

# ***HANDLING FRONT TO BACK OFFICE INTEGRATION***

## **CRM Conference**

**Sept. 2, 1999**

**8:30-9:20 AM**

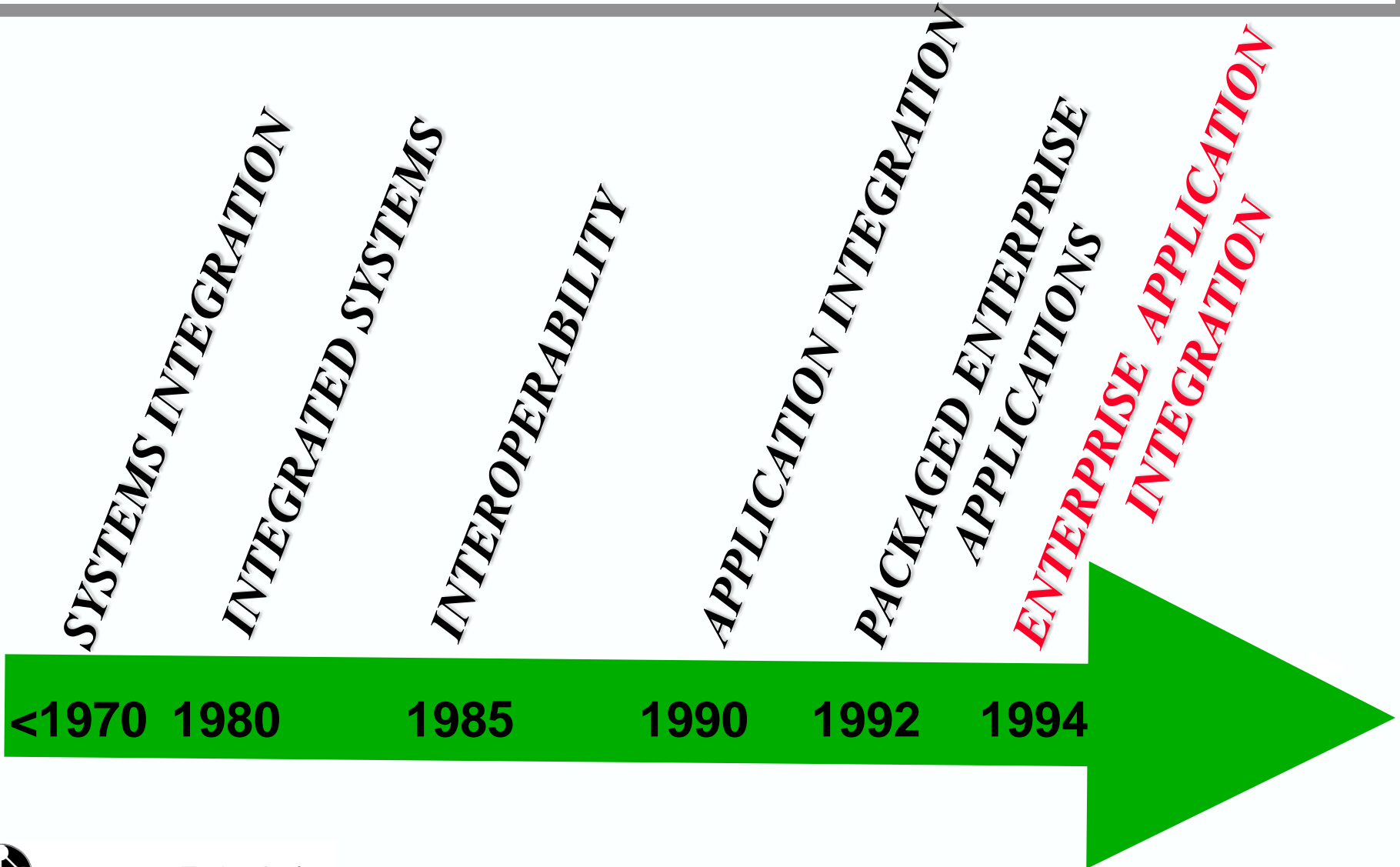


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# ***OUTLINE***

- **EAI Definition, Evolution, and Market**
- **EAI: Essential to IT Strategies**
- **EAI Approaches: Which One To Use?**
- **Ideal EAI: Zero Management**
- **Architecture and Interfaces**
  - **PACKAGED SOFTWARE CAN ENABLE EAI**
  - **DEVELOPMENT TOOLS AND SYSTEMS MANAGEMENT WITH EAI PRODUCTS**
- **EAI Scalability**
- **A Little Advice...**

# EVOLUTION OF EAI



# What is EAI?

**“EAI is the**  
**business strategies, processes, and**  
**technologies**  
**intended to provide seamless and uniform**  
**development, extension, perception,**  
**use, and management**  
**of the means to execute business**  
**functions.”**

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# *EAI In A Nutshell*

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**“Enterprise *A*pplication *I*ntegration is about maintaining the integrity of the enterprise.”**

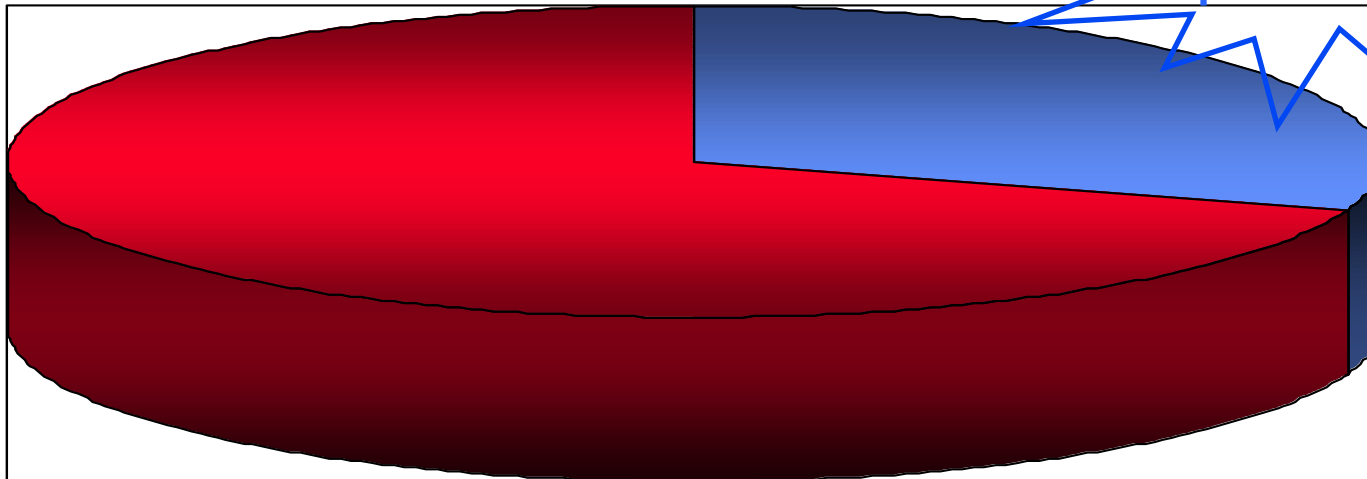
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# EAI MARKET

## 1998 WORLDWIDE IT BUDGET

*\$275 Billion Total*

**\$82.5B**



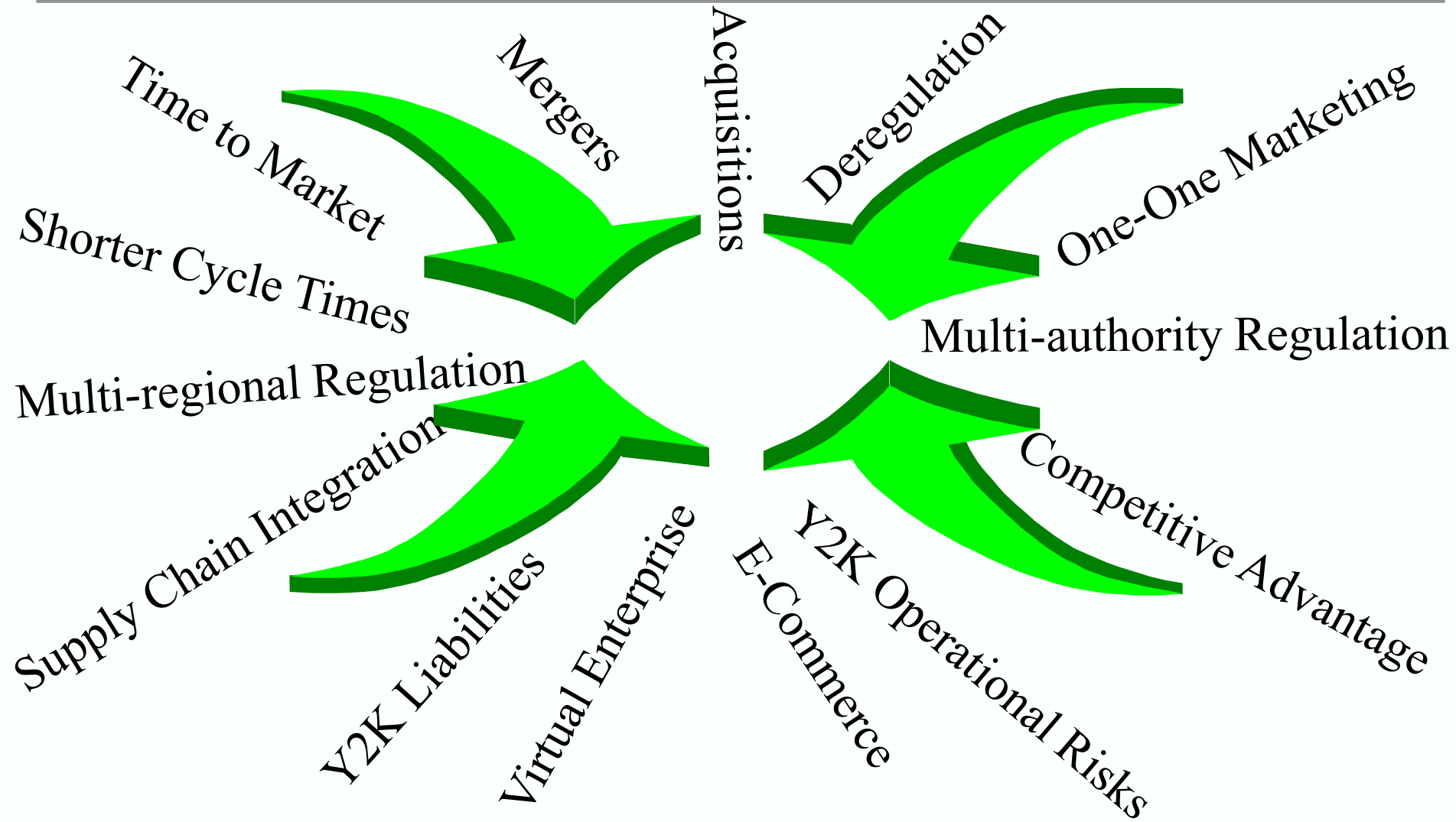
■ Application  
Integration  
■ Other

**\$192.5B**

Source: Forrester Research

# EAI BUSINESS DRIVERS

*Agility & Resiliency in the Face of Frenetic Change*



# ***EAI BUSINESS BENEFITS***

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- **Improved Operating Efficiencies**
- **Improved Information Flow**
- **Consolidated Business Analysis**
- **Single Point of Management**
- **Predictability and Repeatability of Business Processes**
- **Leverages Existing Investments**
- **Improved Customer Satisfaction and Retention**
- **Reduced Cost of Ownership**
- **Increased ROI**



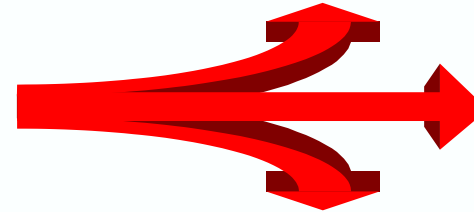
# ***EAI TECHNOLOGY DRIVERS***

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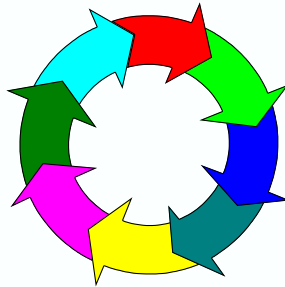
- **Growth of ERP and Packaged Applications**
- **Y2K and EMU**
- **New Software Categories and New Technologies**
- **Requirements for Modified and Extended Functionality**
  - **INFRASTRUCTURES JUST AREN'T FLEXIBLE ENOUGH**
- **Insufficient I.T. Resources**
- **Legacy Application Anchor**

# AN OVERVIEW OF APPROACHES

*MIDDLEWARE-CENTRIC*

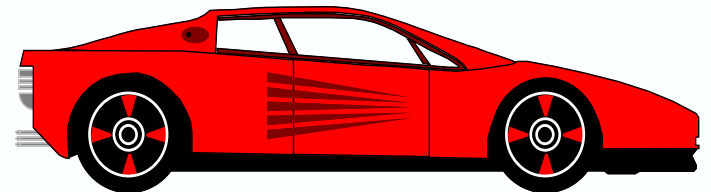


**DATA**



*PROCESS-CENTRIC*

**MODEL-DRIVEN**



# MIDDLEWARE-CENTRIC APPROACH

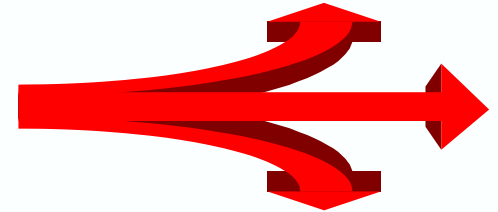
## Focus

- THE TECHNOLOGY USED TO MANAGE AND IMPLEMENT THE INTERCONNECTION OF APPLICATIONS AND APPLICATION COMPONENTS.

“WHAT TECHNICAL INFRASTRUCTURE WILL SUPPORT WHAT.”

- Types of Middleware

- CONNECTION
- DATABASE AND REPOSITORY
- TRANSACTION *MIDDLEWARE-CENTRIC*
- MOM
- ORBs AND MESSAGE BROKERS
- DIRECTORIES
- APPLICATION SERVERS

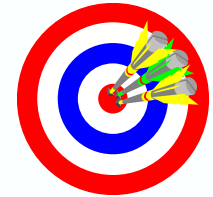


# DATA-CENTRIC APPROACH

## Focus

- **MAKING DATA FROM ONE OR MORE APPLICATIONS AVAILABLE AS INPUT TO ONE OR MORE OTHER APPLICATIONS**

“WHAT DATA CAPTURES WHICH EVENTS.”



- **Types of Data-centric Integration**

FROM \ TO	DATA STORE	APPLICATION
<b>DATA STORE</b>	utilities, custom programs, replication, copy management	extract, direct access
<b>APPLICATION</b>	direct access, screen scraping	screen scraping, APIs, interface generators, transformation hubs

# PROCESS-CENTRIC APPROACH

## Focus

- **INTEGRATING PROCESSES, CONNECTING THE EXECUTION OF BUSINESS FUNCTIONS IN TIME.**

**“WHAT MUST BE DONE AND WHEN.”**

- **Multi-Level Processes**

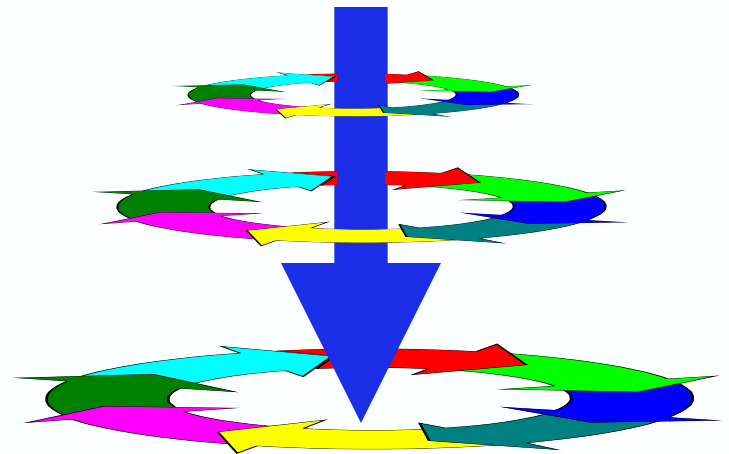
- B2C, B2B, ENTERPRISE, WORKFLOW,
- TECHNICAL IMPLEMENTATION

- **Types of Process Integration**

- POINT-TO-POINT
- WORKFLOW
- BUSINESS PROCESS AUTOMATION

- » **REQUIRES PROCESS ENGINE**

- » **COMBINES MESSAGE BROKER, TPM, DIRECTORY, AND RESOURCE MANAGER FEATURES**



# MODEL-DRIVEN APPROACH

## Focus

- DRIVING AND MANAGING INTEGRATION FROM AN INTEGRATION MODEL
- Key Integration Model Components
  - TECHNICAL ARCHITECTURE: DETERMINES INFRASTRUCTURE
    - » MIDDLEWARE SUPPORTING THE *PROTOCOLS, INTERFACES, LANGUAGES, TRANSACTIONS*
  - DATA MODELS: THE BLUEPRINT FOR DATA INTEGRATION
    - » *INTEGRATE DATA AT CONCEPTUAL LEVEL AND DERIVE PHYSICAL FROM CONCEPTUAL*
  - PROCESS MODELS: THE BLUEPRINT FOR PROCESS INTEGRATION
    - » *BUSINESS PROCESS MODELS ENFORCE ALIGNMENT*
    - » *TECHNICAL PROCESS MODELS SPECIFY INFORMATION FLOW REQUIREMENTS AND LEAD TO DATA FLOW MODELS*
    - » *EVOLVING FROM STATIC TO DYNAMIC*



# THE “RIGHT” APPROACH

**WHAT YOU DON'T KNOW WILL HURT YOU!**

- **A MIDDLEWARE-CENTRIC APPROACH WHEN...**
  - THE INFRASTRUCTURE NEEDS STRENGTHENINGAND
  - LIMITED SCOPE WILL PROVIDE A HIGHLY VISIBLE BUSINESS BENEFITOR
  - YOU CAN AFFORD A LONG DELIVERY AND BOTH DATA AND PROCESS INTEGRATION REQUIREMENTS ARE MINIMAL
- **A PROCESS-CENTRIC APPROACH WHEN...**
  - GOALS ARE LONG-TERM, GOALS ARE GENERAL, FLEXIBILITY IS KEY, OR RAPID, HIGH-VALUE RETURN IS NEEDED
- **A DATA-CENTRIC APPROACH WHEN...**
  - THE FOCUS IS ON BUSINESS INTELLIGENCE AND CONTROLOR
  - GOAL IS INTEGRATION OF EXISTING APPLICATIONS AND DATA SYNCHRONIZATION, CONSISTENCY, AND CONSOLIDATION ARE KEY

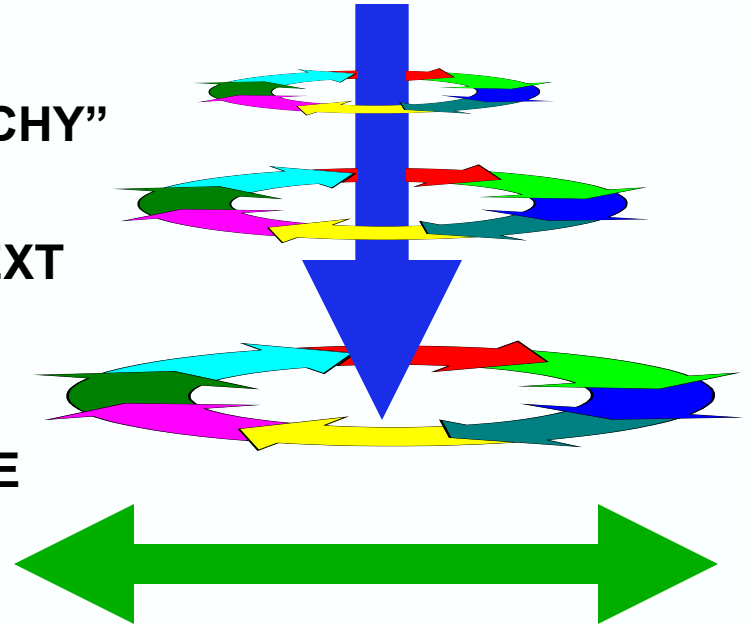


# ZERO MANAGEMENT<sup>tm</sup>

## INTEGRATED APPROACHES

- **Vertical** Process Integration

- TOP DOWN MANAGEMENT “HIERARCHY”
- PROCESS INDEPENDENCE
- PROVIDES EVENT AND DATA CONTEXT
- DYNAMIC CONTROL
- I.T. OWNS TASK LEVEL PROCESSES
- I.T. SUPPORTS PROCESS BACKBONE

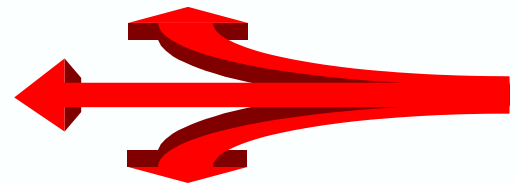


- **Horizontal** Data Integration

- ACTIVITY TO ACTIVITY
- PROCESS ENGINE CONTROLS DATA TRANSFER
- FACILITIES FOR REPLICATION, TRANSFORMATION, CLEANSING
- BUSINESS TRANSACTION INTERFACES



- **Pervasive** Middleware Enablement





# **ZERO MANAGEMENT<sub>tm</sub>** ***EAI FRAMEWORK***

**EVENT TO EVENT PROCESS INTEGRATION**

*ENTERPRISE BUSINESS PROCESS MODELS*

**TASK TO TASK DATA INTEGRATION**

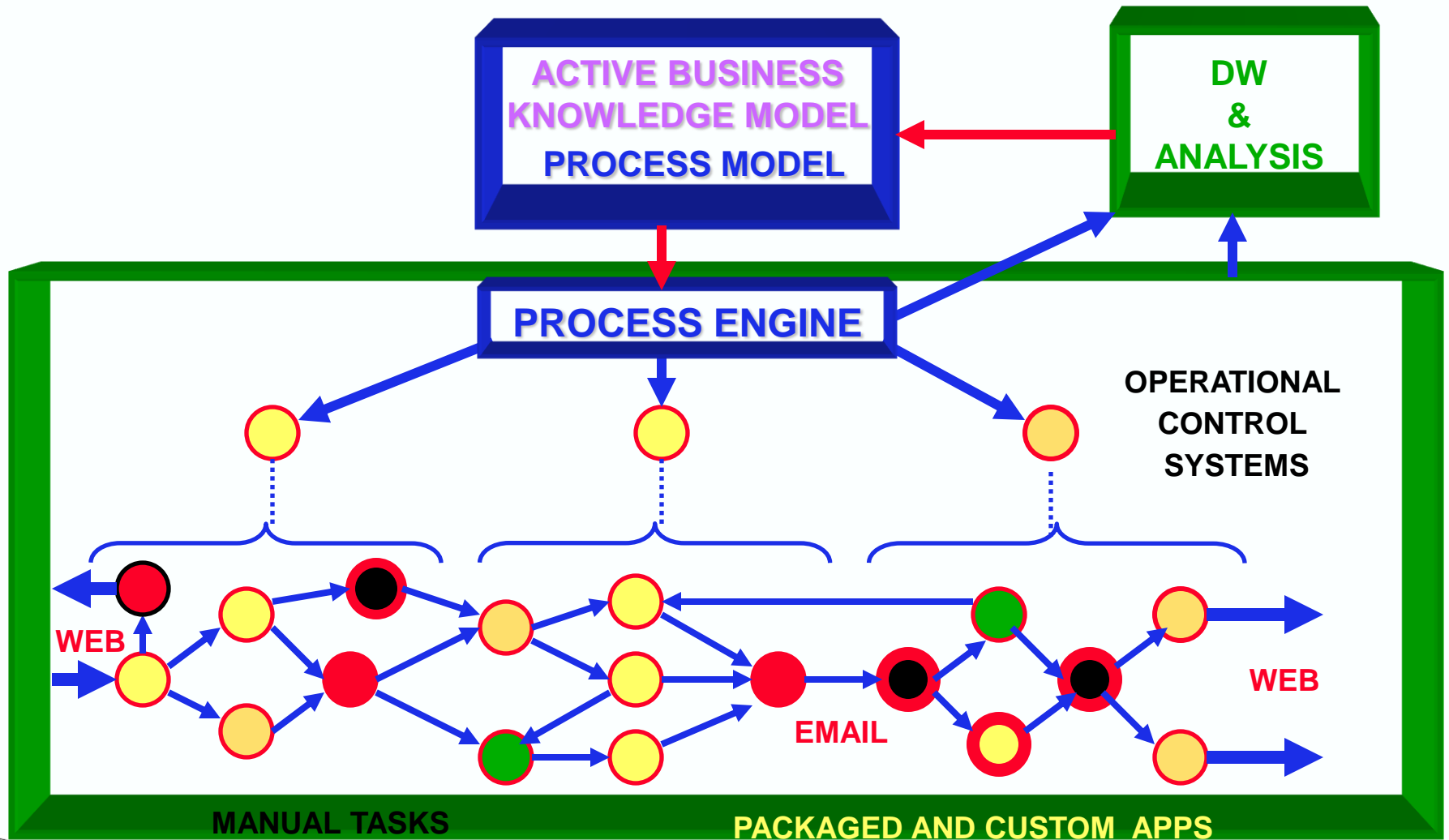
*ENTERPRISE CONCEPTUAL DATA MODELS*

**INTERFACE INTEGRATION MIDDLEWARE**

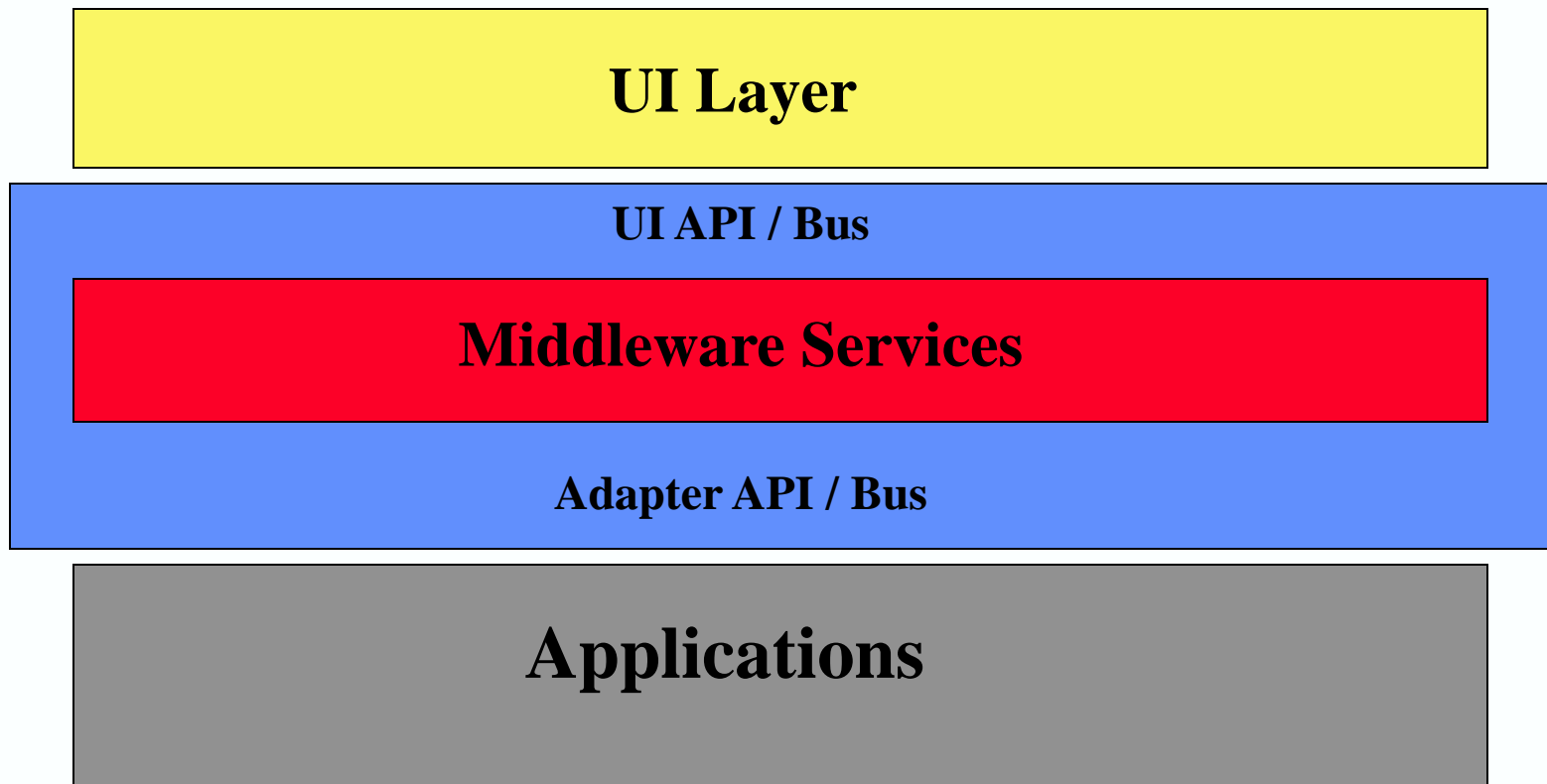
*ENTERPRISE TECHNICAL ARCHITECTURE*



# ZERO MANAGEMENT's ENTERPRISE APPLICATION INTEGRATION

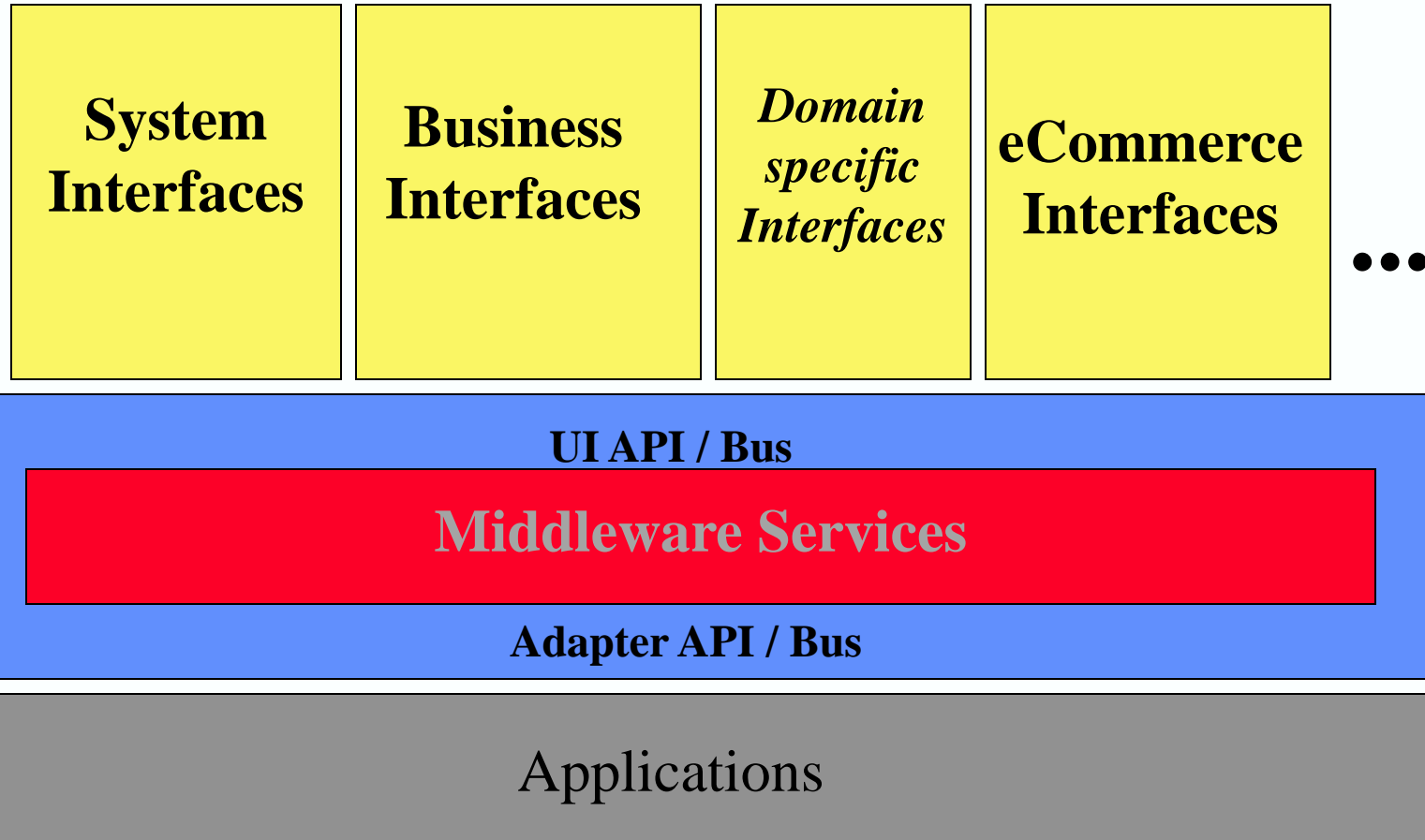


# ***TECHNICAL REFERENCE ARCHITECTURE, VERSION 1.0***



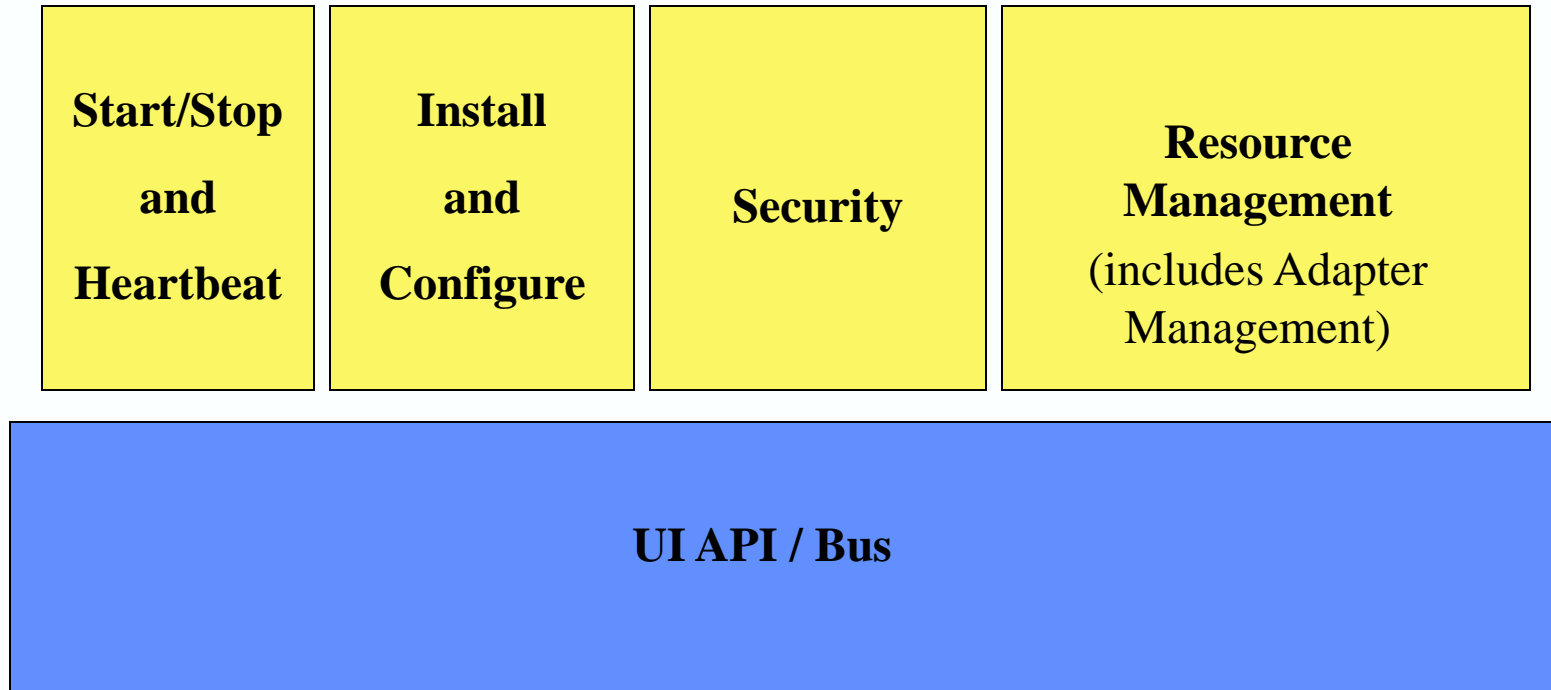
# UI LAYER

## COMPONENT DETAIL



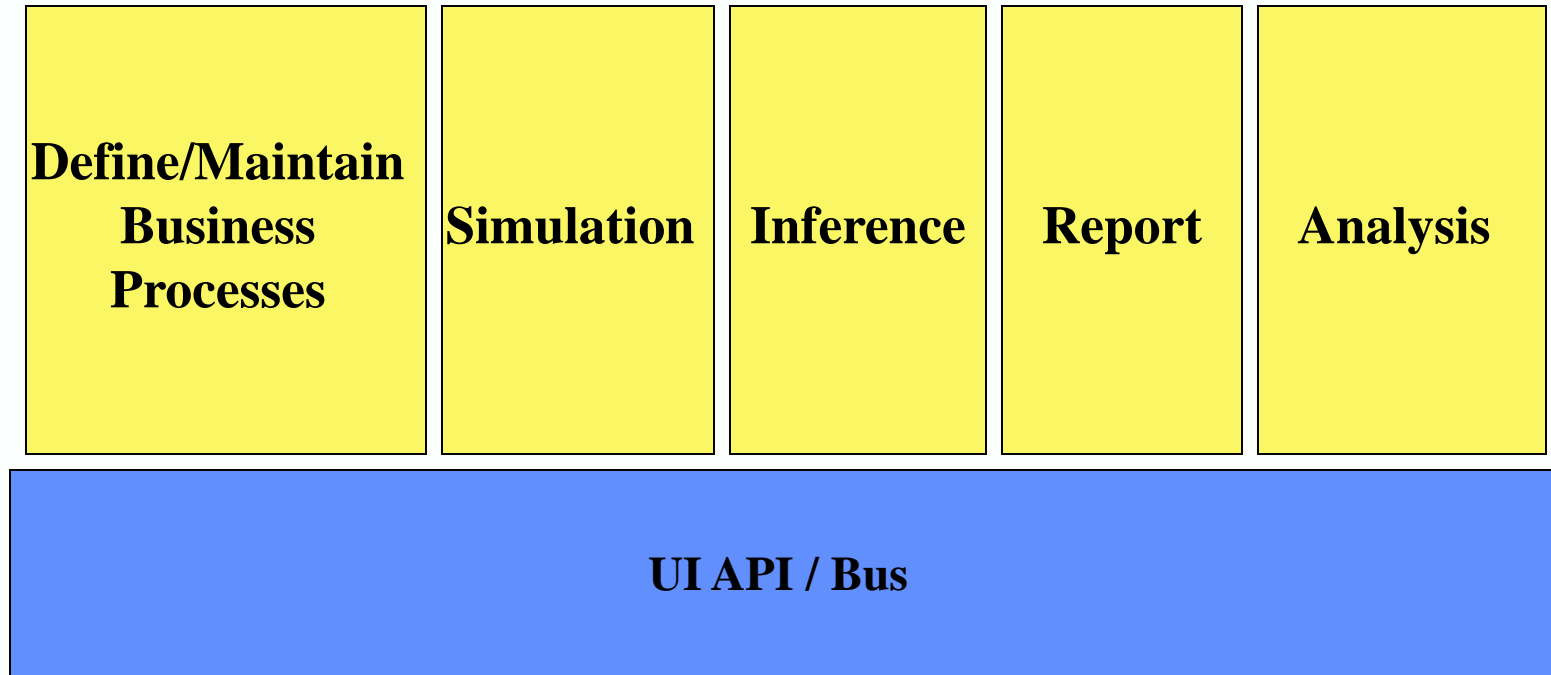
# **UI LAYER**

## **EXPOSING SYSTEM FUNCTIONS**

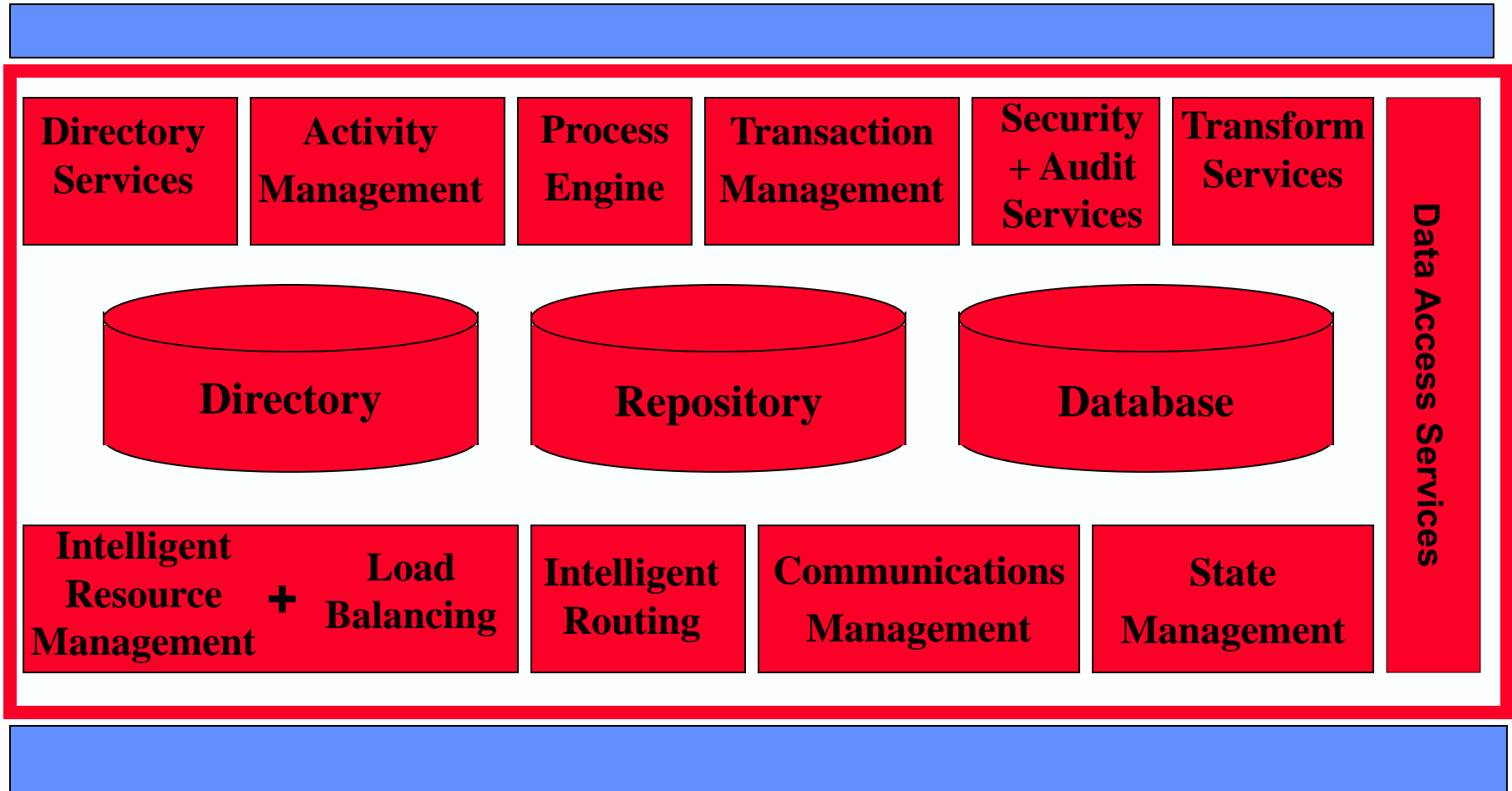


# **UI LAYER**

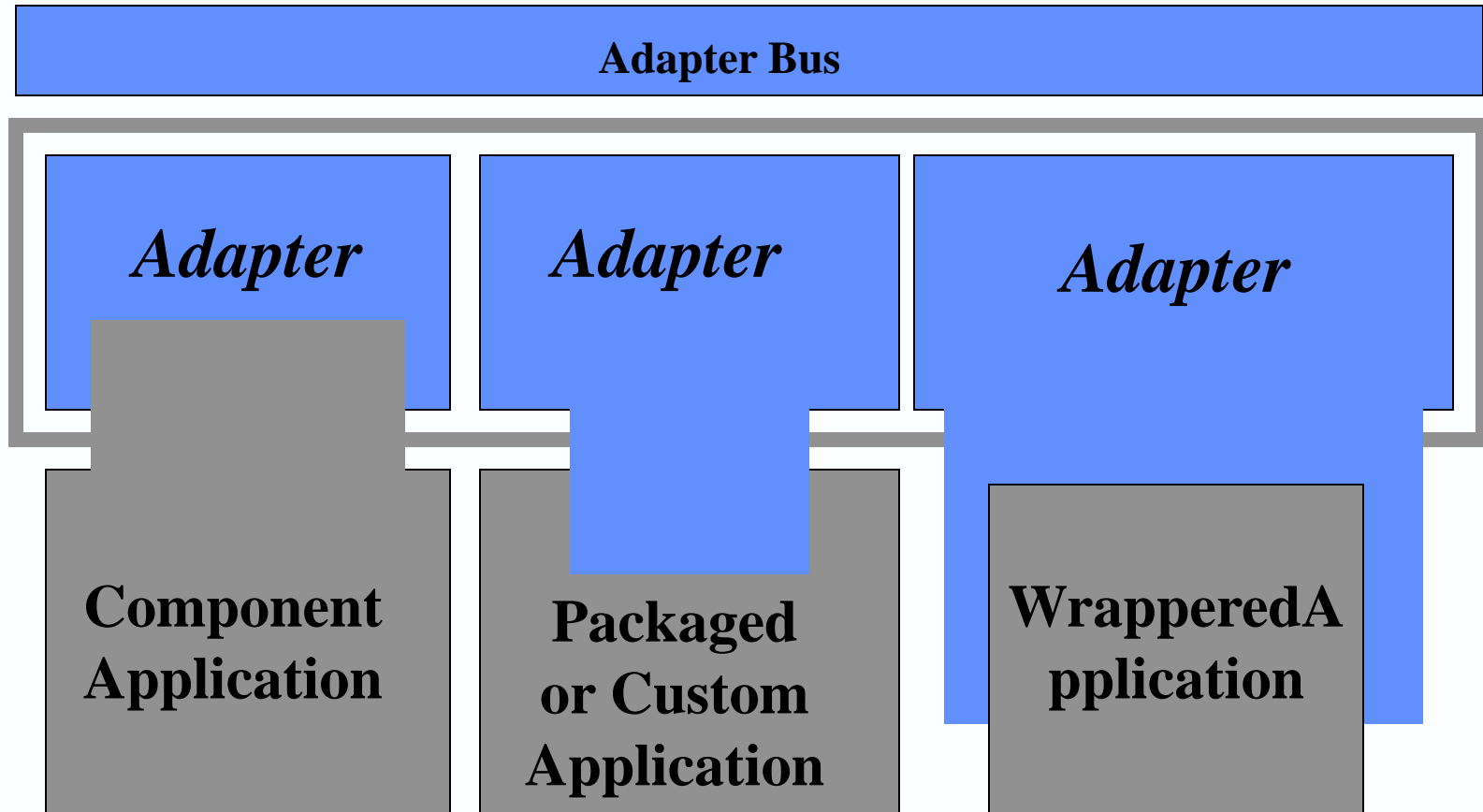
## **EXPOSING BUSINESS FUNCTIONS**



# MIDDLEWARE SERVICES



# APPLICATION LAYER ADAPTER EXAMPLES





# ADAPTER INTERFACES

## FUNCTIONAL EXAMPLES

### Adapter Communication

- process / schedule
- life cycle
- pub/sub support
- synchronization
- messaging
- queue management

### Application Specific

- meta-data
- data mapping
- application I/F
- passivation
- state management

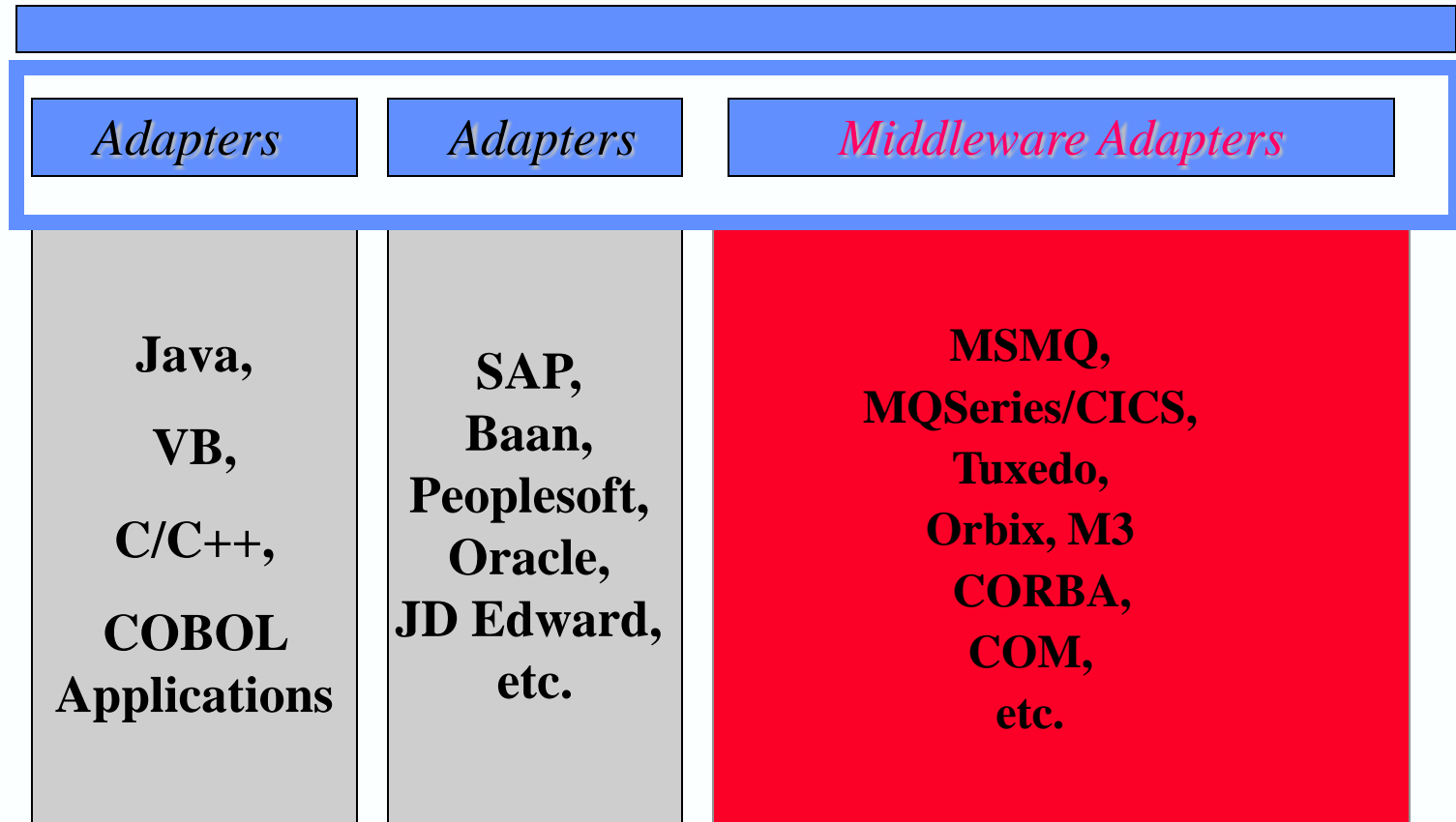
### System Integration

- security control
- system management
- validation
- testing
- performance
- monitoring



# APPLICATION LAYER

## APPLICATION EXAMPLES



# ***EAI SCALABILITY***

- **Scalability and Performance**
  - **MUST BE DESIGNED INTO THE ARCHITECTURE**
  - **MUST BE DRIVEN BY THE ARCHITECTURE!**
- **Avoid**
  - **SYNCHRONIZATION**
  - **RESOURCE WAITS**
  - **COUPLED RESOURCES**
- **Replicate Functional Services**

# ***EAI SCALABILITY***

- **Take Advantage of Natural Partitioning**
  - DESIGN INTERFACES FOR BUSINESS TRANSACTIONS
- **Scaleup Is Not Theoretically Limited**
  - SCALABLE DESIGNS PERMIT HANDLING MORE LOAD
- **Speedup Is Theoretically Limited**
  - SCALABLE DESIGNS DO NOT GUARANTEE MORE PERFORMANCE
- **Instrument**
  - BOTH COMPONENTS AND INTERFACES!
  - CONTROL, VALIDATION, TESTING, AND MONITORING
  - STRESS TESTING AND ON-GOING MONITORING

# FINAL ADVICE

- **Scope, Scope, Scope**
  - IDENTIFY THE DRIVERS, BENEFITS, AND COSTS UP FRONT.
  - BUSINESS WILL WORKAROUND I.T. IF NECESSARY
- **Understand the Impact**
  - PROCESSES, PERSONNEL, CUSTOMERS, AND SUPPLIERS
- **Align Technical Efforts to Business Drivers**
  - ALIGNING BUSINESS TO I.T. CAPABILITY IS A **FATAL ERROR**
- **Let Models Drive the Effort**
  - ESTABLISH OR UNDERSTAND THE APPLICATION ARCHITECTURE
- **Avoid Disruption of Established Business Processes**
  - EVOLUTION, NOT REVOLUTION

# ***FOUR EAI RESOURCES***

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***EAI Workshops***

***(www.AlternativeTech.com)***

***The EAI Journal***

***(free subscription - www.eaijournal.com)***

***www.messageQ.com***

***Enterprise Integration Council***

***YOU ARE INVITED TO JOIN***

***(www.eicouncil.org)***

# Questions?

# ***BIOGRAPHY***

**David McGoveran is an industry analyst, and an international management and technology consultant. He is president of Alternative Technologies (Boulder Creek, CA), specialists in solving difficult relational and distributed applications problems since 1981. He has authored numerous technical articles and co-authored several books (including those with Chris Date), is Chairman of The EAI Conference, and senior technical editor of The EAI Journal. His newest book is The Zero Minute Manager: Business Success in the New Millennium.**

**David McGoveran is Founder and Chairman of the Enterprise Integration Council.**