

# **IPv6 and Facility Management**

**2005/02/24**

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# Agenda

- **MEW's Profile**
- **Review of IPv6's Features**
- **Subject of the Current Facility Management**
- **Answer for the Current Facility Management**
- **MEW's Concept**
- **MEW's Solution**
  - **IPv6 enabled Components and Systems**
  - **Shiodome Building**
  - **BX : Virtual IPv6 Gateway**
- **MEW's Activities**
  - **FN-SWG**
  - **Intelligent House Consortium (JOHO-Housing)**
- **Systems in 5 years**
- **Step to all IPv6 Building**
- **Summary & Conclusion**

# MEW's Profile

## ■ Trade Name

**Matsushita Electric Works, Ltd. (MEW)**

“One of Panasonic Group company”

## ■ Date Founded

March 7, 1918 by Mr. Konosuke Matsushita who built Panasonic Group.

## ■ Date of Incorporation

December 15, 1935

## ■ Head Office

1048 Kadoma, Osaka 571-8686, Japan

Phone: +81-6-6908-1131

## ■ Tokyo Head Office

5-1, Higashi-Shinbashi 1-chome, Minato-ku, Tokyo

105-8301, Japan

Phone: +81-3-6218-1131

## ■ Capital & Revenue

¥138.3 billion & ¥1,233 billion (FY 2003)

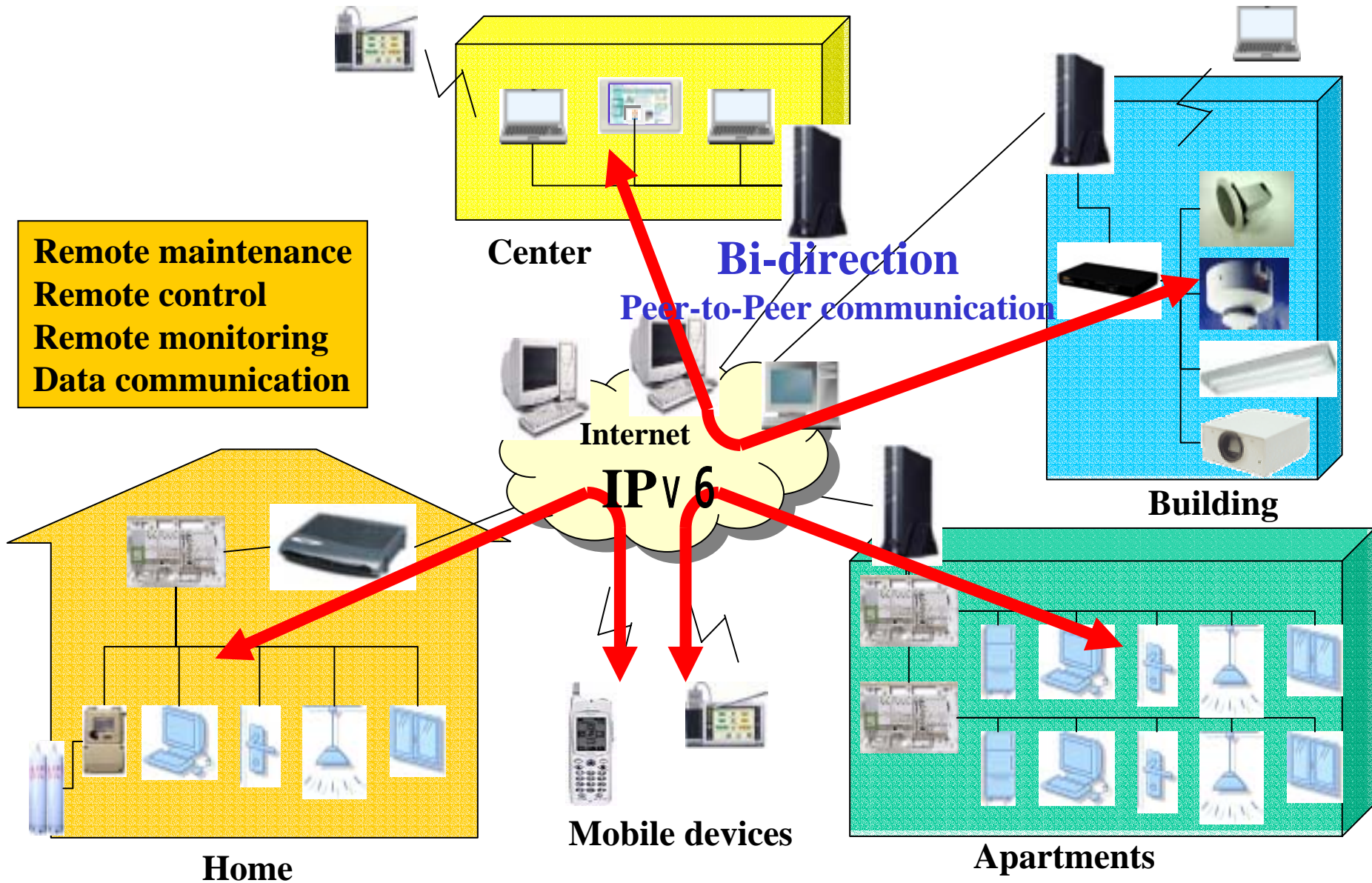
## ■ Employees

15,302





# Ideal IPv6-based Network



## **1. Huge Address Space**

**---->  $4.3 \times 10^9$  (IPv4) >>>  $3.4 \times 10^{38}$  (IPv6)**

## **2. Network Security :**

**----> IPsec is adapted as a standard module.**

**----> Secured end-to-end communication**

## **3. Plug & Play**

**----> Auto Address Configuration**

## **4. QoS and Real Time Communication**

**----> Flow-level and Priority-level**

## **5. Multicast**

**----> 1:N Communication**

## **6. Mobile IPv6**

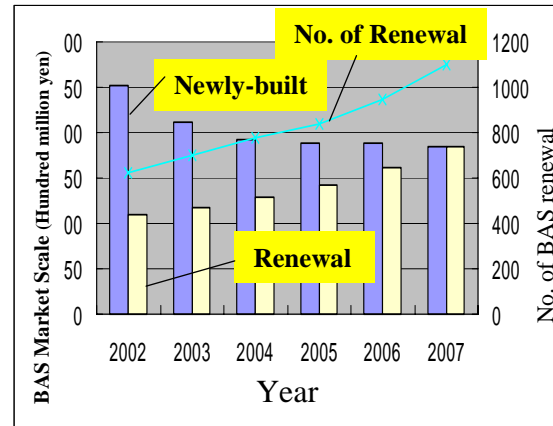
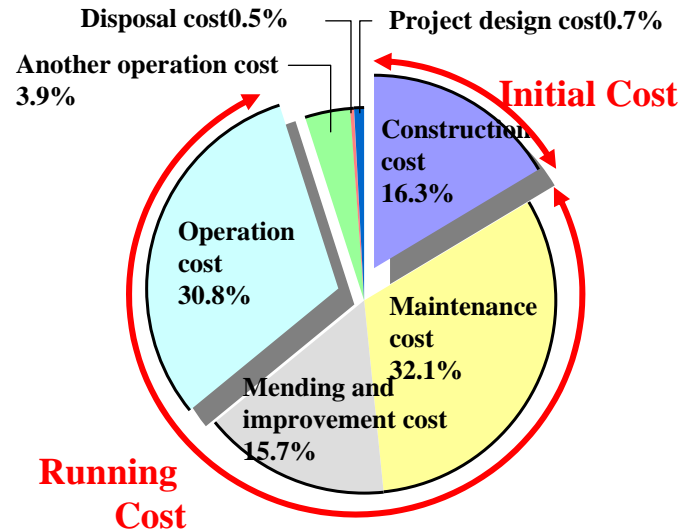
**----> Mobile device can use the same IPv6 address.**

# Recent Trend in Building Management

## Breakdown of LCC in office building (note)

## Market scale of building maintenance (note)

## Governmental measure related to global environment and energy conservation



(note) Yano Economic Research Institute

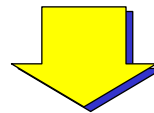
**COP3**  
**Revised Energy Conservation Law**

**IT use building conservation of energy management**  
**-BEMS introduction support business (NEDO H14 fiscal year-)**

**Rise of cost consideration of LCC**

**Expansion of renewal demand**

**Necessity of energy conservation solution**



## **“New Era of Open Bldg. System”**

**Bldg. Management : From "Scrap & Built" to "Stock & Maintenance“**

**Keyword : “Update and Extendibility” “ LCC performance” “ Maintenance and Operation Performance”**

## Solution for Total Management

1. Integrated management of distributed facilities and equipments

## Solution for Energy Conservation and Environment

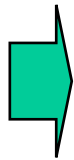
2. Total energy conservation system for human environment

## Solution for labor saving of management

3. Labor saving of efficient operation and maintenance

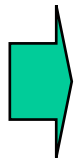


1. Integrated management of distributed facilities and equipments



- 1. Huge address space of IPv6**
- 2. Security function of IPv6**

2. Total energy conservation system for human environment



- 1. Know-how of Building Management & IT**
- 2. Control Technology**

3. Labor saving of efficient operation and maintenance



- 1. Plug and Play of IPv6**
- 2. Remote System**

**Basic technology to achieve “Ubiquitous Computing” with facility equipment**

**Web**

**IPv6**

**Sensor Networking**

**EMIT**  
MICRO HOMEPAGE



**FreeFit for Lighting Controller  
: Network Lighting Controller**

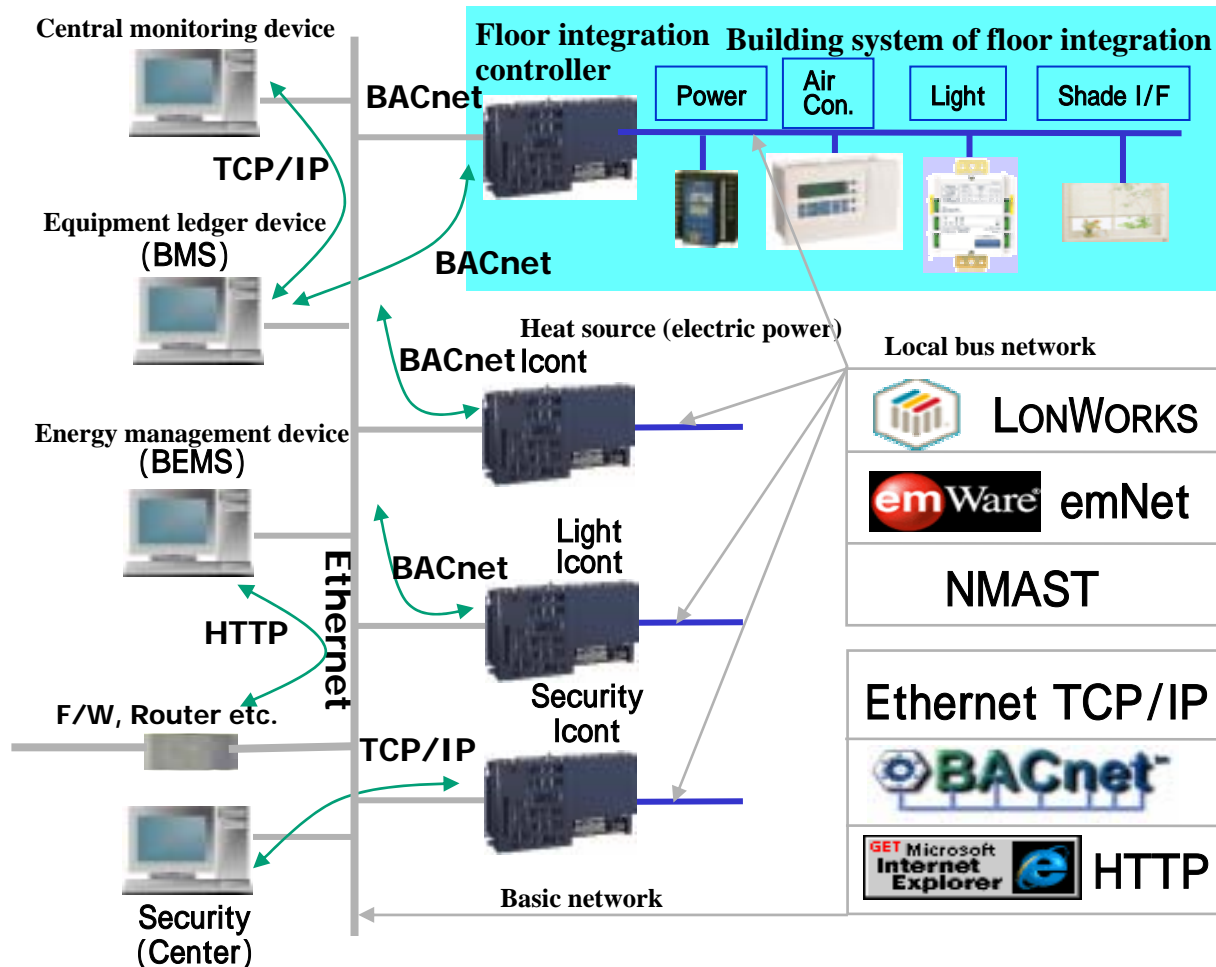


**Iconet for Gate Management System  
: Intelligent Controller for  
Gate Management System**

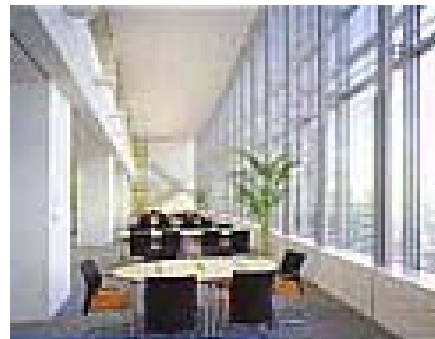
**138 products are recognized as of Feb. 2, 2005.**

# MEW's Solution : System

## Standard Building System using MEW's solution



# Total Solution : MEW Shiodome Building



## Outline of Shiodome building

Lot area : 19,708m<sup>2</sup>

Architectural area : 47,308m<sup>2</sup>

Height : 119.85m

Standard floor height : 4.25m

Scale : 4 floor in underground,  
24th floor on the ground

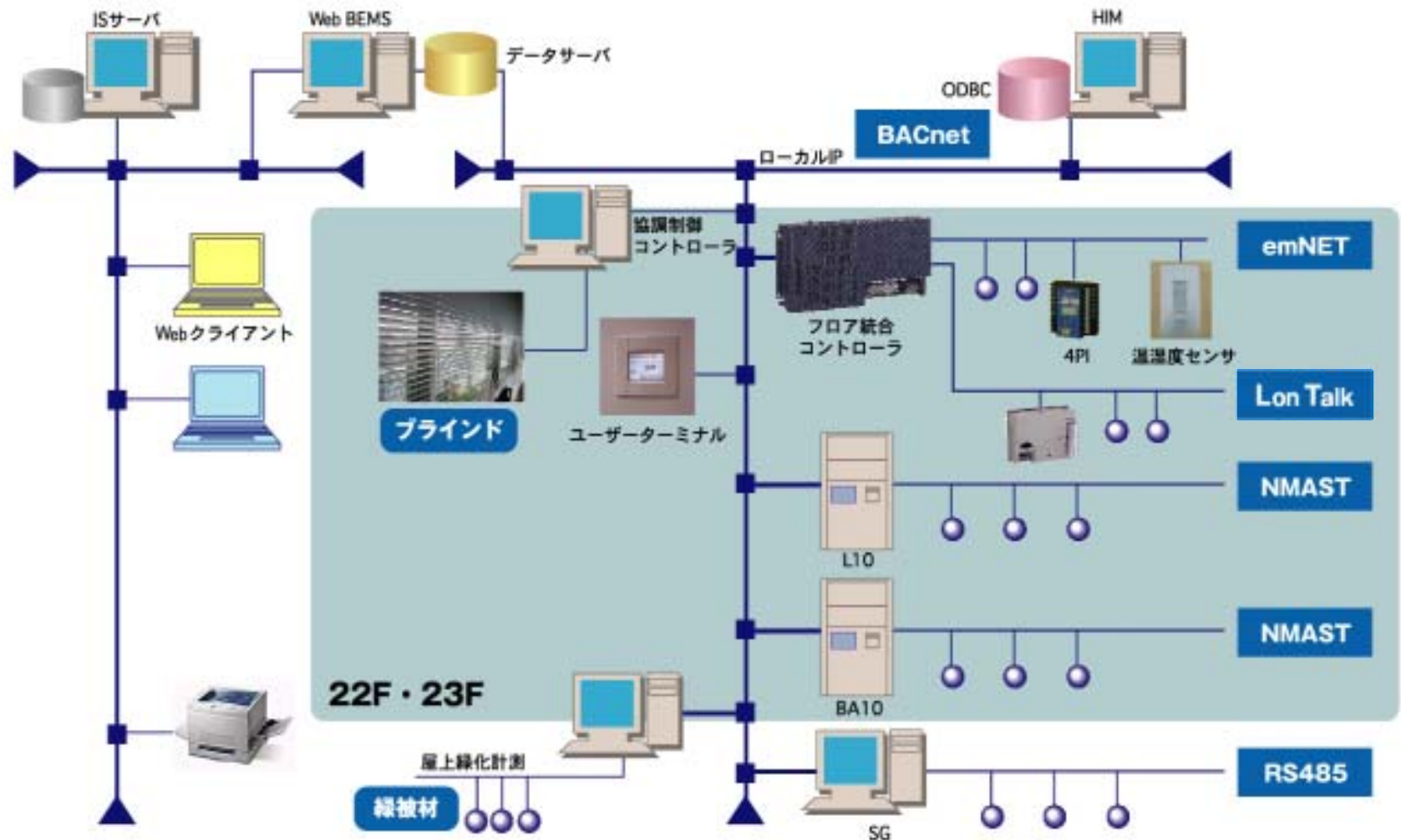
Structure : S · SRS · RC

Main usage : Office, Showroom,  
Paring lot

Term : 2000/3/15 – 2003/1/31

Design and Supervision :

# System Diagram of Shiodome Build.



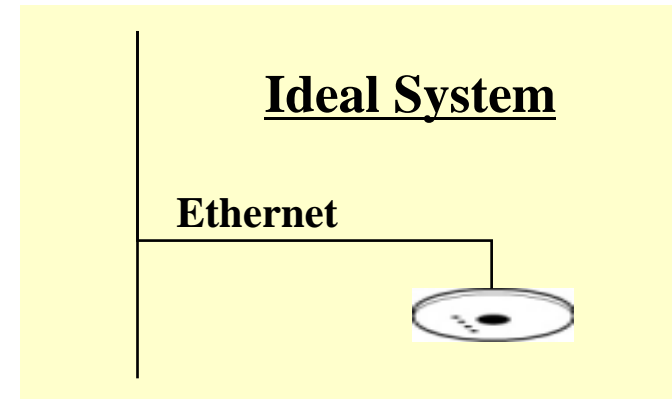
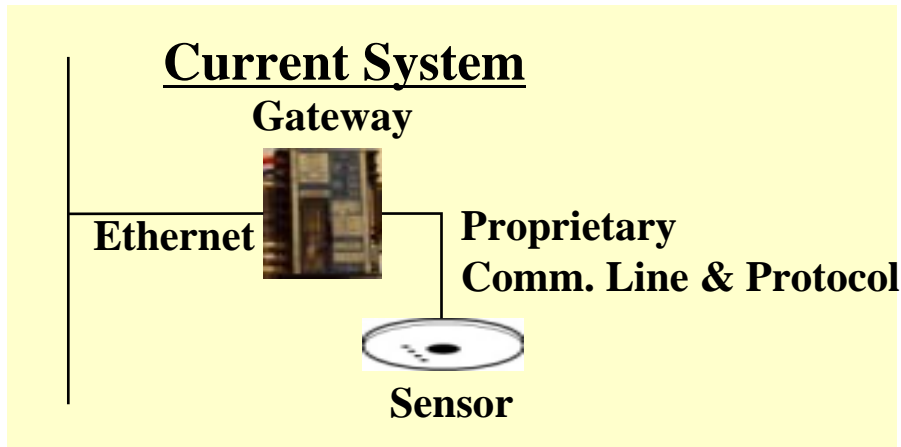
# Cutting edge technology to achieve energy conservation

- 1. Energy conservation control system of each floor**
- 2. Energy conservation control system of each zone  
(lighting and air conditioning facilities)**
- 3. Air-conditioning energy conservation system of standard  
floor**
- 4. EMIT total building system**
- 5. Energy conservation activity-effect diagnosis is supported  
in the measurement and the system of modeling.**
- 6. Effect of natural energy with installation of photovoltaic  
generation equipment**



# MEW's Challenge : BX (Virtual IPv6 Gateway)

BX is developed in cooperation with IRI-Ubiteq, INC..



## Problem

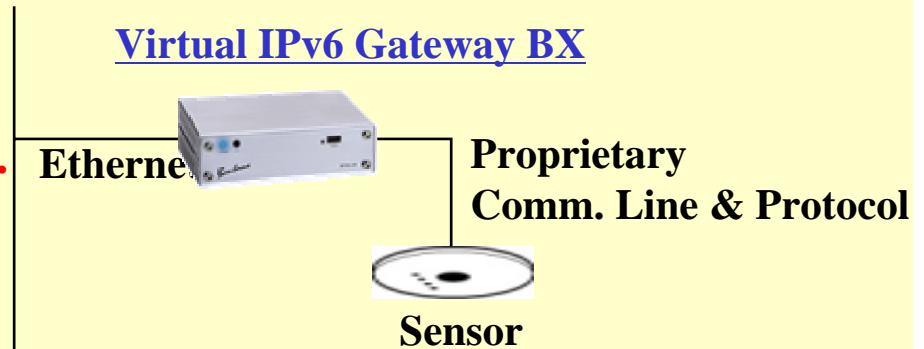
1. Cost of Communication Chip
2. Difficult to Re-use of legacy comm. line

## Virtual IPv6 Gateway by Software

**Sensor exists as a IPv6 Device via BX.**

**Users can re-use all of current devices.**

**IPv6 features will be used.**





# BX (Virtual IPv6 Gateway)

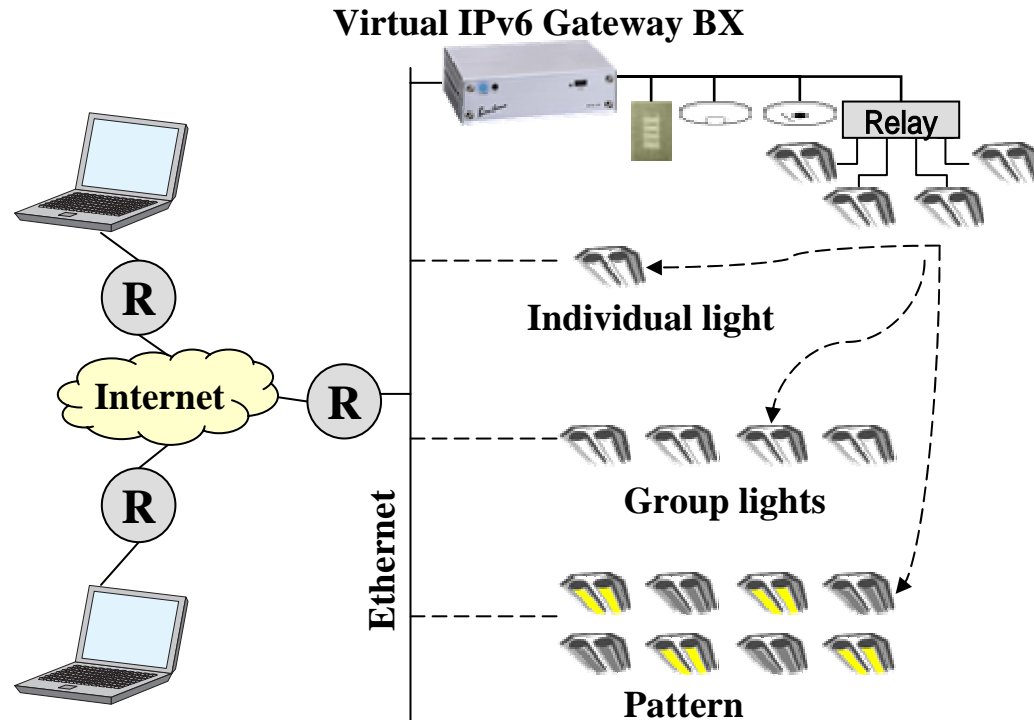
BX is developed in cooperation with IRI-Ubiteq, INC..

## <Merit 1>

The individual and the group lights have the IPv6 addresses, and it is possible to control and monitor it directly from the central control device.

## <Merit 2>

Because the monitoring of individual and group lights is possible directly, the system synchronization is easy.



# BX (Virtual IPv6 Gateway)

BX is developed in cooperation with IRI-Ubiteq, INC..

## Virtual IPv6 Gateway BX



1. P2P communication
2. Not depend on the type of local line
3. Effective method of solving the cost problem of making devices to IPv6
4. Can apply this method to other local lines

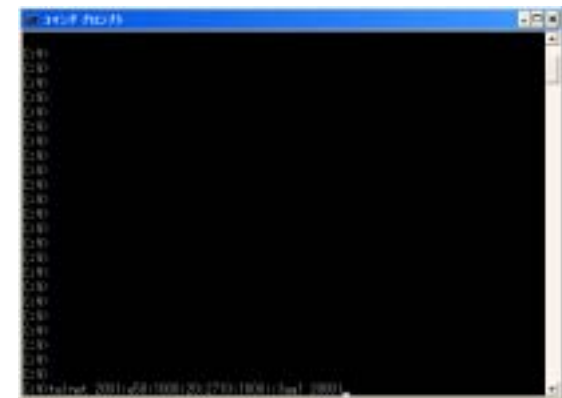


Control and Monitoring  
by Windows Messenger



Control  
by Telnet

Control and Monitoring  
by User Application



**FN-SWG(SWG of application WG of IPv6 promotion council)**

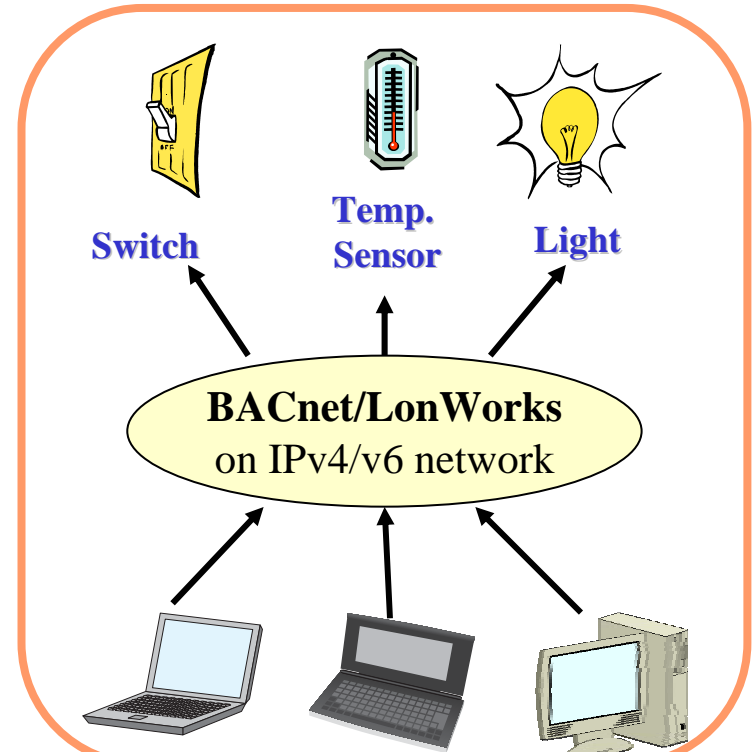
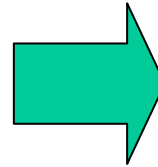
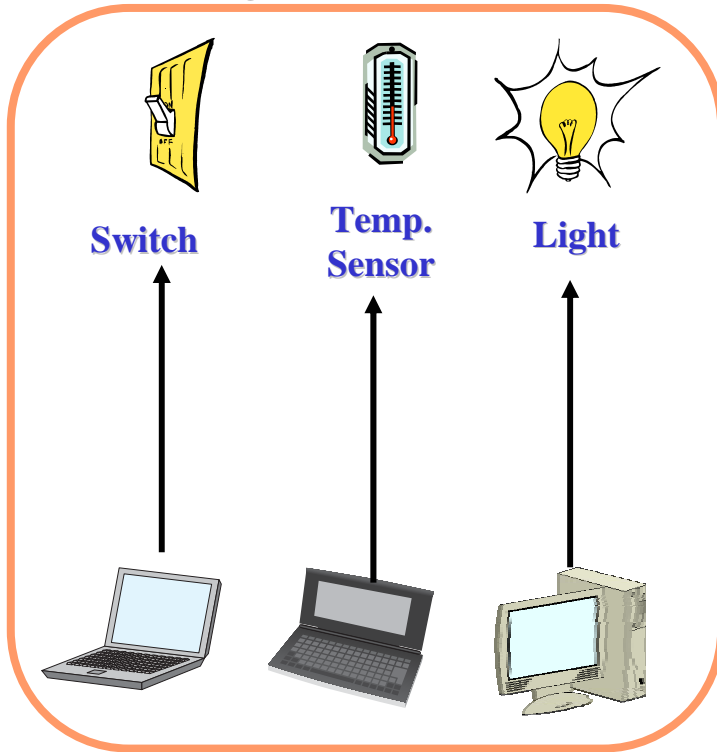
**Working group that examines facility network concerning next generation's house and building under application WG of IPv6 promotion council, and aims at standardization of specification of facility network.**

**National**  
**EMIT**  
MICRO HOMEPAGE



## Facility Management Network by Multi Vender

Single vender      Multi vender



### Closed System

1. Closed specification
2. Lack of competition when maintaining
3. Lack of interconnectivity

### Open System

Reduction in energy, management space, and human cost

# Activity2 : Intelligence House Consortium

Concept of Intelligent House : Living in Computer

“Intelligent House” is NOT “Automation house”.



“Intelligent House” is IT house that supports human’s self-actualization such as “safety”, “comfort”, and “wealthy life”.

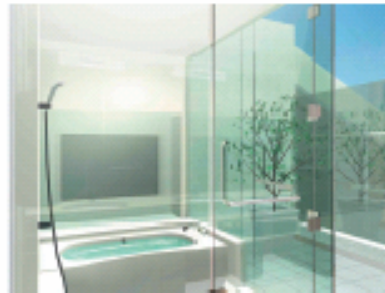




コンピュータの中に住む  
Living in Computer



人に優しい「情報住宅」  
Human friendly "Intelligent House"

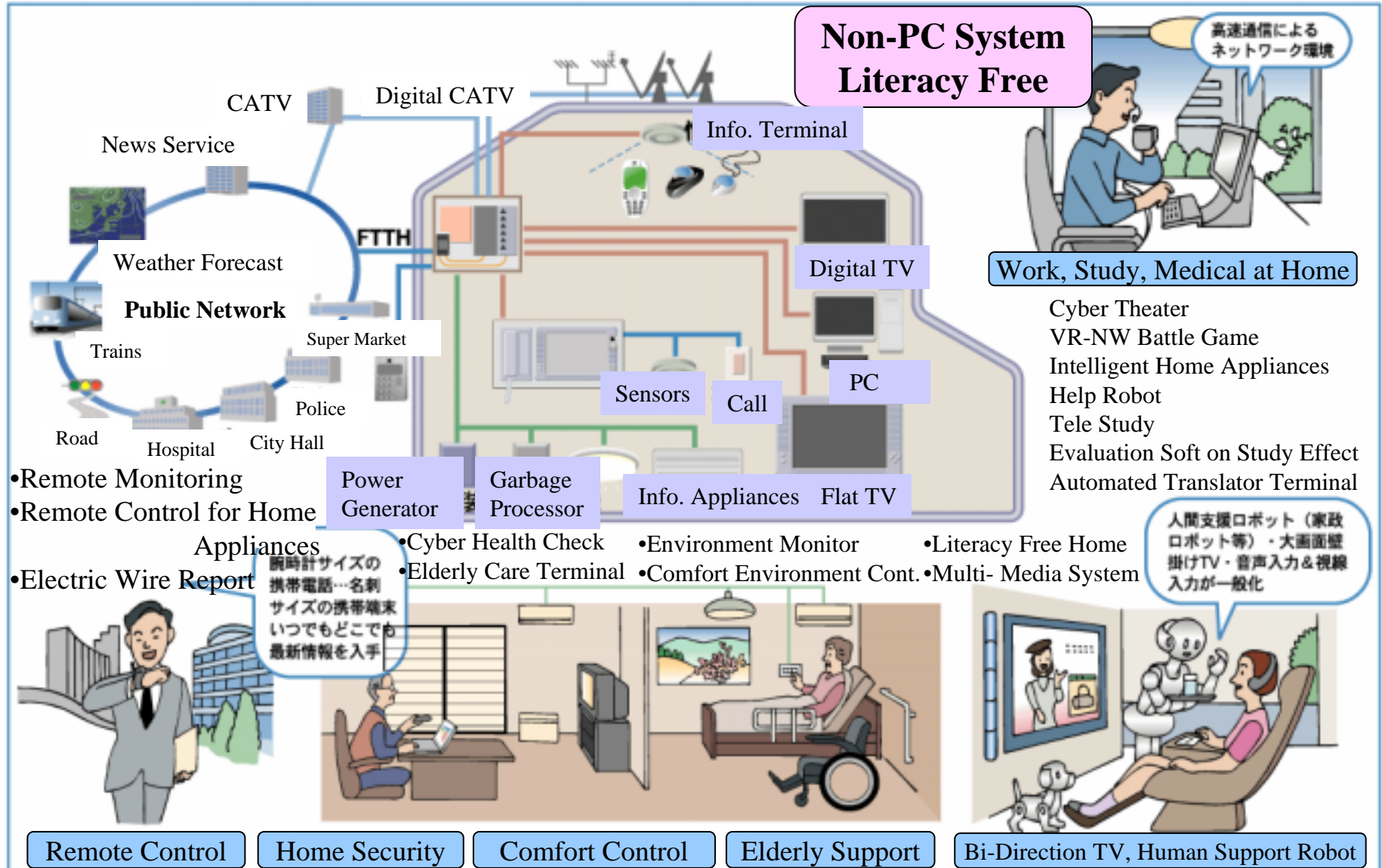


情報住宅ミドルウェアは家の内外をつなぐコアのエンジンとなる  
Middleware will become engine's core for that purpose

1. Comfortable service
2. Medical service
3. Data management service
4. Entertainment service

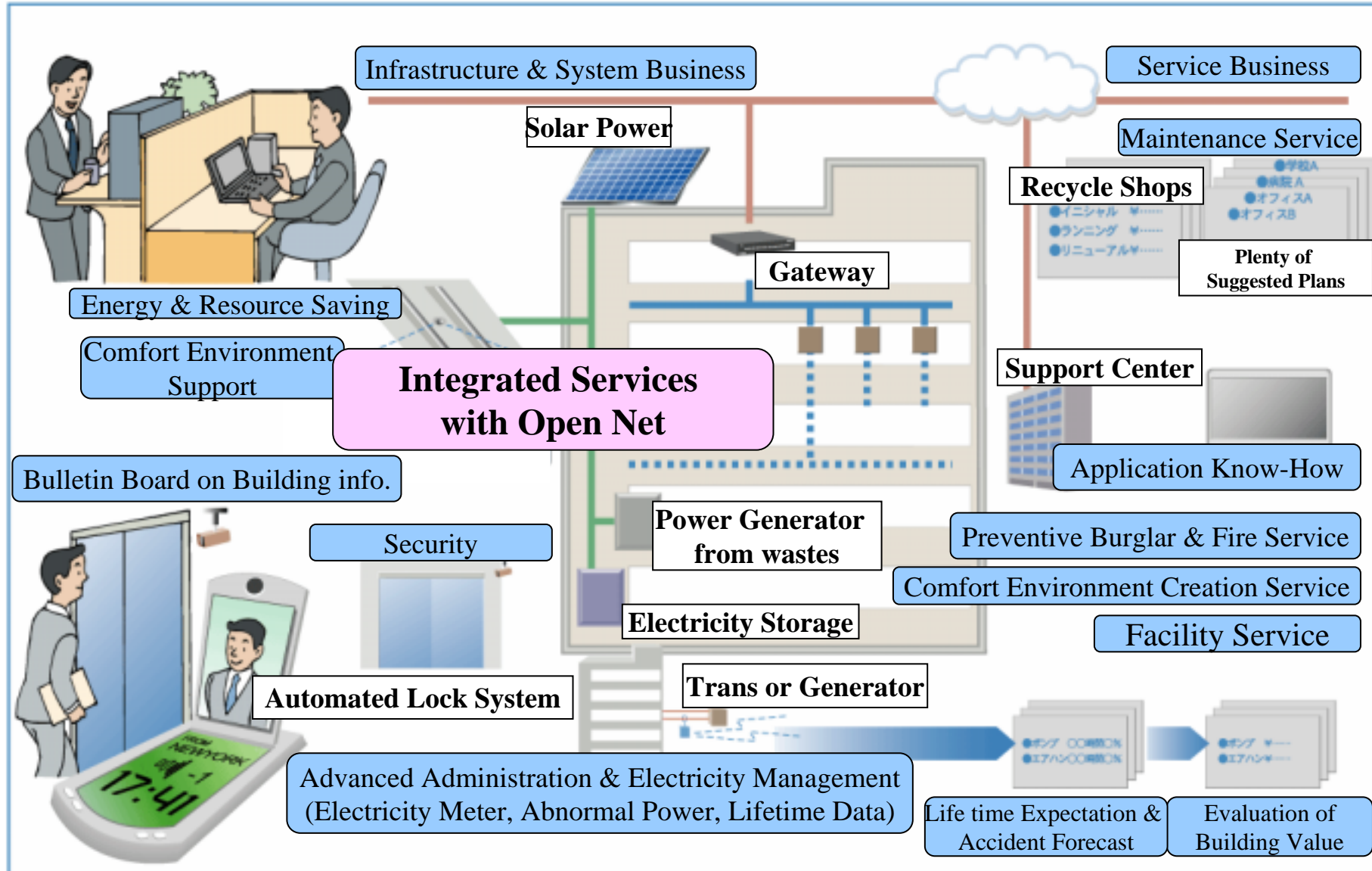


# Home System in 5 years

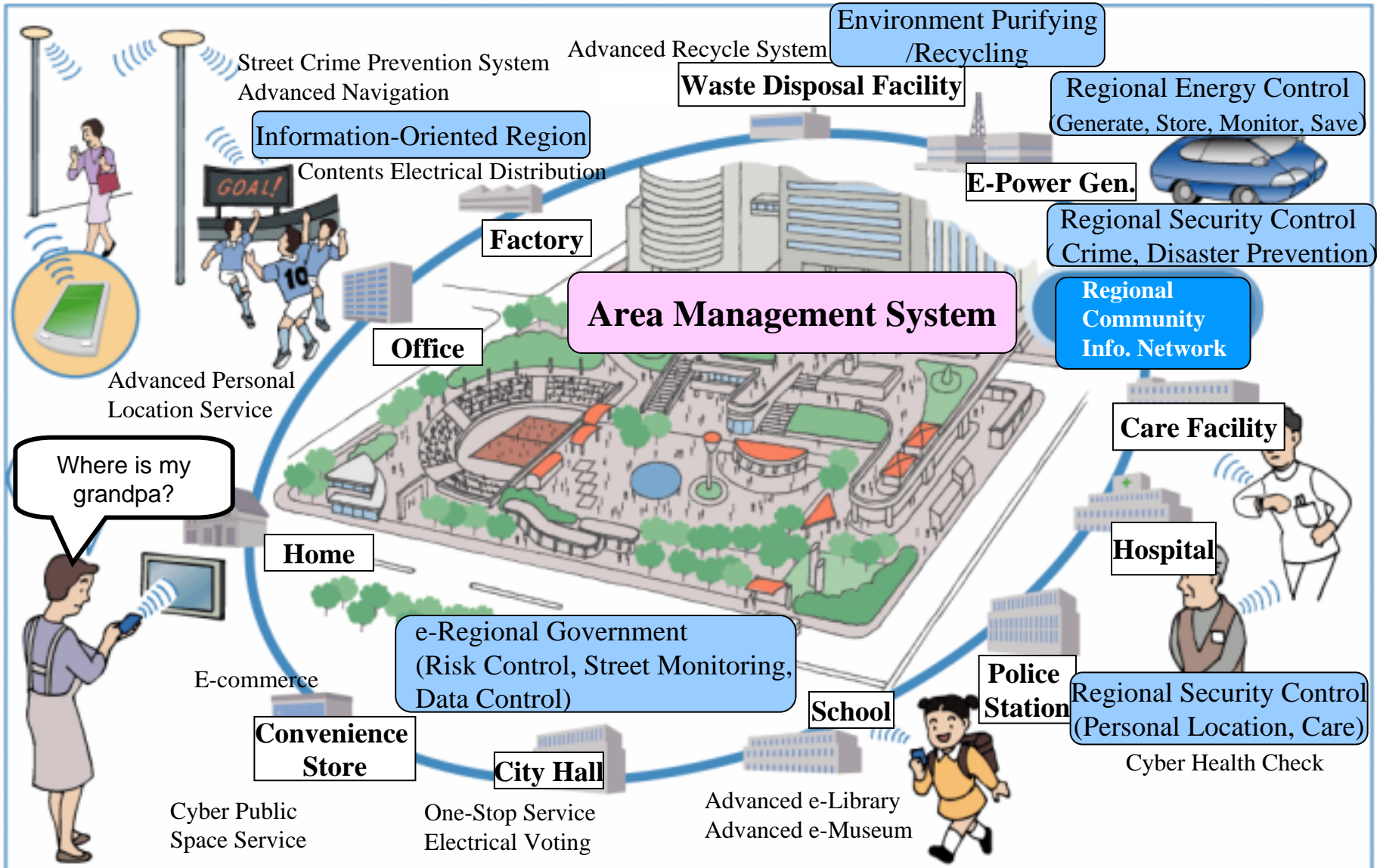




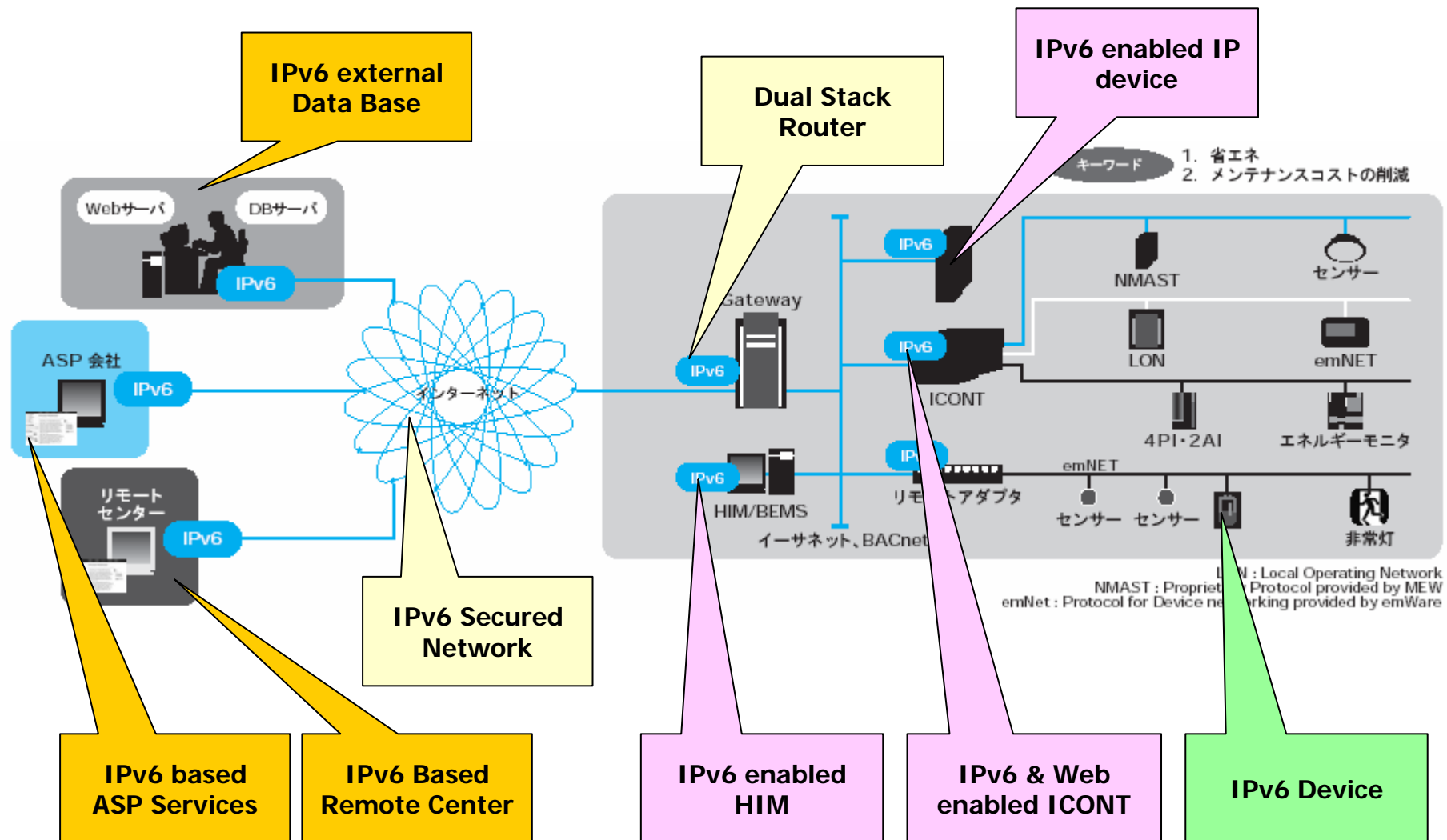
# Building System in 5 years



# Area Management in 5 years



# Step to all IPv6 Building



**1. IPv6 is not “Magic wand”.**

**The user is demanding a clear advantage.**

**2. Energy conservation request is one of the big demand for BA.**

**3. Internet and ISP are ready to provide IPv6 services. But IPv6 products do not meet solutions for HA system and BA system.**

**4. Create the solution which meets users’ demands.**

**4-1 Clear advantage**

**4-2 Labor saving of engineering**

**4-3 Security and safety**

**4-4 Self-actualization**

**5. IP centric system will be a major solution.**

**6. PLC and Wireless will be key technologies.**