

Presentation for:

# Boundaryless Information Flow & Enterprise Architecture

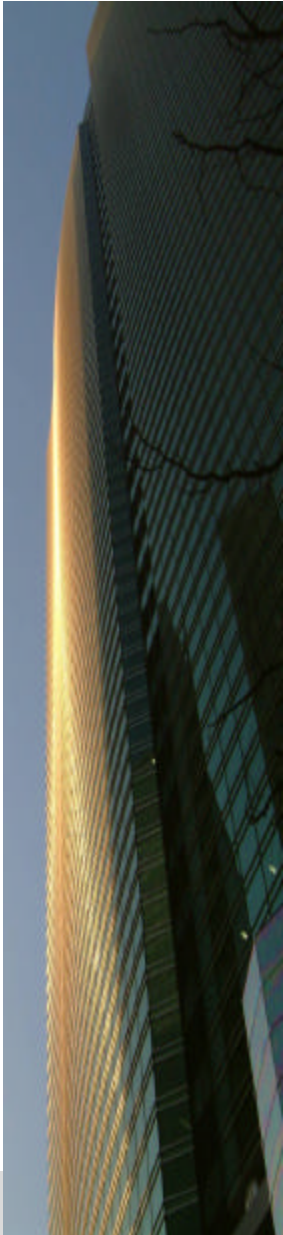
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Director, Business Development  
GLOVIA International, Inc.

*A Fujitsu Company*

# Agenda

- I. Introduction to Glovia and ERP
- II. ERP created boundaries
- III. The world changed
- IV. ERP products changed (are changing, need to change,..) and brought down the boundaries

# Fujitsu at a Glance



❖ *Fujitsu is a leading provider of customer-focused IT and communications solutions for the global marketplace. Comprising more than 500 subsidiaries and affiliates, the Fujitsu Group operates in over 60 countries across the globe.*

- Established: June 1935
- Stock Exchange Listings: Tokyo, Osaka, Nagoya, Frankfurt, London, Swiss
- Consolidated Revenues: 4.6 trillion yen (US\$38.4 billion)
- Employees: 157,000 worldwide
- R&D Expenditure: 286 billion yen (US\$2.4 billion)
- Principal Business Areas: Software & Services, Platforms, Electronic Devices

Note: FY2002 consolidated net sales; US\$1=¥120; WW employees as of March 31, 2003

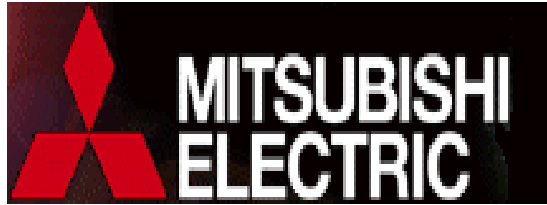
## *GLOVIA* History

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- *GLOVIA* (originally Xerox Computer Services) has been in the business of providing manufacturing solutions since 1970
  - Timesharing starting from 1970
  - Internal Factory Use from mid '70s
  - Software Solutions starting in the early '80s
  - Turnkey Solutions in the mid '80s
  - ERP Applications starting in the early '90s
  - e-Business Provider 2000...

## Example GLOVIA Customers

**Panasonic**



**Canon**



**Pioneer**



# ERP Created Boundaries

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- ❖ ERP was intended to create boundaries
  - Solved internal business problem – automate internal processes
  - Starting from Inventory then planning and scheduling, then order processing then...

# Glovia ERP Modules

## Definition

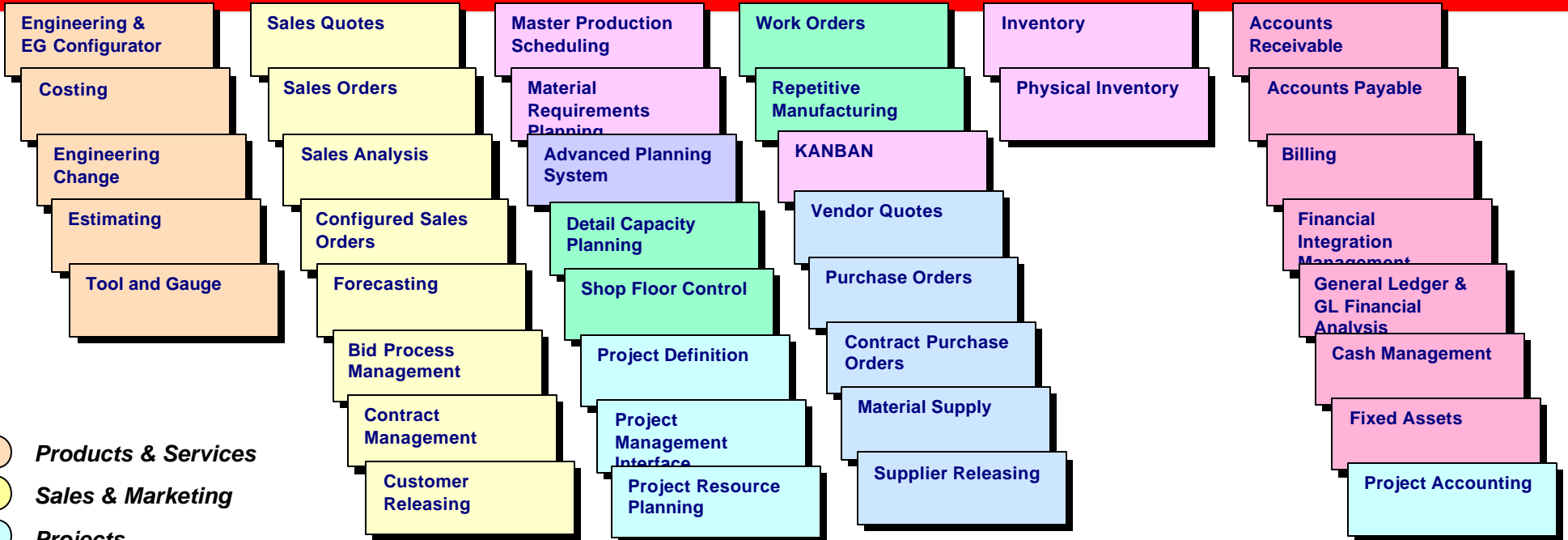
## Demand

## Planning

## Supply

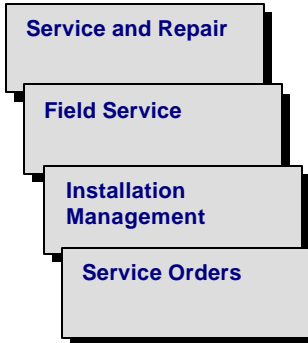
## Inventory

## Financials

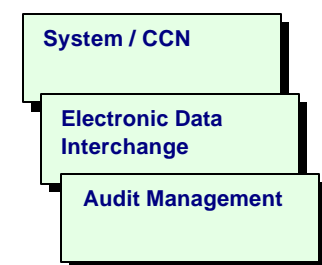


- *Products & Services*
- *Sales & Marketing*
- *Projects*
- *Production*
- *Procurement*
- *Service Management*
- *Materials Management*
- *Finance & Accounting*
- *Alliances*
- *Administration*

## Service



## Administration



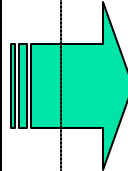
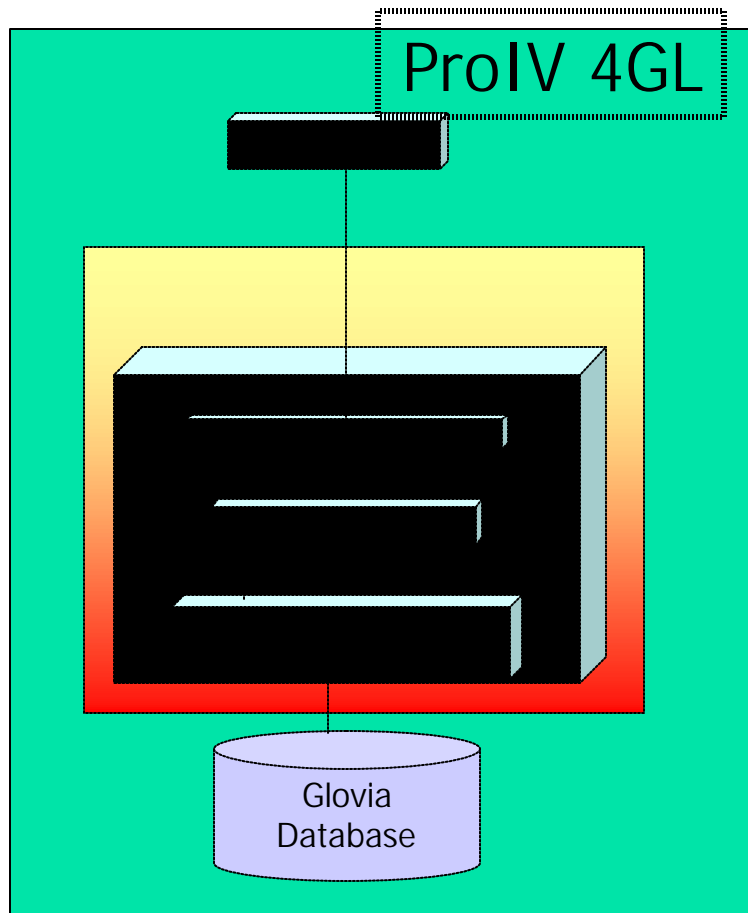
# Cataloging Glovia ERP global services

Core Application Categories	54
Core Business Functions	8,346
Supporting Business Functions	7,843
Total Business Functions	16, 610
Core Oracle Tables/Files	3,400
Supporting Oracle Tables/Files	9,047
Total Oracle Tables/Files	12,447
Screen functions	5,321
Report functions	1,818
Update functions	1,207
Function / File Interactions	69,910

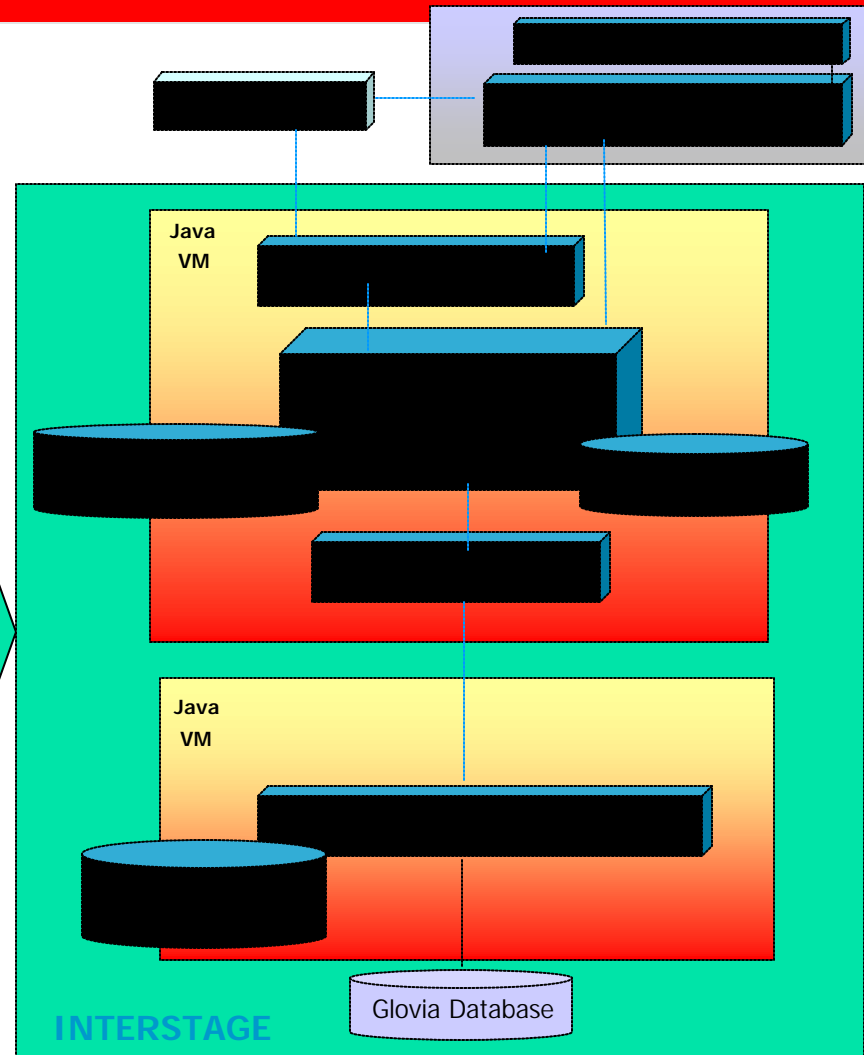


# Architecture Strategy

Current Architecture



New Architecture



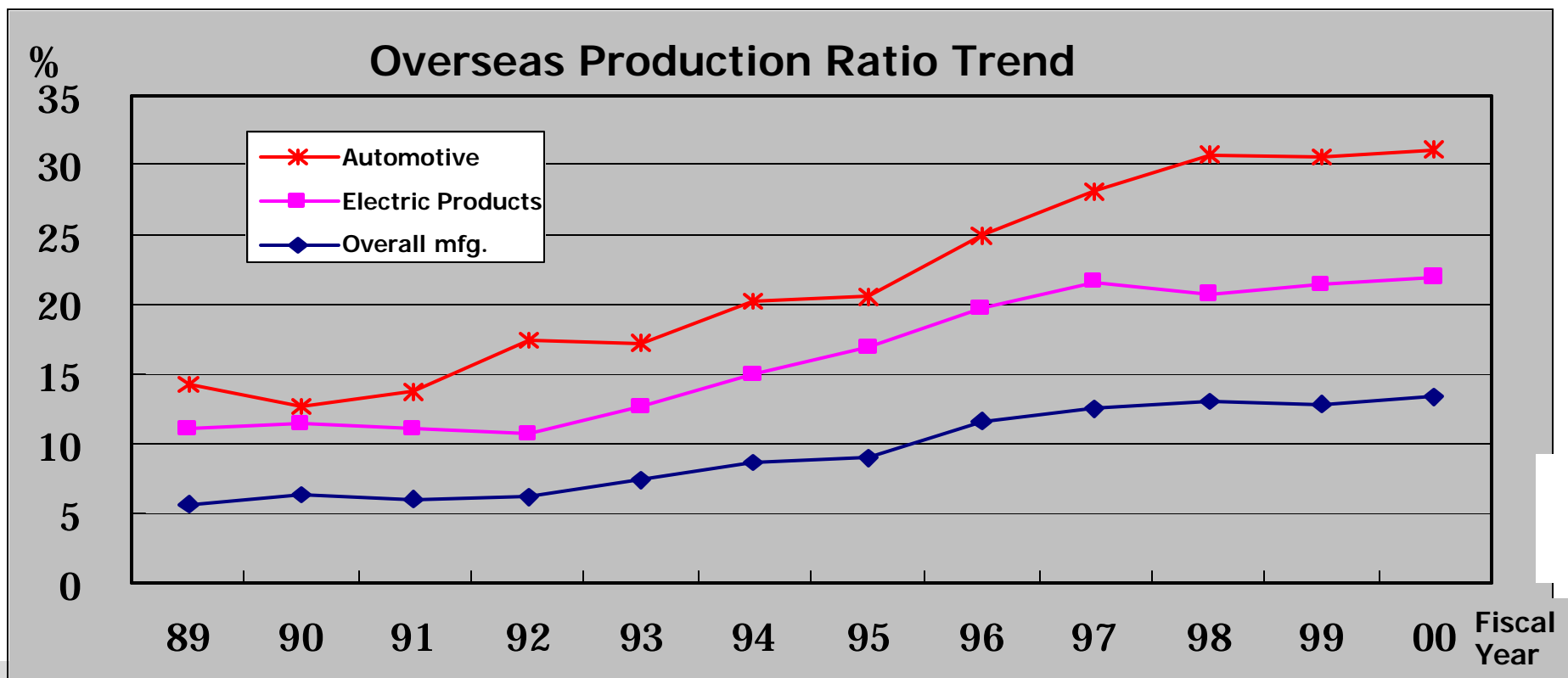
# The world changed on the ERP vendors

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- **Business model went global**
  - Rise of outsourcing and dynamic supply/demand chain relationships
  - New demands for enterprise-wide visibility, including others in the chain
  - Changes in manufacturing styles
- **Technology went global**
  - Internet availability
  - Standards and open-systems
  - New business application products
- **Software vendors went global**

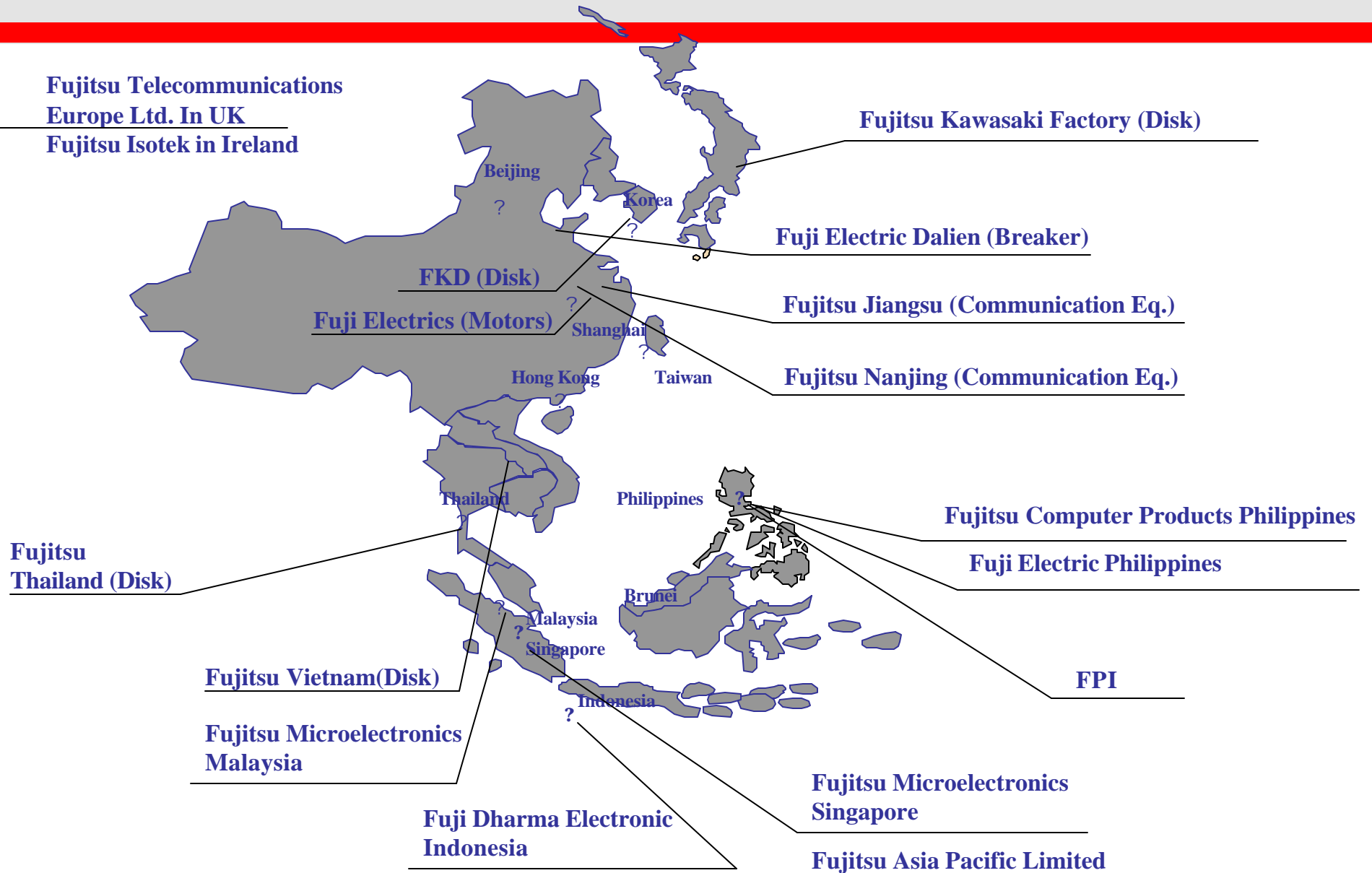
# Transferring Manufacturing Sites Overseas

- ❖ Overseas production ratio of Japanese discrete manufacturing
- ❖ industry (FY2000)
  - Automotive --- 31%
  - Electrical Products --- 22%

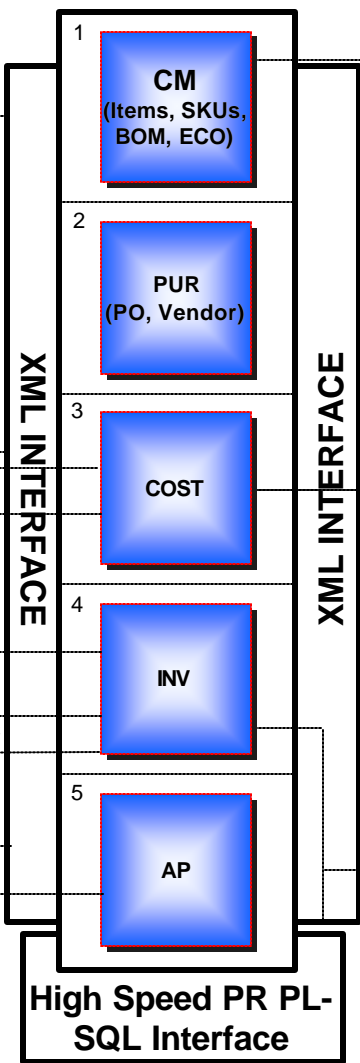


# Users Go Global

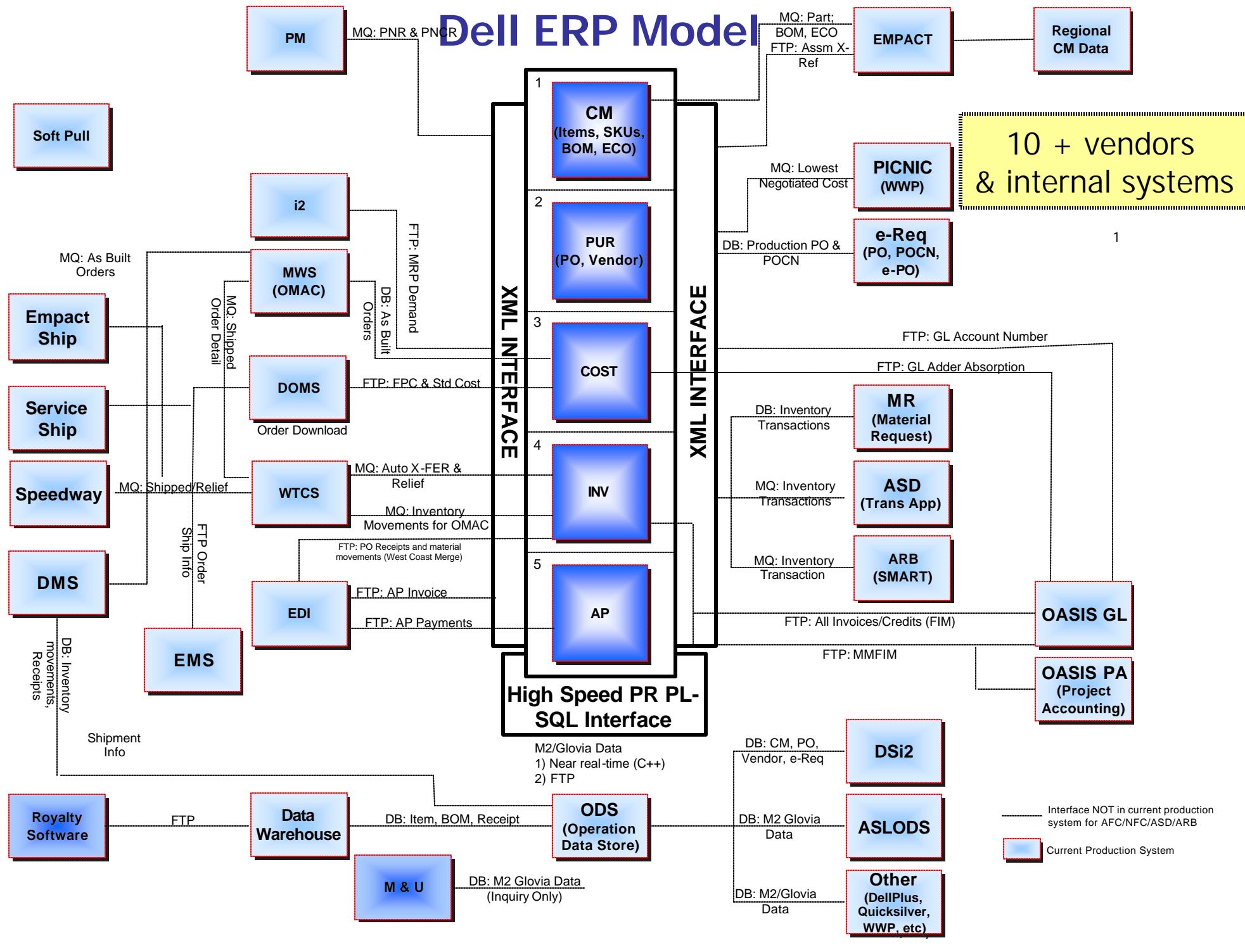
## Fujitsu GLOVIA Users in 11 countries



# Dell ERP Model



10 + vendors & internal systems



Interface NOT in current production system for AFC/NFC/ASD/ARB

Current Production System

# Tier 1 Company Issues

- ❖ No integrated system to visualize global operations (P, N, D)
- ❖ No real time interface between Sales/HQ/Manufacturing/Procurement functions (P, D)
- ❖ Need stronger co-ordination capability for central functions (P,D)
- ❖ Long planning cycle and not responsive to changes in demand (P)
- ❖ Long cycle time for ATP dates (P)
- ❖ Redundant inventory by regions (P)
- ❖ Difficult to establish business inter connectivity
- ❖ No HQ function to synchronize and optimize global demand/supply (P,D)
- ❖ Difficult to integrate legacy systems (P, N, D)

P: Pioneer  
N: NSK  
D: Dell

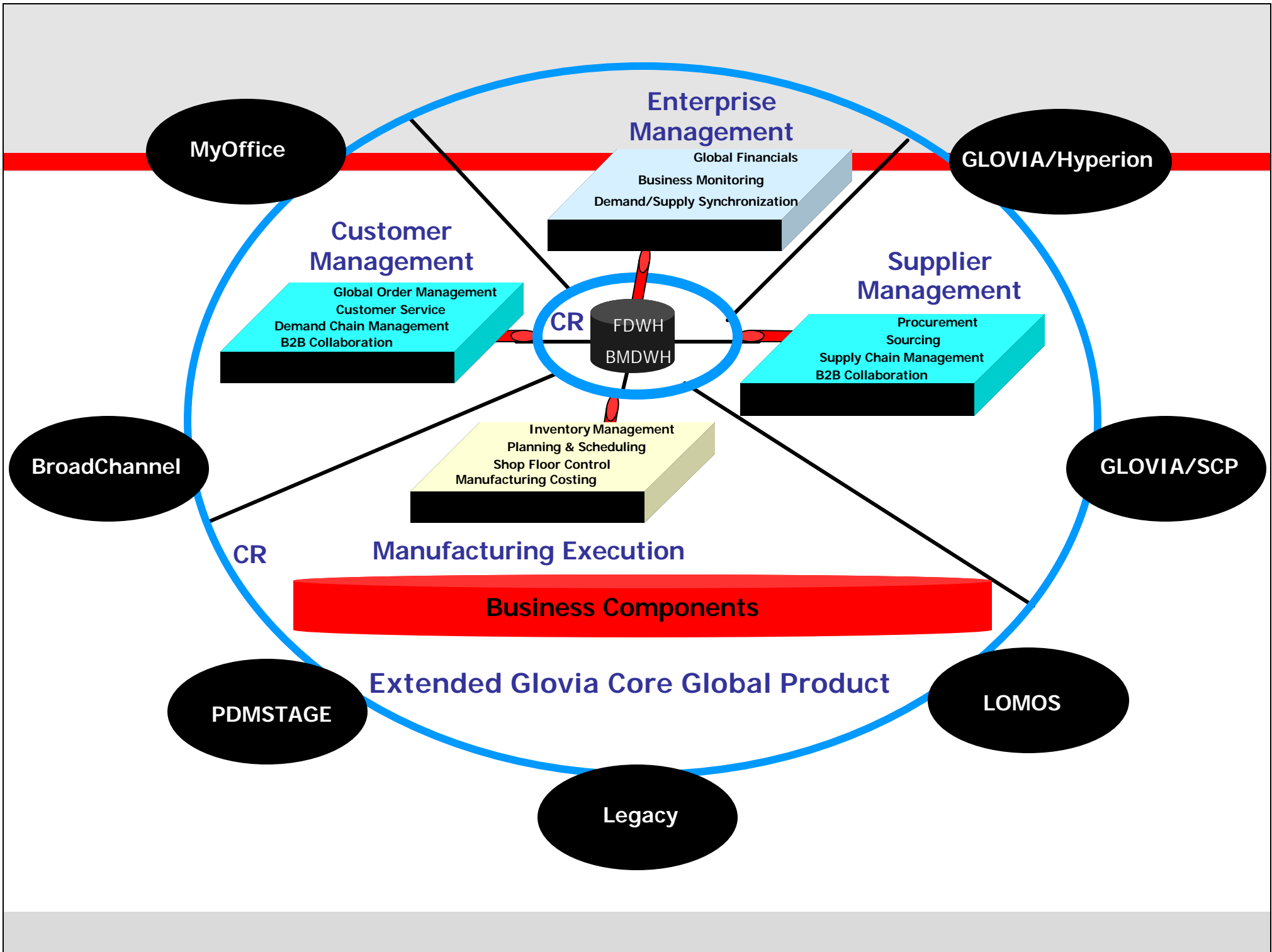
# ERP products changed

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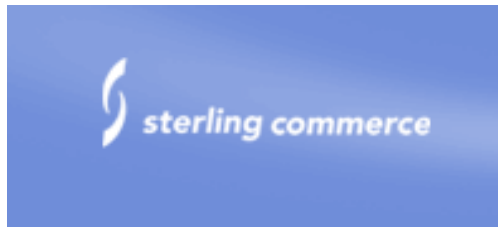
- Think differently
  - Support new business model
  - Partner with other software vendors
- Act differently
  - Provide I/O for legacy data
  - Provide access to and get compatible with related internal applications
  - Provide integration with with external processes
  - Provide GUI in multiple languages







3rd Party Relationship	House Product Line
Fujitsu Interstage	glovia.hub infrastructure layer
FormScape	glovia.com ePublish
Cognos BI	glovia.com Business Intelligence
Cognos Finance	glovia.com financial budgeting, consolidation, planning and forecasting
SMS	glovia.com Shop Floor Data Collection & T&E
Configuration Systems	glovia.com eConfigure
Performance IT	glovia.com Unattended Systems Administration
Fujitsu Softek	glovia.com Self monitoring solution (forthcoming)
Sterling	EDI engine add-on
Oracle	Oracle as required for glovia.com and glovia.hub

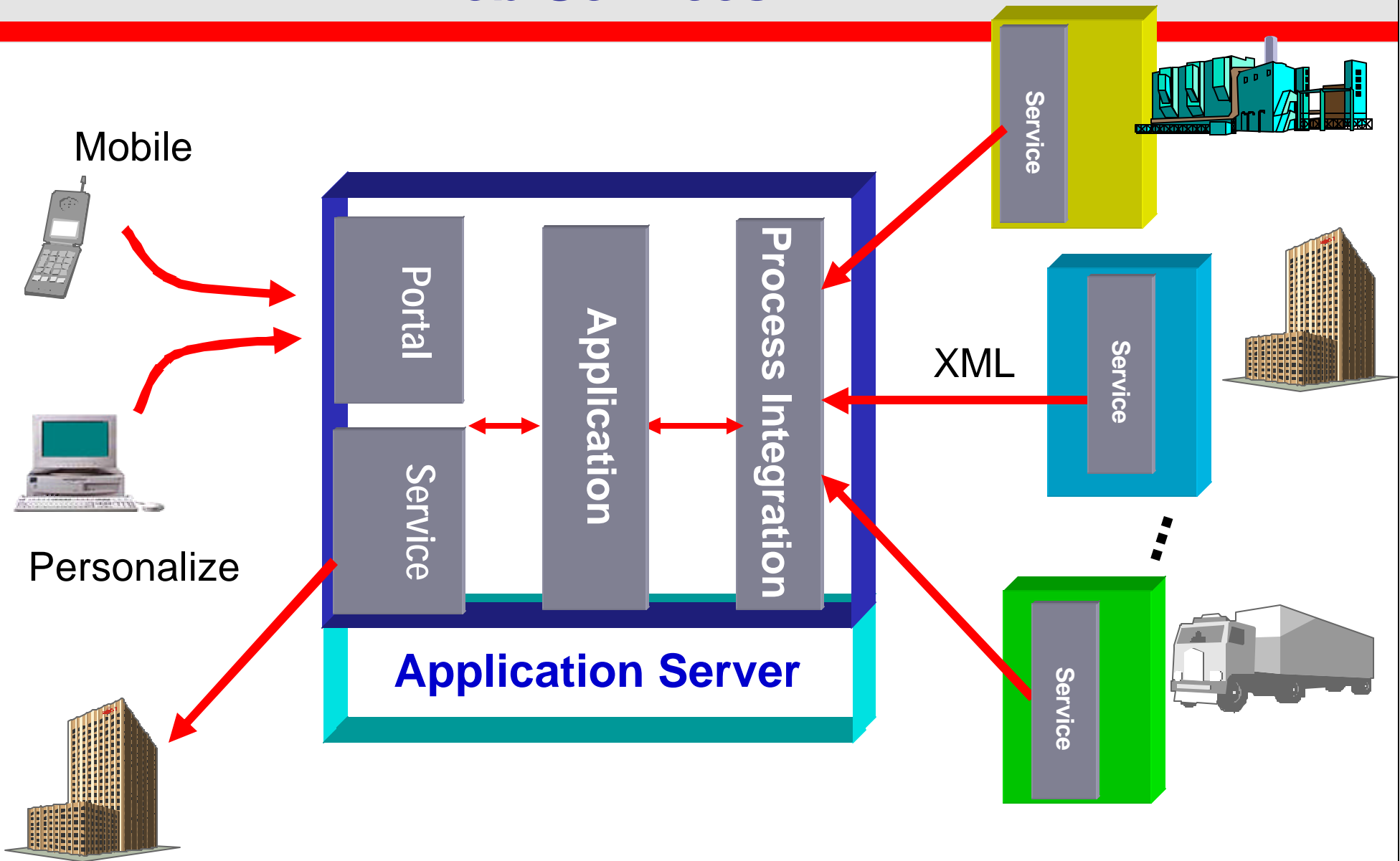


Configuration Solutions



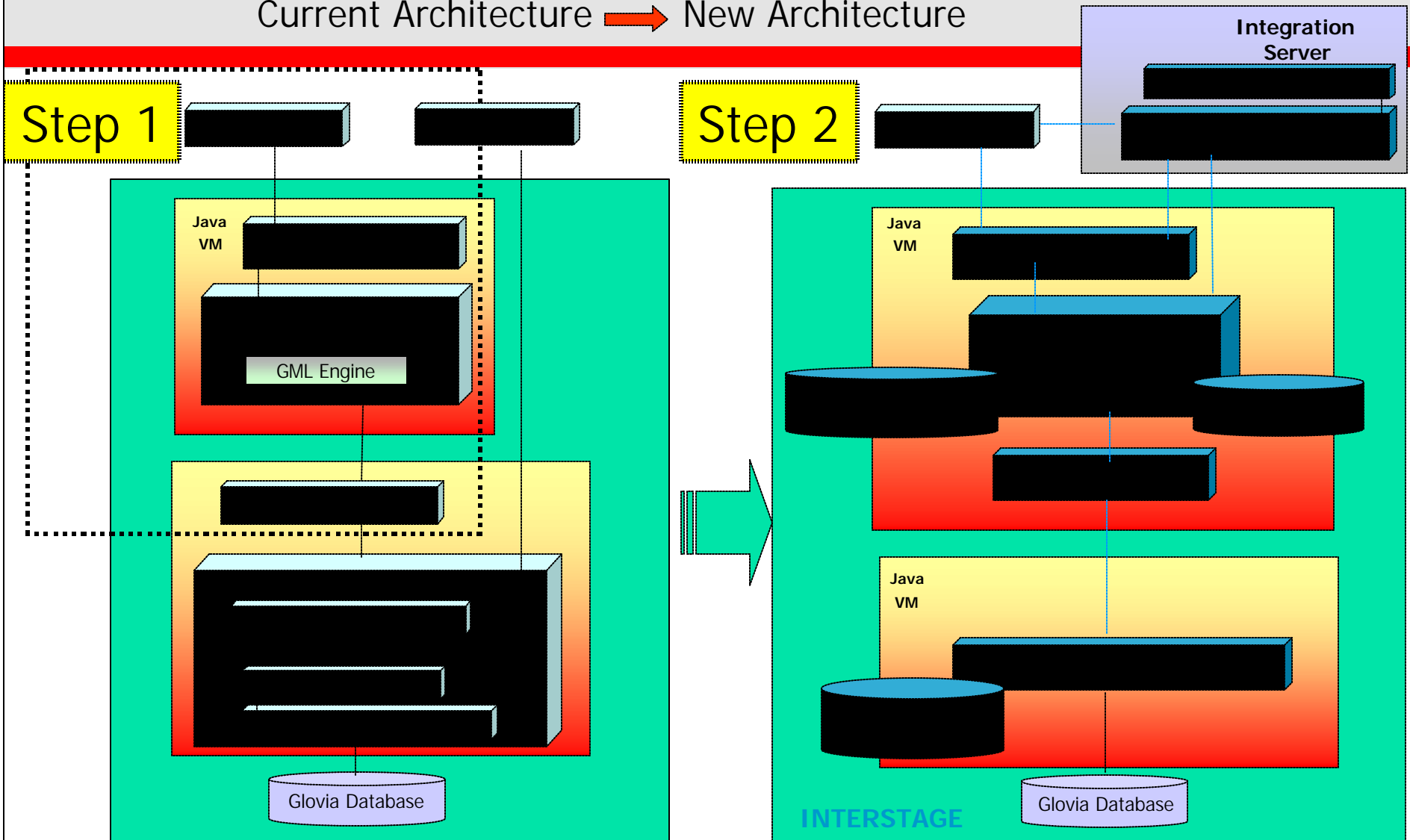
Performance IT

# New Era Architecture Web Services



# Architecture Strategy

Current Architecture → New Architecture



# Strategy

## ❖ Objectives

- Reuse existing ERP services in a Java environment
- Quickly build component libraries

## ❖ Approach

- Encapsulate existing ERP 4GL business services in EJB wrappers
  - Build EJB classes for business services through automation
  - Manually migrate any service that can't be automatically wrapped
  - Catalog services
  - Reuse services
- Migrate MFC user interface from SuperLayer(PROIV) to eAccess(Java)
- Enhance glovia.ade to generate JAVA
  - For new development and customizing existing objects
- Replace EJB Wrapped components with native JAVA EJB components

# Strategy

## ❖ Benefits

- EJB component architecture supports Glovia strategy to leverage its assets to:
  - Build the 'real time virtual enterprise' (next generation ERP) based on glovia.com business logic combined with INTERSTAGE infrastructure
  - Enhance existing B2B e-Commerce offerings
  - Enhance existing ERP offerings
  - Build new functionality
- Web based user interface supports
  - Ease of deployment
    - ASP model, glovia.com Lite, ...
  - Globalization
    - Web deployment is in 20+ languages
- Allows Fujitsu to leverage Glovia EJB library
  - Reduce risk on large projects
  - Shorten time to deliver solutions to customer
  - Shift mix from people intensive projects to higher use of standard software
- Higher market acceptance
  - Large customers and partners

# Summary

- ❖ We built our own boundaries
  - Our business model
  - Our technology
- ❖ Our market changed
- ❖ Our boundaries had to change
  - Open the business model
  - Open the technology

# eAccess

element	description	Protocol (s)	Input	Output
<b>GML engine</b> (java)	Provides a multilingual web interface to back office ERP services using an intelligent tag based macro language (GML) supporting 30+ application tags that are extendable by developer	HTML, RMI?, Java API	HTML/GML request	HTML response stream
<b>Lexical Engine</b> (Java)	Provides a token based phrase substitution mechanism that guarantees browser response matches requestor's language setting (multilingual)	Java API	Token, language, locale	Result parameter containing translated phrase
	Excel used as a translation tool that accepts a phrase stream and allows linguists to translate from source language to target language	Unicode file stream	Excel spreadsheet	Excel spreadsheet
	Glovia database import/export tool for translated phrases stored in Oracle	Unicode file stream CSV	Import request, file stream	Output request, file stream
<b>GAPI (XML framework)</b> (java) + PROIV	XML document handling framework consisting of a listener daemon, parser, business transaction handler and response/acknowledgement publisher; PROIV 'action' functions execute back-office transactions for XML document fragments	TCP/IP, Java API	XML document	XML document
<b>Proxy Client</b> (Java)	Establishes & maintains a persistent connection to a PROIV VM via the PROIV bus daemon on behalf of a web/device client request	Java API	CSV Parameters	Buffer, parameters to the to PROIV Bus call
<b>ERP Connector</b> (Java)	Intelligent Java Connector (JCA) that wraps the Proxy Client for standard EJB access	RMI, Java API	EJB Parameters	EJB Parameters



# Glovia eAccess Key Features

eAccess™ represents an ERP-tuned collaboration of Java based web components packaged as a series of action 'tags' that are executed at run-time in a powerful GML (Global Markup Language) engine. All GML services are in written in pure Java with interfaces to the Glovia ERP services via standard Glovia Tasks. A single Task can sequence and control as many business functions as necessary to provide user requested back office information. Browser or B2B requests can range from simple information retrieval to complex transaction scheduling.

## **Separation of Presentation from Business Rules**

By forcing the total separation of presentation from business rules through its global markup language (GML™), it guarantees that the integrity of a business remains in one place – in its internal enterprise operations.

## **Automatic Data Acquisition (Glovia ADO)**

It also automatically acquires any datasets needed to support its controls, unifying enterprise and delivery components in a single step.

## **Global Language Support**

The eLex™ toolset assures that these transactional components can operate in any language environment by keeping them language independent. It does this by scanning interface streams during development and automatically assigning unique strings to tokens, which are stored in a lexicon. During runtime, the eAccess™ engine dynamically selects the interface that matches a browser's request.

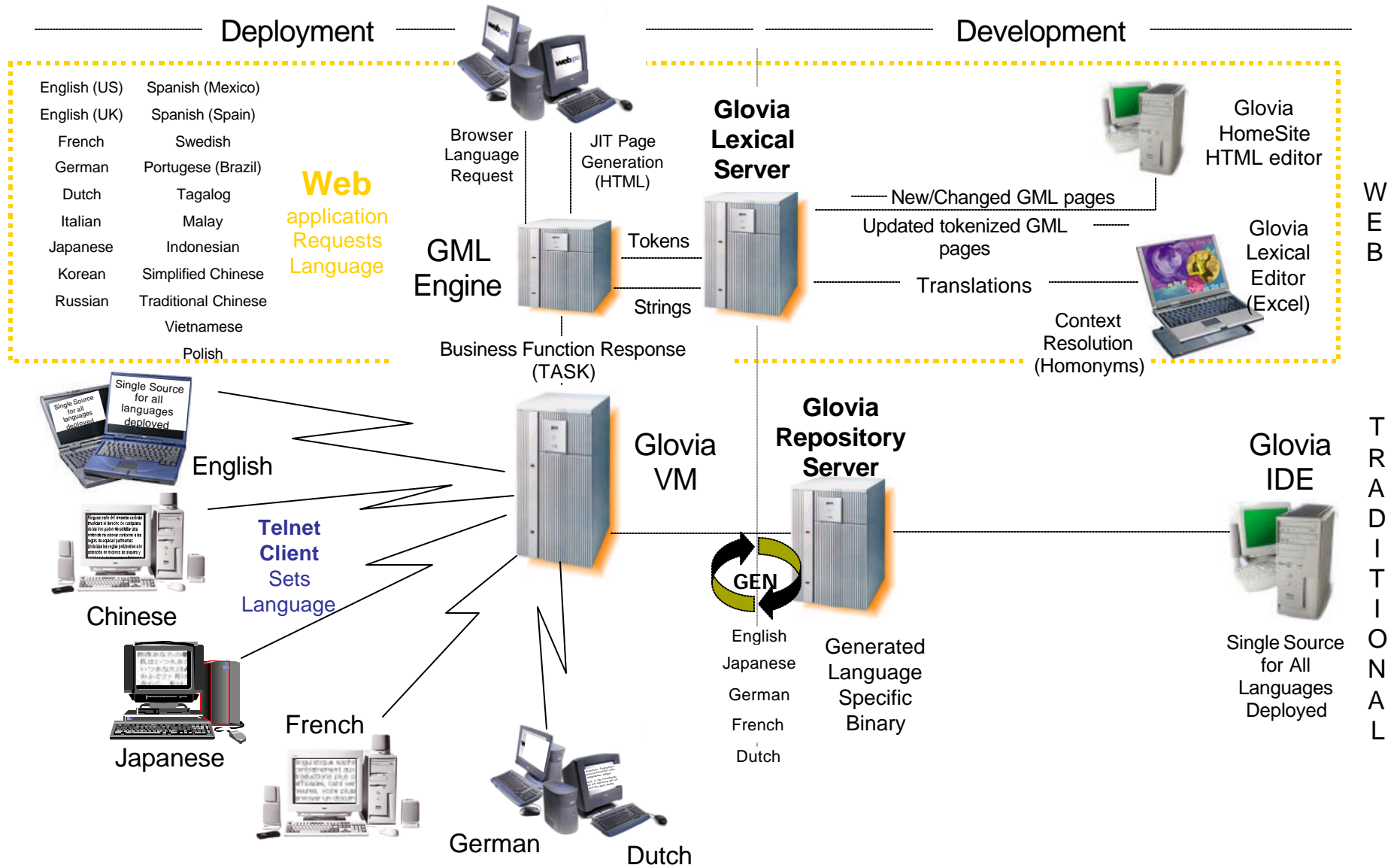
## **Task Driven Service Requester**

The Service Requester encapsulates ERP tasks and underlying functions as common business objects that are reusable in a the B2C and B2B marketplace. This strategy keeps Glovia and its customers in a very competitive position while delivering multi-national ERP applications across their many operating sites using the web.

# Glovia Multilingual Operations

## ❖ Purpose

- Provide a language independent application deployment environment using a single source set



# Example Multi-lingual GUI

APS - グローバ インターナショナル Advanced Planning System [//localhost/XpsServer]

ファイル ビュー ペースデータ チャート その他 ヘルプ

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	0002	6060/0001	ジュエル数 1,000																		
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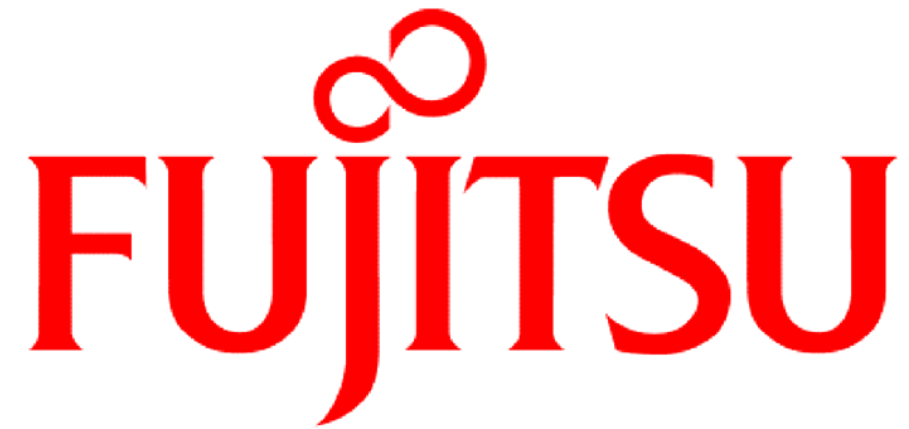
  

品目	数量	名称	2001/12/23 週:52	2001/12/30 週:1	2002/01/06 週:2																
金	土	日	月	火	水	木	金	土	日	月	火	水	木	金	土	日	月	火	水	木	金
TS-A6995/XCN/UC	20,060	TS-A6995/XCN/UC	20	19,060	20,680	19,680								18,680							17,680

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TEST1	750	80	WIRE WRAP MACHINE PROGRA	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h
785	785			8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h
90	785	90		8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h

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**THE POSSIBILITIES ARE INFINITE**