Technologies that Differentiate Fujitsu in the IA Server Market

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Outline

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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

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

Source: IDC 2006, global market
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)

Present
- In-house data center (large enterprises)
- SMB (small & medium businesses)
- Data centers serving general consumers

Future
- Simple, high-performance blade servers
- Enterprises (channel sales)
- Rack servers
- Container servers
- Large-scale data centers

Server consolidation
Scalability
Simplicity
Power savings
Cloud computing

IA servers will evolve into two categories
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

Consolidate operations to conserve resources

Simplified settings

Commoditized
  - High-efficiency power supply, direct current supply
  - fan, quiet operation, Hydrocooling

Issues relating to the system as a whole
  - System performance monitoring
  - Troubleshooting
  - Heat recycling
  - Weight, Density

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:

2/12 Press Release:
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

Organic Storage Service
(launched as services product)

Automatic recovery / capacity management
(re-organization)

② System Visualization

EVOLUO TransactionEye
(launched as solutions product)

making the operational status visible

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

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

Demo exhibit
Summary and Conclusion

- 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
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