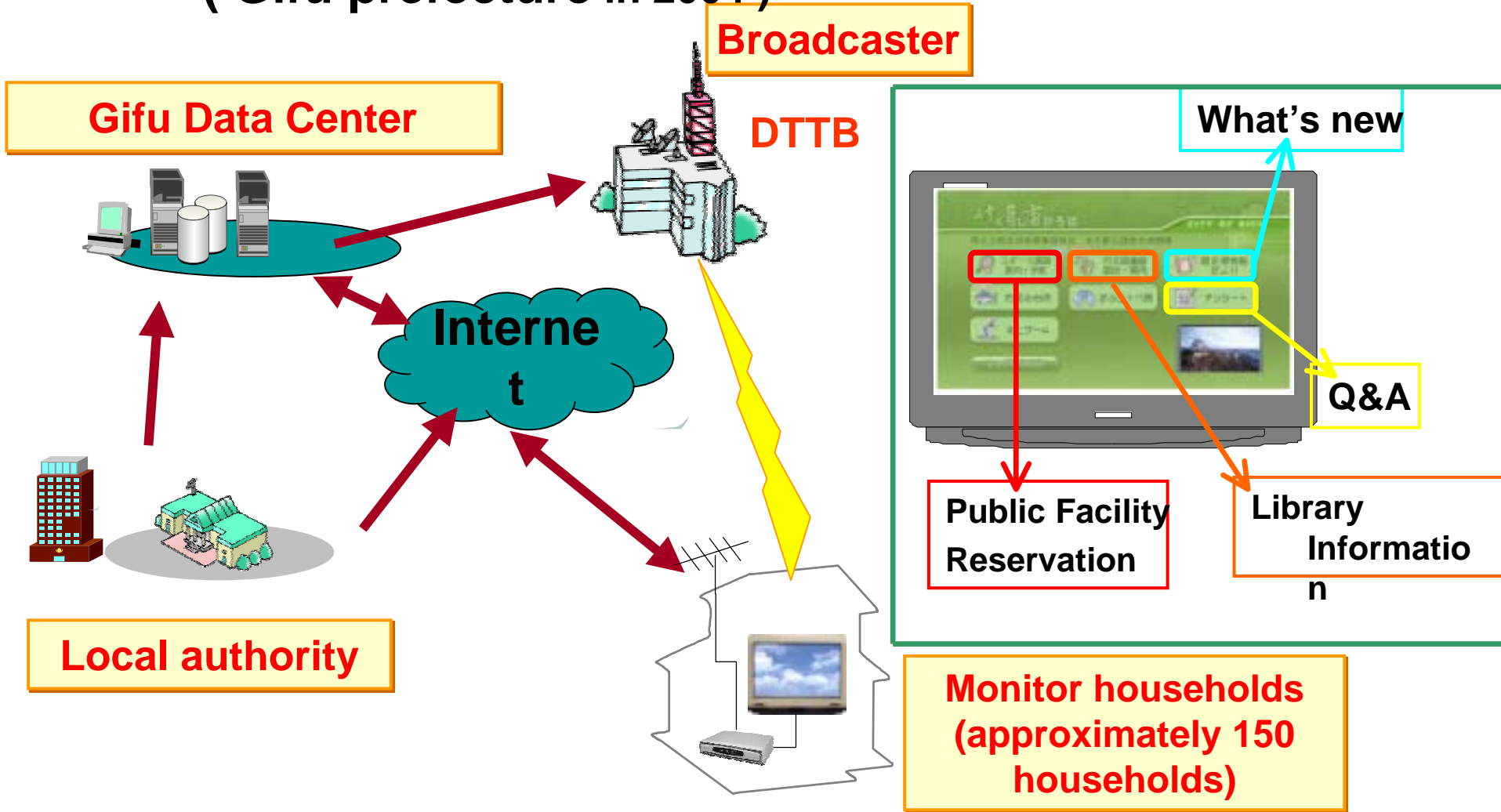
NHK Data Online image



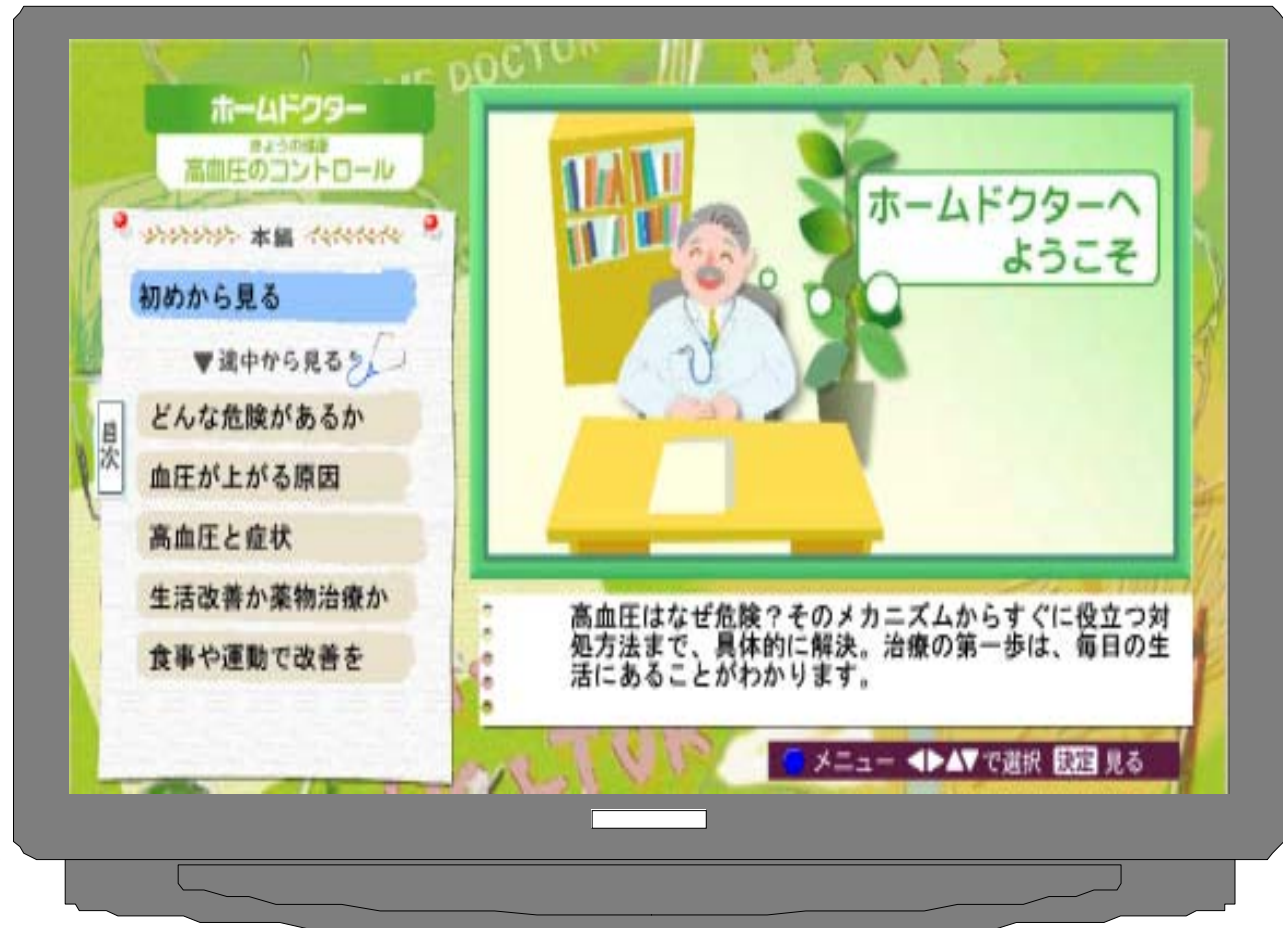
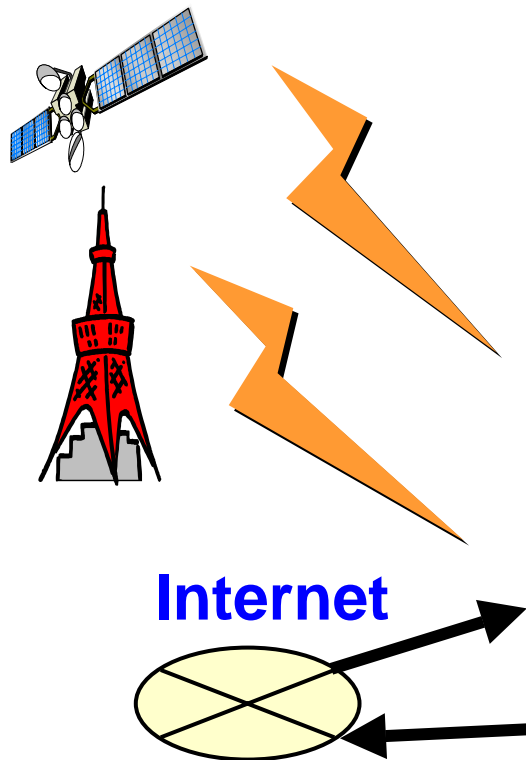
Access to NHK Data server

E - government service trial using DTTB

Local governmental information
service using datacast of DTTB
(Gifu prefecture in 2004)



Home doctor by Digital Broadcasting



<Home doctor>

- Programs received by broadcasting wave
- Personal information received by Internet

“ Usage for disaster prevention”

In Japan, we have many disaster, about 10 years ago Kobe city was seriously damaged by big earthquake, and also in last year, Tyuetsu (about 200 km north area form Tokyo)-earthquake occurred. In these big disaster, radio is useable media.

The features of ISDB-T, especially handheld reception service and start up control , are useful for disaster prevention.

END of all seminar

Thank you for your attention for a long time!