

Fujitsu's Server Business Strategy

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Tatsuo Tomita

Corporate Senior Vice President

President, System Products Group

Fujitsu Limited

- 1. Business Environment**
- 2. Market Trends and Current Status of Fujitsu's Server-Related Business**
- 3. Platform Business Strategy**
- 4. Recap**

1. Business Environment

Corporate Accounting / Investor Protection

Sarbanes Oxley (SOX), Japan's version of SOX(J-SOX), etc.

Business Continuity

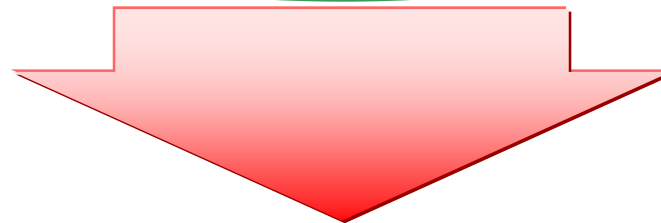
BC (Business Continuity), DR (Disaster Recovery), etc.

Security

Personal Information Protection Law, ISMS/ISO-27001, Uniform governmental standards, etc.

Environmental Protection / Regulation

Basic Environment Law, Law on Promoting Green Purchasing, etc.



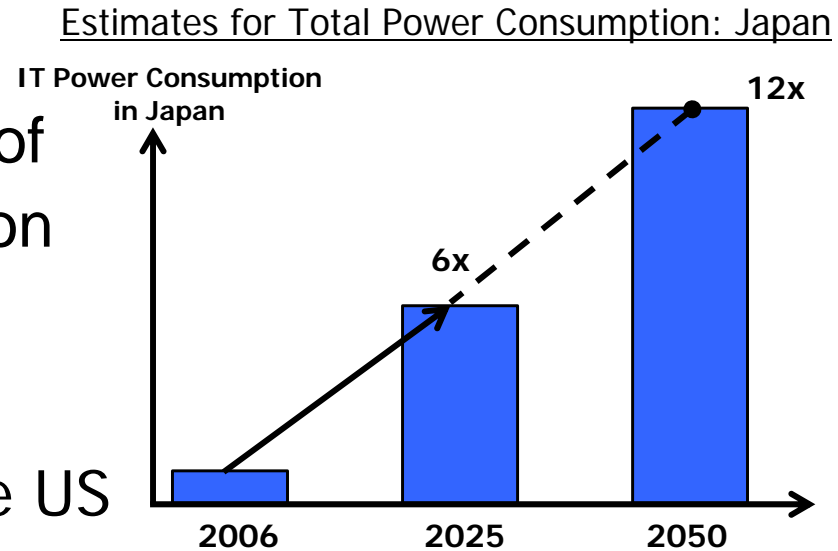
Corporations face higher levels of social responsibility

■ Rising Need for Green IT

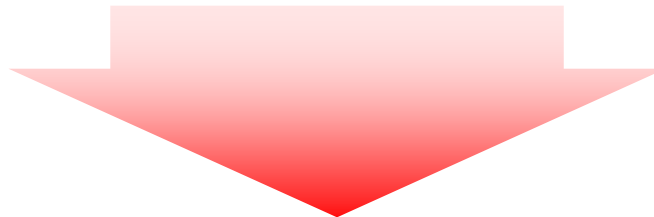
- ▶ IT equipment accounts for 5% of Japan's total power consumption
- ▶ 6-fold increase by 2025
- ▶ 12-fold increase by 2050

■ Also: Public/Private Initiatives in the US

- ▶ EPA* Report * U.S. Environmental Protection Agency
- ▶ Green Grid
- ▶ Recommended standardizations for procurement



Source : METI



Rising importance of green IT initiatives

Change in Social Environment

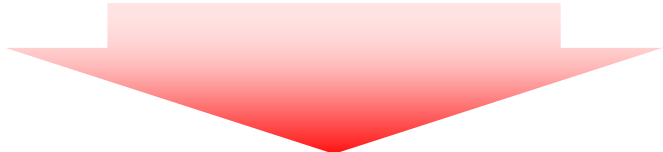
- ▶ Security / Social responsibility
- ▶ Environmental issues (Green IT)

Technological Advances

- ▶ Virtualization (free from physical constraints)
- ▶ NGN (eliminate concept of distance)



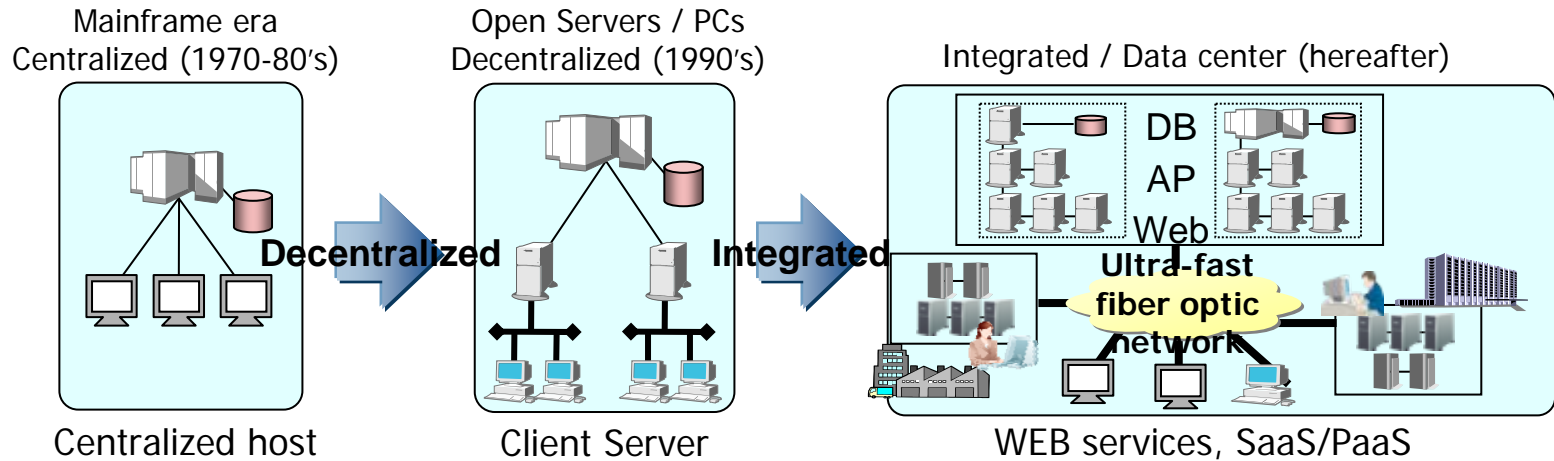
Using latest technologies to provide IT solutions for customers

- 
- Growth and profitability
 - Contribution to society

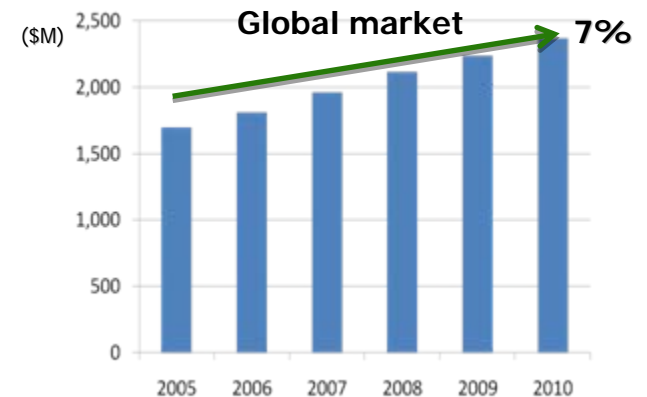
2. Market Trend and Current Status of Fujitsu's Server-Related Business

Market Trend: Mission-Critical Systems

- From centralized to decentralized, and now: to integrated (data centers)
 - ▶ Increased corporate social responsibility in IT systems



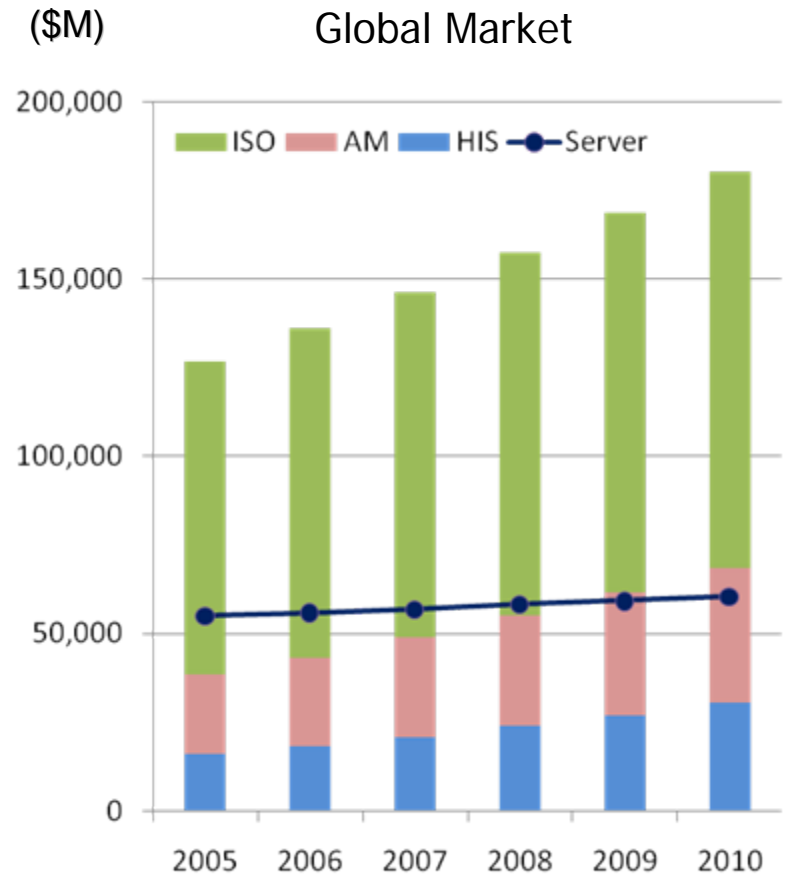
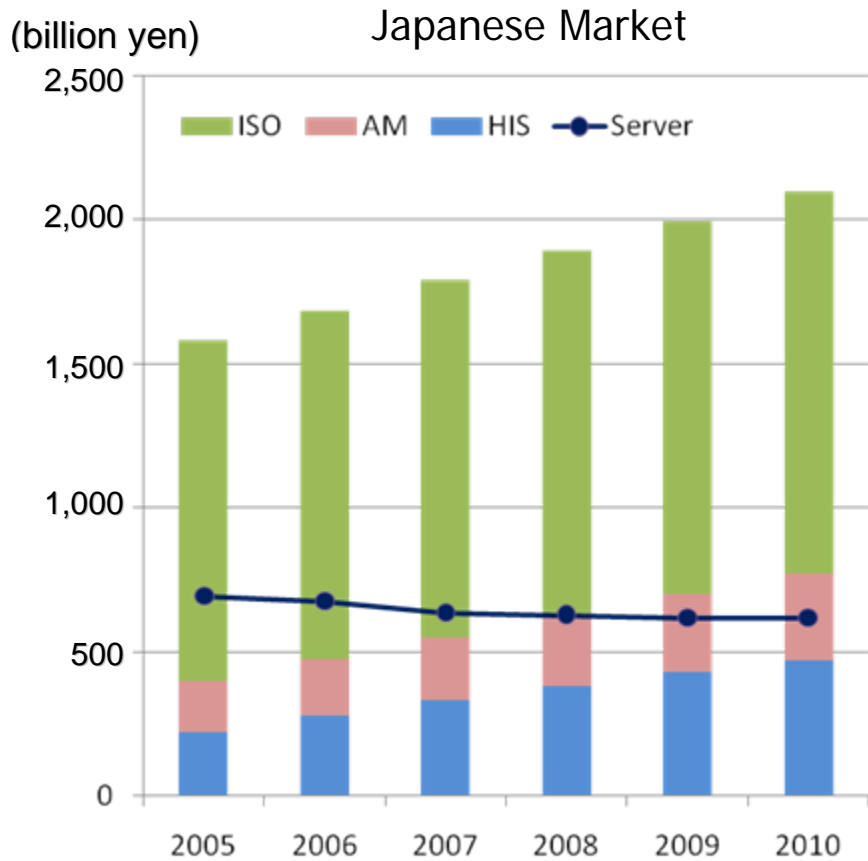
- Higher expectations for higher server reliability
 - ▶ Multi-core
 - ▶ Virtualization technology
- Definite growth in market for mission-critical open-standard servers: CAGR 7%



Source : Fujitsu

Market Trend: Data Center-Related Services

Growth in market for Data Center-related services

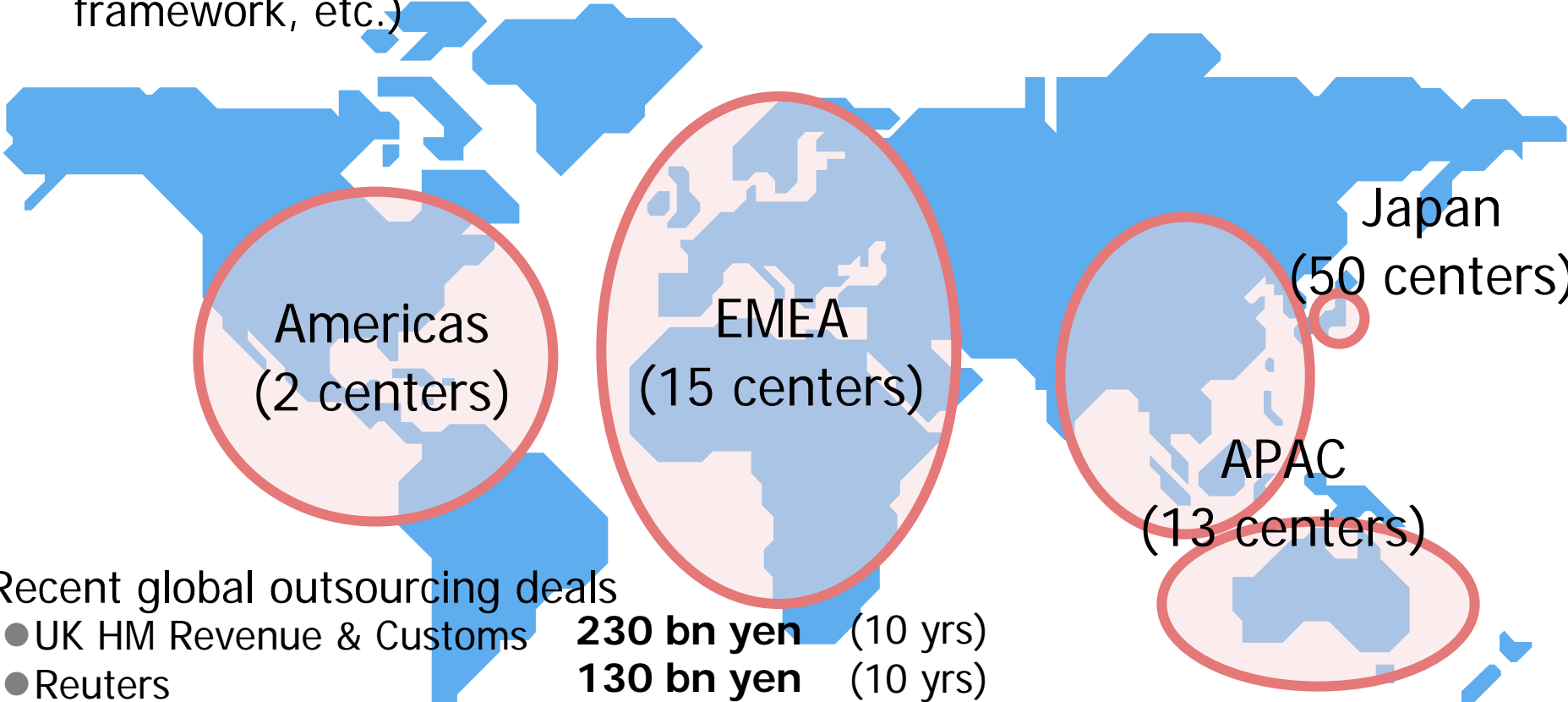


ISO : Information System Outsourcing (includes customer owned data centers)
 AM : Application Management (includes customer owned data centers)
 HIS : Hosting Infrastructure Service (hosting services from vendor data centers)

Source : IDC

Fujitsu's Global Expansion of Data Centers

- Aggressive expansion of outsourcing business (currently 80 locations in 16 countries)
- Sharing know-how of each location, peer-to-peer roll out (operational framework, etc.)



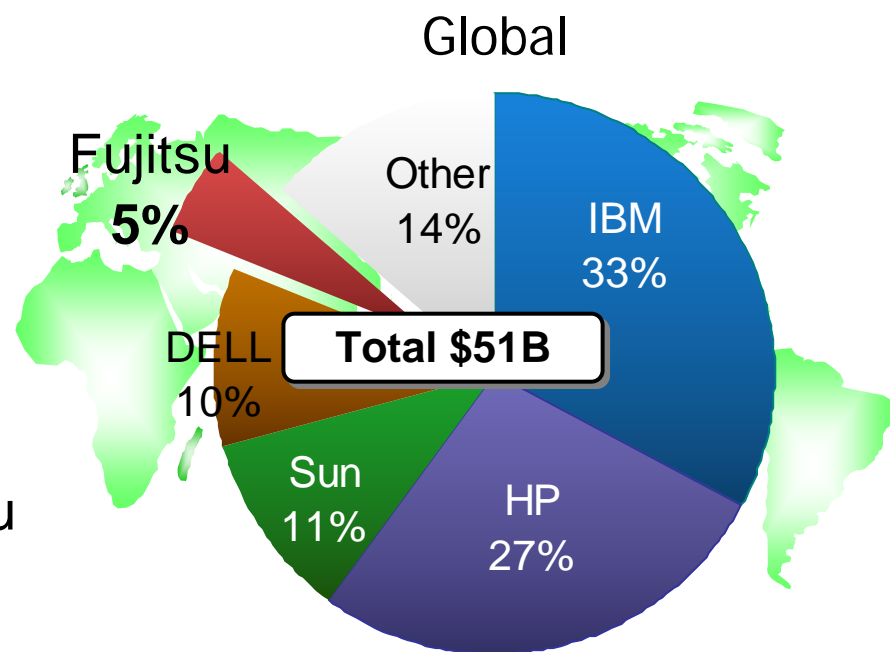
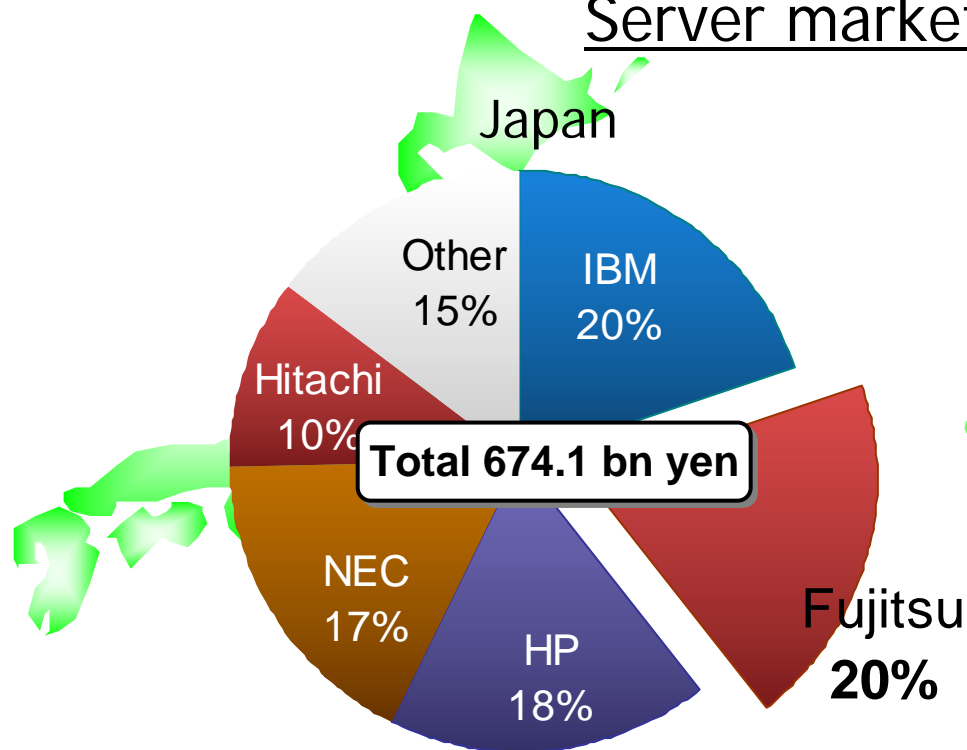
Recent global outsourcing deals

● UK HM Revenue & Customs	230 bn yen	(10 yrs)
● Reuters	130 bn yen	(10 yrs)
● Allianz	65 bn yen	(5 yrs)
● Australia: Yarra Valley Water	1.8 bn yen	(7 yrs)

■ Fujitsu Group's Market Share

- ▶ Japan : **20% 2nd (2006)**
- ▶ Global : **5% 5th (2006)**

Server market share (2006)



Source : IDC [Japan](#), Japan Server Quarterly Model Analysis, Q2 2007

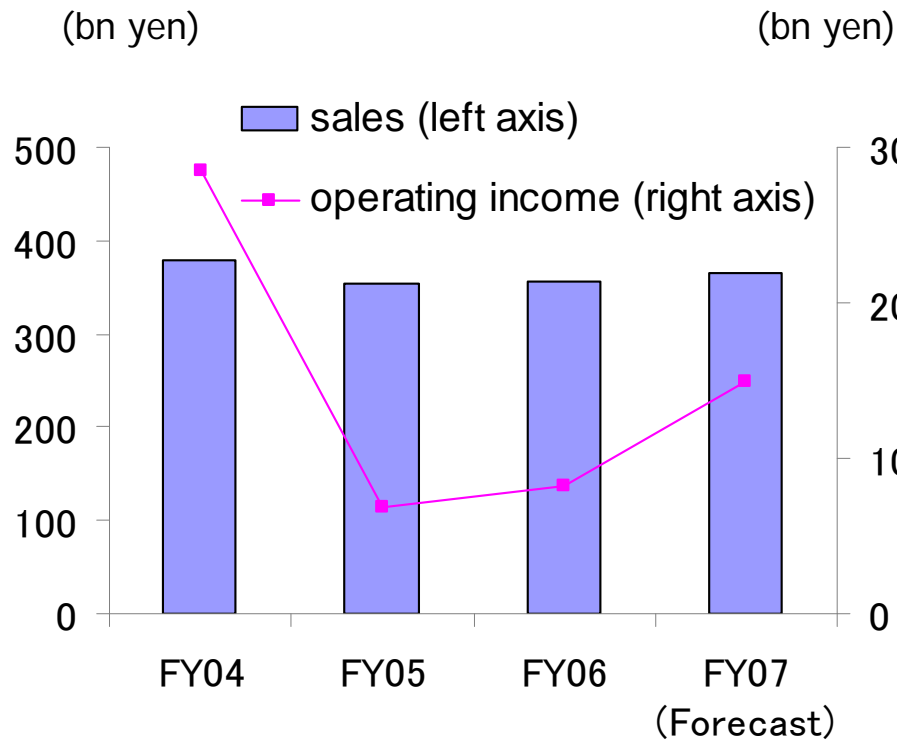
Source : IDC Worldwide Server Quarterly Tracker, Q2 2007

*Including Fujitsu Siemens Computers

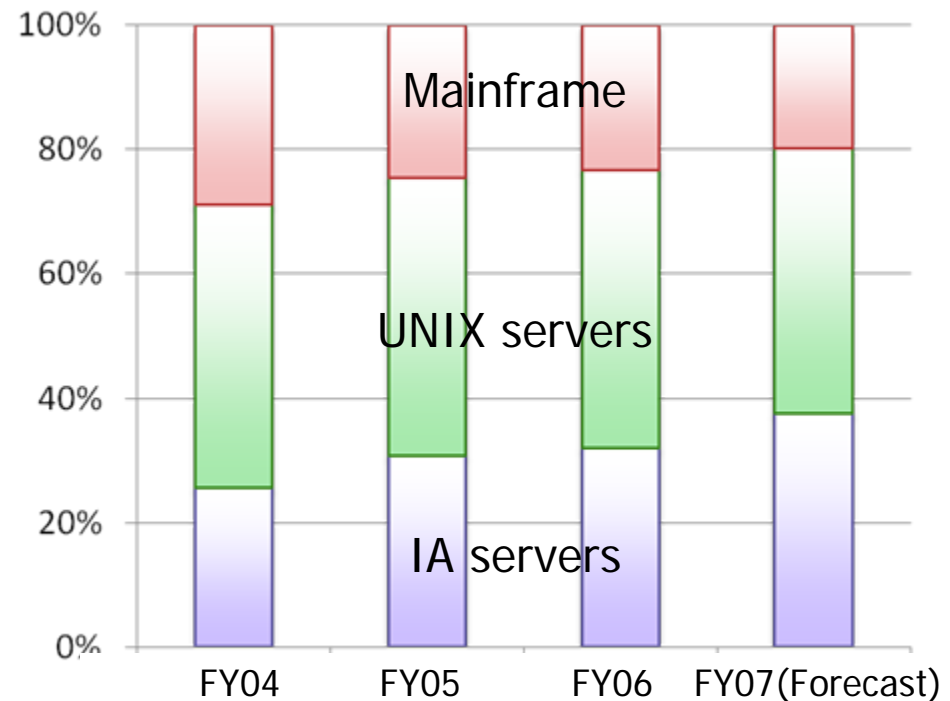
Status of Fujitsu's Server Business

- Growth of server-related products after bottoming-out in FY05
- Maintaining profitability even while proportion of open-standard systems rises

Server-Related Product Sales and Income



Sales Composition (by server type)



3. Platform Business Strategy

Fujitsu's Platforms Strategy

- Provide Mission-Critical Systems
 - ▶ High reliability, high quality, high performance, advanced technology
- Data Center (services platform) Optimization
 - ▶ Virtualization, green initiatives, integration
- Optimization of Customers' IT Infrastructure
 - TRIOLE
 - ▶ overall optimization throughout entire lifecycle
 - ▶ "industrialization" of IT infrastructure installation

Advanced Technology

- ▶ High-performance processor / ASIC
- ▶ Advanced semiconductor technology
- ▶ Autonomic/virtualization technology



Mainframes

- ▶ Mainframe technology heritage maintained only by Fujitsu and IBM
- (Overall system robustness)

Quality Control

Quality improvement cycle

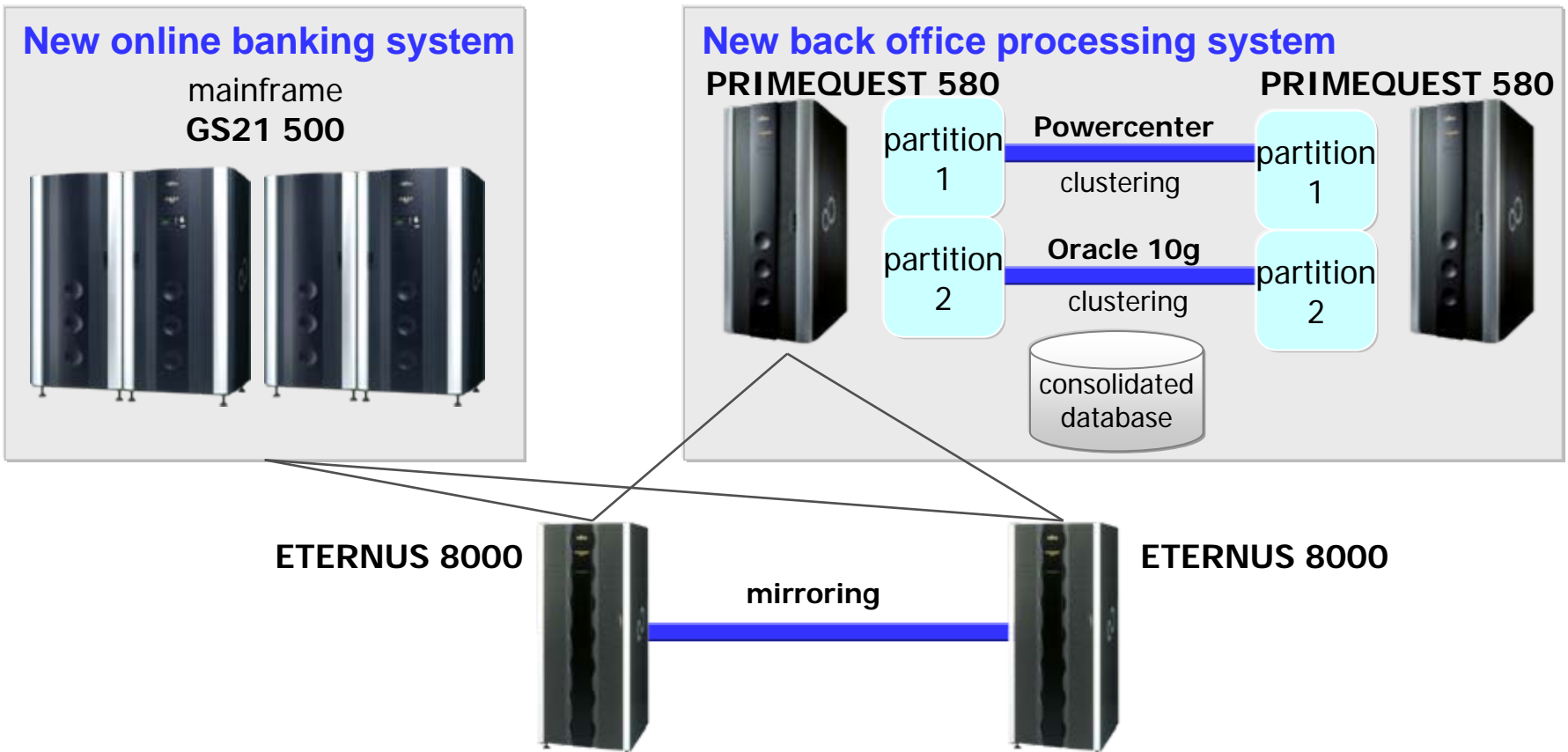


Servers, storage systems,
networks, middleware

Comprehensive offering of mission-critical systems

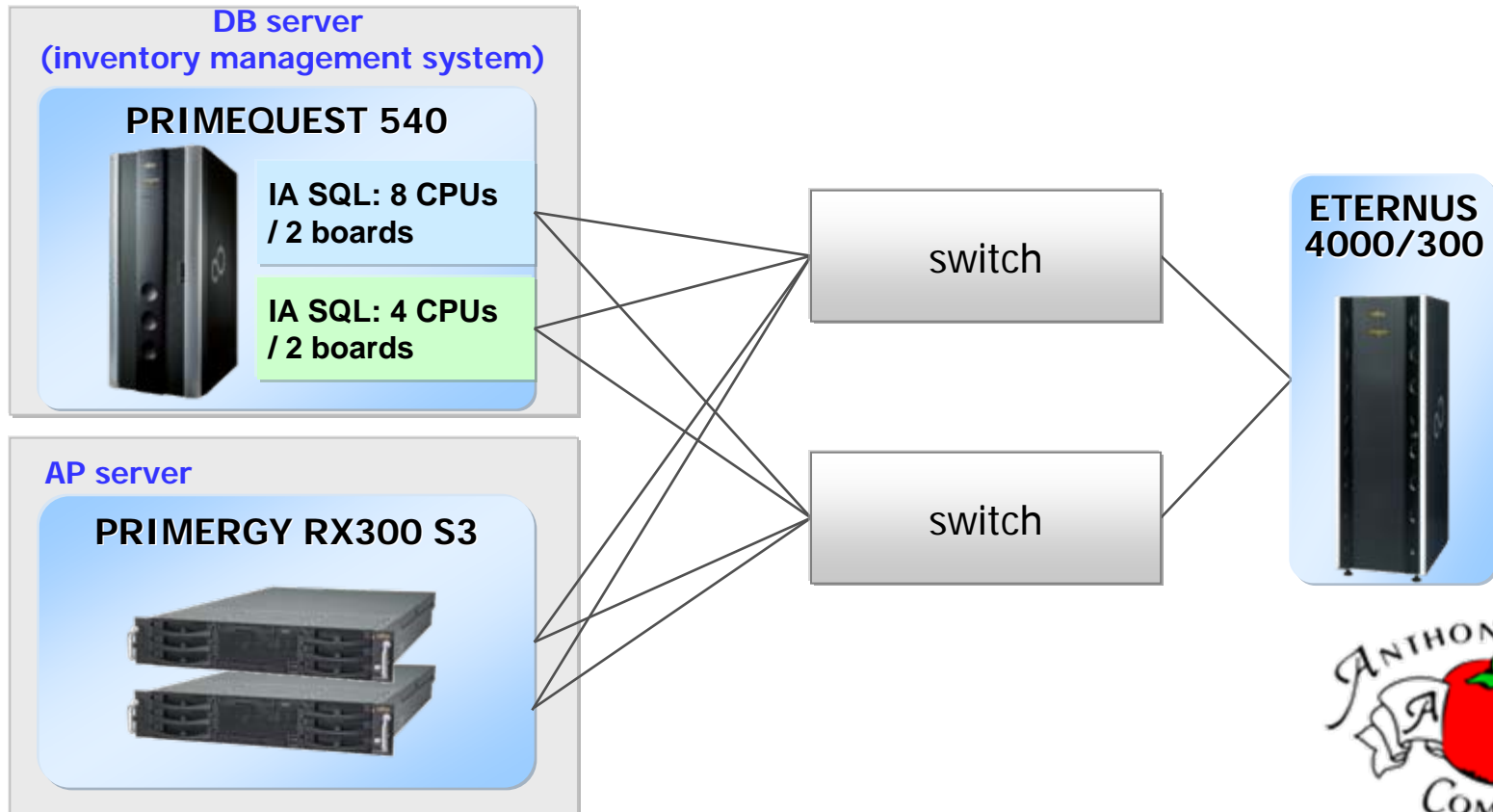
Case Studies in Providing Mission-Critical Systems

- **Shiga Bank, Japan** (Scheduled start of system: Jan '08)
- ▶ New System (online banking/back office processing) built with Mainframe and PRIMEQUEST
- ▶ System platform for use over next 10 years
- ▶ Back-up / recovery without interrupting operation (ETERNUS SF)



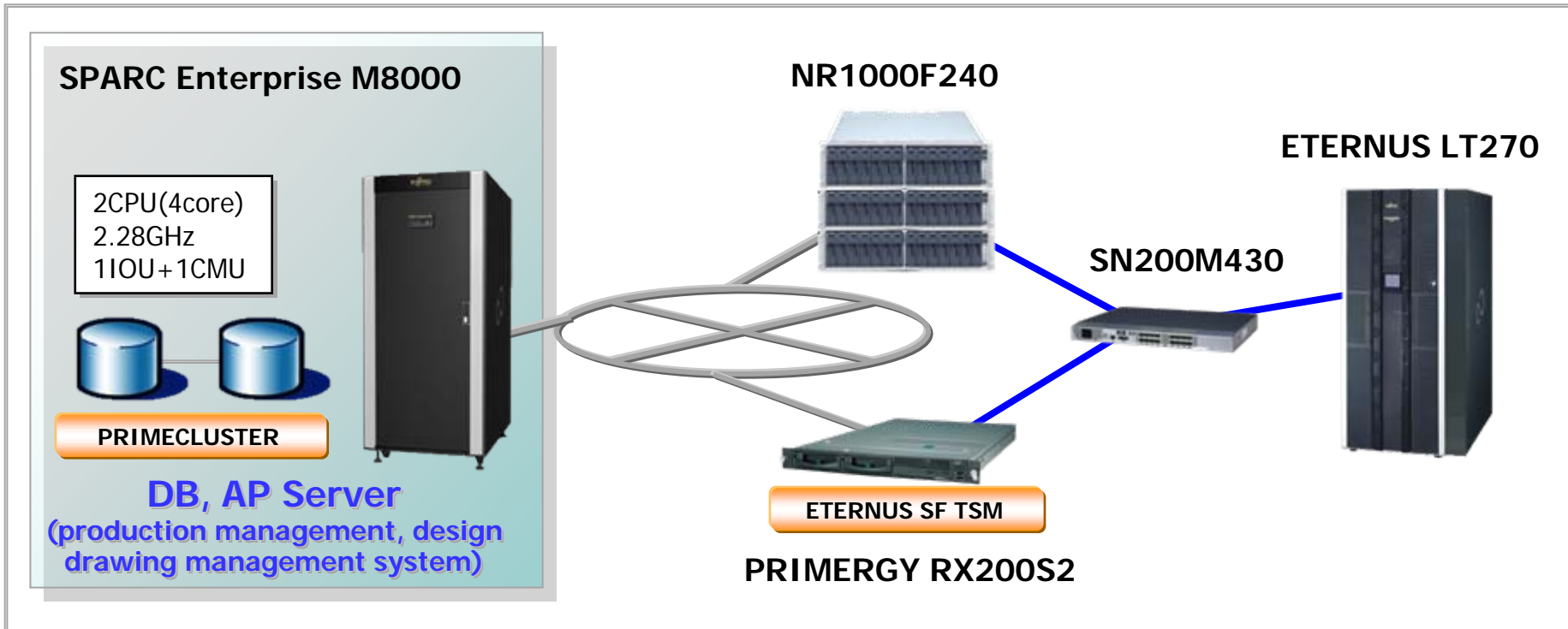
■ **Anthony Marano** (US fresh produce distributor)

- ▶ Built real-time inventory management system with high-reliability PRIMEQUEST
- ▶ Superior reliability with SAN boot, system mirroring and partition functions
- ▶ High-reliability hardware obviates need for clustering, reducing operational costs

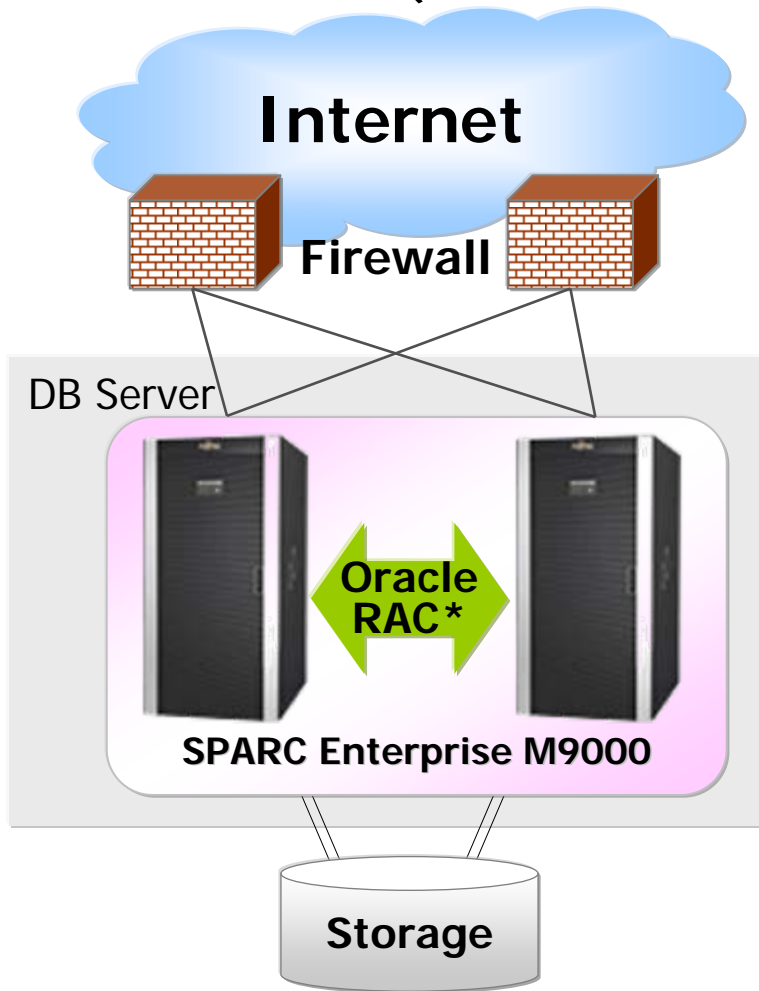


■ **Kawasaki Heavy Industries, Ltd.**

- ▶ High-reliability system built with SPARC Enterprise to meet growing demands in production
- ▶ High reliability through redundancy of key modules inside chassis
- ▶ Reduced operational load through combination of integrated storage and integrated back-up



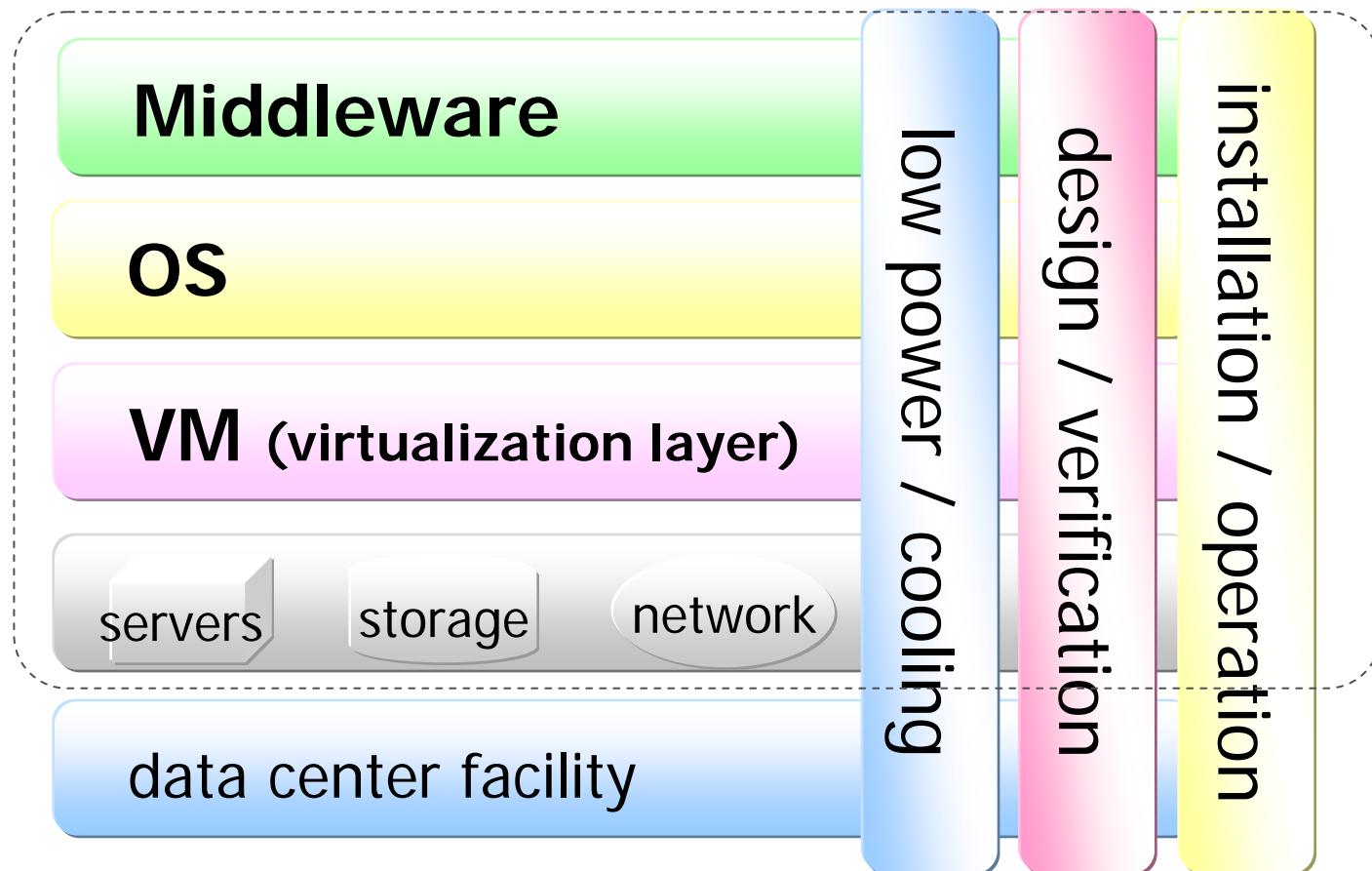
■ SHINSEGAE Information & Communication Co. LTD (Korean online shopping mall)



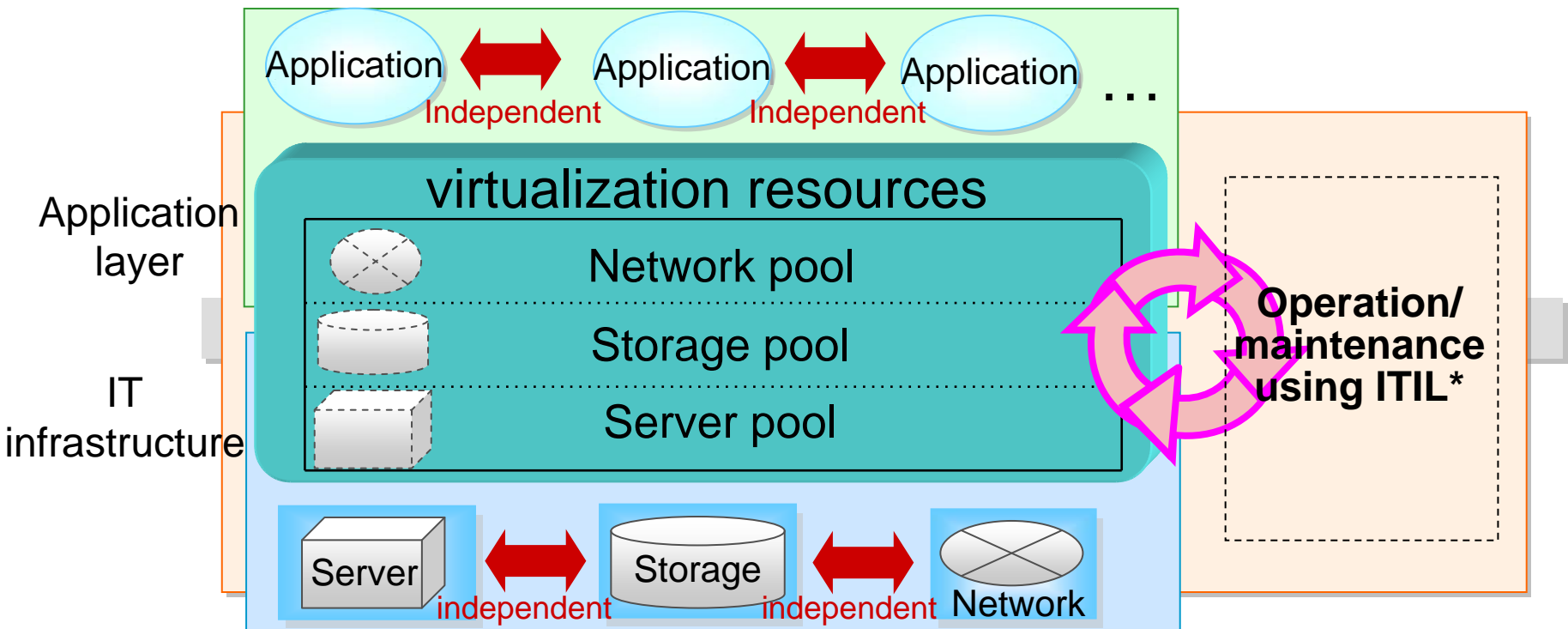
- ▶ High-availability system to support 24/7 online shopping system
- ▶ Solaris used for its wealth of applications and high-level security
- ▶ Partitioning functions enable flexible system scalability

*RAC: Real Application Clusters

- Optimization of each component
- Develop holistic architecture, optimizing across the platform



- Separation of application layer and physical layer
 - ▶ Operation with independent life cycles
 - Enables applications and infrastructure to grow independently
- Effective use of IT resources
 - ▶ Enables operational flexibility, high availability, minimizing power and space



* ITIL:IT Infrastructure Library

■ Use of low power consumption technology

- ▶ Low-power CPU
- ▶ Semiconductor disk (SSD) also planned

■ Suitable for variety of settings

- ▶ 100V power supply (planned)
- ▶ Compatibility with high-performance server blades (current equipment)

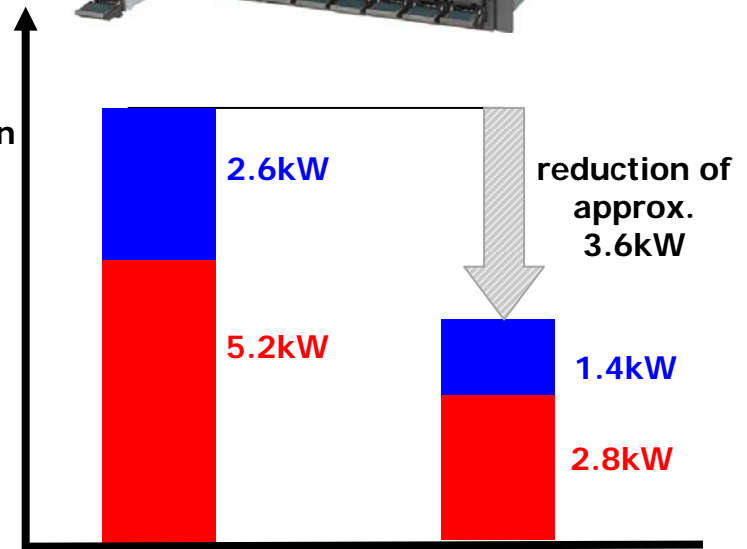
Reduces power consumption by approx. 3.6 kW/chassis.

Reduces electricity costs by approx. 1.9 million yen across 5 yrs.

Low-power server blades



cooling /
server
power
consumption



High-performance server blade
• 20CPU
• 200V power supply

Low-pwr consumption server blade
• 20CPU
• 100V power supply

Initiatives to conserve power and space

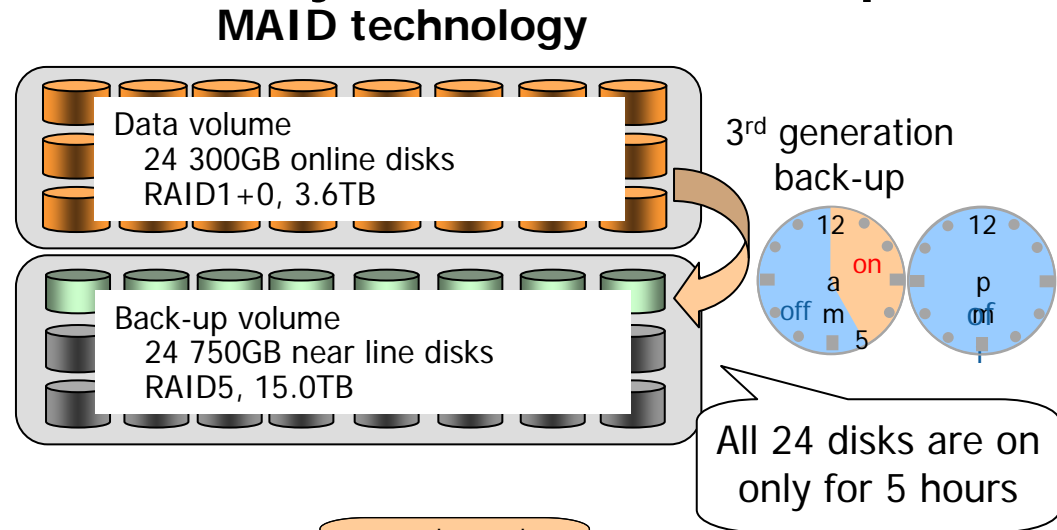
▶ **Reduced power consumption enabled by disk to disk back-ups using MAID*1 technology**

▶ **1-chip RAID controller**

- 60% reduction in # of parts
- 40% reduction in power
- Lower failure rate

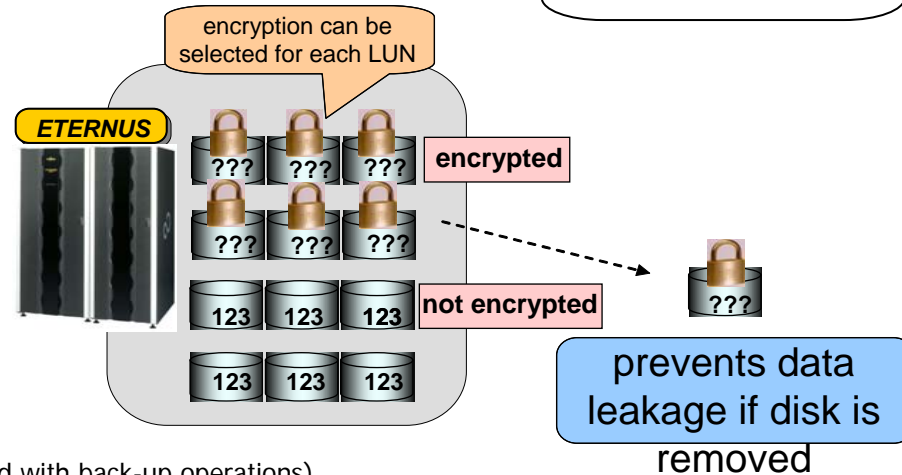
▶ **Compact footprint**

- 50% reduction in space
- 30% reduction in weight



Security

▶ **Enables disk encryption within storage system**
(uses highly-secure 128bit AES*2 method)



*1) MAID : Massive Arrays of Inactive Disks (Power up/down of HDDs linked with back-up operations)

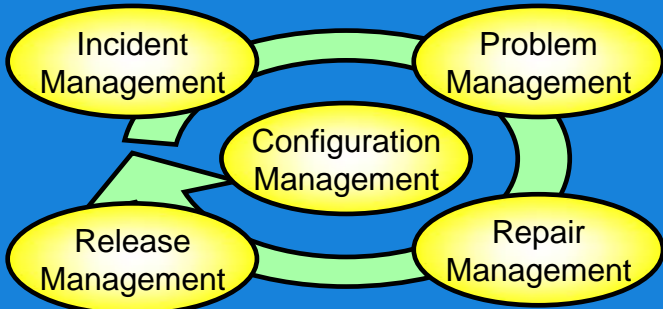
*2) AES : Advanced Encryption Standard (Next-generation encryption standard of US government)

■ ITIL-based operation with Systemwalker

- ▶ Enables clarification and visualization of task status
- ▶ Enables unified management of system configuration components
- ▶ Enables visualization of relationships and dependencies between “tasks” and “configuration components”

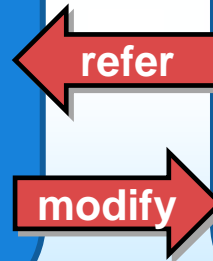
New configuration of operational tasks with Systemwalker

Formalization and visualization with 5 processes of ITIL

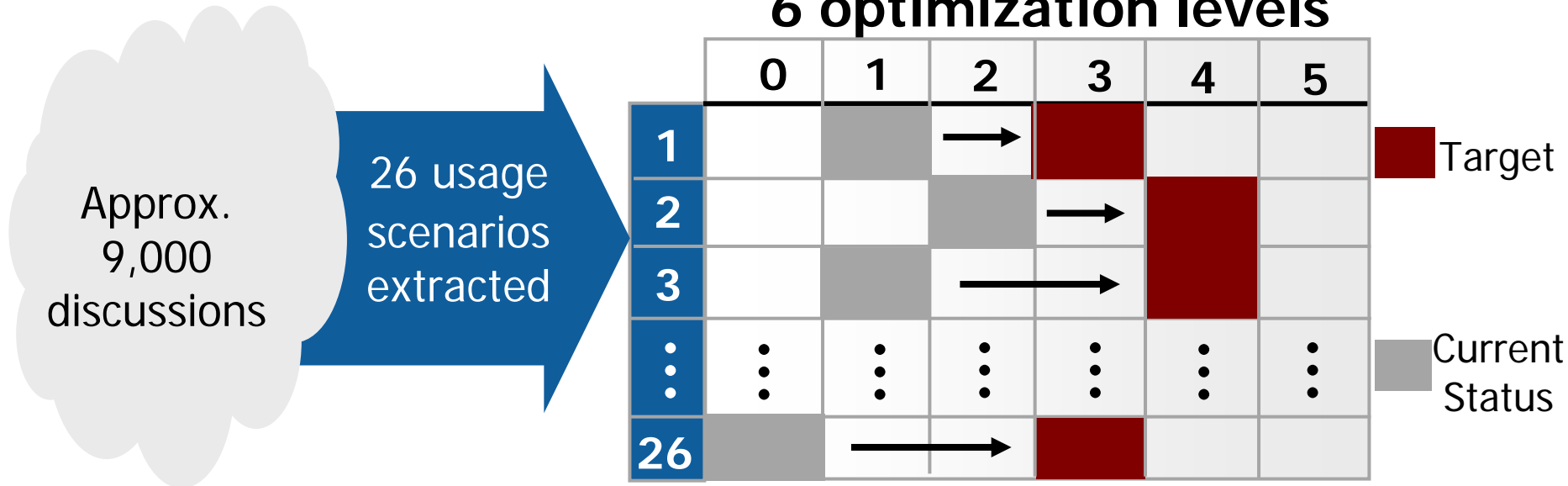


Unified management of configuration components

CMDB (Configuration management DB)				
Incident	Hardware	Media	Documents	Maintenance parts



- Overall optimization throughout entire life cycle through shared vision of the future
- Clarifies position of immediate initiatives and future steps to consider

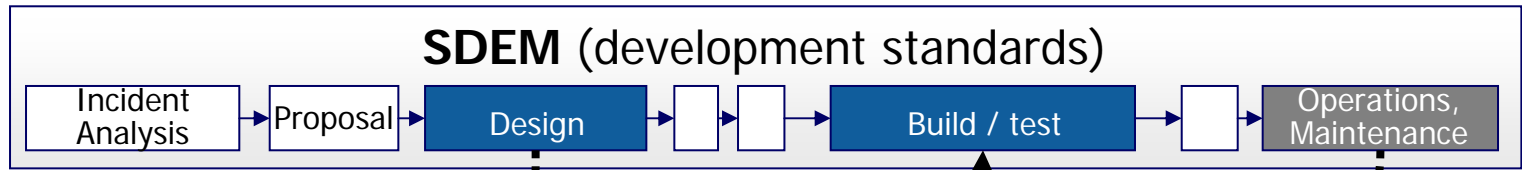


- 26 usage scenarios
- Server consolidation
 - File server consolidation
 - Network optimization
 - Back-up management**
 - ⋮
 - Security management

- 0** : Execution through front-line decision
- 1** : Manage through rules for each server
- 2** : Deploy back-up server
- 3** : Reduce time needed for back-ups
- 4** : Back-ups w/out stopping work
- 5** : Disaster preparedness/countermeasures

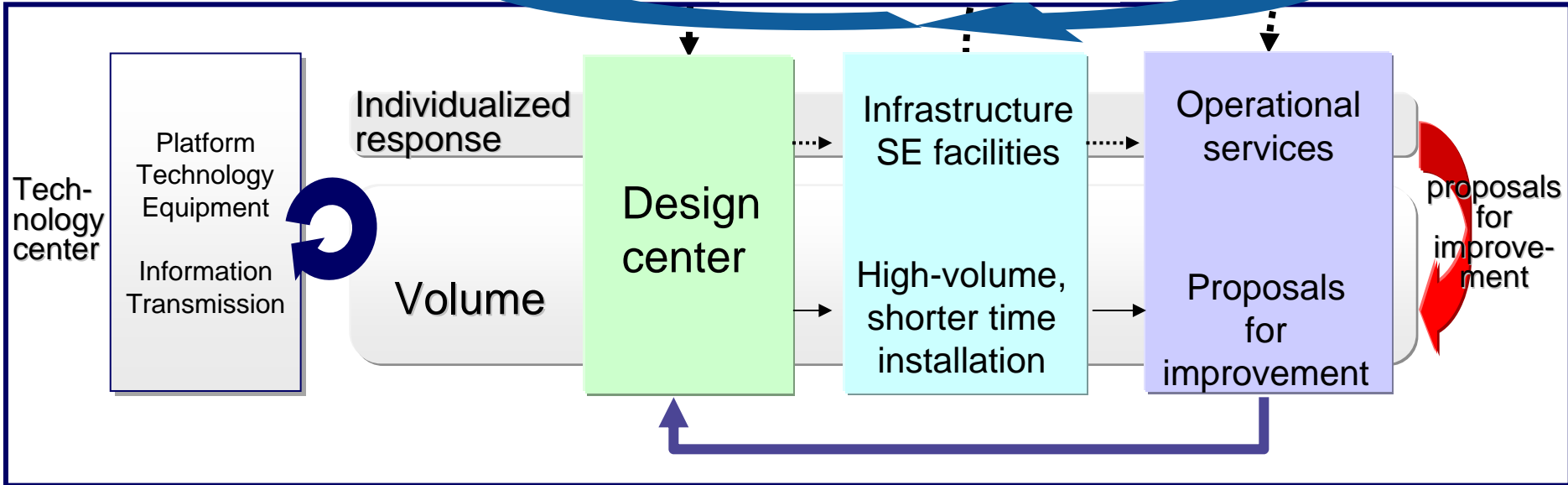
■ Linking “industrialization” of infrastructure installations and operational services

SE task process

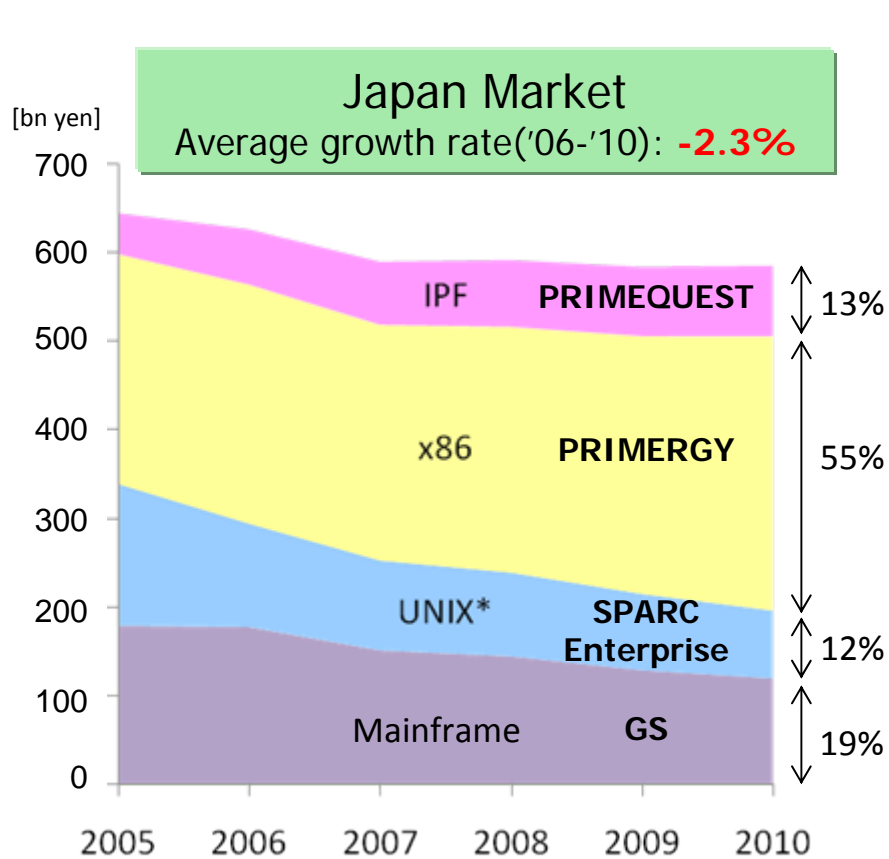


Making visible approx. 400 work steps / processes

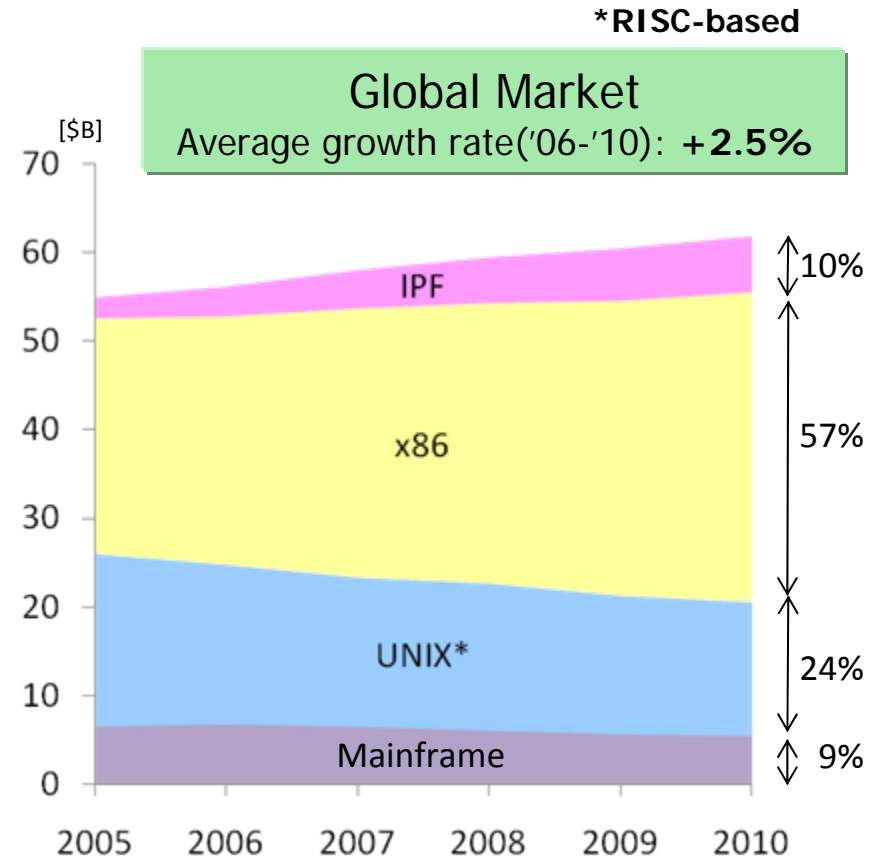
Fujitsu FSAS



Fujitsu's offerings for Mainframe/UNIX*/x86/IPF markets



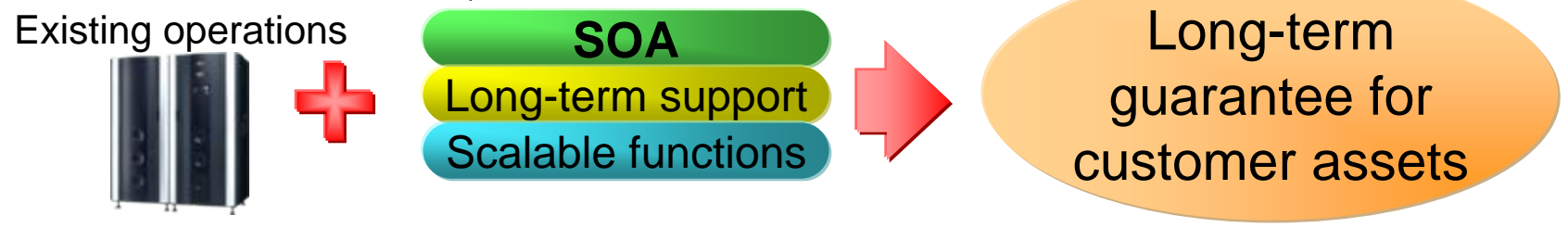
Source : IDC Japan, Japan Quarterly Server Forecast
CY2007Q2



Source : IDC, 7/2007 Worldwide Quarterly Server Forecaster

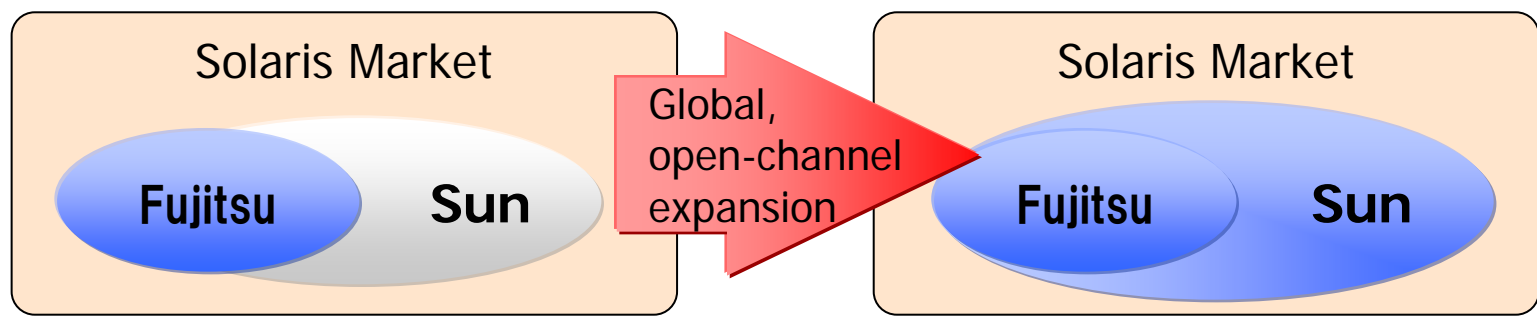
■ Mainframes (GS21)

- ▶ **Delivers ultra-high reliability for large-scale social infrastructure systems, protection of/respect for customer assets**
 - New company to be established (November 07) for long-term support of GS software
- ▶ **Integrating with open systems using SOA gateway for mainframe (Service-Oriented Architecture)**



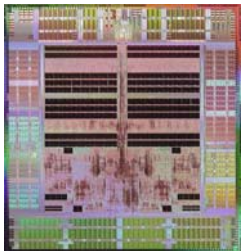
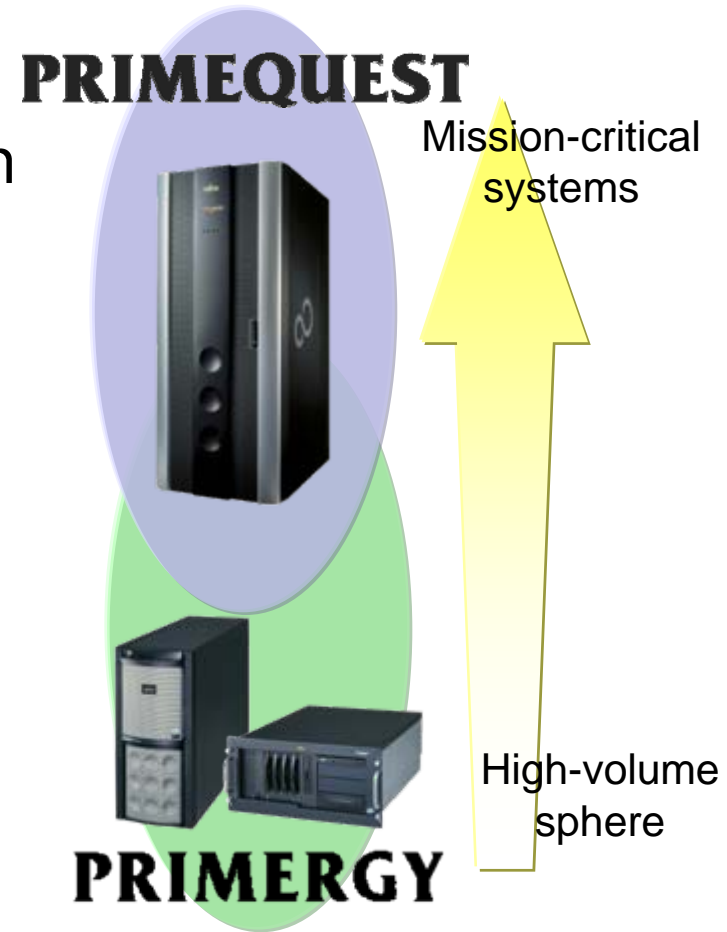
■ UNIX (SPARC Enterprise)

- ▶ Global market expansion through joint development/manufacturing collaboration with Sun
- ▶ Brings Fujitsu's expertise for high performance and reliability into the largest UNIX market, Solaris
- ▶ Introduces leading edge processors to the market with strengths of Fujitsu semiconductors



■ Mission-Critical IA Server

- ▶ Provides mainframe reliability in an open-standard platform
 - Employs 64bit Intel Itanium2
 - Linux/Windows standard distribution
- ▶ Data center optimization
 - Flexible partitioning
 - Handles scale out, scale up of operations

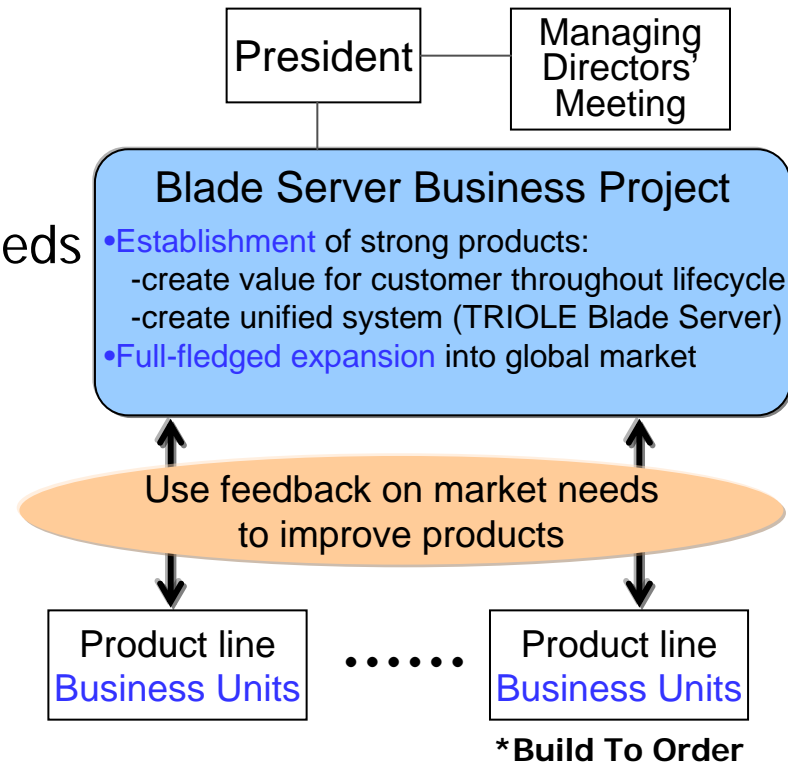


- ▶ Max. 5 million-gate LSI
- ▶ Ultra-high-speed system bus developed by Fujitsu MTL*
- ▶ Dual Sync. System Architecture

World's first

*Mori/Muta Transceiver Logic

- By pursuing synergies with PCs, expand volume and reduce costs
 - ▶ Raise market presence with unified ad/PR campaign
 - ▶ Leverage PC infrastructure (SCM, China-based production, vendor quality management) to achieve cost reductions
- Unify marketing and development organization for blade servers
 - ▶ A project team directly reporting to the president of Fujitsu Limited
 - ▶ Enhance products based on market needs
- Differentiate with green technology
 - ▶ Provide low-power blades
 - ▶ Compact, low-noise operation
- Accelerate globalization
 - ▶ Start BTO* in N. America
 - ▶ Unified development with FSC



PRIMERGY TX120 Compact Server

- Smallest footprint in its class
 - ▶ 1/4th size of previous model(TX150 S5)
- World's lowest power consumption levels
 - ▶ First tower model to reach below 200W: uses only 175W
- World's quietest operation
 - ▶ Uses heat-pipe cooling method
 - ▶ Operates at 32db (equivalent to whispering)



Product Road Map

(CY)

2006

2007

2008

2009~

Global Servers
(Mainframes)



GS21

GS21 500/900
(x1.5 Performance)

C8
(Next-generation CPU)

SPARC Enterprise
(UNIX Servers)



PRIMEPOWER
SPARC64 V

SPARC Enterprise
SPARC64 VI (Dual Core)

Niagara II

Quad Core

PRIMEQUEST
(Mission-critical IA servers)



Montecito

Montvale

Quad Core

Xen (virtualization)

PRIMERGY
(Windows/Linux servers)



Dual Core

Quad Core

ETERNUS
(Storage)



ETERNUS 4000/8000

FC 8G I/F

ETERNUS 2000

SAS 6G I/F

※ This road map is subject to change

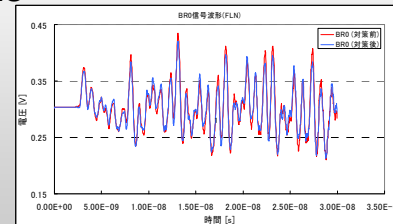
Cycles of innovation using advanced simulation and product evaluation technologies

Design Cycle

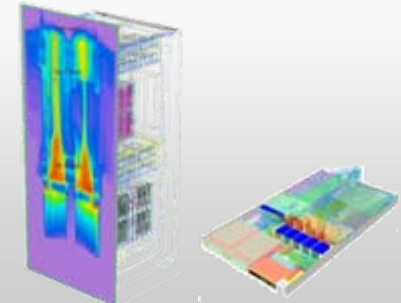
- ◆ Circuit design
- ◆ Chassis design
- ◆ Simulation
- ◆ Design feedback
- ◆ Evaluation prototype
- ◆ Performance evaluation
- ◆ Transmission evaluation
- ◆ Cooling evaluation

- ◆ Design of return current countermeasures by large-scale electro-magnetic field analysis
- ◆ Heat design through thermo-fluid analysis

Simulation



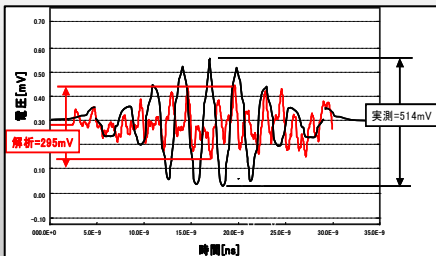
Projected noise from return current (current analysis)



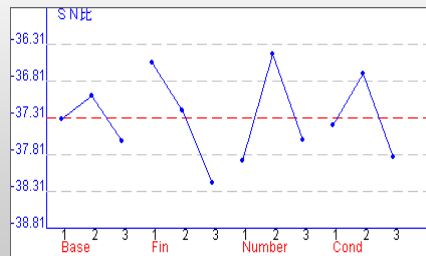
distribution of heat within casing (thermo-fluid analysis)

Theoretical Analysis of Variance

- ◆ Trouble-shooting (noise wave analysis)



- ◆ Off-line quality control (Taguchi method)



Shape optimization through quality engineering

Analysis / Measurement

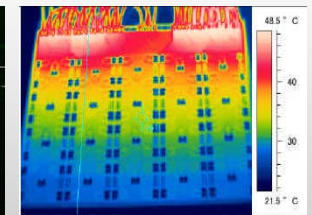
- ◆ Noise wave formation measurement (print board)
- ◆ Heat distribution in casing, temperature measurement



Return current noise measurement (digital oscilloscope)



Board internal temperature measurement (infra-red camera)



Wind measurement (laser velocity meter)

■ QCD improvement through introduction of Toyota Production System (since FY '04)

▶ Improvement at FJIT in server production ('04 - '06)

Production lead-time: -47% Processing cost: -43% Line stop rate: -24%

▶ Small UNIX server production line improvement



Before

Reduced space by
12,800m²
Target: -12,000 m²



After

■ Reduction in total lead-time (planning development / production) (since FY '06)

- ▶ Make Product Planning process visible
- ▶ Thorough implementation of DFM / DFT*
- ▶ Handling of back-end component procurement, reduction of delivery time

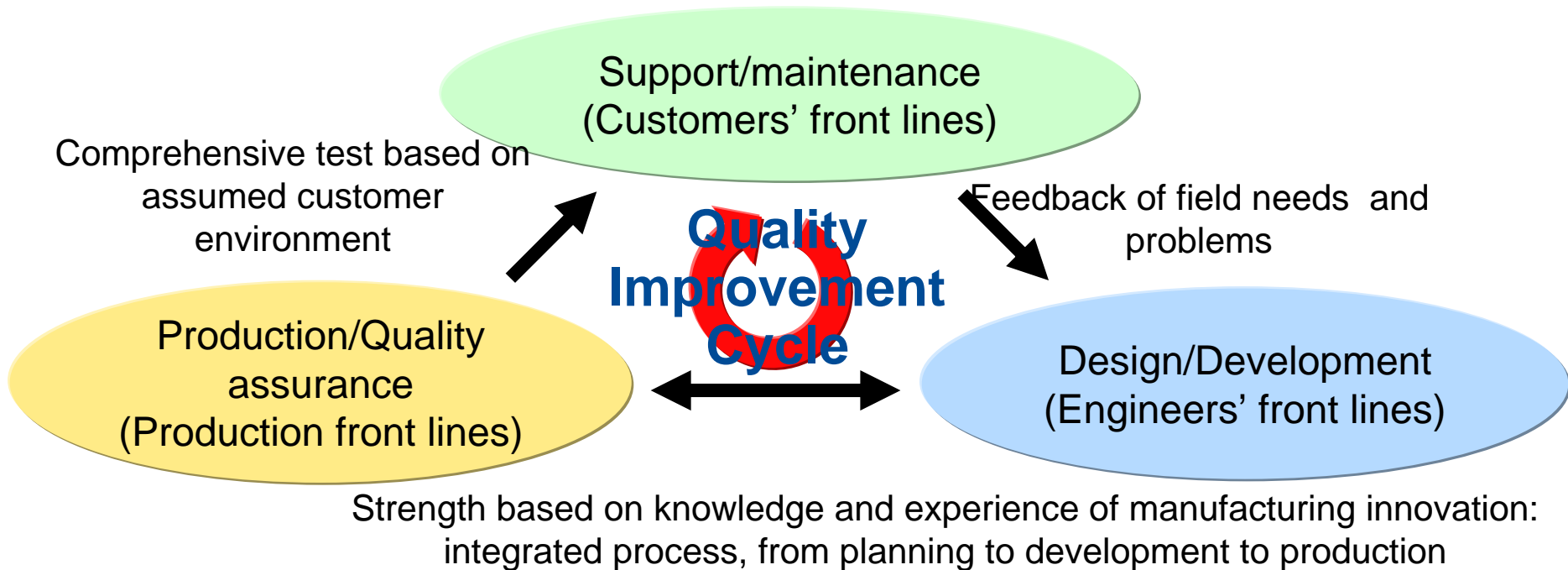
Example of results:

Through DFM, reduction in number of/types of parts

- Part types for system board -48%
- Units used in PT board DIP parts -84%

* DFM: Design For Manufacturing
DFT: Design For Testability

- Commitment to frontlines, products, and reality (outlined below)



- ▶ Frontlines: Bring engineers closer to customers
- ▶ Products: Rely on strength of own engineers
- ▶ Reality: Fully ascertain cause of malfunction, respond quickly



High evaluation in environmental indexes

Included in Dow Jones Sustainability Index, FTSE4 Good Global Index



- Provide super green products, which have industry-leading features
- Reduce power consumption: leading-edge semiconductors, high-efficiency amplifiers
- Comply with and laws and regulations of each country, such as EU RoHS regulations
- Office environment
 - ▶ the “team minus 6%” initiative of Japan (to reduce CO₂ emissions)

Super Green Product



PRIMERGY TX120



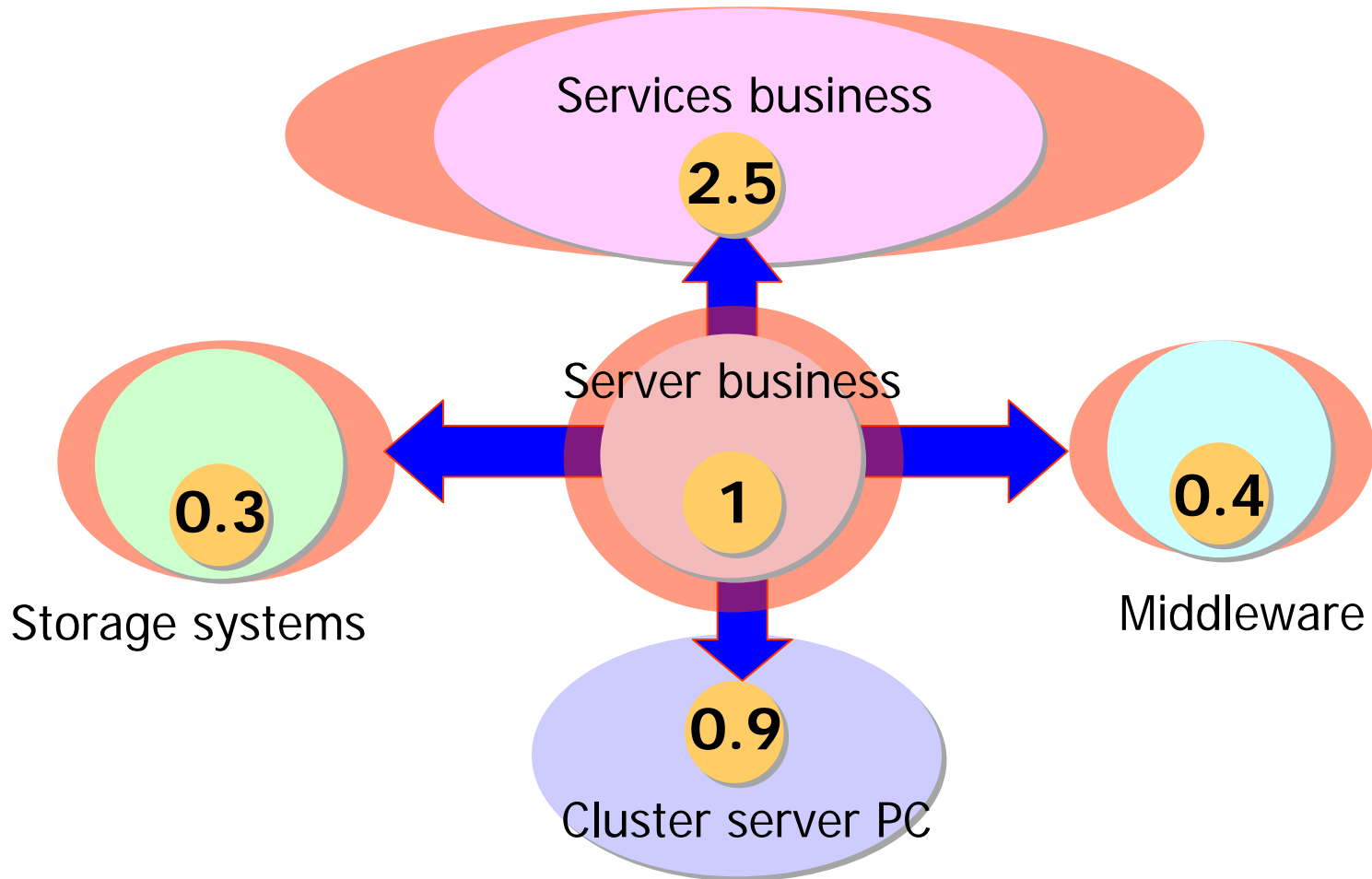
ETERNUS2000



いつも地球を見守っている

- Providing platforms optimized for data centers
- IT infrastructure optimization initiatives
- Strong products for the global market

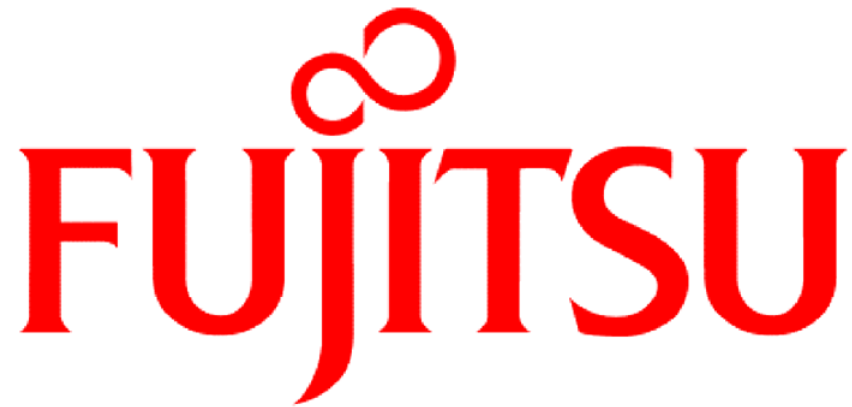
- Provide strong platforms for strong services



Overall effect magnified by **4x**

Making Dreams Come True

Fujitsu seeks to be a trusted partner to its customers, by maximizing its comprehensive resources to provide IT solutions to support the management of its customers' businesses.



FUJITSU

THE POSSIBILITIES ARE INFINITE

Cautionary Statement

These presentation materials and other information on our meeting may contain forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. Words such as "anticipates," "believes," "expects," "estimates," "intends," "plans," "projects," and similar expressions which indicate future events and trends identify forward-looking statements. Actual results may differ materially from those projected or implied in the forward-looking statements due to, without limitation, the following factors:

- general economic and market conditions in the major geographic markets for Fujitsu's services and products, which are the United States, EU, Japan and elsewhere in Asia, particularly as such conditions may effect customer spending;
- rapid technological change, fluctuations in customer demand and intensifying price competition in the IT, telecommunications, and microelectronics markets in which Fujitsu competes;
- Fujitsu's ability to dispose of non-core businesses and related assets through strategic alliances and sales on commercially reasonable terms, and the effect of realization of losses which may result from such transactions;
- uncertainty as to Fujitsu's access to, or protection for, certain intellectual property rights;
- uncertainty as to the performance of Fujitsu's strategic business partners;
- declines in the market prices of Japanese and foreign equity securities held by Fujitsu which could cause Fujitsu to recognize significant losses in the value of its holdings and require Fujitsu to make significant additional contributions to its pension funds in order to make up shortfalls in minimum reserve requirements resulting from such declines;
- poor operating results, inability to access financing on commercially reasonable terms, insolvency or bankruptcy of Fujitsu's customers, any of which factors could adversely affect or preclude these customers' ability to timely pay accounts receivables owed to Fujitsu; and
- fluctuations in rates of exchange for the yen and other currencies in which Fujitsu makes significant sales or in which Fujitsu's assets and liabilities are denominated, particularly between the yen and the British pound and U.S. dollar, respectively.