Standard-based approach and experiences outside Brazil -Examples of Japan-

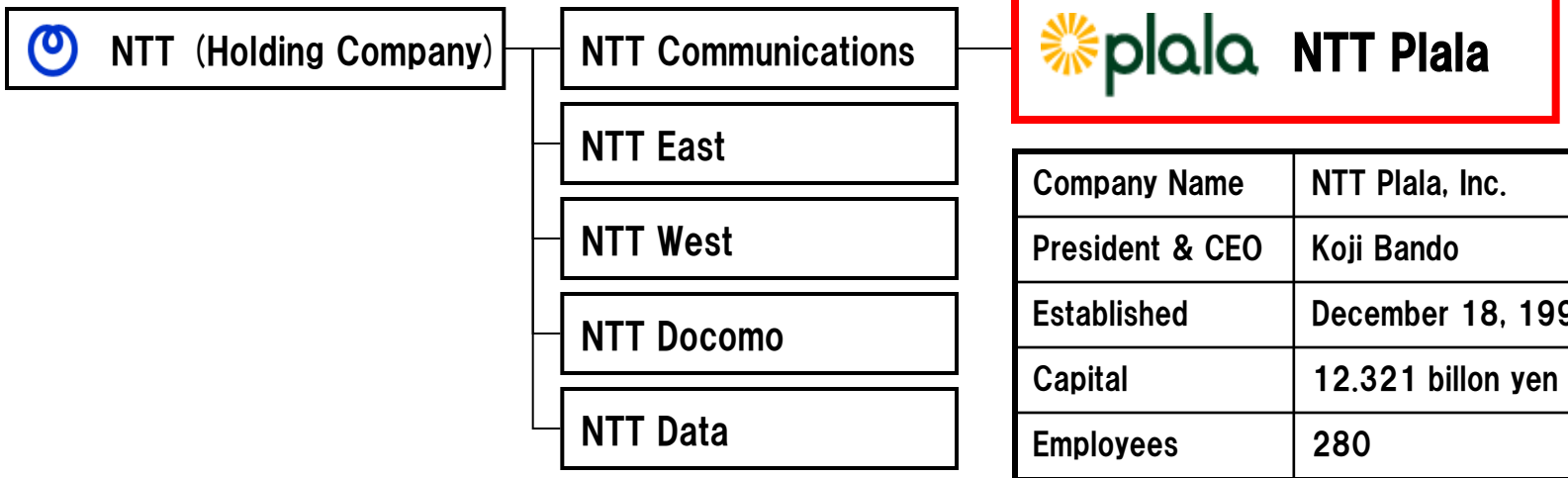
Masahito Kawamori

NTT

NTT Plala and NTT Group Overview

- In Japan, NTT East and West (Network providers) have over 13 million FTTH subscribers (as of 2009 => No 1 in the world).
- NTT Communications group including NTT Plala provides broadband services, such as 'Triple Play', for expanding FTTH environment.
- NTT Plala provides "Hikari-TV", NTT-G's flagship IPTV service

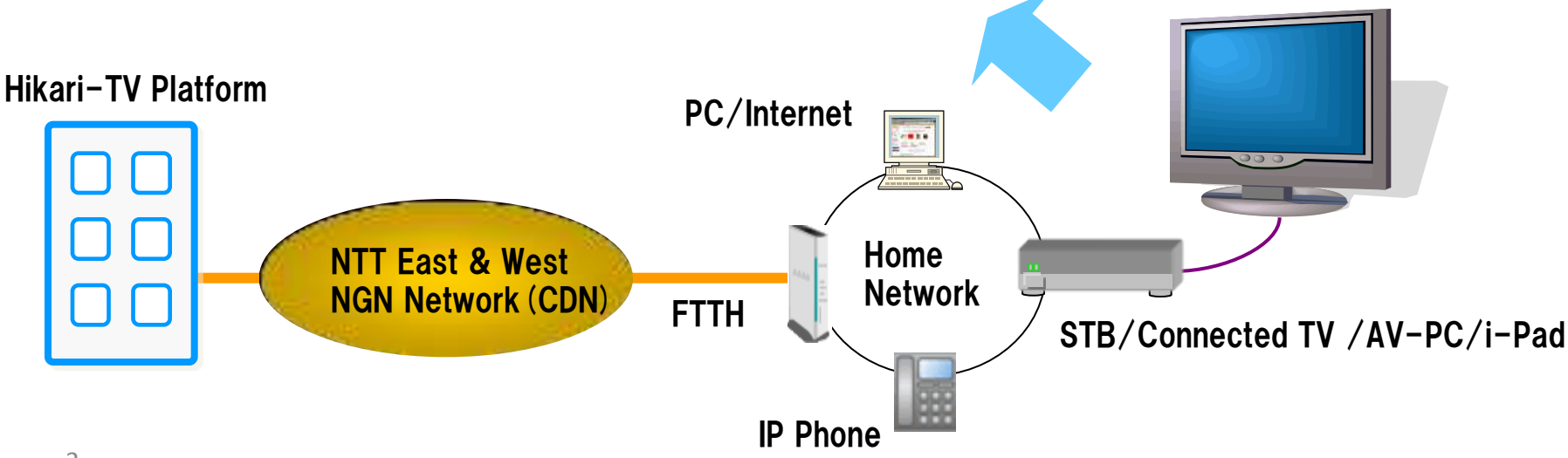
NTT Group



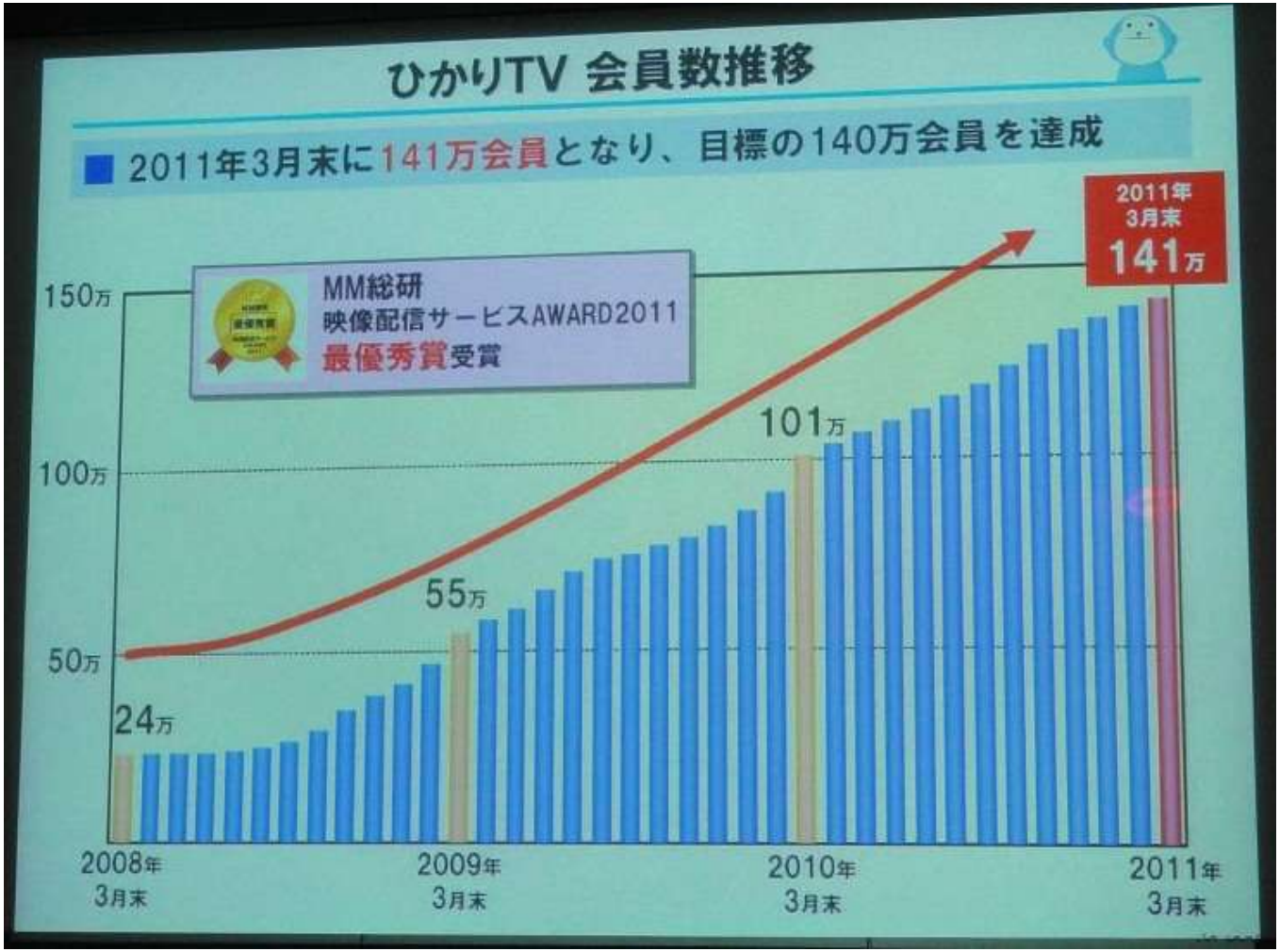
Company Name	NTT Plala, Inc.
President & CEO	Koji Bando
Established	December 18, 1995
Capital	12.321 billon yen
Employees	280
Business	Internet services IP phone IPTV (= Hikari-TV)

Hikari-TV Overview

- Channel service (IP Broadcasting)
  57 basic and18 premium channels
- VOD service
  over 10,000 titles
- Karaoke service
  over 15,000 titles
- Re-Transmission of Digital Broadcasting (RTDB) ISDB-T
- Catch-up TV
- 3D Content
- Interactive Shopping



Over 1.41 Million Subscribers



- Since its start in 2008, Hikari-TV has steadily increased its subscribers, doubling the number each year
- As of March 2011, Hikari-TV has over 1.41 million subscribers
- By 2012 March, the number is expected to reach 2 million

Hikari-TV's Strategy for Success

- Standard-based, open platform
  - Hikari-TV service is ITU-T IPTV standard compliant
  - Many vendors can participate
- Rich variety of terminals
  - STB, Retail TV sets, PC, i-Pad, Android-terminals
  - Multiscreen (interaction between different terminals)
- Innovative Services
  - Interactive Shop channels, Catch-up TV, Karaoke,
- Attractive content (large number of titles for both VOD and Channel service, HD content, Terrestrial DTV, 3D content.)

Standard Based Terminals for Hikari-TV

- Hikari-TV ‘s IPTV service is targeted at ITU-T IPTV standard-based terminals
- Currently there are several different standard based terminals sold by different manufacturers.
- These terminals are already sold in the Japanese retail market and the sales has reached **close to 10 million units**.

STB

SUMITOMO ELECTRIC

SHARP

Connected TV

TOSHIBA

SHARP

Panasonic
ideas for life

PC

NEC Empowered by Innovation

TOSHIBA

Open Managed IPTV

- There are around 10 million ITU-T H.721 compliant connected TV in the market
- Panasonic Viera, Toshiba Regza, Sharp Aquos have embedded IPTV module inside (ITU-T H.721 compliant). Aquos has the No1 share of LED TV set; Regza is No2. Viera is the first 3D IPTV in the world.
- These are world's first Connected TV for managed IPTV service
- 3D TV set has already been in the market since March 2011ITU-T H.721 compliant
- Customer can buy a TV or PC at a shop, connect to NW, and receive an IPTV service

SHARP

AQUOS LC-65XS1

Panasonic
ideas for life

TOSHIBA
REGZA

ITU-T H.721 connected IPTV

- Supports service discovery and IPTV portal (Interactive pages)
- requires no difficult configuration – just plug and watch
- Viera, Regza, Aquos all provide this feature

STB for ITU-T H.721

- Sumitomo Electric Networks has deployed an STB for H.721 (app. 1.4 million in the market)
- Error recovery using ITU-T H.701 (Content error recovery)
- It can support multiple RSPs, using **ITU-T H.770** (Service discovery).
- It utilizes **ITU-T H.750** content metadata (TV-Anytime) with its native application, a very unique feature that makes this STB compatible with European (ETSI) as well as North [illegible]ndards.

Hikari-TV Multi-screen service

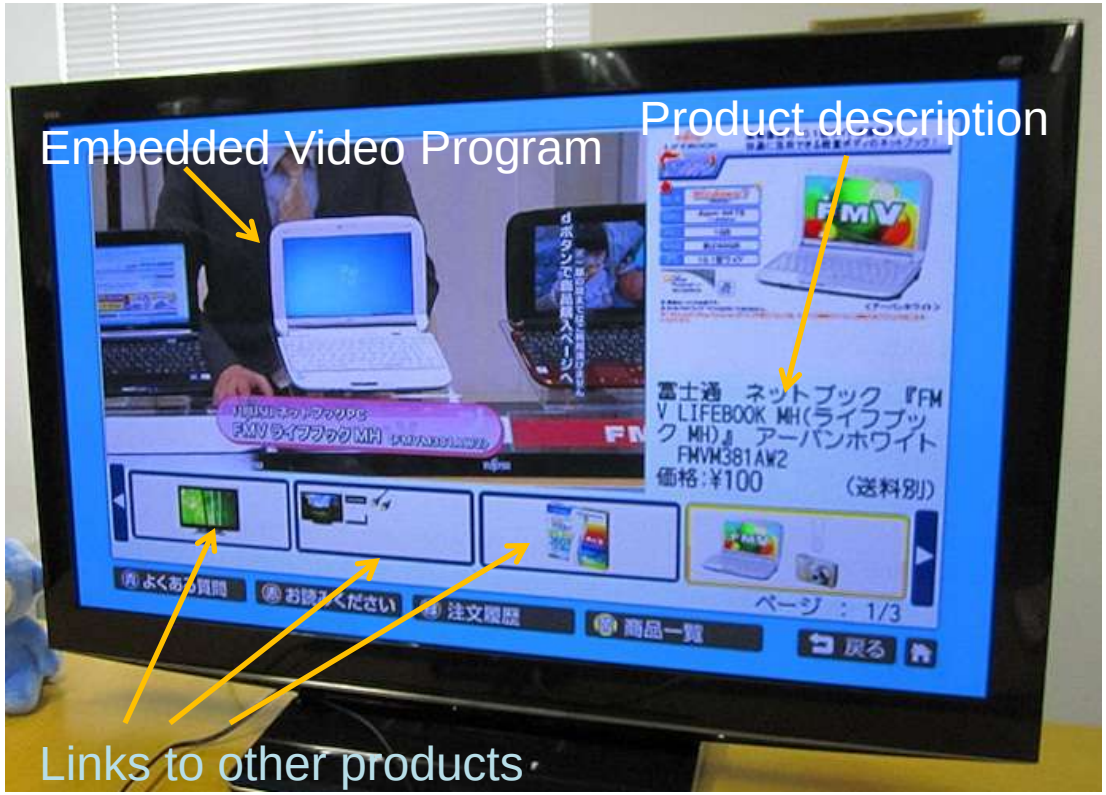
- Hikari-TV content can be downloaded and shared over different terminals across rooms

Hikari-TV for *i-Pad* and *i-Pod*

- Hikari-TV can be watched over i-Pad and i-Pod

IPTV Interactive Shopping

- ***Japanet Takata***, 3rd largest TV shopping channel in Japan, has an interactive shopping channel on Hikari TV Platform
- Interactivity provided by H.762 (LIME; L*ightweight* I*nteractive* M*ultimedia* E*nvironment*) standard



IP Broadcast

IPTV Portal

Select & Buy

Standard Mobile TV

Example of Mobile DTV - OneSeg

- Digital Terrestrial TV service in Japan
  - On December 1, 2003, Japan launched Digital Terrestrial Television Broadcasting (DTTB) using the Integrated Service Digital Broadcasting - Terrestrial (ISDB-T) transmission system.
  - ISDB-T is standardized as **ITU-R Rec. BT.1306**.
- One-Seg
  - One-segment services for **mobile receivers** (called “One-Seg”) can be provided simultaneously with one 6MHz TV channel, in addition to HDTV (or multi-channel SDTV).
  - On April 1, 2006, One-Seg services began in Japan. It was started in Brazil in 2010

One-Seg can be received by various terminals

Mobile Phones

Tablet PCs (i-Pad,etc.) and Smart Phone

Portable Games

PCs with One-Seg

Portable Dictionary

USB One-Seg tuners

Car Navigators

Portable Players

One-seg for iPad

Adapter that converts i-Pad and i-Phone into a One-seg receiver is sold in the market.

Costs Around 100 USD

One-seg for Game Consoles

Adapter that converts PSP (Playstation) into a One-seg receiver is sold in the market.

Costs around 80 USD

One-seg for Game Consoles

Adapter that converts Nintendo DS into a One-seg receiver is sold in the market.

Costs around 68 USD

Features of One-Seg

- Not only video & audio, but data (interactive application), closed caption, and Electric Program Guide (EPG) are transmitted in One-Seg. i.e. what can be done on a fixed DTV service can be done, and more.
- One-Seg is a new medium that realizes the convergence of broadcasting & communications on the mobile terminal.

Convergence of Broadcasting & Communications

to slide 4

Broadcasting — *Convergence* — *Communications*

Watch TV	TV & Data	TV & Internet	Internet
			
Watching TV program on full screen	Watching TV program and reading data on TV	Watching TV program and reading data on the Internet, or use application from data transmission	Viewing or reading on the Internet

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Conclusion