

# Technologies that Differentiate Fujitsu in the IA Server Market

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**President**

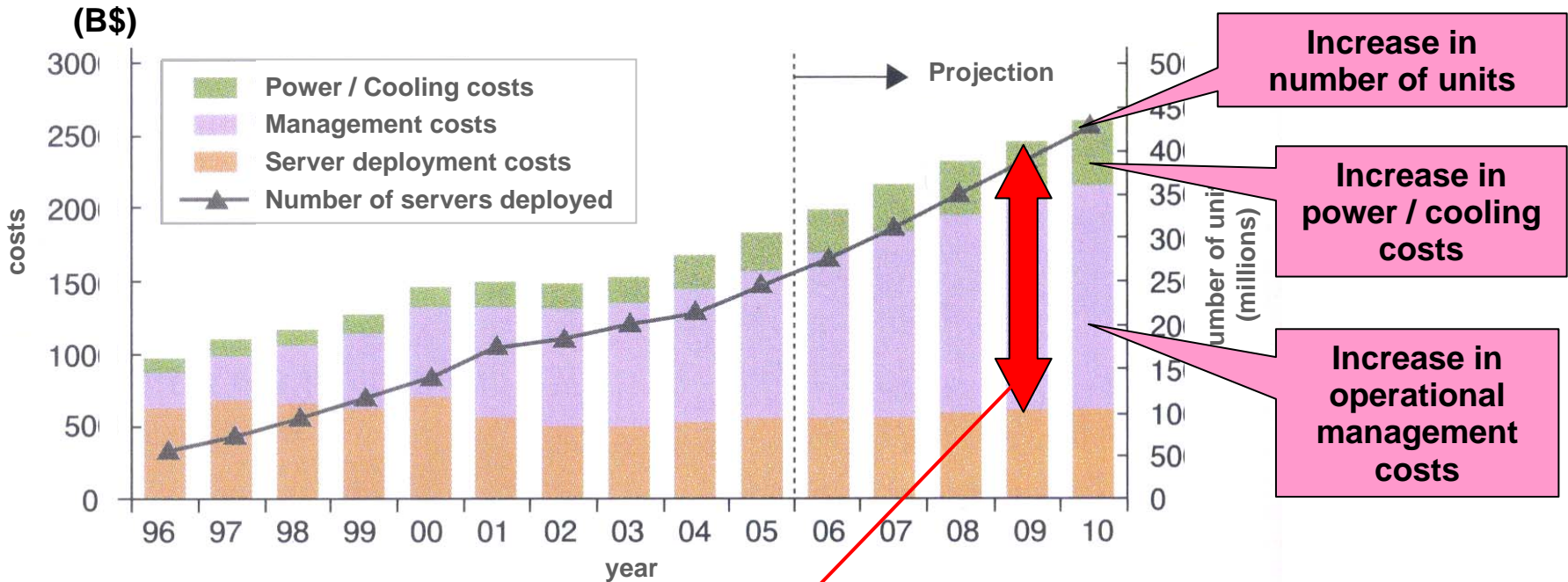
**IT Systems Laboratories**

**FUJITSU LABORATORIES LTD.**

- **Server Market Trends**
- **Future Trends in IA Servers**
- **Points of Differentiation**
- **Initiatives at Fujitsu Laboratories**
  - **High-Speed Interconnect Technologies**
  - **Technologies that Simplify Operational Management**
  - **Energy-Saving Technologies**
- **Summary**

# Server Market Trends

- Higher-performance CPUs, lower-cost servers
- Unit increase of low-cost IA servers
- Higher operational costs
- Power consumption is a major issue at large-scale data centers



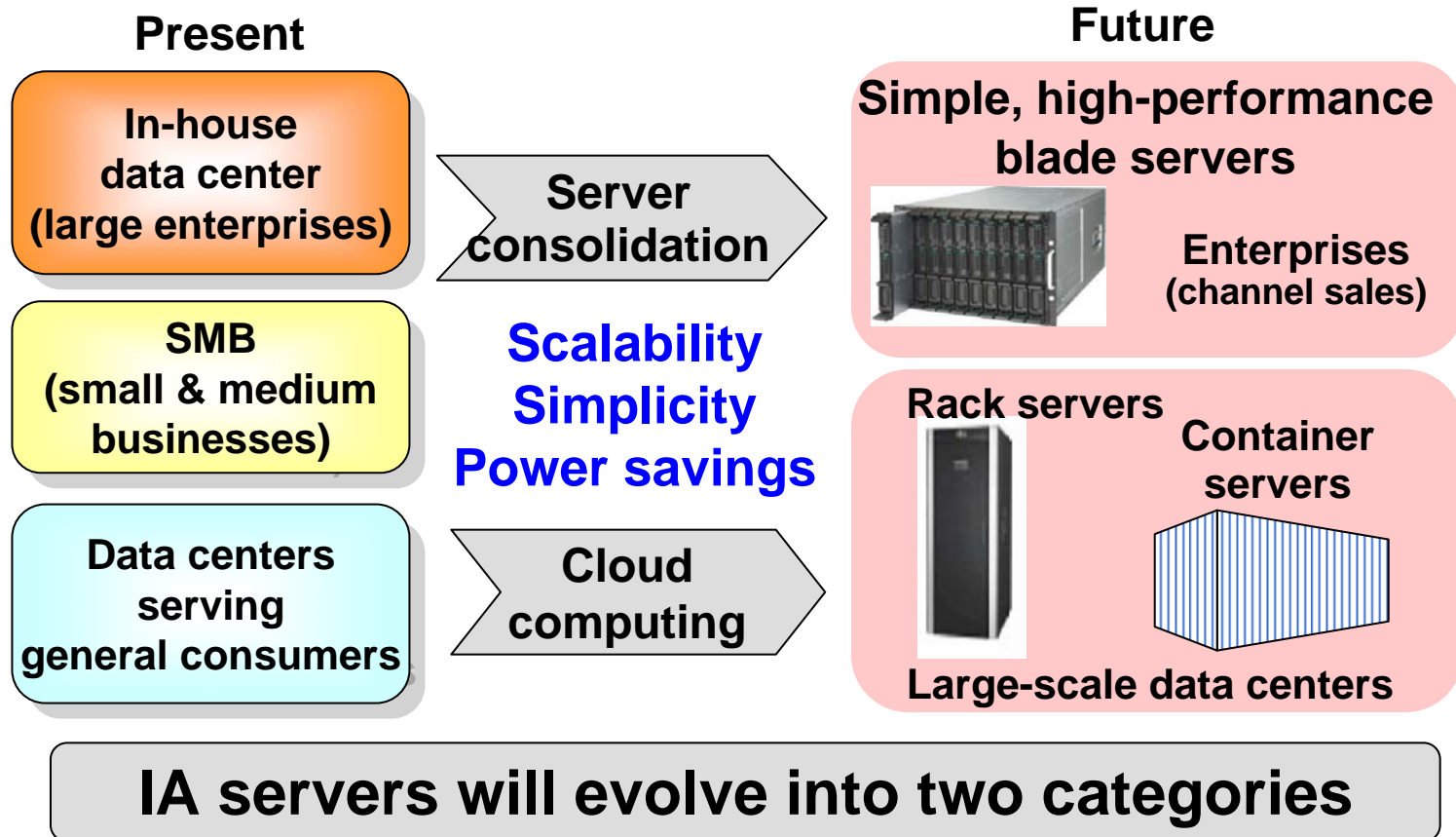
Source: IDC 2006, global market

**Number of IA servers will continue to grow; challenge is to reduce power consumption and operational management costs**

# Future Trends in IA Servers

## ■ User Needs

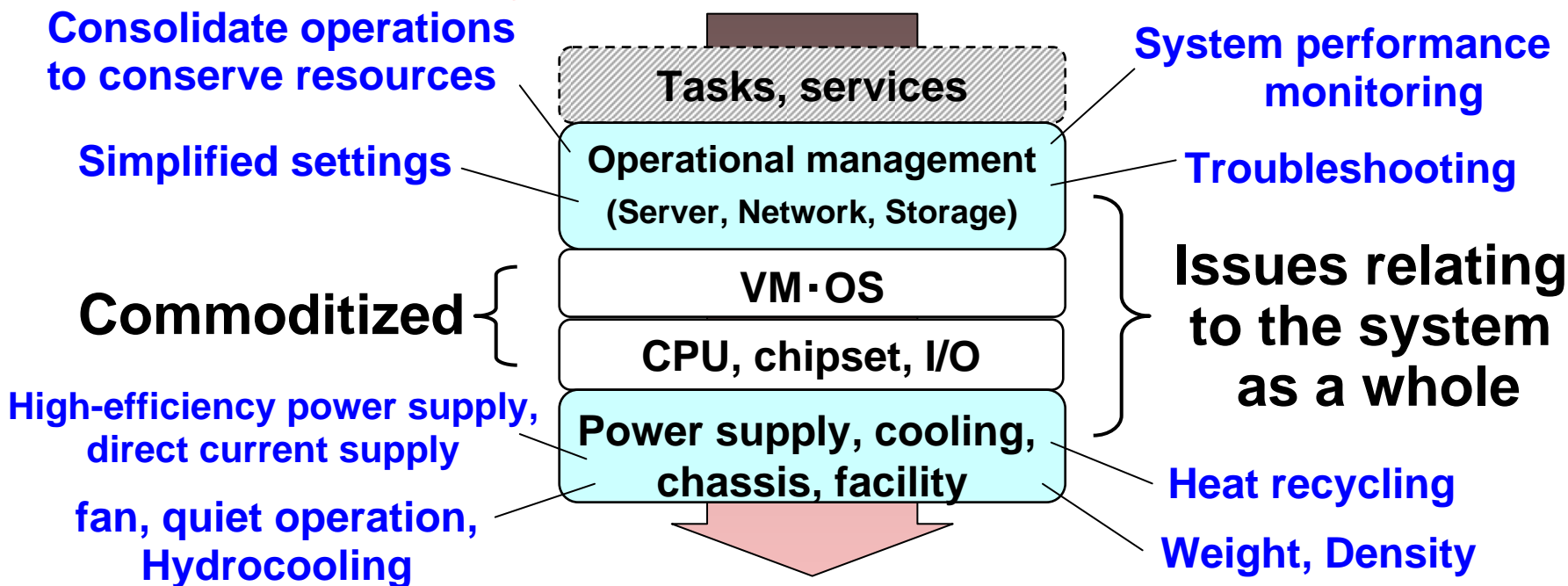
- **Enterprises** (simple blade servers that do not require expertise to use)
- **Large-scale data centers** (servers that deliver the ultimate in scalability and power savings)



# Points of Differentiation

- Even if components become commoditized, there are still many points of differentiation
- Blade servers are “mini data centers”
- Current data center problems will be future blade server problems

## System-wide perspective



From a system-wide perspective, taking a top-down approach to identifying issues and developing technologies to address them



## 1) High-Speed Interconnect Technologies

- Ability to handle higher-speed CPUs and larger-scale systems



## 2) Technologies that Simplify Operational Management

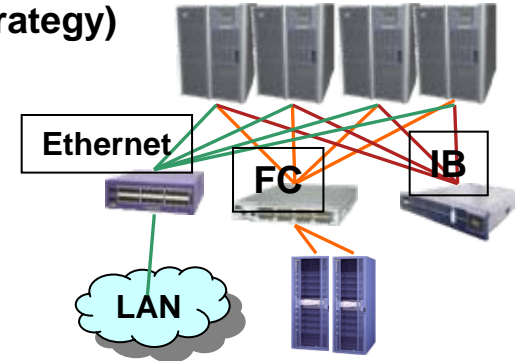
- Can be used even by non-experts
- Simplifying and accelerating the completion of daily operational work (easier and quicker system operation)
- Identifying problems when they occur (visualization)

## 3) Energy-Saving Technologies

- Processing tasks with minimal cost and minimal power
- Applying power-saving technologies for notebook PCs to servers

# 1) High-Speed Interconnect Technologies

- **Connecting all IT equipment with 10G Ethernet (All-IP strategy)**
  - Increasing performance, lowering costs, simplifying operational management
- **R&D in switch LSI devices**
  - Already applied to Fujitsu products (switches, blade servers)
- **The latest version: MB86C69 (code name: AXEL-X2)**
  - 10G Ethernet with 26 ports (top in industry)
  - Low latency at 300ns (top in industry)
  - Direct-drive 10G-serial lines of backplane (industry first)
  - Developed high-speed transceiver circuit running at 40G (10Gbps x 4)
  - Cut power use by half
  - Presented at ISSCC 2009:

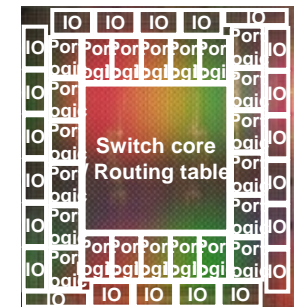
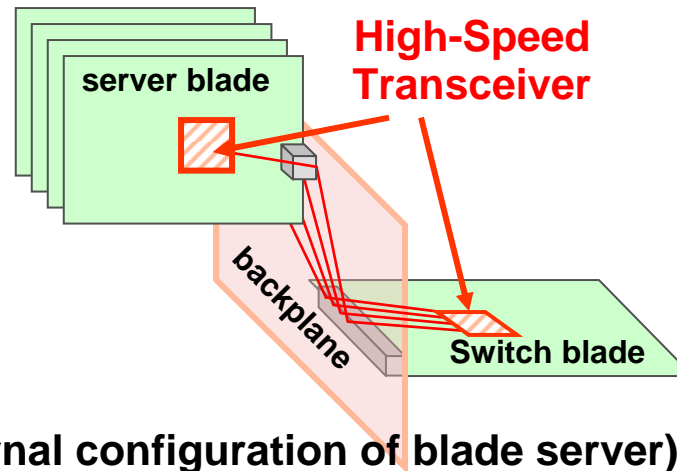


Conventional data center configuration



Fujitsu products

2/12 Press Release:  
<http://www.fujitsu.com/global/news/pr/archives/month/2009/20090212-02.html>  
Fujitsu Laboratories Develops Multi-Channel High-Speed Transceiver Circuit for High-Speed Blade Server Performance  
- Features 4-channel x 10Gbps superior performance; is energy-efficient and compact -



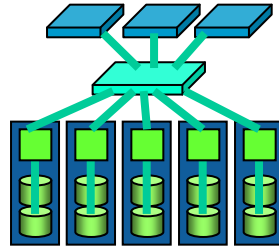
**Demo Exhibit**

(Internal configuration of blade server) MB86C69 "AXEL-X2"

# 2) Technologies that Simplify Operational Management

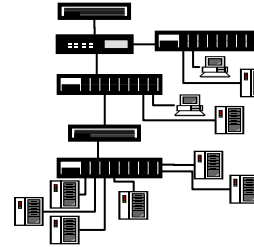
## ① Simplifying Storage Management

*Automatic recovery /  
capacity management  
(re-organization)*



**Organic Storage Service**  
(launched as services product)

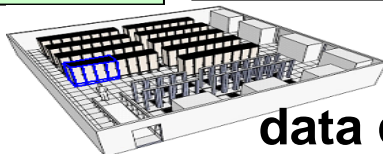
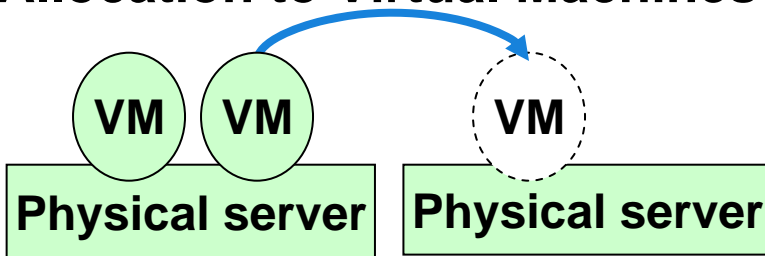
## ② System Visualization



**EVOLUO TransactionEye**  
(launched as solutions product)

Each of these technologies have been made into products.  
Now the emphasis is integrating them as a system.

## ③ Policy-based Dynamic VM Allocation to Virtual Machines



data center

### Features:

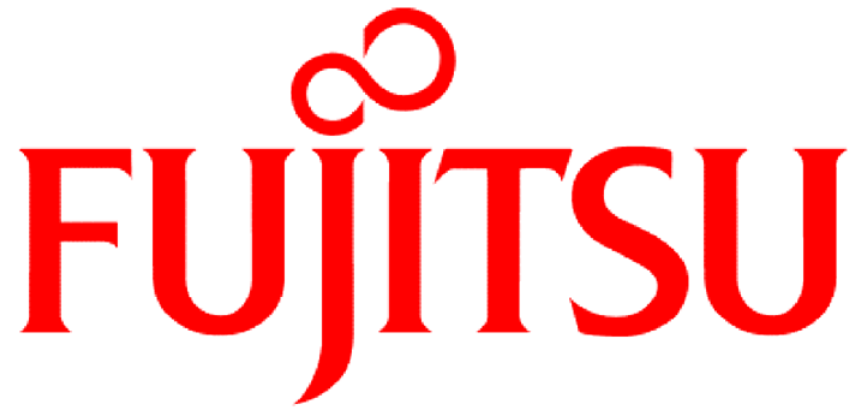
Virtual machines are automatically allocated to physical servers based on operational policies, such as high-reliability or power-savings.

**Demo exhibit**



- **IA servers will hereafter be divided into two categories**
  - Blade servers for enterprises, servers for large-scale data centers
- **Even if components become commoditized, there are still many points of differentiation**
  - Blade servers are “mini data centers”
  - From a system-wide perspective, taking a top-down approach to developing technologies
- **Initiatives at Fujitsu Laboratories**
  - High-Speed Interconnect Technologies
  - Technologies that Simplify Operational Management
  - Energy-Saving Technologies
- **Now focusing on integrating operational management know-how into server systems**

**Starting with blade servers, Fujitsu Laboratories is integrating its technologies into Fujitsu servers, aiming to create a new server platform**



**FUJITSU**

**THE POSSIBILITIES ARE INFINITE**

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