

IPv6 Deployment Status in Japan

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**IPv6 Promotion Council of Japan /
Mitsubishi Research Institute, INC.**



- Governmental Activities
- IPv6 Application and Service
- What is IPv6 Promotion Council of Japan
- Conclusion

Governmental Activities

IPv6 deployment in e-government system

- IT Strategic Headquarters decided ***"IT New Reform Strategy"*** in January 2006

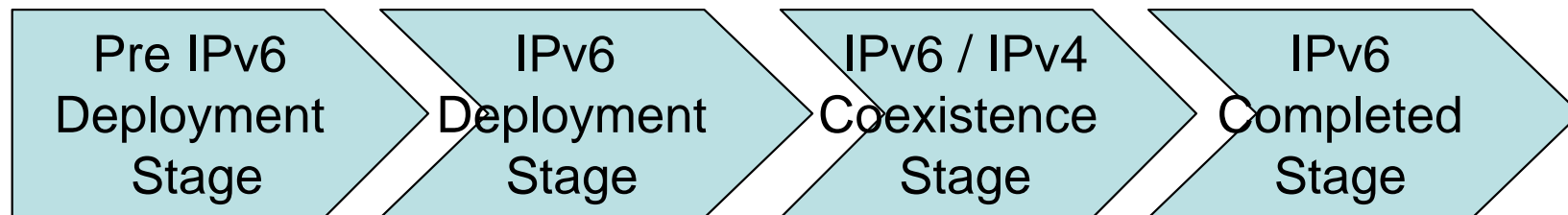
"Also, as information and communications hardware is updated and replaced in the future, new equipment will as a general rule be IPv6 compatible by FY 2008."

<http://www.kantei.go.jp/foreign/policy/it/ITstrategy2006.pdf>

- Priority Policy Program - 2006
 - IPv6 guideline
 - The each ministry agency makes the transition plan
 - Investigate the IPv6 correspondence of ISP

MIC published IPv6 Guideline

- The Ministry of Internal Affairs and Communications of Japan (MIC) published "the guideline to enable IPv6 for e-Government systems" in April 2007.
- There are four stages in the introduction of IPv6.



- This guideline describes the difficulty for the IPv6 Deployment Stage.
 - equipment will as a general rule be IPv6 compatible
 - prevent from communicating outside assumption by managing the communication by IPv6

“Optimization Plan” for e-Government

- All ministry agency is announcing the “Optimization Plan”
- In this plan, they examine the introduction of IPv6 into e-Government systems

- Ministry of Economy, Trade and Industry,
- Ministry of Health, Labour and Welfare,
- Ministry of Foreign Affairs, etc...

- Ministry of Finance declared IPv6 compatible until fiscal year 2008.

.....財務省本省内の複数存在するLANの統合を実施する。また、財務省全体のLANに対して、必要に応じたサービスレベル規定を行い、サービスに関する運用管理基準を定めることで統一的かつ効率的なネットワークの運用管理を実施する。それにより、個別に設置していたネットワーク機器の集約化・共用化を進める。また、情報通信機器の更新に合わせ、原則として平成20年度までにIPv6対応を図ることとする。
http://www.kantei.go.jp/jp/singi/it2/cio/dai19/19siryou10_13.pdf

- Cabinet Office begins the IPv6 introduction for Fiscal Year 2007.

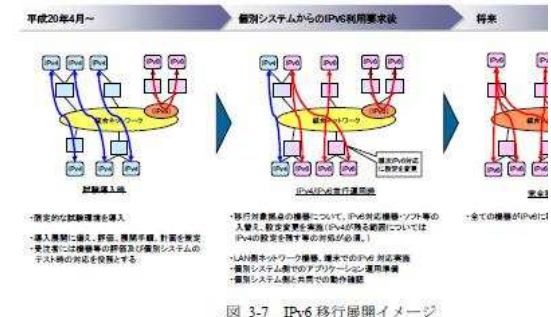
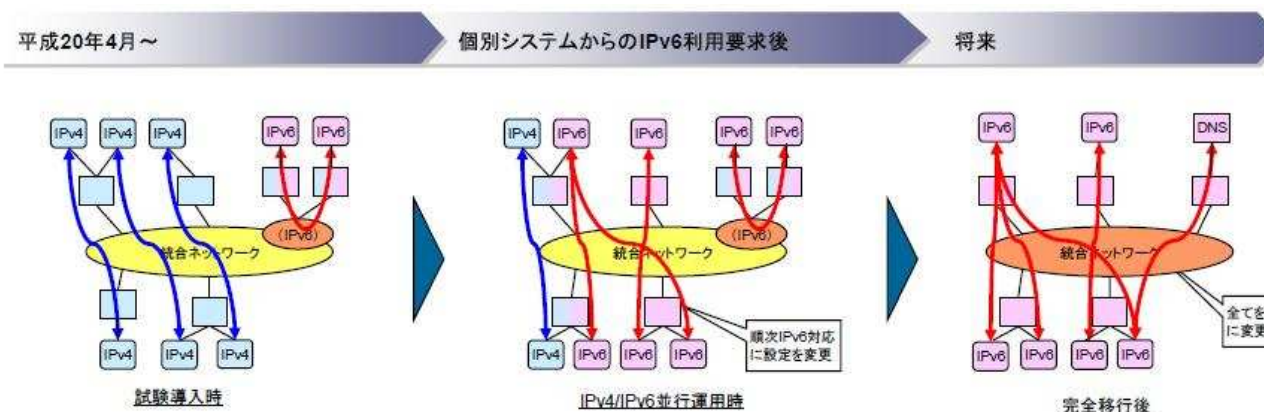
.....最新技術により一層のセキュリティ強化を図り、アドレスの拡張等により、最新技術(機器)の導入が円滑に行える環境を構築する。そのため、行政端末の機器更新時期にあわせIPv6対応の機器を導入する。なお、一部機器については業務アプリケーション等についての改修を含め、最新の技術動向を踏まえた最適なシステムを構築する。(中略)なお、IPv6の導入に関しては平成19年度上期より検討を開始し、同年度下期に導入を実施する。

<http://www.cao.go.jp/kanbou/saitekika/060301/lan1.pdf>

IPv6 in RFP for e-government system

- In the RFP (Request for Proposal) of the e-Government system, there is IPv6 correspondence as requirements
 - Ex.
 - Ministry of Health, Labor and Welfare (MHLW)
 - RFP of Integration Network Circuit and Equipment
 - RFP of Information System of administration of Bureau of Labor
 - Cabinet Office
 - RFP of Cabinet Office LAN (Common System)

* Shift image of MHLW Integration Network



以上の拡張方針に基づき、IPv6対応に関する本調達での要求仕様を、以下
なお、IPv6の導入に当たっては、「電子政府システムのIPv6対応に向けた
も踏まえて、対応すること。

- (1) 基本要件
 - ア. IPv6 による通信サービスを稼働当初は必須としないが、個別シス
の利用が要求されたタイミングから、IPv6 による通信を提供するこ
なお、IPv4 から IPv6 に切り替える場合の設定に係る費用について
除外とする。
 - イ. 統合ネットワーク稼働当初は IPv4 で構成され、個別システムの
段階的に IPv6 対応になるが、IPv6 移行後も IPv4/IPv6 の両方のプロ
ること。
 - ウ. 統合ネットワークと同等の機能を IPv6 で提供する IPv6 テスト機
が当該環境の利用を要求するタイミングまでに、統合ネットワ
に構築すること。
 - エ. IPv6 利用技術（ネイティブ/デュアル/トンネル、GW ポイント、
ター利用）について、導入時点での技術動向を踏まえて IPv6 を導入
検討すること。

Lol signed between IPv6 Forum and JATE

- Lol sign up
 - JATE (Japan Approvals Institute for Telecommunications Equipment) has joined to IPv6 Forum IPv6 Ready Logo Program
 - Lol (Letter of Intension) has been signed up between IPv6 Forum and JATE on Nov.19(Mon), 2007 at Canberra, Australia

<http://www.jate.or.jp/jp/chousa/pdf/IPv6houdou.pdf>



→ it will become easy for IPv6 Ready Logo to be adopted for E-Government RFP

IPv6 Field Trial

IPv6 Deployment Field Trial (1)

Office Staff (remote)
Kiosk Terminal For Residents Consultation

■ Consultation services for residents (Taito, Tokyo)
Constructing a remote consultation service system for residents by utilizing IPv6's security system.

PC of staff

■ Taito City Assembly streaming live video relay services (Taito, Tokyo)
Implementing a high-definition City Assembly video relay distribution system by multicast distribution functions of IPv6

Fire Headquarter
Care Terminal (IPv6)
Fireman
Health consultation by TV telephone and remote control of medical devices
Care Terminal (IPv6)
Video camera with microphone
Vital sensors (BP/Pulse/BT)
Emergency report devices
emergency report coordination

■ Health care at home support services (Asahikawa, Hokkaido)
Realizing a health-care-at-home support service by means of IPv6-ready mobile terminals by the "push functions" of IPv6.

Push-type provision of information
Information services form local authorities

■ Push-type information provision services for residents (Osaka)
Constructing information provision services by the information push function of IPv6.

Surveillance camera
One device belongs to multiple IPv6NWS.
Video distribution home management associations
Security service
Device maintenance service
Street light

■ IPv6 multi-services in Security-Town (Kawasaki, Kanagawa)
Implementing a security town service system by simultaneous control functions of multiple connections and automatic setting functions of IPv6.

ISP1
ISP2
Wide-area distribution
Music
Traditional arts

■ Music Town services (Okinawa)
Realizing a video multicasting system via multiple ISPs by using IPv6.

■ IPv6 multi-service in school security solutions (Tokyo)
Implementing a security service system for schools by using the functions that control the multiple connections of IPv6 at the same time.

Building management center

■ Office building automation services (Tokyo)
Implementing a total building management system by using abundant IPv6 addresses in some cultural facilities.

IPv6 Deployment Field Trial (2)

Provision of disaster information/Information service

■ **Information gathering service for disaster prevention (Niikappu, Hokkaido)**
Constructing an image processing stationary measurement system, the mobile terminal information service and the telephony service system by IPv6's connectivity and manageability.

Position information coordination

Civil teacher
Learning in the fields
IPv6 mobile terminal
Wireless LAN
Realization of IPv6 communication by mobile terminals
Comparative learning
Preliminary learning
Digital museum archives
Learning at home
Learning at facility (e.g. social educational facilities)

■ **Local digital museum (Tateyama, Toyama)**
Constructing a learning-aided system which archives the learning materials from many wireless LAN spots and provides to cellular phone type mobile terminal of IPv6.

Remote healthcare
Home healthcare
Search cases
Drug store

■ **Local medical network service (Wakayama)**
Constructing a medical collaboration service system with high quality protection for personal data by end-to-end communication function of IPv6.

■ **Video distribution service between educational facilities (Hiroshima)**
Constructing an educational network system which delivers educational contents to multiple places and supports remote schooling by using direct connectivity of IPv6.

Camera
Sensor

■ **Nature regeneration monitoring service (Taira)**
Constructing a continuous monitoring system for nature regeneration process by using abundant addresses and the plug & play function of IPv6.

Serial communication
Gas meter
IP network (IPv6)
Non IP network

■ **LP gas tele-metering (Kochi)**
Constructing a remote gas meter surveillance system by using the plug & play function and unchanging terminal IP address of IPv6.

Simple shift
Sensor
DB

■ **Environment monitoring (Tottori)**
Realizing an environment monitoring system for effective usage of limited sensors by using the plug & play function of IPv6.

※The place-names in the figure above are not responsible organizations but the places where the experiments are planned.

Recent Trial

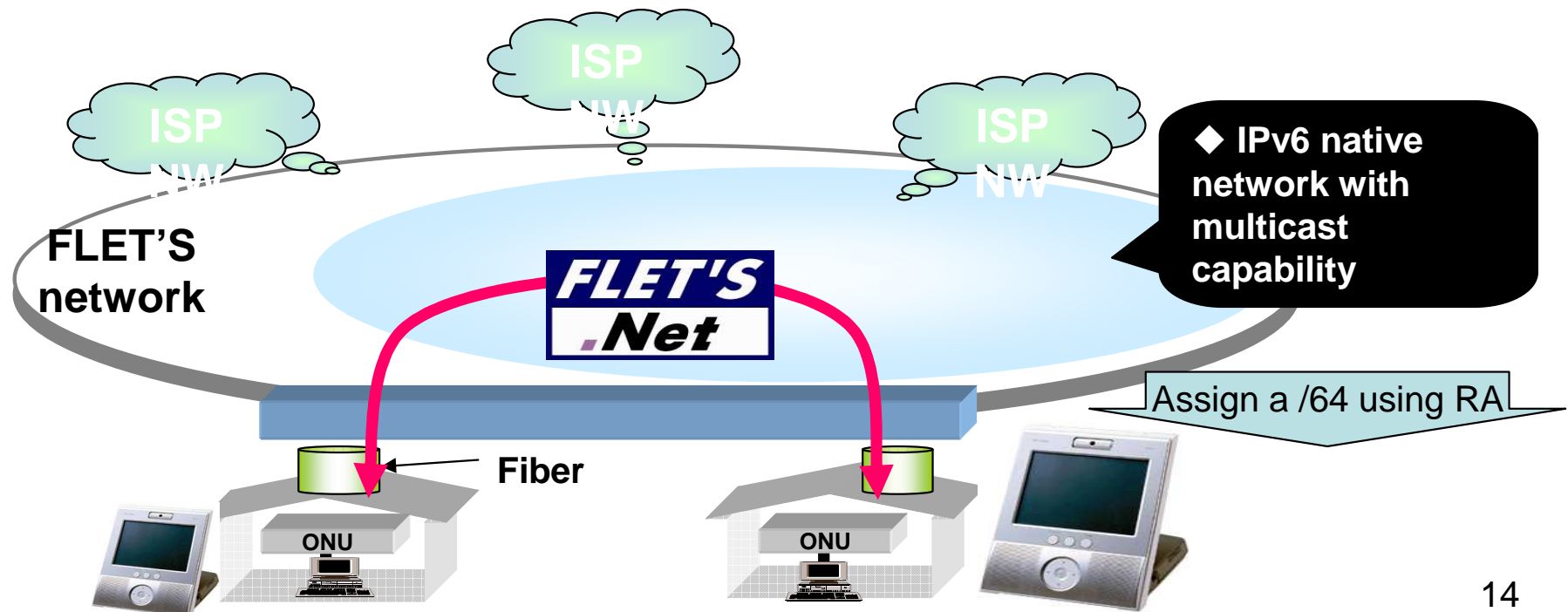
- HD Contents distribution by IPv6 Multicast (Feb.2007)
 - Transmission experiment of HD contents
 - by NICT etc..
- HD Contents distribution by Wi-Fi IPv6 Multicast Network (Feb. 2008)
 - Experiment to which HD contents are delivered with IPv6 Multicast through wireless LAN
 - by NICT etc..

IPv6 Application and Service

FLET'S.NET

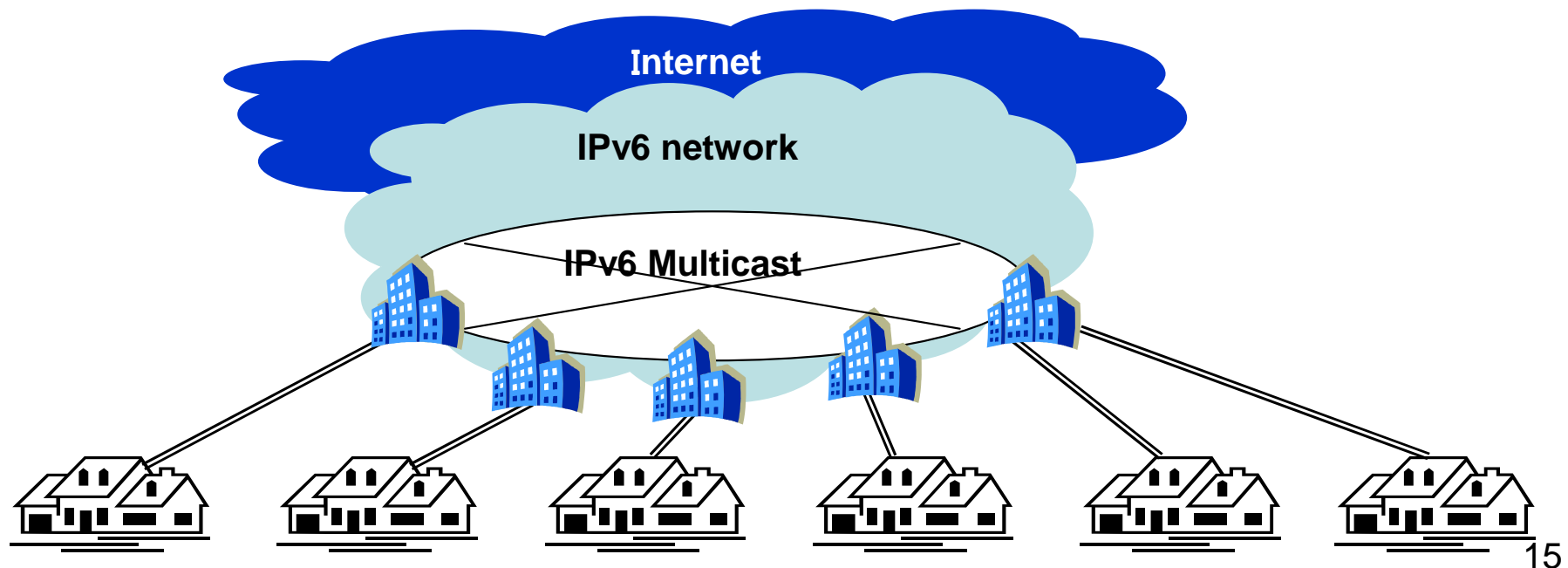


- Optional service for flet's internet subscribers
- ISPs connected to flet's infrastructure can be ASPs
- 126K Subscriber in 2007.3
 - > Allocate IPv6 Address for new users free of charge from 2007.2
 - > TV broadcasting and VoD service will be made default form 2008.3



TV broadcasting and VoD service

- TV broadcasting and Video on Demand services based on IPv6 multicast technology
- Currently, “4th MEDIA” and “OnDemand TV” uses IPv6 multicast
- Total 200K Subscriber in 2007



Earthquake warning system for individual resident



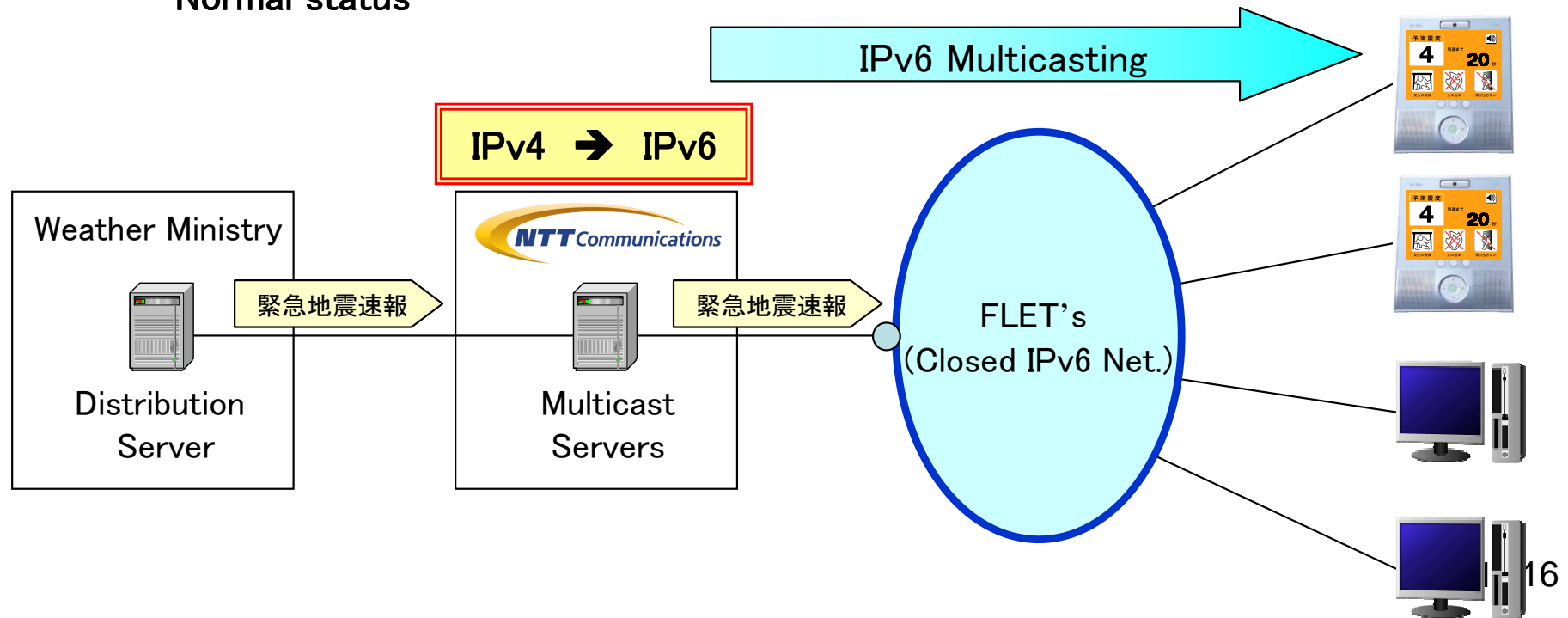
Normal status



When the station gets warning message,
It informs the warning.

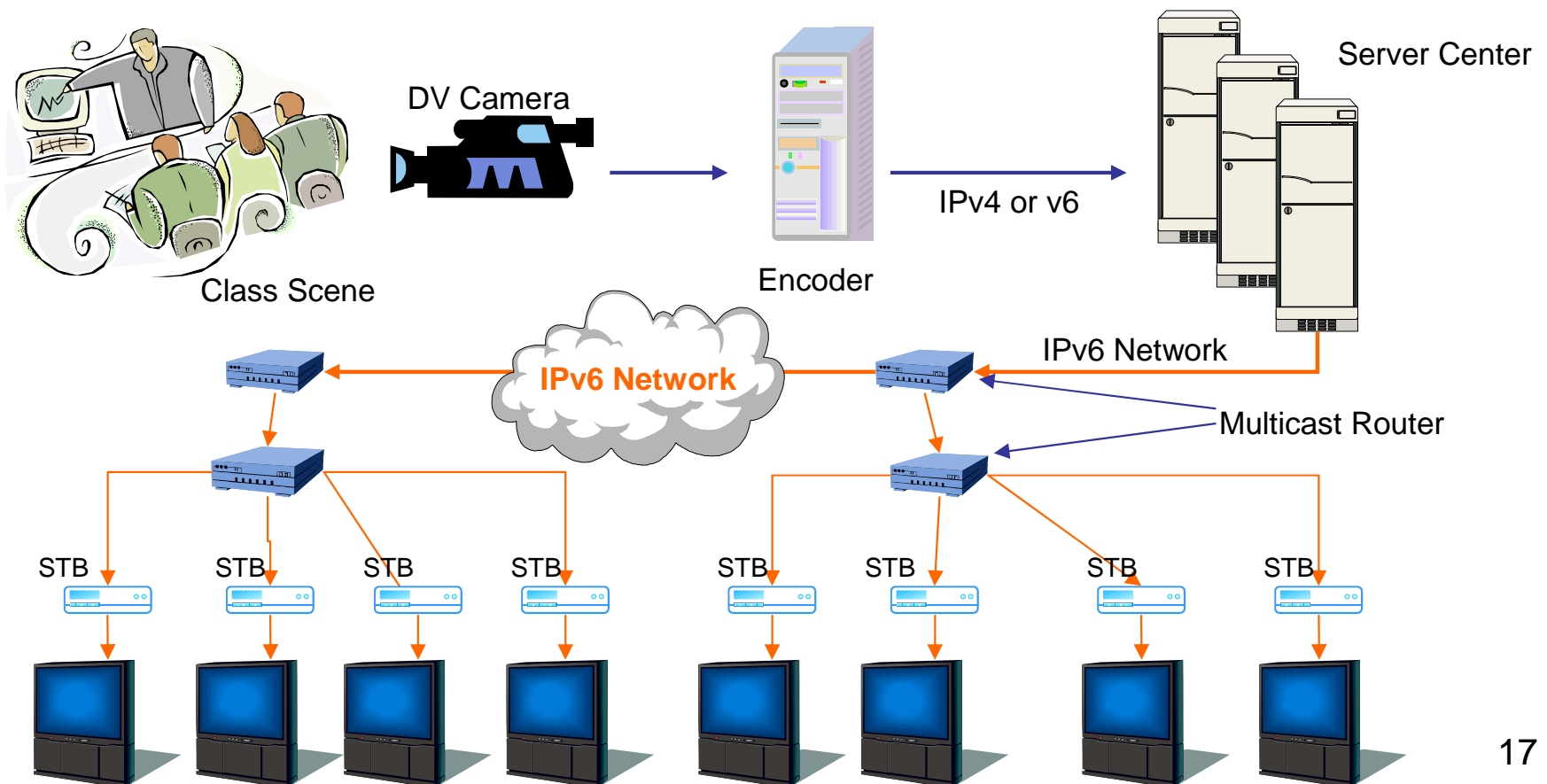


Informing the Warning



Real-time broadcast service (Becare)

- They distribute the DV image of the class of the cram school to the remote place.
- Based on IPv6 Multicast Technology



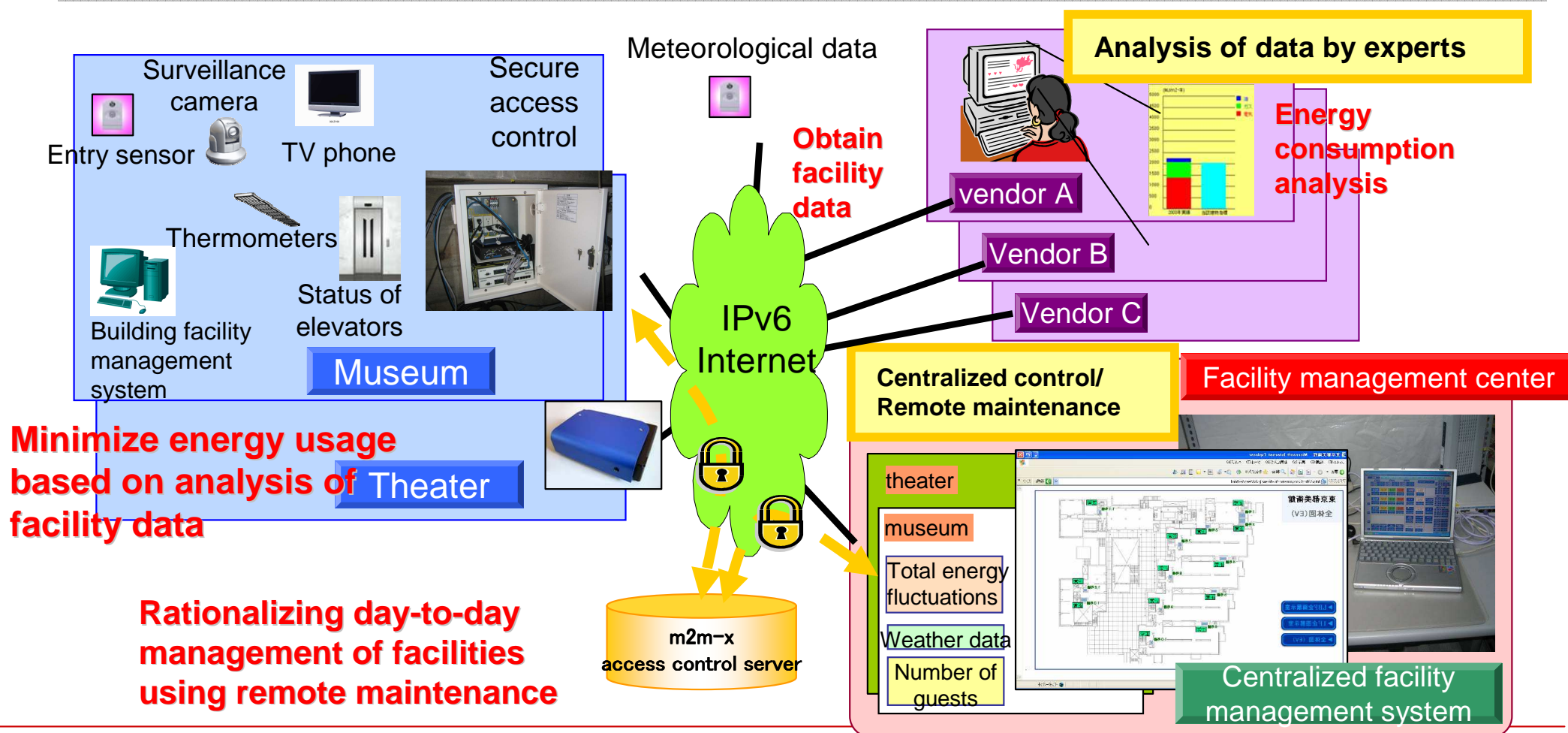
Benefits

- Why?
 - To provide real-time / high quality broadcasting services
 - Earthquake information is significant to necessity to report speedily.
 - To distribute the high quality image to multi point cheaply.
 - In the method using CS, it costs several hundred million yen to an initial cost. (Becare)
 - Saves the transition cost of network from IPv4 to IPv6 (Plala)

- Then... IPv6 is
 - Reduce the initial cost (Becare)
 1. Neither special lighting equipment nor the studio, etc. are necessary for the distributed base.
 2. There only have to be an encoder and DV camera (household use) in the delivery base.
 3. the initial cost is several 200M yen → 17M yen.
 - Well-suites to TV and VoD services on IP technology (Plala)

NTT Communications

- Status of elevators, AC or ventilators, movement of guests in the museum, temperature of rooms, surveillance camera images may be monitored in a facility management center.
- Shared use of networks among IP phone, Internet access and facility management.
- Where experts' analysis of data on the number of guests in respective rooms and temperatures are available, it is possible to minimize energy consumption.

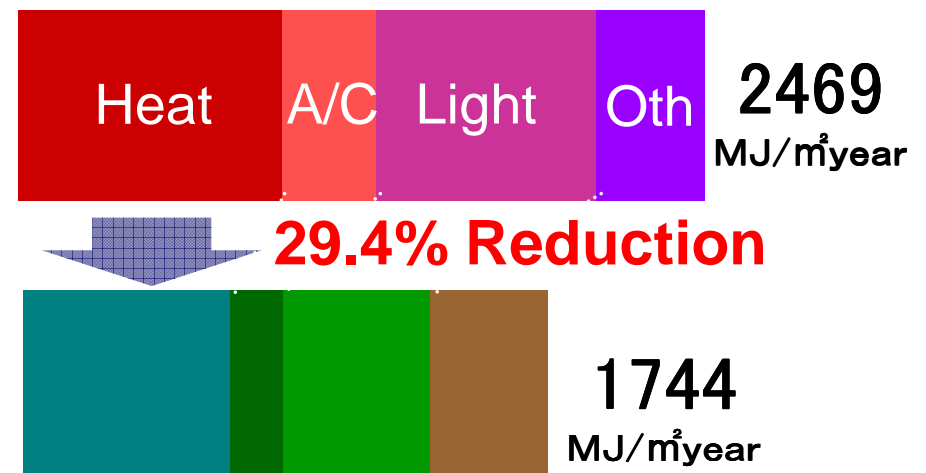


Benefits

- Why?
 - Shares the network infrastructure for several protocol defined by specific vendors
 - Reduces the cost of device and service and accelerates the growth of facility management market
 - Reduces energy consumption and its cost

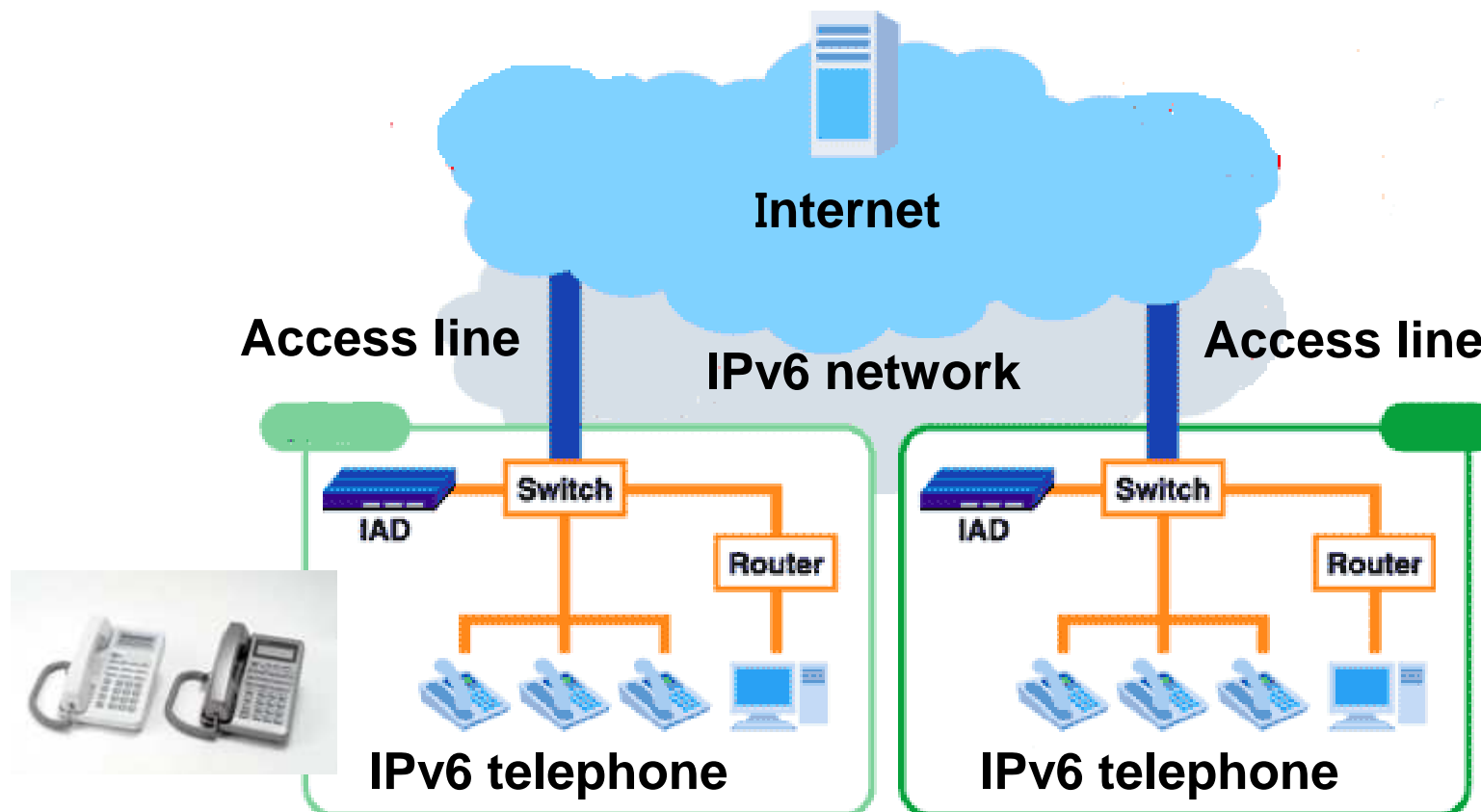
- Then... IPv6

- Integrates each independent protocols and services
- Manages detailed devices among the distributed facilities
- Manages large number of devices



FreeBit

- IP-phone solution based on shared IP Centrex
- Has Already installed 25,000 terminals to a dormitory operator to manage their distributed facilities



Benefits

- Why?
 - To reduce the initial and running cost
 - To provide the service such as PSTN quality
 - To adapt the dynamic change of condition of facility
 - such as dormitory operator (distributed and diverse facility)
- Then... IPv6 is
 - Simplifying Network design / re-design
 - ➔ fall into only three install manuals
 - Reduce the required human-resource and it's cost
 1. Installation
 2. Mis-configuration
(i.e., 300 ➔ single number)
 3. Trouble shooting



Live E! Project

- Live E! is an approach that aims at the achievement of the infrastructure construction that can use, process, and share “Environmental Information”.
- “Environmental Information” is collected by “Digital Weather Station”, IP Camera, etc. that are set up by the individual and the organization voluntarily.
- By the installation of a lot of “Digital Weather Station”, the environmental information can be utilized much more.
- The development of a new activity is assumed in an education, public service and the business field.



Digital Weather Station

Chair : Hiroshi ESAKI (Tokyo Univ.)
Co-Chair : Reiji AIHARA (Hiroshima Univ.)

Cooperation WIDE Project

Organization: IPv6 Promotion Council of Japan

U18 IPv6 u

IRI Ubiteq, Inc.

Uchida Yoko Co., Ltd.

Cisco Systems, Inc.

Net One Systems Co., Ltd.

Nippon Telegraph and Telephone East Corporation

Willcom Inc.

NTT Neomeit Chugoku Corporation

Mitsubishi Research Institute, Inc.

Weathernews, Inc.

ECHELON Japan K.K.

DAI-DAN CO., LTD.

multiple purposes

① Education Materials

② Public Services

③ Business applications

Dense Installation Areas

- Minato-ku in Metropolitan Tokyo
 - Education for elementary schools
 - Public service, e.g., against heat-island phenomenon or evacuation guide for earthquake
- Kurashiki City in Okayama
 - Disaster protection (against flooding by heavy rain)
 - Education for elementary and junior high schools
- Marunouchi-Otemachi-Yurakucho
 - Sense and control activity of district



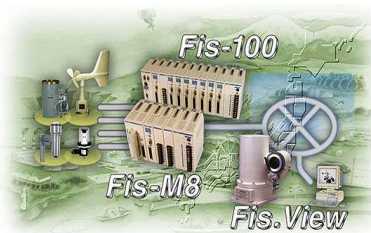
IPv6 Products & Solution



Matsushita Electric Works, Ltd.:
EMIT Total Building System
It enables energy conservation through monitor and coordinated control of lighting, air-conditioning and blinds at buildings.



Yokogawa Electric Corporation:
 - Network Solution Controller "**Xancia**"
 - Field Information Server "**Fis**"
Data transformation and transmission system for climate information gathering.



Yokogawa Meters & Instruments Corporation:
 - Portable Data Station "**Datum-Y**"
Portable data logger for maintenance service field

IPv6 Solutions and Services in Business

- Introduction to Office Market and Non-IP Market



FreeBit Co.,Ltd.:
IP Business Phone
IP-phone solution based on shared IP Centrex



Ricoh Company Limited:
 - Multifunction color copier systems
imagio MP C2500/C1500
imagio MP 1350/7500/7500T etc.



Panasonic Communications Co., Ltd.:
 - Full colour digital imaging systems
WORKiO C322/C262 /C2635 etc.
 - Network Camera
BB-HCM311/ BB-HCE431 etc.



Marconi Corporation plc.:
 - High quality Video conference system
VMC (ViPr Media Center)



ALAXALA Network Corporation:
 - High-end gigabit router
AX7700R / 7800R etc.
 - Middle range multi layer switch
AX5400S / 7800S etc.



Chuo Electronics co.,Ltd(CEC):
 - High-speed IP network View
ND-VW14 / ND-VW15
 - IP Network Monitoring Device
ND-EW04 / ND-EW05



SEIKO Precision Inc.:
 - Network Time Server **TS-2520/2530**
 - IPv4 / IPv6 Translator **SX-3520/3640**

IPv6 Products & Solution



Microsoft Corporation:
- IPv6 compatible OS
Windows VISTA



Trend Micro Incorporated:
- Antivirus Security
- Personal Firewall etc.
Virus Buster 2006/2007



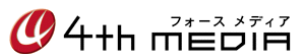
YAMAHA Corporation:
- Broadband VoIP Router
RT57i / RT58i



corega K.K.:
- Broadband Router
CG-BARPRO6

IPv6 Solutions and Services in Home

- Introduction to Consumer Market -



Plala Networks Inc.:
- IPv6 Multicast TV & VOD service
4th media



TOSHIBA CORPORATION:
- Digital High-Vision TV corresponds to 4th media
REGZA Z1000/Z2000



NTT Regional:
- Video IP Phone
Flet's phone **VP1000**



NTT Communications:
- IPv6 Multicast
Urgent earthquake news flash service



Ricoh Company Limited:
- Network color laser printer
IPSIO SP C411



On Demand TV, Inc.:
- IPv6 Multicast TV & VOD service
On Demand TV

Flet's IPv6 network



NTT WEST:
FLET'S HIKARI Premium



FLET'S v6 Appri



NTT EAST:
FLET'S .NET

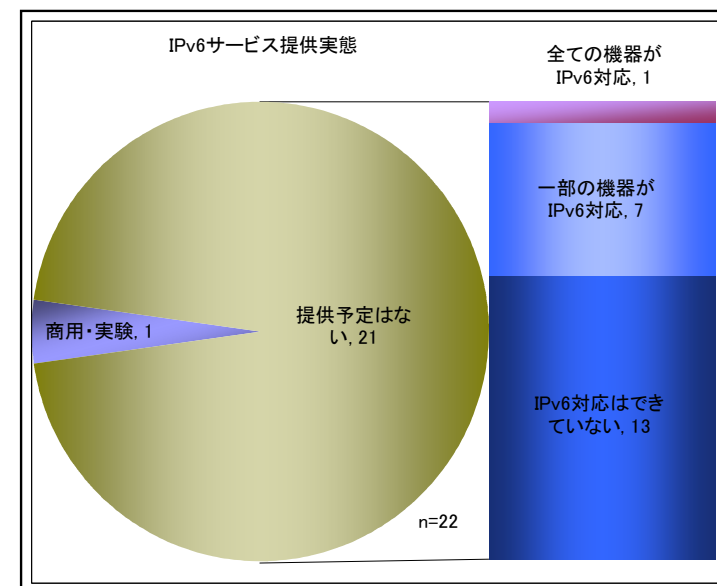
OCN IPv6

未来はすぐそこ。家庭内ネットワークの新しいカタチ！
OCN IPv6は、ライフスタイルが一変する可能性を秘めた接続サービスです！

IPv6ってなに？	OCN IPv6サービスの特長
IPv6は、現在インターネットで使われているIPv4の上位アドレス空間に比べ、IPv4アドレスが枯渇している中で、広大なアドレス空間を確保し、利用できる範囲がインターネットとつながって、外出先からのインターネット接続も容易です。また、IPv6は、より安全な通信を実現し、より高速な通信を実現します。また、IPv6は、より安全な通信を実現し、より高速な通信を実現します。	<ul style="list-style-type: none"> 1 外出先から自宅の対応機器へ（インターネットにアクセス） 2 最新のルータ等の設定変更が不要！ 3 IPv4サービスと併用してのご利用が可能！ 4 接続プログラムを無償提供！ 5 月額315円（税込）で同時に2セッションご利用可能！

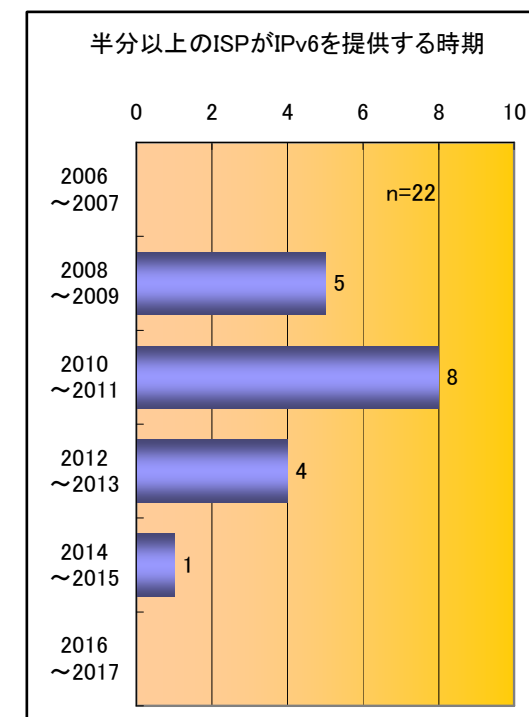
NTT Communications:
- IPv6 tunneling service
OCN IPv6

- MIC investigated, and made the offer situation of the IPv6 service public for country ISP on March 30, 2007.
- The company that was offering IPv6 was 22 members of a company one company.
 - However, other companies also are advancing for IPv6 of the equipment.
- There are a lot of companies that predict about 2010-2011 as time when ISP of the more than half provides the IPv6 service.

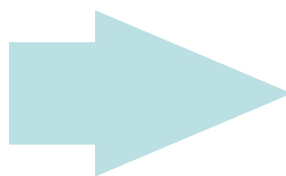


IPv6 Service in Business

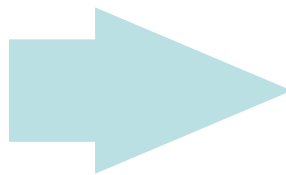
Company	Personal Use	Business Use
NTT Communications	IPv6 Internet access service	IPv6 Internet access service
NTT East	IPv6 Closed Network	IPv6 VPN
NTT West	IPv6 Closed Network	IPv6 VPN
KDDI		IPv6 Internet access service
IJJ		IPv6 Internet access service
Nifty	IPv6 Internet Access service	
FreeBit	FB Feel6 access service	
IJmio	IPv6 Tunneling service	
NTT-ME		IPv6 Internet access service



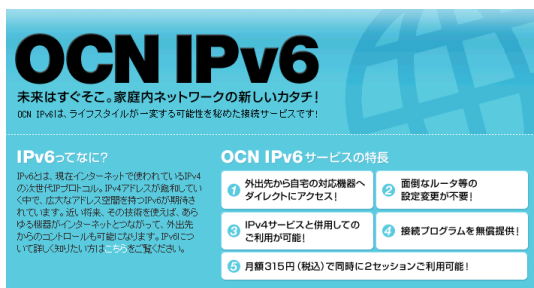
IPv6 getting closer to the home



IPv6 home router, Now in Japanese major electrical store.
Only about \$100.00 !!



IPv6 Network Camera, Also in some store.
Only about \$480.00 !!

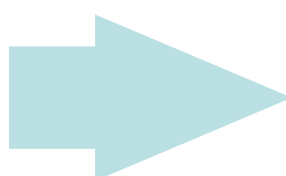


OCN IPv6
未来はすぐそこ。家庭内ネットワークの新しいカタチ！
OCN IPv6は、ライフスタイルが一変する可能性を秘めた接続サービスです！

IPv6ってなに？
IPv6は、現在インターネットで使われているIPv4の次世代IPプロトコル。IPv4アドレスが難しくていっく中で、広大なアドレス空間を持つIPv6が期待されています。通信事業者がIPv6に対応すれば、あらゆる機器がインターネットとつながって、外出先からのコントロールも可能になります。IPv6について詳しく知りたい方はこちらをご覧ください。

OCN IPv6 サービスの特長

1 外出先から自宅の対応機器へダイレクトにアクセス！	2 面倒なルータ等の設定変更が不要！
3 IPv4サービスと併用してのご利用が可能！	4 接続プログラムを無償提供！
5 月額315円(税込)で同時に2セッションご利用可能！	



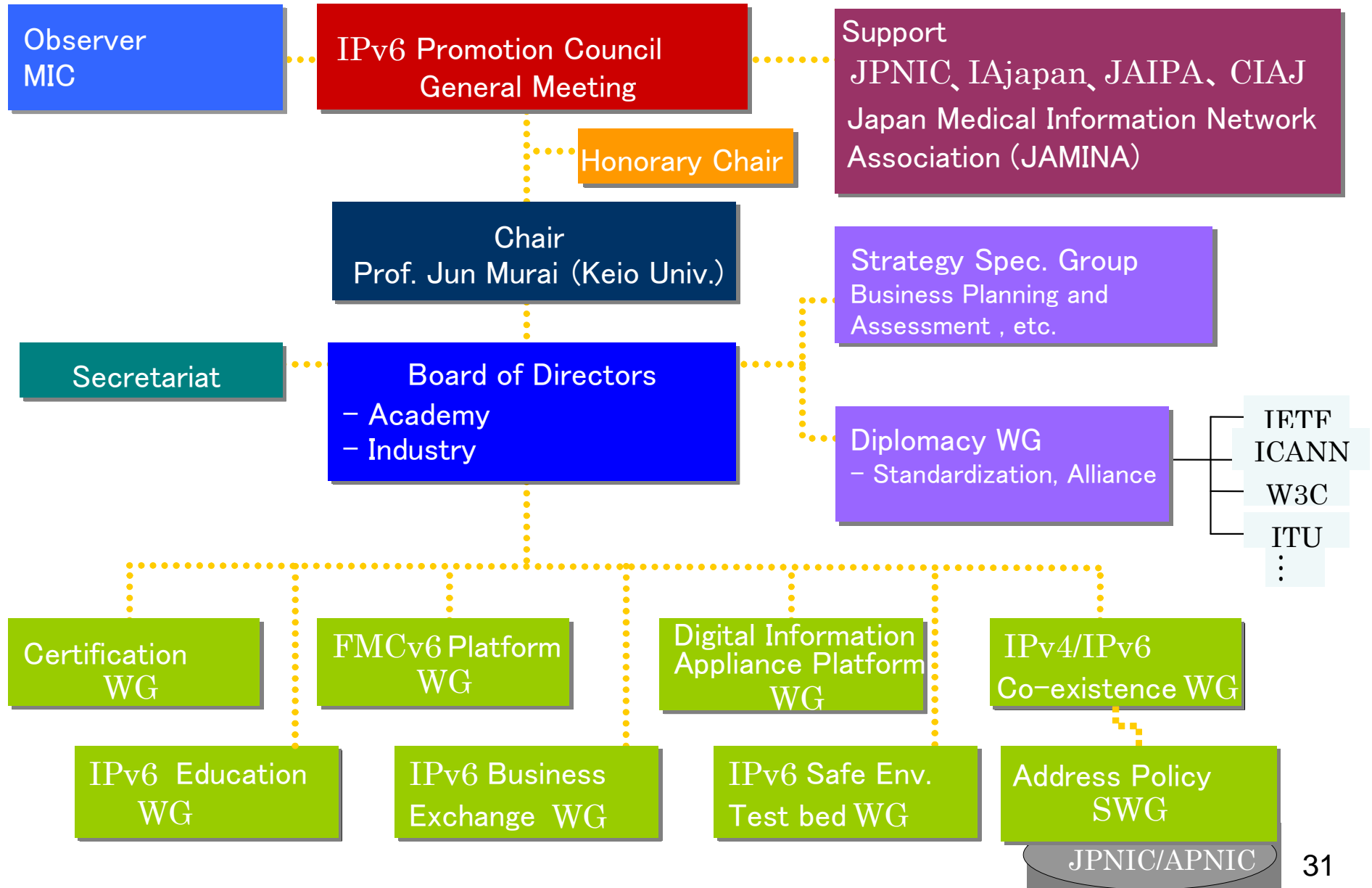
IPv6 Connectivity Option, provided by OCN.
Only \$3 per month !!

What is IPv6 Promotion Council of Japan

What is IPv6 PC?

- Established in October, 2000
- Non-Profit and Non-Governmental organization
- 170 Corporations, Organizations, and Individuals as of December 2007
 - Reorganized the Council in 2007, and became a pay member organization.
 - Council Activities are considering the business deployment

Organization



Conclusion

Future Activities in Japan

- Commercial IPv6 services for corporate and home-users are available in Japan
 - advantages of IPv6 confirmed as “value added”
 - uses IPv6 multicast technology most.
 - services within closed networks currently enjoy more advantages
- For the consumer, the IPv6 connectivity is getting closer.
 - But, There are neither attractive contents nor an application, and the one that becomes the first trigger is waited for.
- IPv6 introduction in the e-government system is favorable advanced.
- We will contribute to spread IPv6 at worldwide scale.

Thank you for your attention !



More information:

IPv6 Promotion Council of Japan:

URL: <http://www.v6pc.jp/en/index.html>

e-mail: v6info@mri.co.jp