



제조/장치산업 고객을 위한 IBM Industry Solution Summit

IBM High Tech MES Solution (View series)

Overview and “What’s the next CIM approach”

July 8th, 2008

Ryuhichiroh Hattori (rhattori@jp.ibm.com)

Global IBM Production Solution Leader



Speaker Introduction



Ryuhichiro Hattori

**Global IBM Production Solution Leader, IBM Corp.
Manager of MES Solution Service, IBM Japan Service Co. Ltd.**

E-mail: rhattori@jp.ibm.com

Business Experience

- Global IBM Production Solution Leader, IBM Corp.
- Manager of MES Solution Service, IBM Japan Service Co. Ltd.
- Project Manager of CIM Project for 300mm Semiconductor Fab in worldwide (Taiwan, US, ..)
- IT Architect in SiView Standard Development
- IBM Japan Yasu Plant Information Systems

Educational Background

- B.S. of Mathematics, Osaka University (1985)

Agenda

- **Target Industry of IBM View series**
- **Coverage of IBM View series**
- **Overview of IBM View series**
 - ✓ **Characteristics of IBM View series**
 - ✓ **SiView Standard , AsmView**
 - ✓ **LCDView, WaferView, GlassView, SolarView**
 - ✓ **SOA Enablement - Sense and Respond (SaR) Framework**
- **Next CIM Approach**
 - ✓ **Business Environment and next CIM system**
 - ✓ **Approach to Business Objectives**
- **Summary**

Target Industry of IBM View series

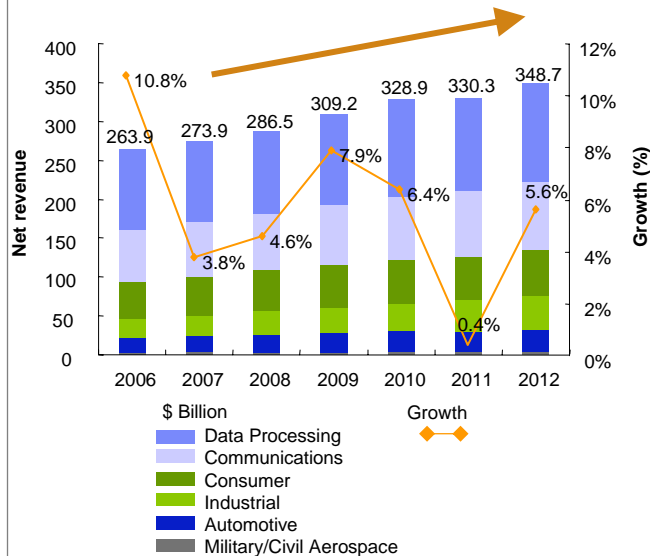
Global Semiconductor, FPD, and photovoltaic market by application

- ✓ Semiconductor and FPD industries are both large and growing.
- ✓ Photovoltaic industry is emerging.

Semiconductor Market 2006-2012

\$309B*1
(2009, 2007-2012 **CAGR 4.9%**)

Data processing \$116B	Communications \$77B	Consumer \$55B
Automotive \$24B	Industrial \$33B	Aerospace \$4B

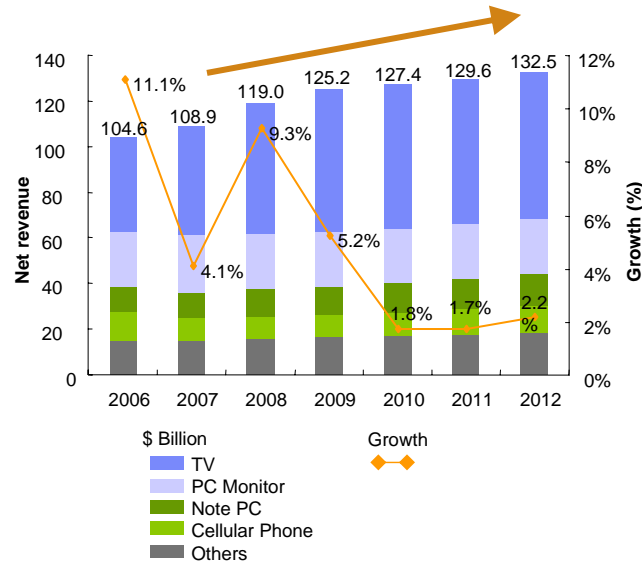


1: Gartner 5/28/08 G00158470

FPD Market 2006-2012

\$125B*2
(2009, 2007-2012 **CAGR 4.0%**)

TV \$62B	PC Monitor \$24B	Note PC \$12B
Cellular Phone \$10B	Others \$17B	

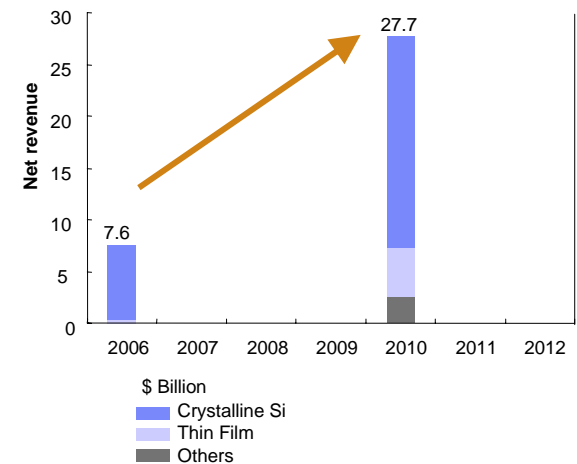


*2: Fuji Chimera FPD Research 2007

Photovoltaic Market 2006-2010

\$28B*3
(2010, 2006-2010 **CAGR 38.3%**)

Crystalline Si \$20B	Thin Film \$5B	Others \$3B
--------------------------------	--------------------------	-----------------------



*3: Fuji-Keizai Photovoltaic Research 2007

Coverage of IBM View series

IBM provides proven MES solution for each industry from material to final product

Semiconductor Market 2006-2012		FPD Market 2006-2012		Photovoltaic Market 2006-2010	
Enterprise MES	WaferView for Silicon Wafer Maker	Material Maker / Parts		WaferView for Silicon Ingot Line	GlassView for Glass maker
	SiView Standard for Wafer process	GlassView for Glass maker	LCDView for Color Filter	SolarView for Cell	
	AsmView for SAT	Front-End		SolarView for Module	
		Back-End			
		LCDView for TFT Array, Cell			
		LCDView for Module			

1: Gartner 5/28/08 G00158470

*2: Fuji Chimera FPD Research 2007

*3: Fuji-Keizai Photovoltaic Research 2007

Agenda

- Target Industry of IBM High Tech MES solution (View series)
- Coverage of IBM High Tech MES Solution
- ➔ ■ Overview of IBM View series
 - ✓ Characteristics of IBM View series
 - ✓ SiView Standard, AsmView
 - ✓ SOA Enablement - Sense and Respond (SaR) Framework
 - ✓ Enterprise MES
 - ✓ LCDView, WaferView, GlassView, SolarView
- Next CIM Approach
 - ✓ Business Environment and next CIM system
 - ✓ Approach to Business Objectives
- Summary

Characteristics of IBM View series

■ Rapid Start-up of Factory

MES solution specialized for the industry with **proven operation scenario**

Delivery Excellence in system integration service by MES experts - **100% successful in-time delivery** record

IBM One team operation in delivery of HW, SW, Application.

■ Full scope integration in full automation mode

■ High Availability and Scalability (HAS) System Design

24 Hr x 7 Days Always Available System by Non-stop system maintenance and upgrade

Scalability to handle tremendous amount of transaction at “**Giga-Fab**”

IBM 24 hours total support (24 hr Help Desk, HW, SW, Application)

■ Compliance with Industry & IT Standard

■ Continuous enhancement to meet requirements from End User Community

■ On-Demand operation scenario on SOA - Sense and Respond (SaR) framework

Lean Production – **KAIZEN** (Continuous Productivity Improvement) by **BPM Automation**

■ Virtual Factory Integration (Enterprise MES) beyond country and company

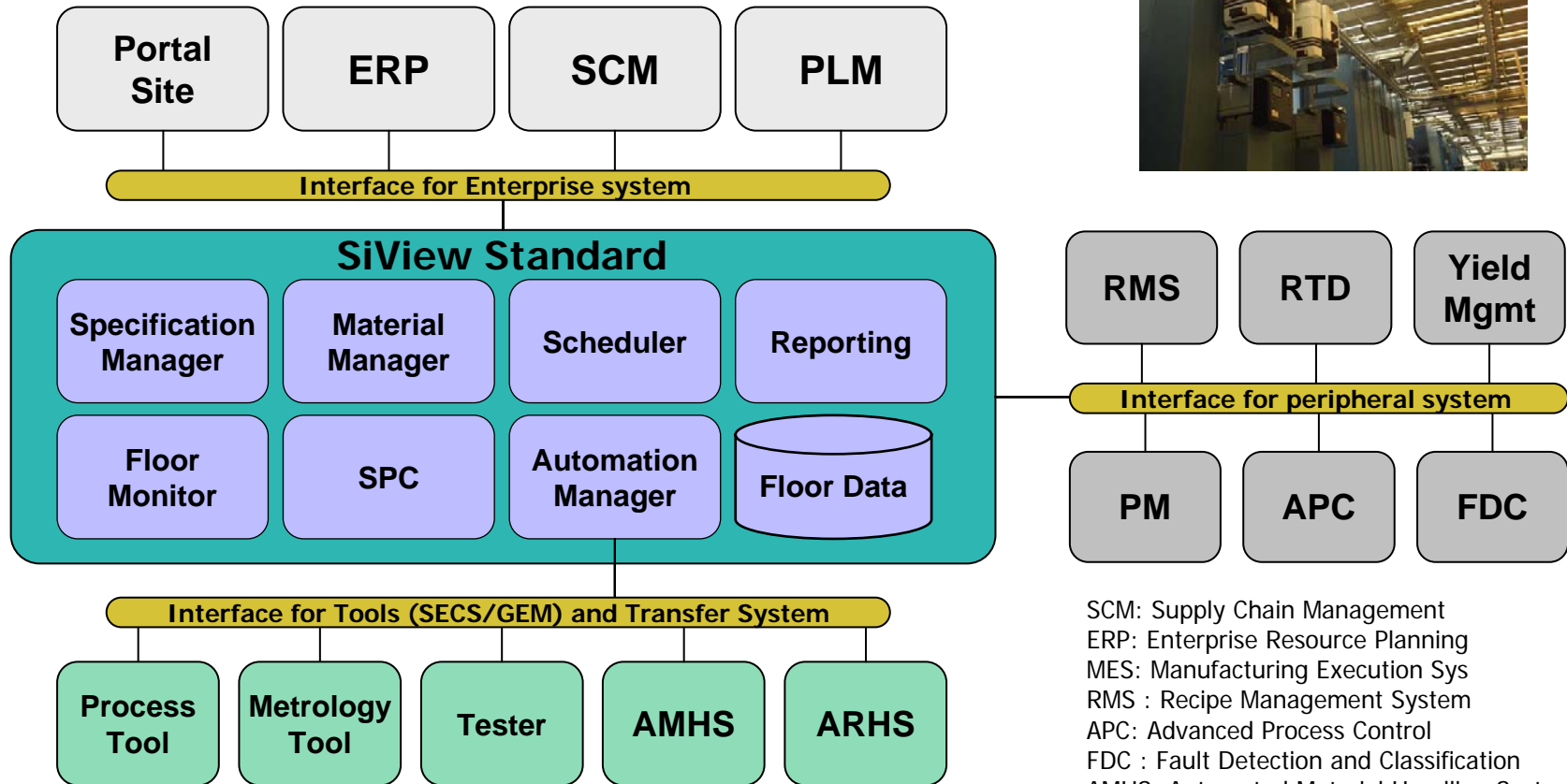
End-to-End Production Control and Quality Traceability

On-Demand collaborative operation scenario between factories and companies at SOA platform (SaR)

■ World Wide Support

SiView Standard An automated MES for Semiconductor with full scope integration

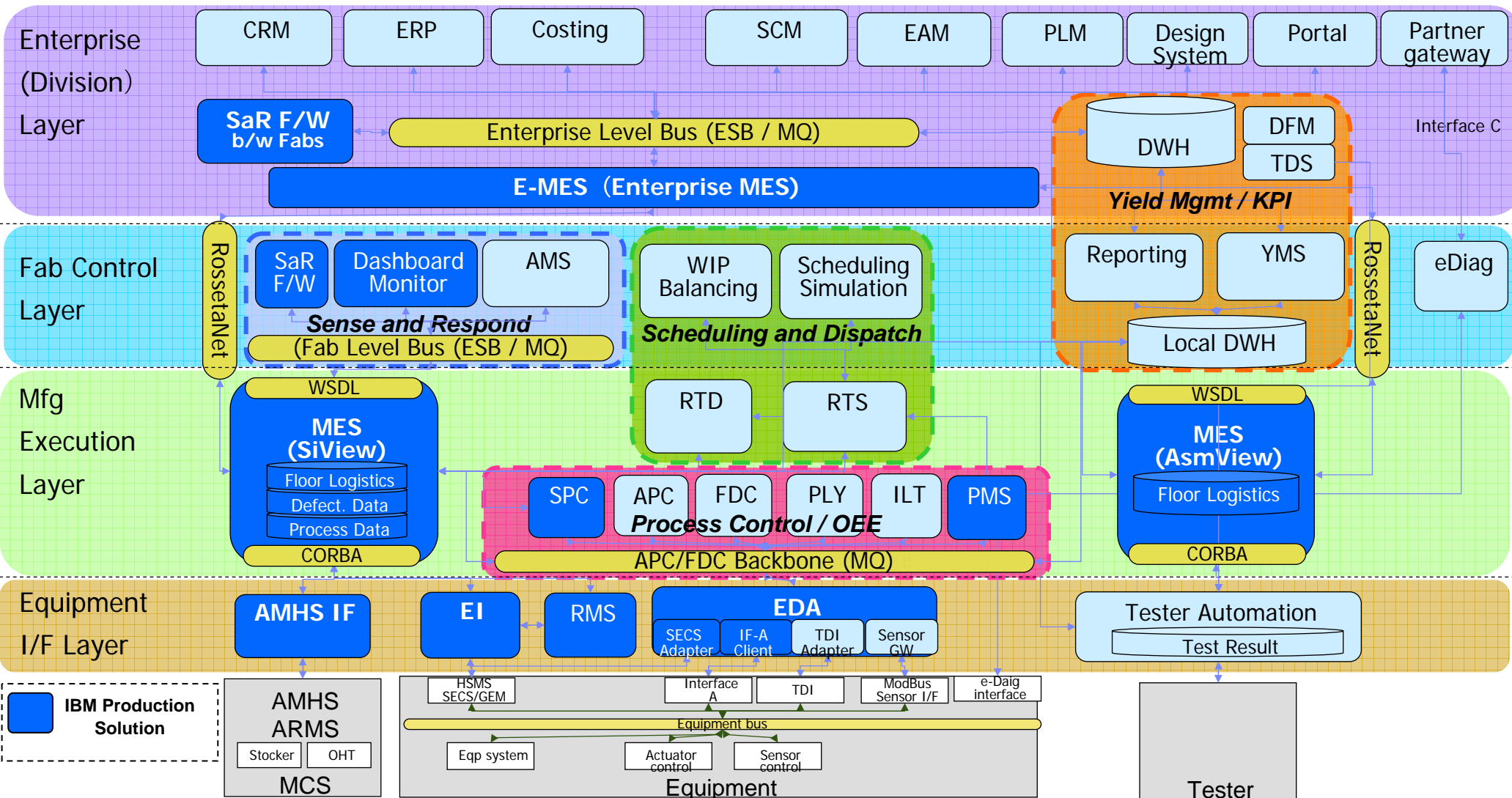
A reliable and extensible MES solution based on SiView Standard to meet the quality and short time requirements of your semiconductor business.



- SCM: Supply Chain Management
- ERP: Enterprise Resource Planning
- MES: Manufacturing Execution Sys
- RMS : Recipe Management System
- APC: Advanced Process Control
- FDC : Fault Detection and Classification
- AMHS: Automated Material Handling System
- ARHS: Automated Reticle Handling System

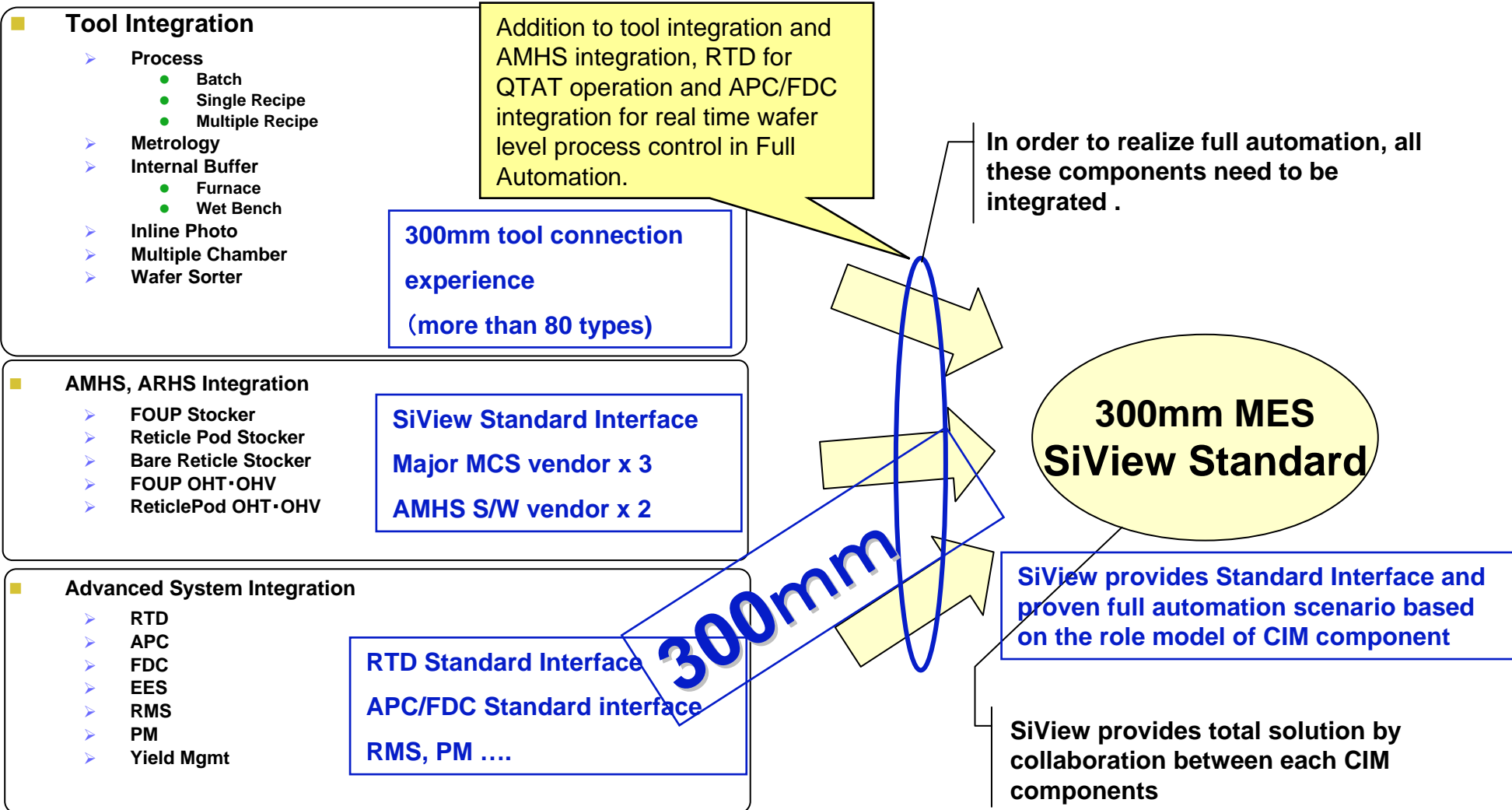
IBM Semiconductor factory integration architecture

SiView Standard provides proven integration scenario in full automation mode.



Full Automation by SiView proven full-auto scenario

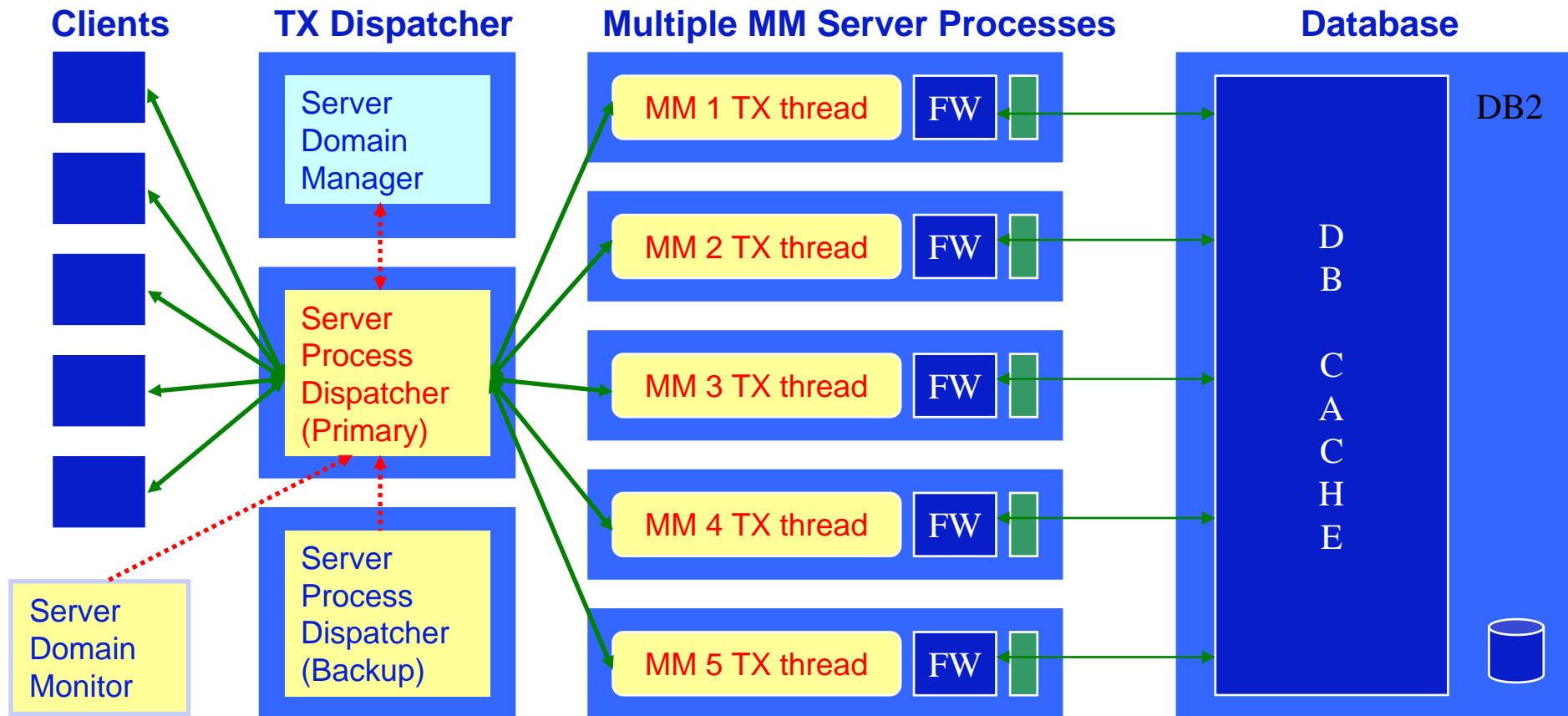
SiView provides full automation by integration with Tools, Automated Material Handling System and advanced system for QTAT, OEE.



High Availability & Scalability (HAS)

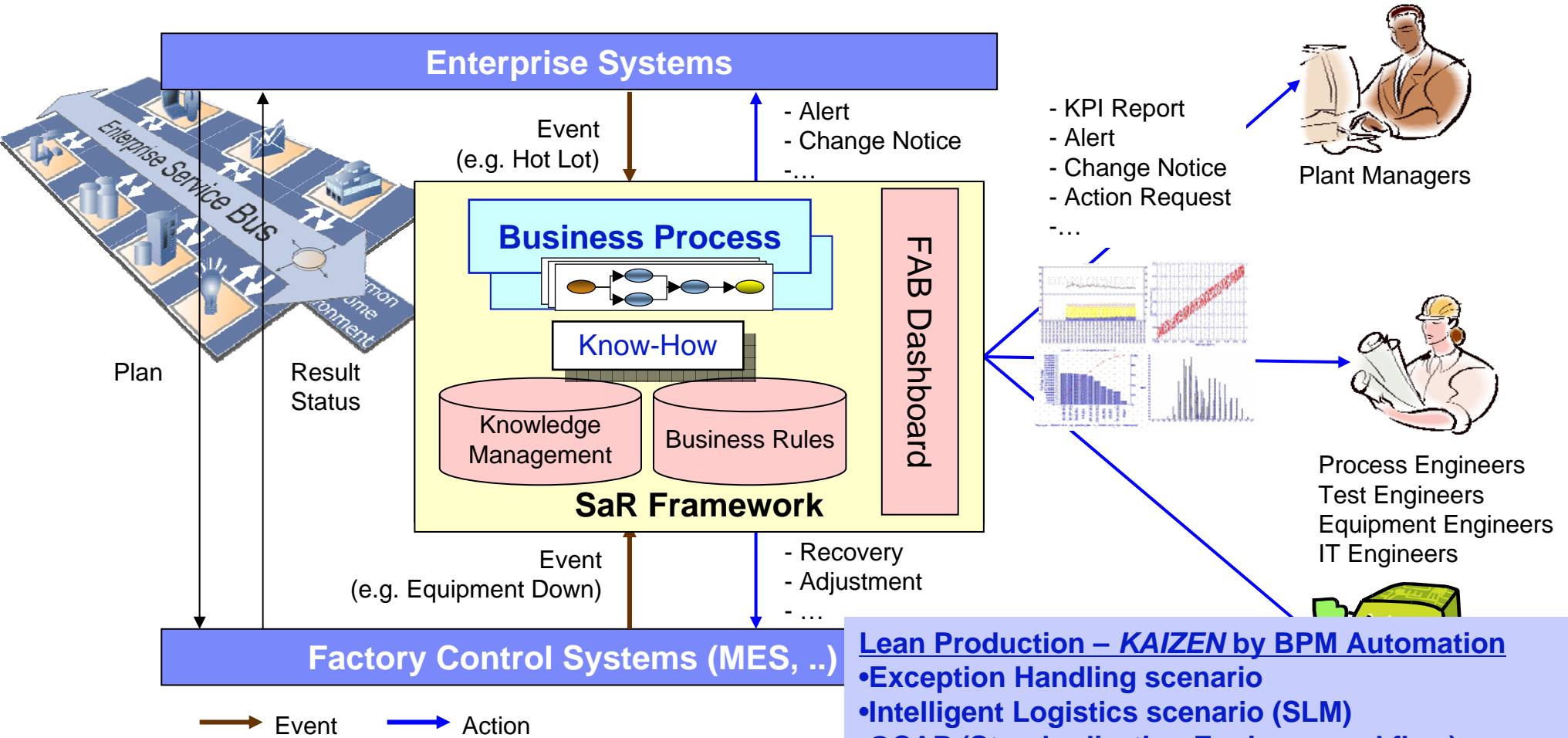
SiView HAS (High Availability and Scalability) feature provides

- ✓ High Availability (Non-Stop 24x7 operation)
- ✓ Non-stop upgrade of application code in case of urgent changes by multiple appl. Servers
- ✓ High Scalability to support High Volume Production (Giga-Fab)



On-Demand operation scenario on SOA - Sense and Respond (SaR) framework

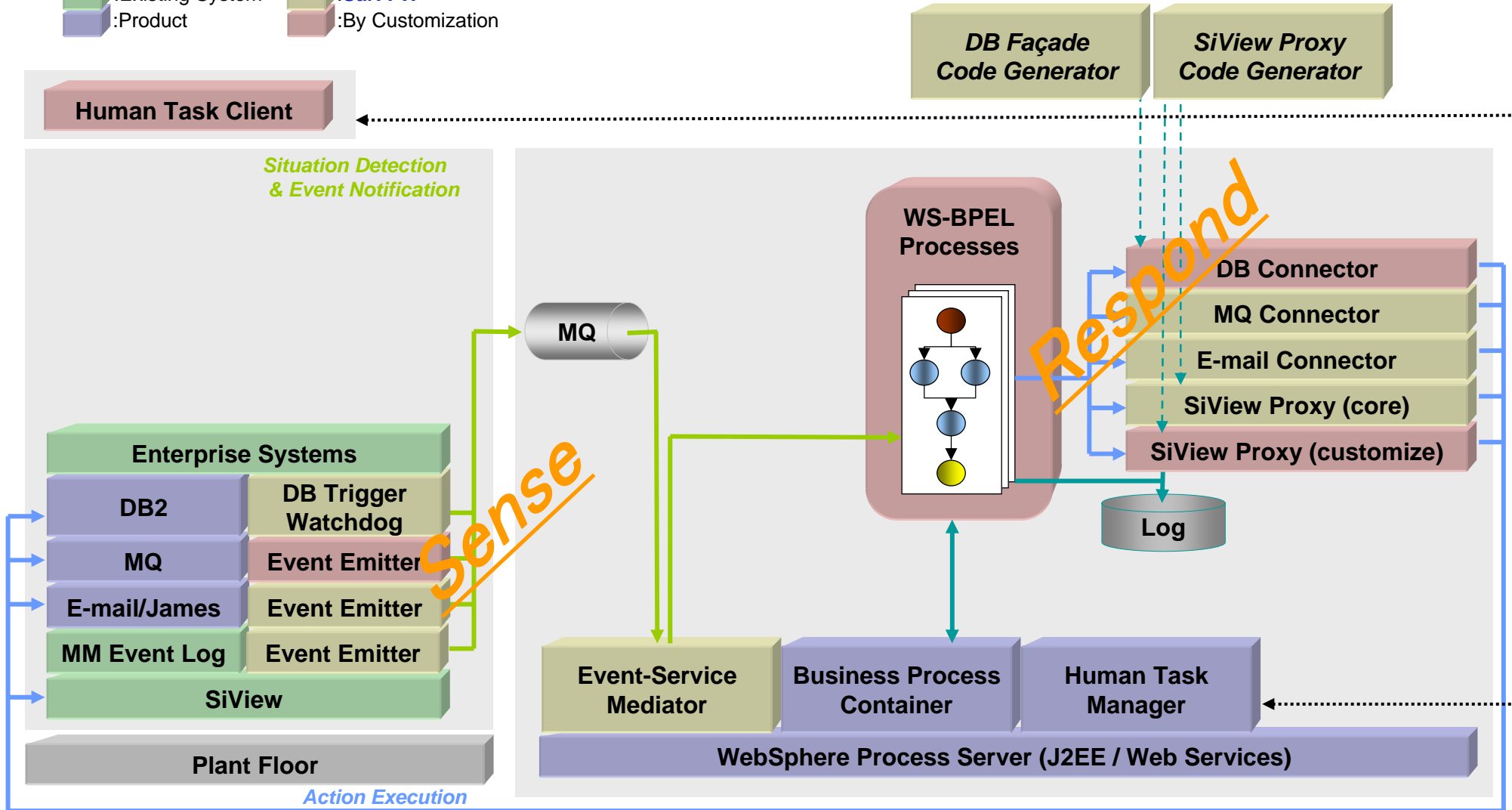
On Demand FAB has adaptive manufacturing capability by monitoring changes in manufacturing and business, and taking corresponding actions for detected situation.



Lean Production – KAIZEN by BPM Automation

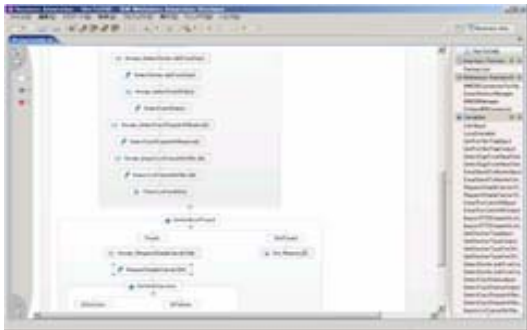
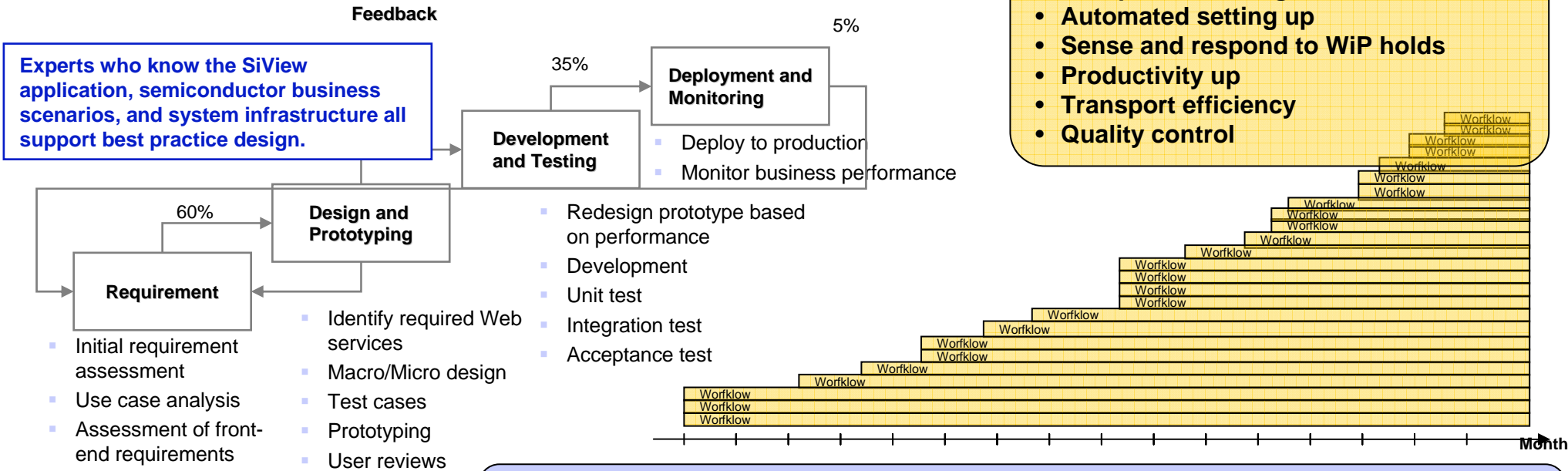
- Exception Handling scenario
- Intelligent Logistics scenario (SLM)
- OCAP (Standardization Engineer workflow) ..

SaR Framework Architecture



Development Cycle : Reference Case (Japan)

1-2 months of development cycle for a scenario



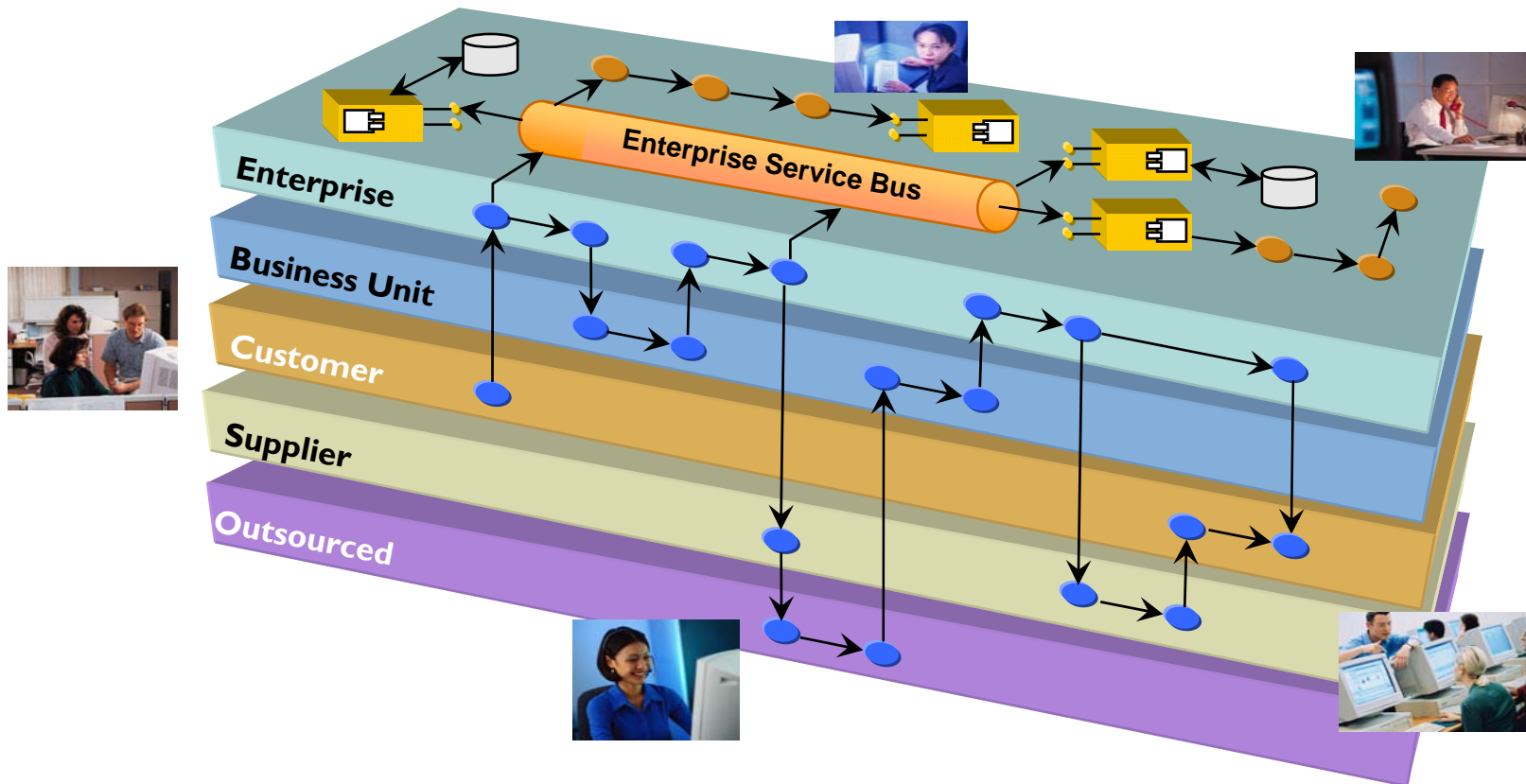
WID: WebSphere Integration Developer

- Develop business process scenarios on GUI of WID.
- Replacing business processes without stopping service in production.
- SiView Proxy Generator enables applying new and updated SiView services

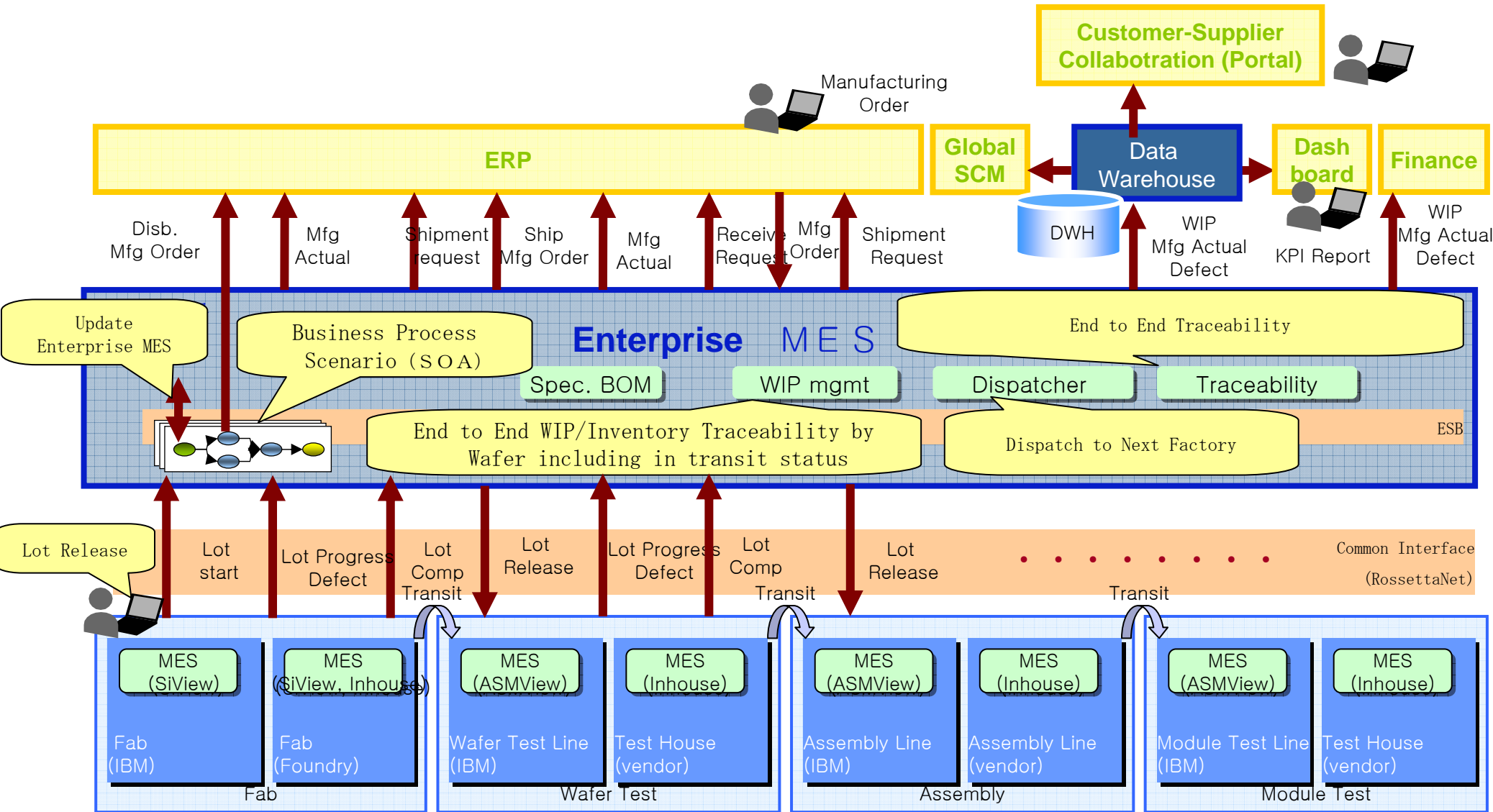
Agile optimization of business processes
 Enables **BPM Automation** and **Multi-skilled workers** in Automation for **Best Practices Manufacturing**

Vision of Virtual Factory Integration (Enterprise MES)

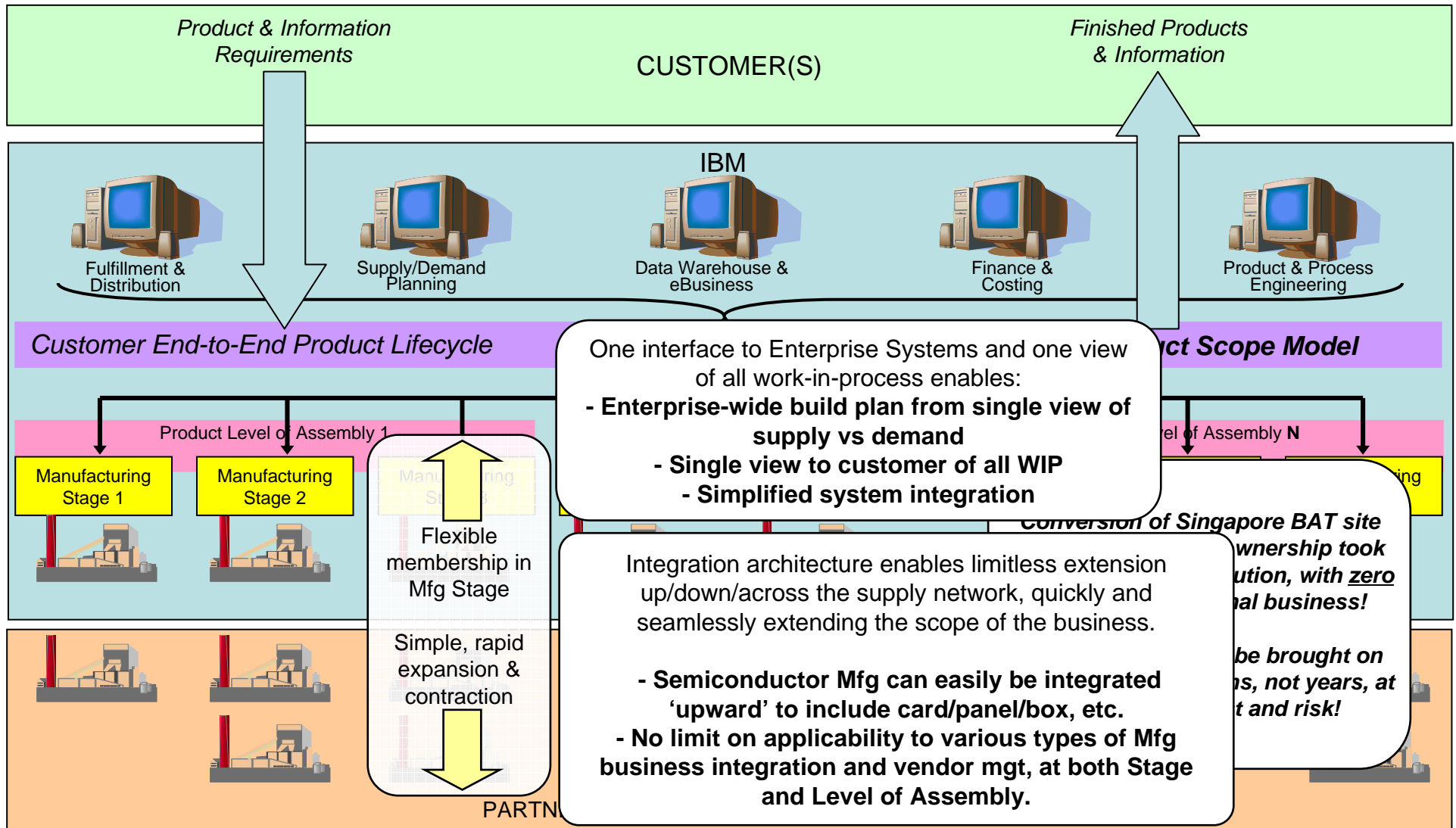
- Creation of an extended, virtual enterprise by using open standards
- SOA positioned as a key enabler of internal processes and external connections
- Operational processes are assembled from reusable services
- Maximized business flexibility and collaboration



Enterprise MES : Reference Case (IBM)



Enterprise MES achievement in IBM



AsmView MES for Semiconductor Back-end Manufacturing (Wafer test- Assembly – Module Test)

AsmView inherits SiView Standard object class and adds AsmView extension (object model and operation scenario required for Semiconductor Back-end Manufacturing).

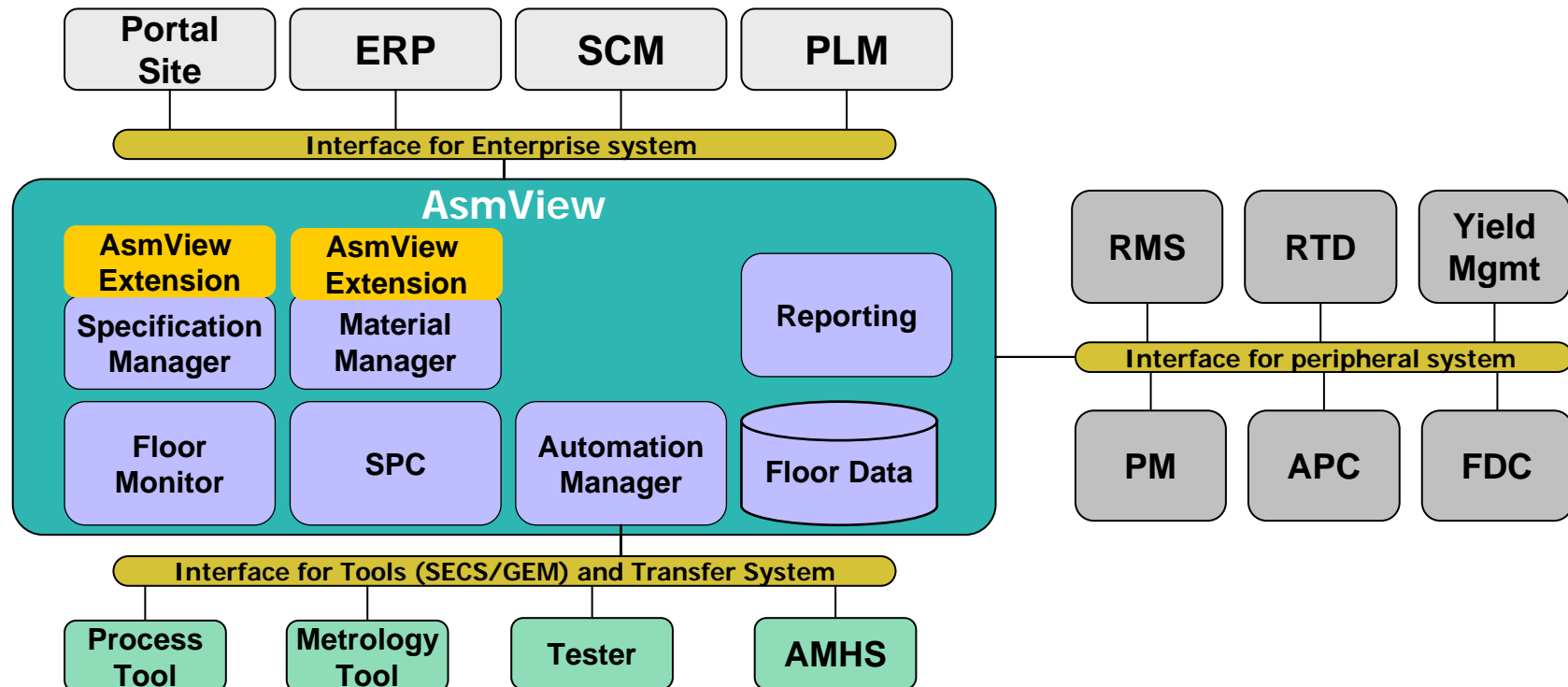
(Example of AsmView Extension)

- High-end product support

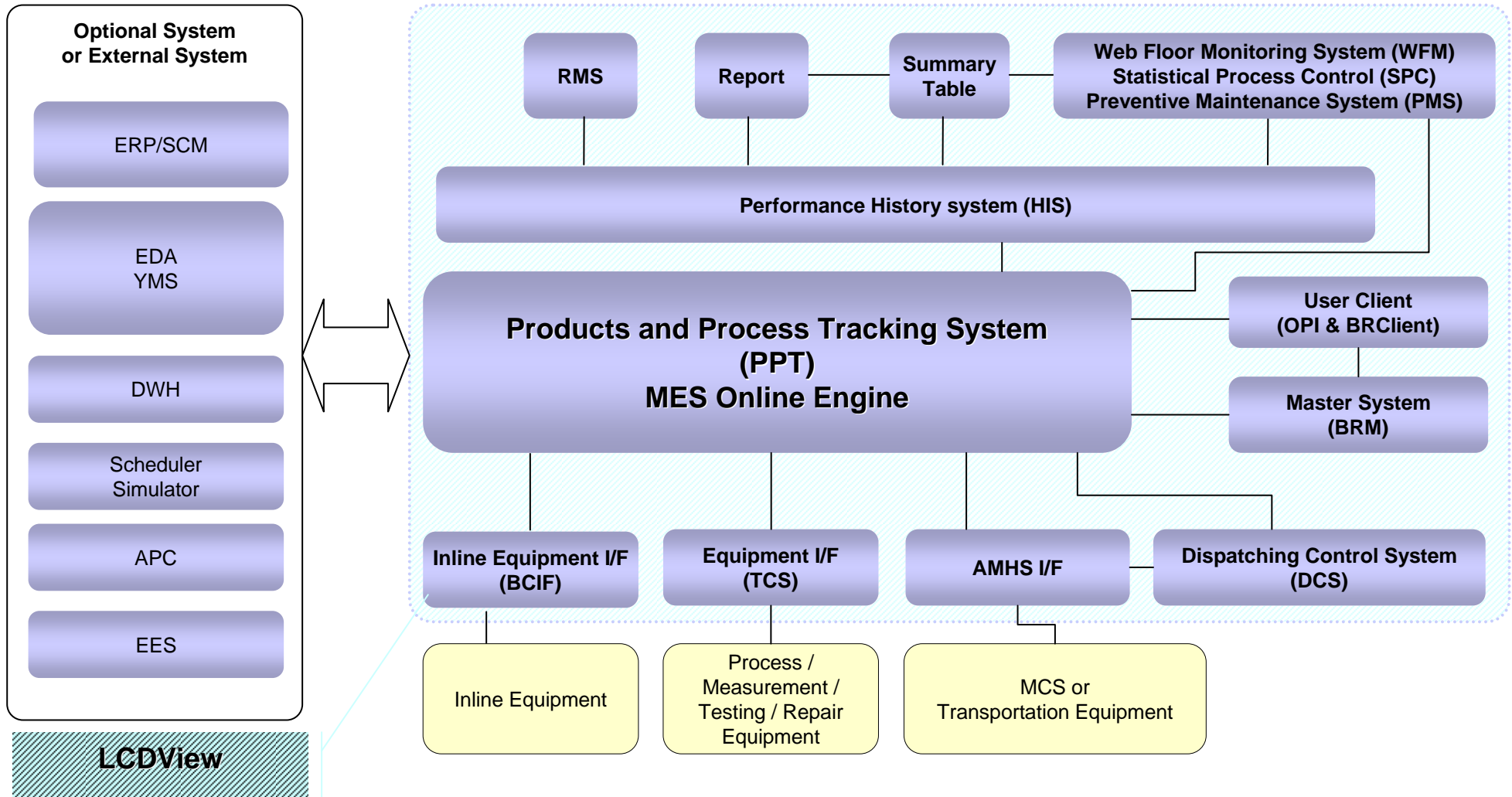
BIB (Burn In Board) management, Part Serial ID management, BOM Serial ID management

- Test Operation support

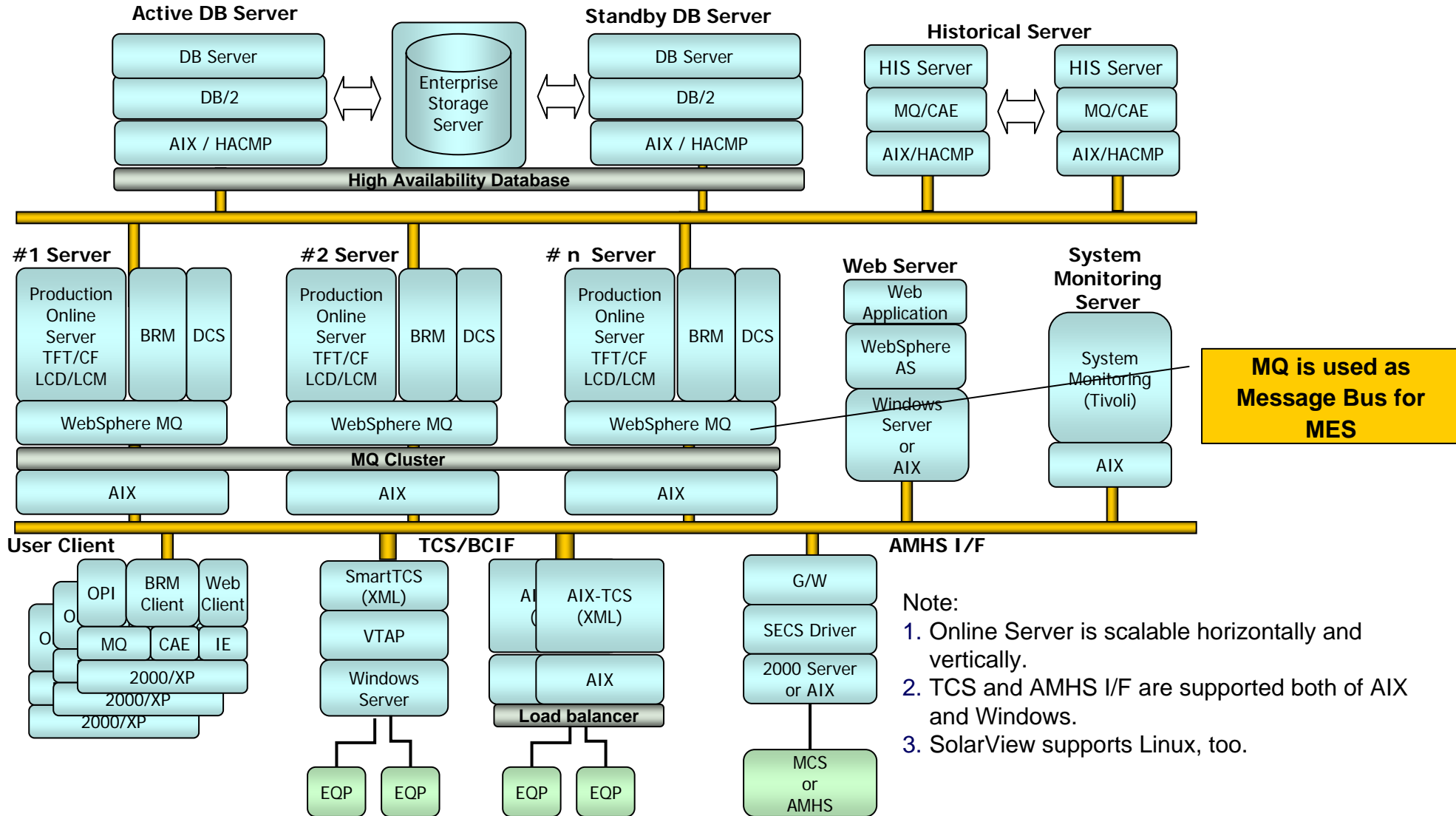
Speed Sort capability , Probe card/Socket management, Tester I/F(Non-SECS protocol)



Application Component of LCDView, WaferView, GlassView, SolarView



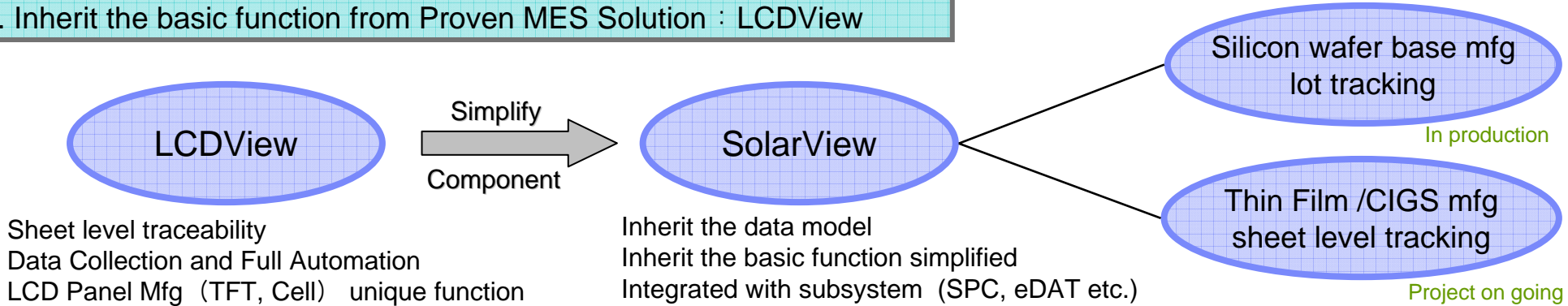
System Architecture of LCDView , WaferView, GlassView, SolarView



SolarView Characteristics

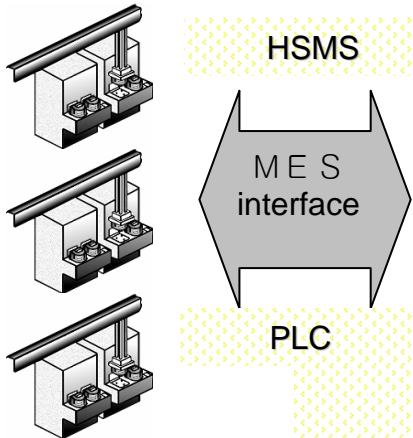
- Packaging the basic function required for Solar panel manufacturing by inheritance from LCDView which is proven MES solution at LCD panel manufacturing lines.

1. Inherit the basic function from Proven MES Solution : LCDView

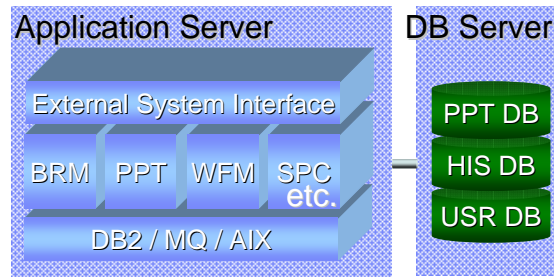


2. Equipment/MHS interface (mainly for data collection)

< Equipment, MHS >



< MES >

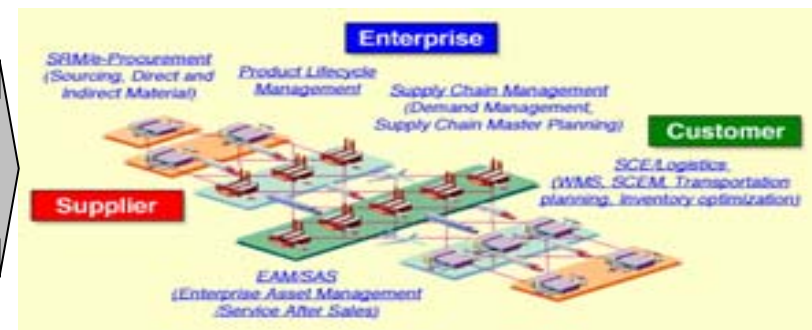


*) Application Server can be multiplexed with multiple servers.

High Availability System
Scalable from PC server(linux) to UNIX servers

3. Interface with Enterprise Application

< Enterprise MES(E-MES) & Global SCM >



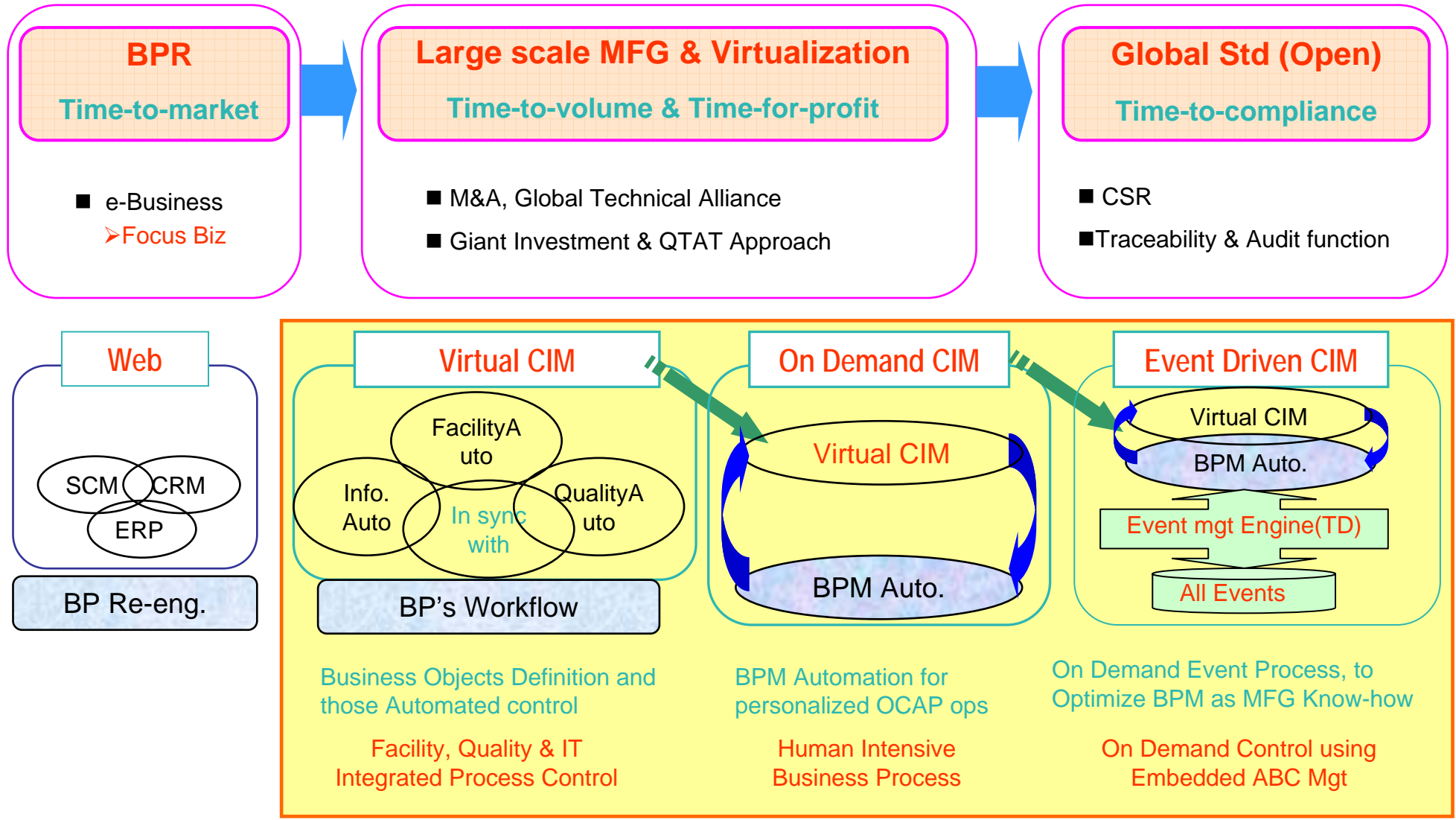
E2E Traceability & Global SCM capability
(Global PSI, Parts Inventory Optimization)

Agenda

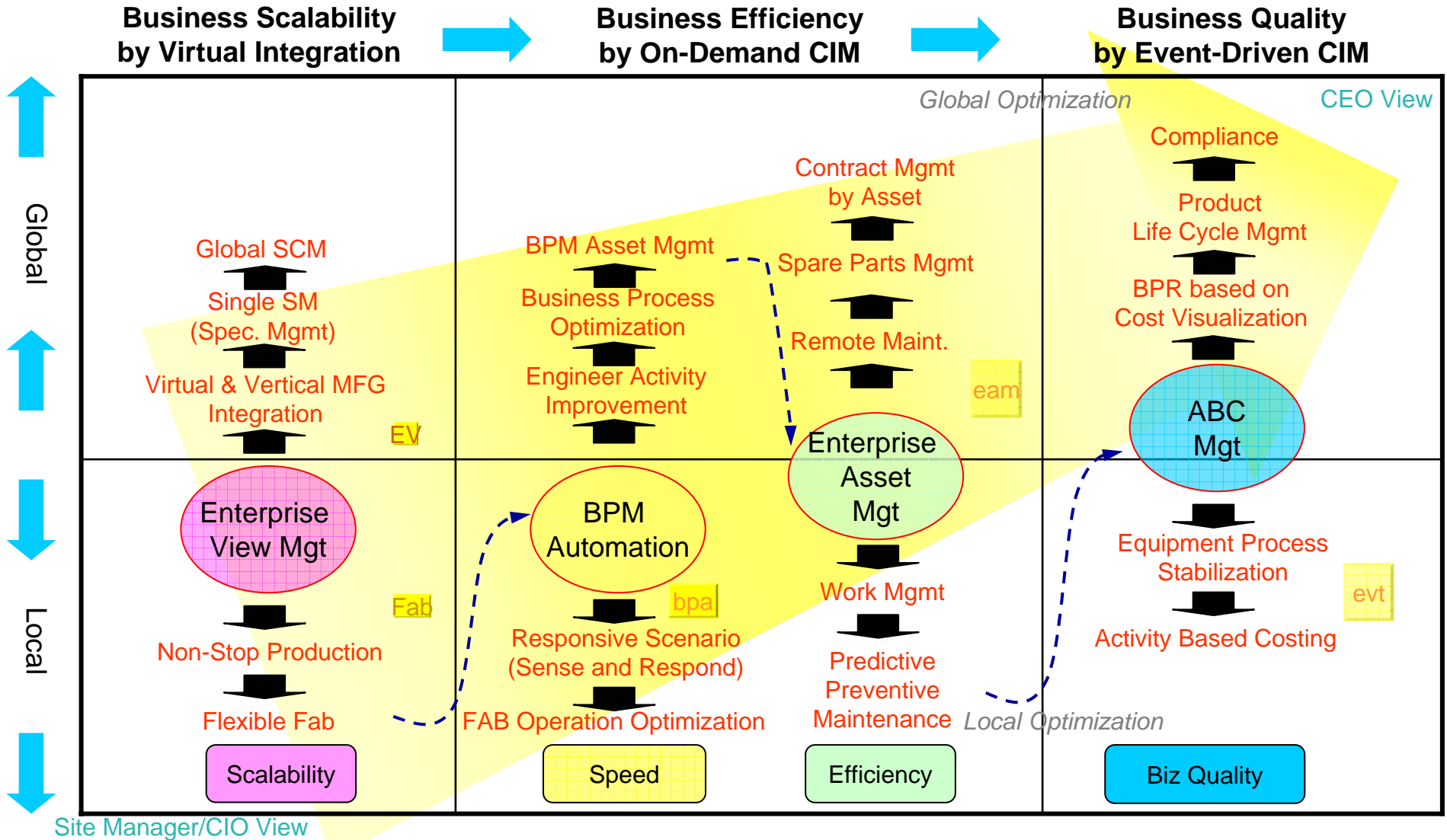
- **Target Industry of IBM High Tech MES solution (View series)**
- **Coverage of IBM High Tech MES Solution**
- **Overview of IBM View series**
 - ✓ **Characteristics of IBM View series**
 - ✓ **SiView Standard, AsmView**
 - ✓ **SOA Enablement - Sense and Respond (SaR) Framework**
 - ✓ **Enterprise MES**
 - ✓ **LCDView, WaferView, GlassView, SolarView**
- ➔ ■ **Next CIM Approach**
 - ✓ **Business Environment and next CIM system**
 - ✓ **Approach to Business Objectives**
- **Summary**

Business Environment and Next generation CIM

Business Env
Architecture
Functions



Approach to Business Objectives



Summary

1. The next IT is the Event Driven World and we must transform the LOB into the On-demand Business .



2. The key factor of success is the integration between Business Process Automation and enterprise wide CIM.
3. It is the time for us to clear our CIM Road-Map to contribute the LOB.

Step1. How to build the On Demand and Enterprise Level CIM

Step2. How to promote the lean manufacturing (BPMA) toward to the company wide operation.

Step3. Consider Enterprise Assets Management and its efficient operation

Step4. Appeal CSR [Time to Compliance] in Event driven world

Q&A

धन्यवाद Hindi 多謝 Traditional Chinese ขอบคุณ Thai

Спасибо Russian Gracias Spanish

شكراً Arabic Thank English Obrigado Portuguese

Grazie Italian You English Danke German

謝謝 Traditional Chinese Merci French

நன்றி Tamil ありがとうございます Japanese 감사합니다 Korean



