Collaborative Business Infrastructure Initiative

Objectives, Milestones, Lessons Learned

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HP WORLD 2003
Solutions and Technology Conference & Expo

Todays Topics

Drivers for the initiative
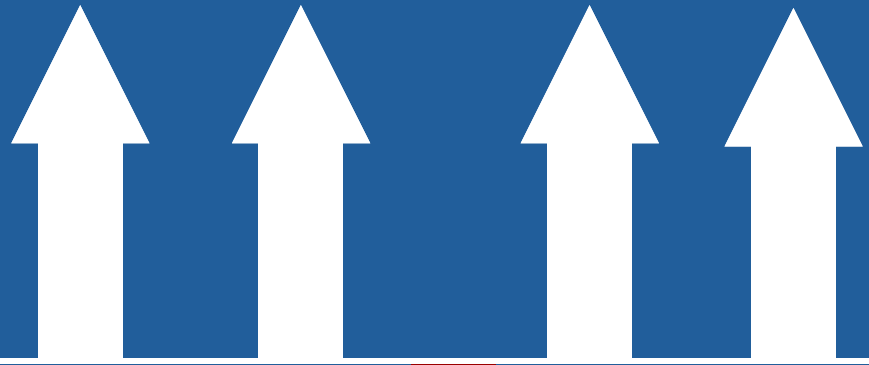
Team Objectives

Architecture Deliverables

Benefits & Value

Key Learnings

Initiative Driver One:
Industry KPI's, Goals & Strategies

Revenue   Operational Effectiveness   Value   Customer Satisfaction

reduce material costs by 10-20% within the supply chain

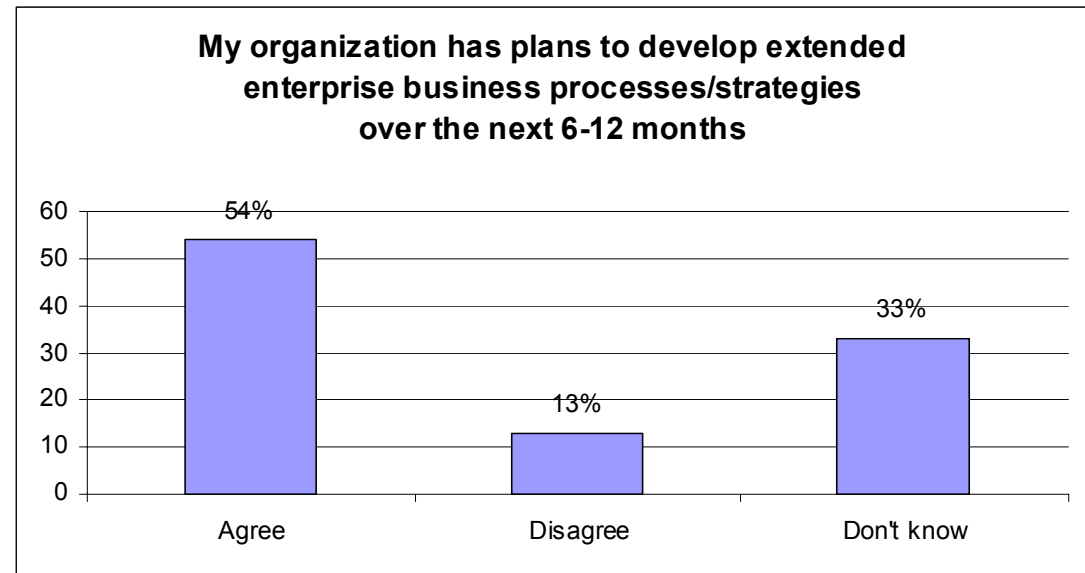reduce product innovation cycles by 30-50%

Strategies & Tools

- Supply Chain Collaboration

- Re-use initiatives

- Lean manufacturing

- Trading partner enablement

- Vendor Managed Inventory

Initiative Driver Two:
What executives are saying...
(Larstan Publishing survey of 103 business executives)

- Standardized business processes provide strategic benefit **(>85%)**

- Business initiatives such as web based procurement and vendor managed inventories provide strategic value and advantage **(>90%)**

- The move to extended enterprises continues **(95%)**

- Web services will be part of the business infrastructure moving forward **(>50%)**

My organization has plans to develop extended enterprise business processes/strategies over the next 6-12 months

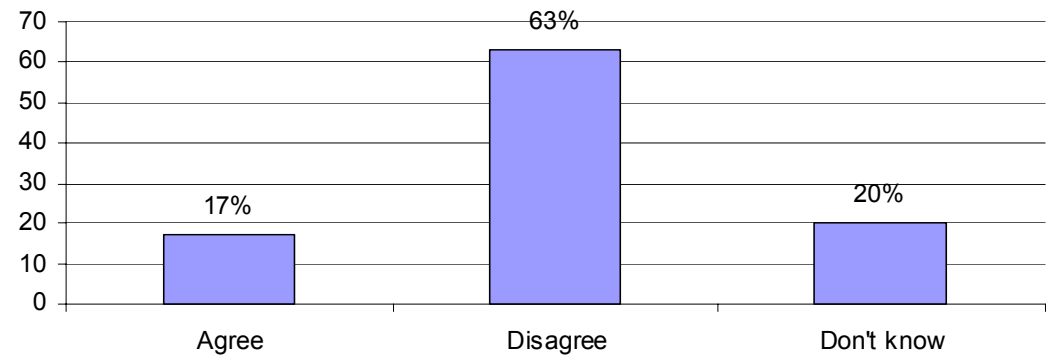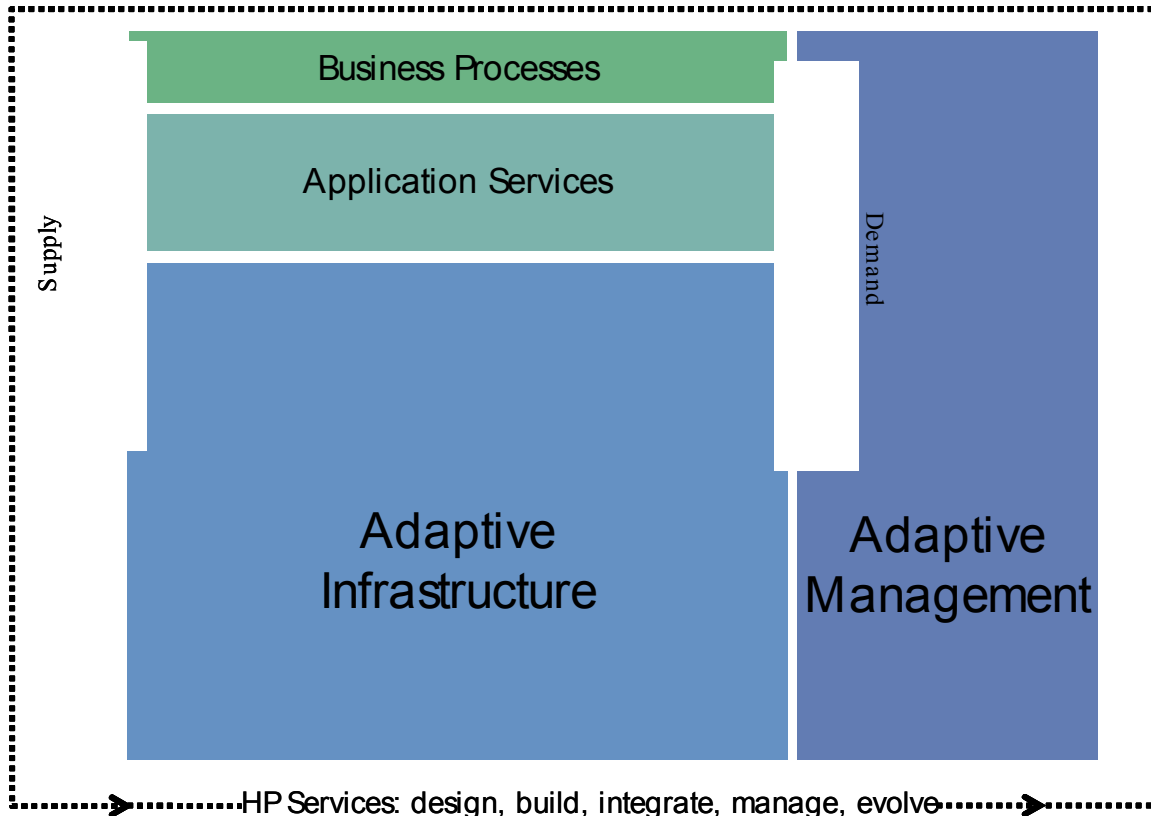|	Agree	Disagree	Don't know
%	54%	13%	33%

...there is a business-to-IT gap

Existing (legacy) platforms are not currently optimized to effectively enable extended enterprise operations

Existing enterprise systems in my organization are currently optimized to manage an extended enterprise effectively.

Supply

Business Processes

Application Services

Demand

Adaptive Infrastructure

Adaptive Management

HP Services: design, build, integrate, manage, evolve

Tight linkage between **IT and business strategy** & extension to suppliers, customers.

Improved service levels through **tighter integration**.

Maximized utilization of available resources through sharing and synchronization across all business functions.

Simplified top to bottom **management and control**.

An IT foundation that dynamically adapts to rapidly changing business conditions

- Customers (rightfully) expect industry "business infrastructure" requirements to drive the technology vendor infrastructure response

- We are infrastructure & technology vendors and should be able to:
  - Suggest 70/30 reference baselines **(repeatability)**
  - Build velocity into deployment **(templates)**
  - Take out complexity **(modular packaging)**
  - Take out risk   **(CBI partnerships)**

Manufacturing Industry Team Response
A CBI

An Adaptive Infrastructure that provides an anchor point for key strategic initiatives with suppliers and partners in the Design, Supply, and Demand chains.

It helps to manage change in technologies, partners, or business models by providing a consolidated platform for integration, **collaboration, and process standardization.**
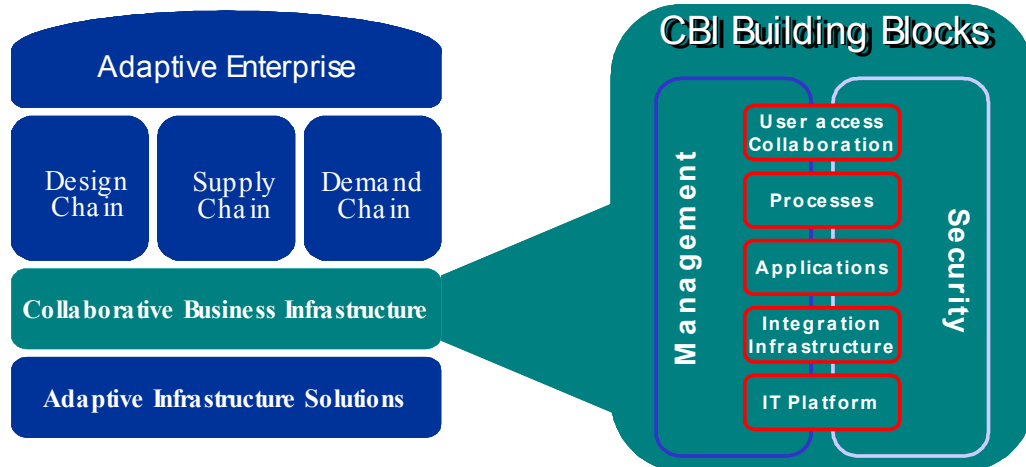
- An integration and collaboration framework built on a web-services ready technology platform

- A security architecture and tools designed by HP Labs for extended enterprise operations

- A management console to monitor business as well as infrastructure elements

- A set of reference I.T. architectures for common Design and Supply Chain needs.

- A library of deployment accelerator templates to speed time-to-value.

Diagram

Adaptive Enterprise

Design Chain | Supply Chain | Demand Chain

Collaborative Business Infrastructure

Adaptive Infrastructure Solutions

CBI Building Blocks

Management | Security

- User access Collaboration
- Processes
- Applications
- Integration Infrastructure
- IT Platform

Project Objectives

First Gate:
Build the Project team

Microsoft

CBI

hp invent

intel.
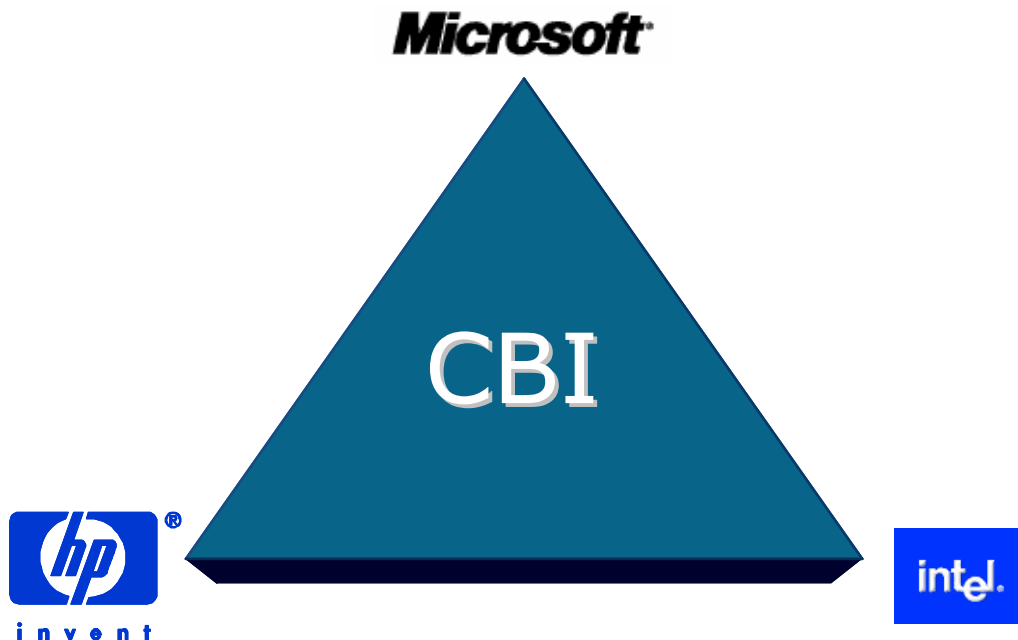
- Formed in January 03

- Each company invests
  – Architects
  – Technology
  – Labs access/time
  – Field resources

- Overriding goal
  – Three technology leaders focused on one core offering
  – Risk mitigation through brand(s) partnership

Project Objective 1

- **Focus on the five "C's"**

  - **Customer**

  - **Connectivity**

  - **Communication with Confidence**

  - **Collaboration**

  - **Consolidation**

Objective 2

■ Deliver business value as an **enabling foundation** for process and workflow templates that drive industry KPIs

- Design Chain
  - Collaborative Product Development
  - Design Re-use
  - Configuration Management (CMII)
- Supply Chain
  - Vendor Managed Inventory
  - Real Time Services Management

Scoping Method: Industry BSP's & analyst interviews

Objective 3

- Accelerate customer KPI/ROI advantage with modular design that enables short duration/accelerated ROI increments to an enterprise framework.

    - Blueprint for a Collaborative Solutions Framework
    - Leverage/extend rather than rip/replace
    - Packaged/integrated building blocks
    - Incrementally funded, incrementally implemented, incrementally measured

Design Scoping: Set horizon strategically, provide package to implement (LOB) tactically

Objective 4

- Improve pace of achieving process-driven KPI's by reducing time-to-deploy and increment the infrastructure supporting the collaborative processes.

  - Deployment accelerators

  - Packaging

  - Repeatability

  - Bi-directional scalability

  Measure: Time or cost reduction at each step

Architecture and Deliverables

Initial Architecture Objectives

- Integration platform
  - ERP
  - B2B
- Collaboration zones
  - People
  - Process
- Security/audit
  - Through firewall
  - End-to-End
- Monitored/metered
  - Infrastructure
  - Process
  - Service
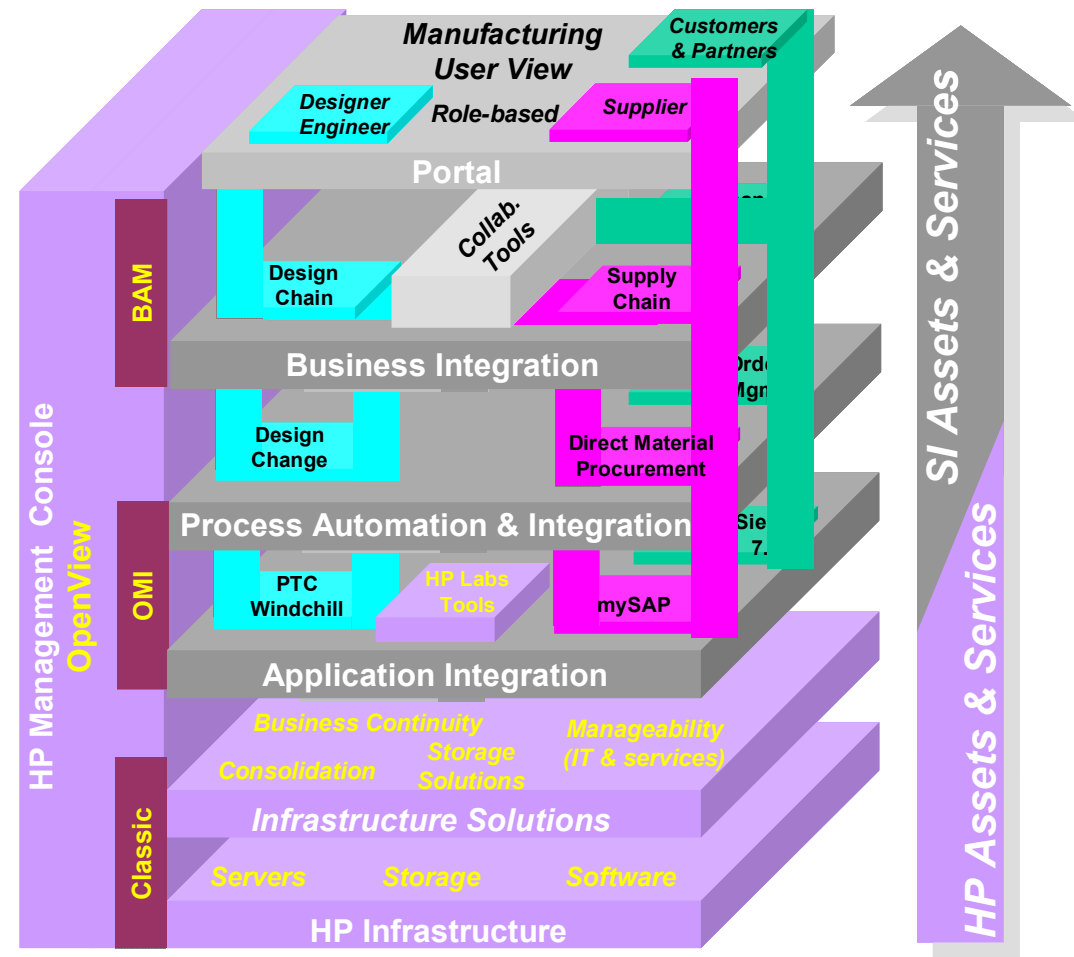
Workstreams
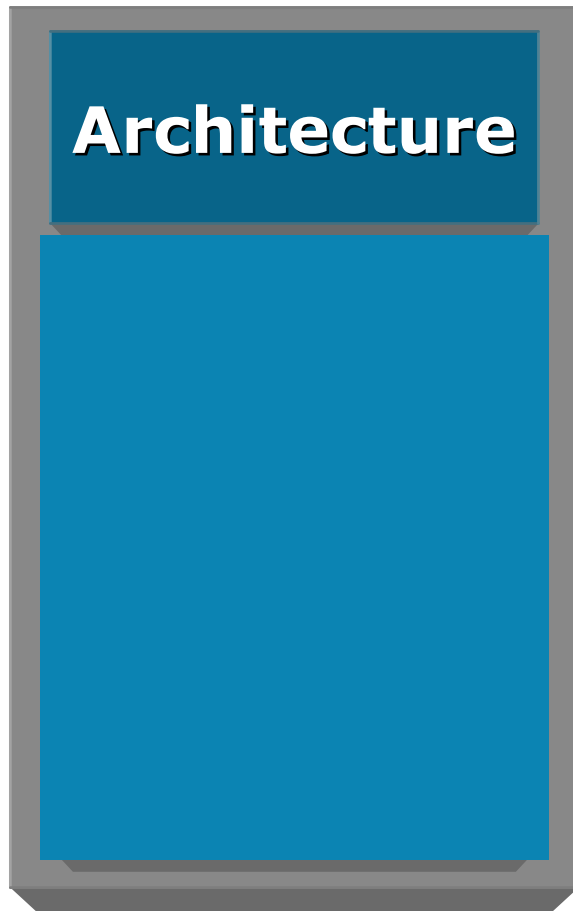
Architecture

- Comprehensive program from requirements through delivery

- Overall program management provided by HP Consulting

- Global distribution of teams and workstream management and execution centers

Architecture Workstream: Preliminary Scoping

Technical Architecture

Reference Implementation

Technical Templates
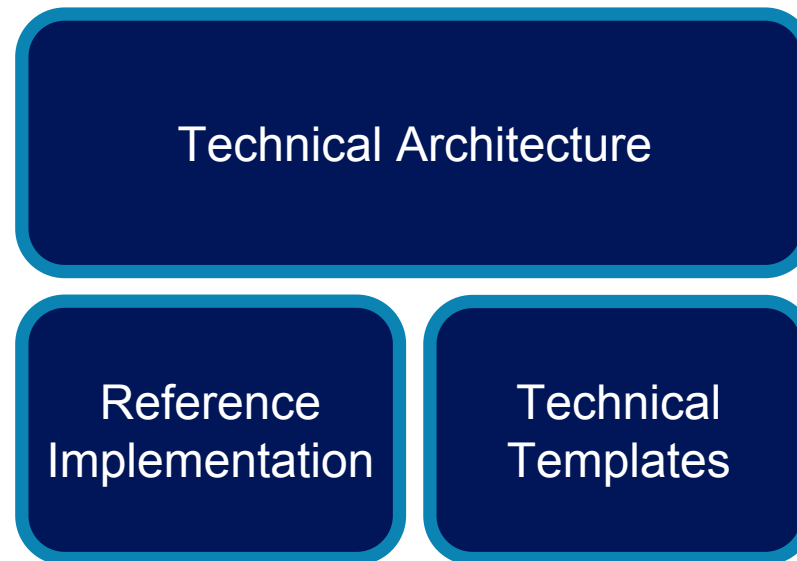
Milestone One:
Technical Architecture

Technical Architecture

Reference Implementation

Technical Templates
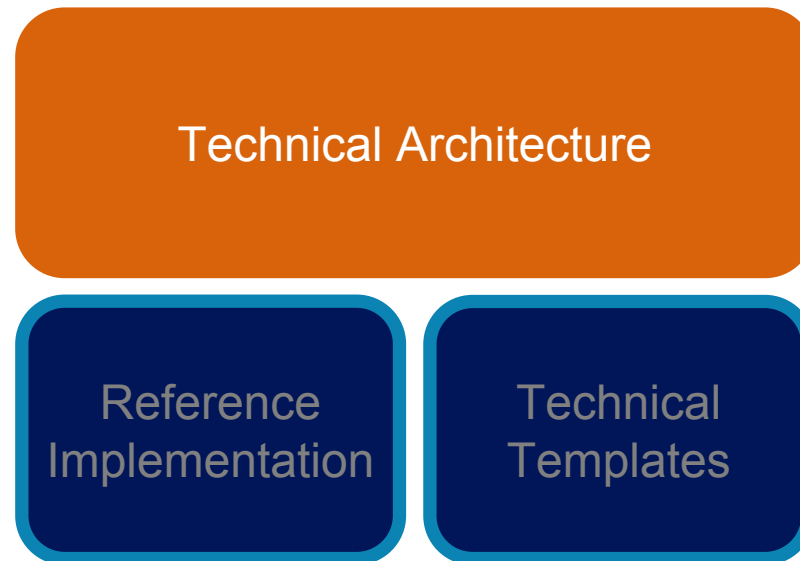
Principles:
Technical Architecture

- Elements

  - Ensure client access through interfaces enabling access from a range of internal and external systems
  - Select standard core components: system elements that provide basic functionality
  - Create CBI extensions that provide enterprise functionality on top of the core components, and target enterprise needs
  - Target data adapters to enable connectivity into most commonly deployed industry environments

Management

Security

User access Collaboration

Processes

Applications

Integration Infrastructure
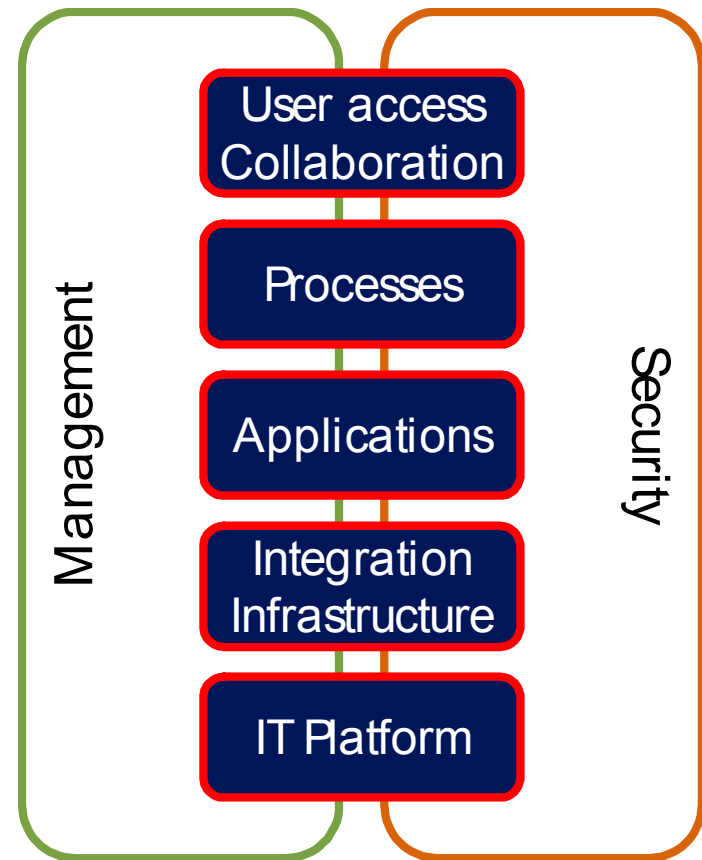
IT Platform

Architecture Element One:
IT Platform

- Objectives

  - Repeatability: design to requirements that are jointly generated with BSPs for common industry problems

  - Deployability: document the architecture, orchestrations, and templates to ensure rapid deployment at customer site

  - Scalability: implementation roadmap calls for modular expansion of the architecture from any business solution starting spot

  - Lowest cost extended enterprise framework

Management | Security

- User access Collaboration
- Processes
- Applications
- Integration Infrastructure
- IT Platform

CBI IT Infrastructure

User/Device Access

ACL

POP

cbi-portal.hpl.hp.com
192.6.10.72

covast.hpl.hp.com
192.6.10.71

cats.hpl.hp.com
192.6.10.73

Firewall (Perimeter)

DMZ Network

EDI servers and the CBI Portal are deployed here.

Forest HPCBIDMZB.NET Customer forest/domain holds customer accounts

Collaborative Layer

Service Network

Common services such as Http proxy and SMTP Gateway are deployed here.

Firewall (Service)

DMZ Ethernet 10.1.3.*

Firewall (Clear Area)

Area51 Network
Core business data processing such as message routing, transformation and business process execution takes place here.

This sub-network hosts BizTalk Processing and MSMQ server and SQL Server with BizTalk Shared Message Queue and Portal data. Also the Domain Controller with Active Directory and Certificate Authority reside here.

Area51 Ethernet 10.1.4.*

Service Ethernet

Integration Layer

Management Layer

HTTP Gateway
10.1.3.65 : 8080

E-mail Gateway
10.1.3.66

Corporate Network

Enterprise back-end systems reside on the corporate network. The corporate firewall is configured to allow connections from BizTalk adapters to these resources.

Data can be uploaded from the dedicated Access Terminal via FTP and managed using a Management Terminal.

Firewall (Corporate)

Corporate Ethernet 15.*,16.*

cbigateway.hpl.hp.com
15.144.30.124

Access Terminal
16.195.86.127

Management Terminal
15.144.26.159

Business Systems
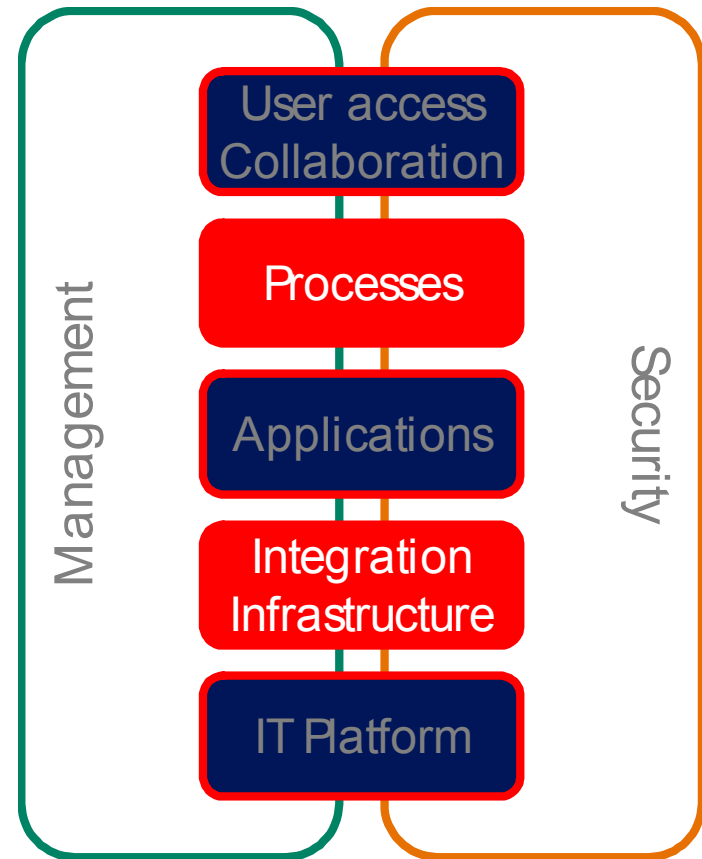
Architecture Element Two: Integration Infrastructure

- Objectives

  - Synchronization of data between applications as part of business processes such as Bill of Materials management, Supplier Alerts, Design Changes to MFG

  - Transformation and routing of data between applications via a message based integration infrastructure

  - Scoping, testing and selection of adapters to ensure connectivity into most common Industry environments

Management

Security

- User access Collaboration
- Processes
- Applications
- Integration Infrastructure
- IT Platform

CBI Core Integration Architecture

Biztalk Database Servers

Reliable Message Storage

Tracking & Auditing

SQL Server

Window 2000

Authenticate
Decrypt
Signature Validation
Authorize

Route
Single, Reliable
Inorder delivery

Parse
Transform
Serialize
Deliver

Partner X

Partner Y

Partner Z

Biztalk Gateway

ASP.NET

IIS 6.0

Windows 2003

Biztalk Receive Server

Biztalk Messaging
Receive Function

Window 2000

Biztalk Work Processor

Biztalk
Messaging

Windows 2000

SAP

Seibel

Peoplesoft

Sign
Encrypt
Deliver

Route
Single, Reliable
Inorder delivery

Authenticate
Authorize
 Parse
Transform
Serialize

```xml
<?xml version="1.0" encoding="utf-8"?>
<order>
  <orderhdr>
   <from>
           <partner name="XYZ Corp." taxid="2342222124"/>
   </from>
   <to>
           <handler name="Ordering System" uuid="6B29FC40"/>
   </to>
   <message>
           <type name="orderrequest"/>
   </message>
  </orderhdr>
   .....
</order>
```
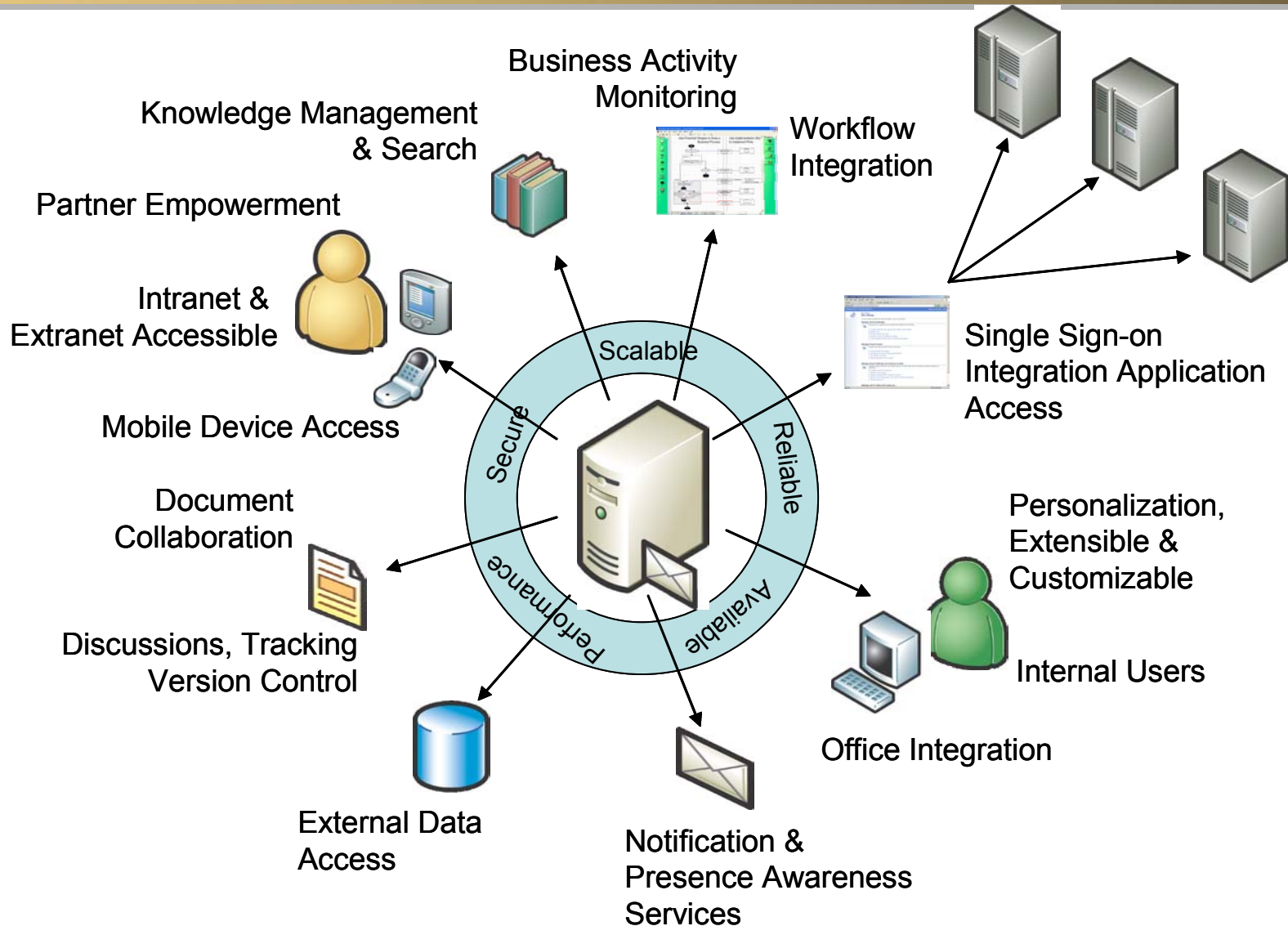
Architecture Element Three: Collaboration Layer
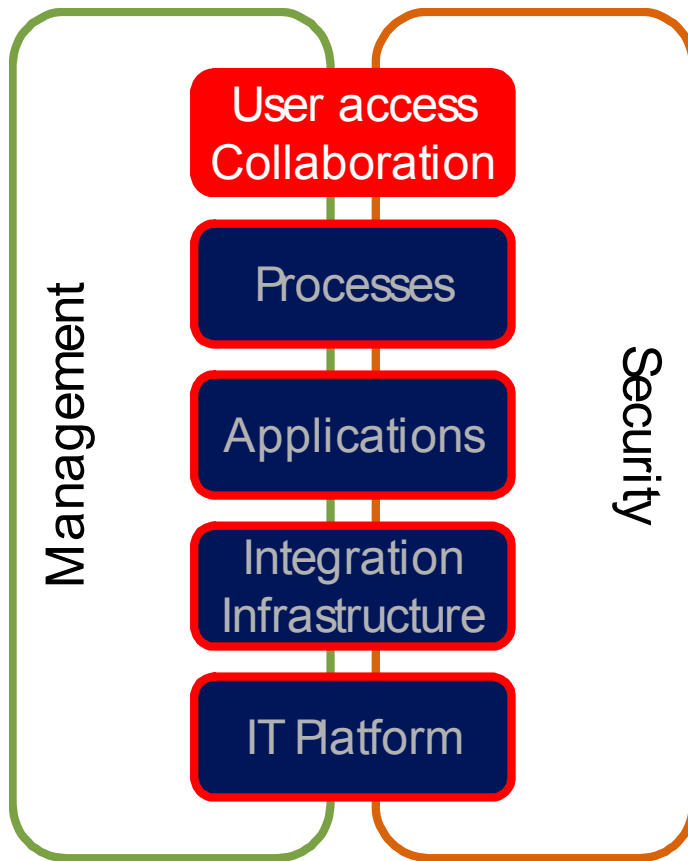
- **Connectivity**
  - Adapter based connections into integration infrastructure enable process creation
- **Collaboration**
  - Services delivered by business applications exposed as processes at collaboration layer
- **Confidence**
  - Security from application through portal, across internet
- **Consistency**
  - Management layer provides monitoring of infrastructure and select applications

CBI Portal:
ubiquitous gateway

Business Activity Monitoring

Knowledge Management & Search

Workflow Integration

Partner Empowerment

Intranet & Extranet Accessible

Scalable

Single Sign-on Integration Application Access

Mobile Device Access

Secure

Reliable

Document Collaboration

Performance

Available

Personalization, Extensible & Customizable

Discussions, Tracking Version Control

Internal Users

Office Integration

External Data Access

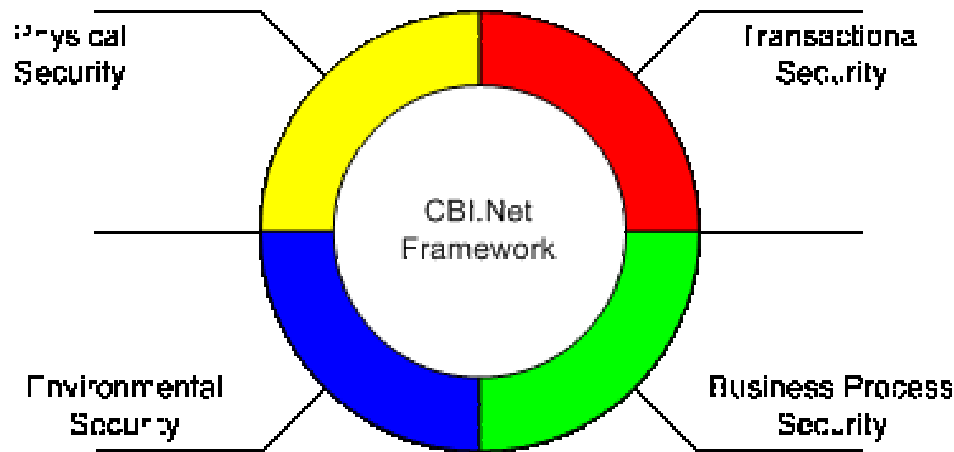Notification & Presence Awareness Services

Architecture Element Four: Security

- Objectives

    - Enterprise hardened

    - Utilize leading edge models, techniques and tools developed within HP Labs

    - Map HP enterprise capabilities to Microsoft technology base

    - Ensure End-to-End security to enable the modular implementation & "leverage and go" strategy from EAI to B2B environments

Management

Security

- User access Collaboration
- Processes
- Applications
- Integration Infrastructure
- IT Platform
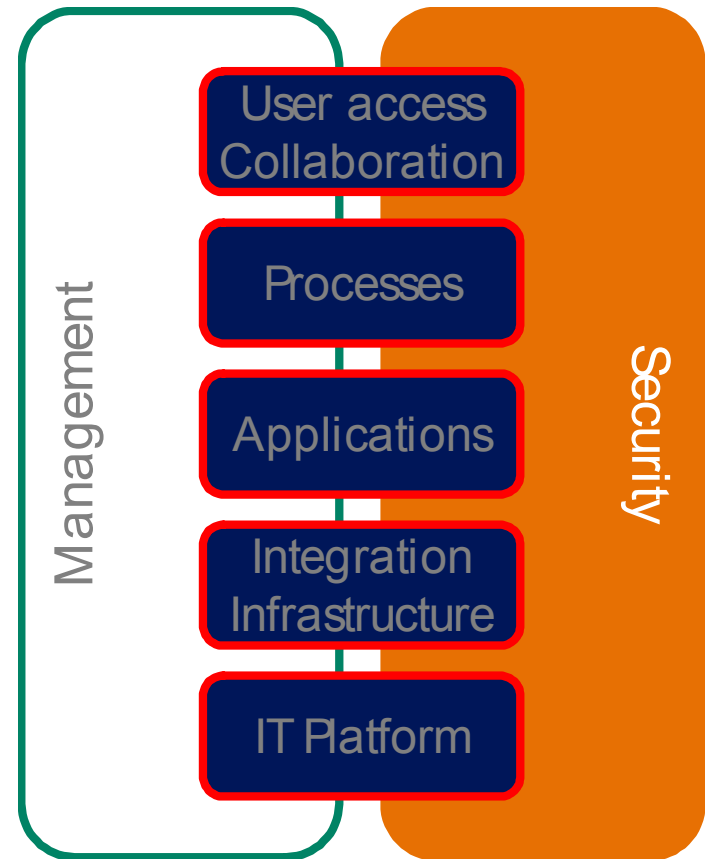
Scope of Security Model

- Multiple mechanisms – the auditing subsystem, the event management subsystem, session management, user management and client interface

- End-to-End
  - Features from the .NET framework
  - COM+ Interface security
  - Database lockdown with defined database security schema

- Session authentication integrated into the client access path, session model and user management objects

- Dynamic role-based access control to enforce limitations on business service access
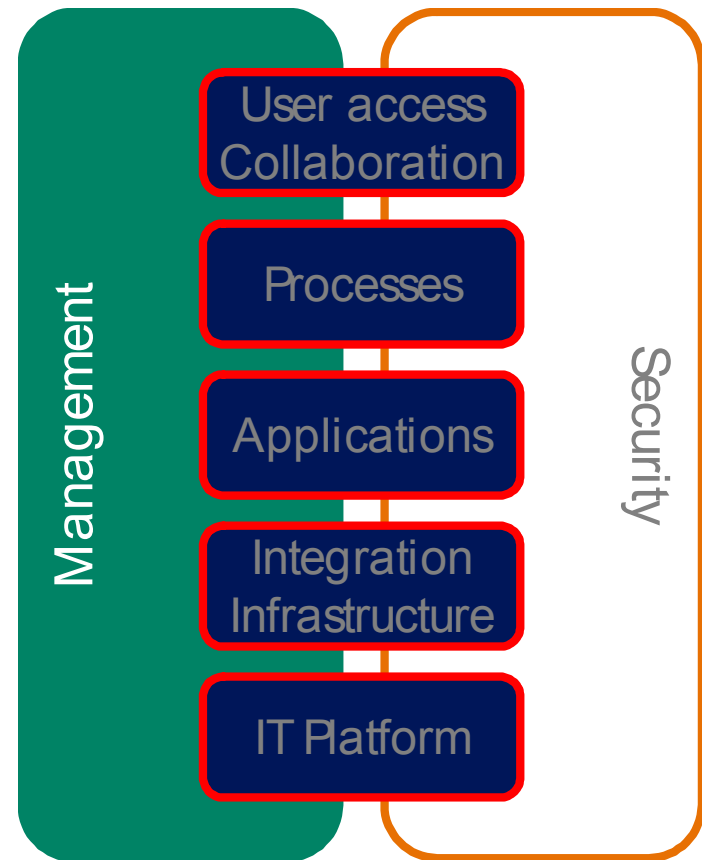
Architecture Element Five: Management

- Objectives
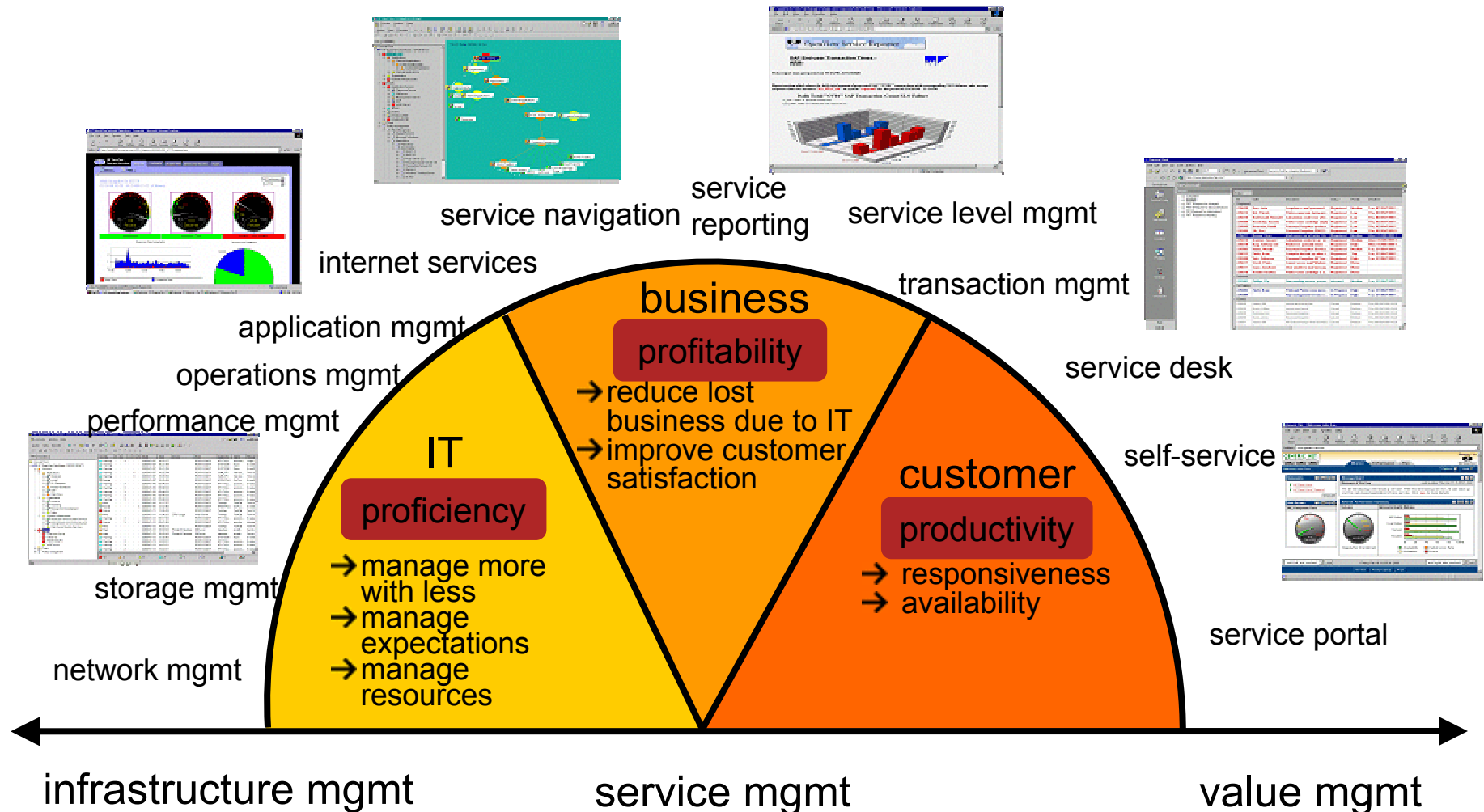
  - **Now**
    - Provide single console view for EAI/B2B core components
    - Where possible, monitor the applications within the CBI

  - **Targeted**
    - **Web-services management** around emerging standards (Organization for the Advancement of Structured Information Standards,OASIS)
    - **Business Impact Analysis** of IT events (monitor/audit/analyze)
    - **Business Activity Management**: on key business metrics via a business dashboard and business driven events for IT management.

Management

- User access Collaboration
- Processes
- Applications
- Integration Infrastructure
- IT Platform

Security

Management Portfolio

service navigation

service reporting

service level mgmt

transaction mgmt

internet services

service desk

application mgmt

operations mgmt

performance mgmt

self-service

storage mgmt

network mgmt

service portal

business

profitability
→ reduce lost business due to IT
→ improve customer satisfaction

IT

proficiency
→ manage more with less
→ manage expectations
→ manage resources

customer

productivity
→ responsiveness
→ availability

infrastructure mgmt   **service mgmt**   **value mgmt**

Deployment

partners

Project Collab

Re-use

Document Collab

BOM

P.O. Collab

~~PMM~~

Inventory Collab

Forecast Collab

Configuration Management II

Entry Point

Design Chain

Supply Chain

Extensible ROI

Technology framework

Technical Architecture

Reference Implementation

Technical Templates

Templates:
Types and Examples

- *CBI Extensions*
  - Add functionality to core components/architecture
  - Improve "enterprise readiness"

- *Developed extensions*
  - End to End Security Model
  - Management Framework
  - Web Service Extensions
  - Configuration Management
  - Auditing and Event Recording
  - Document Routing Management
  - Data Services Getaway
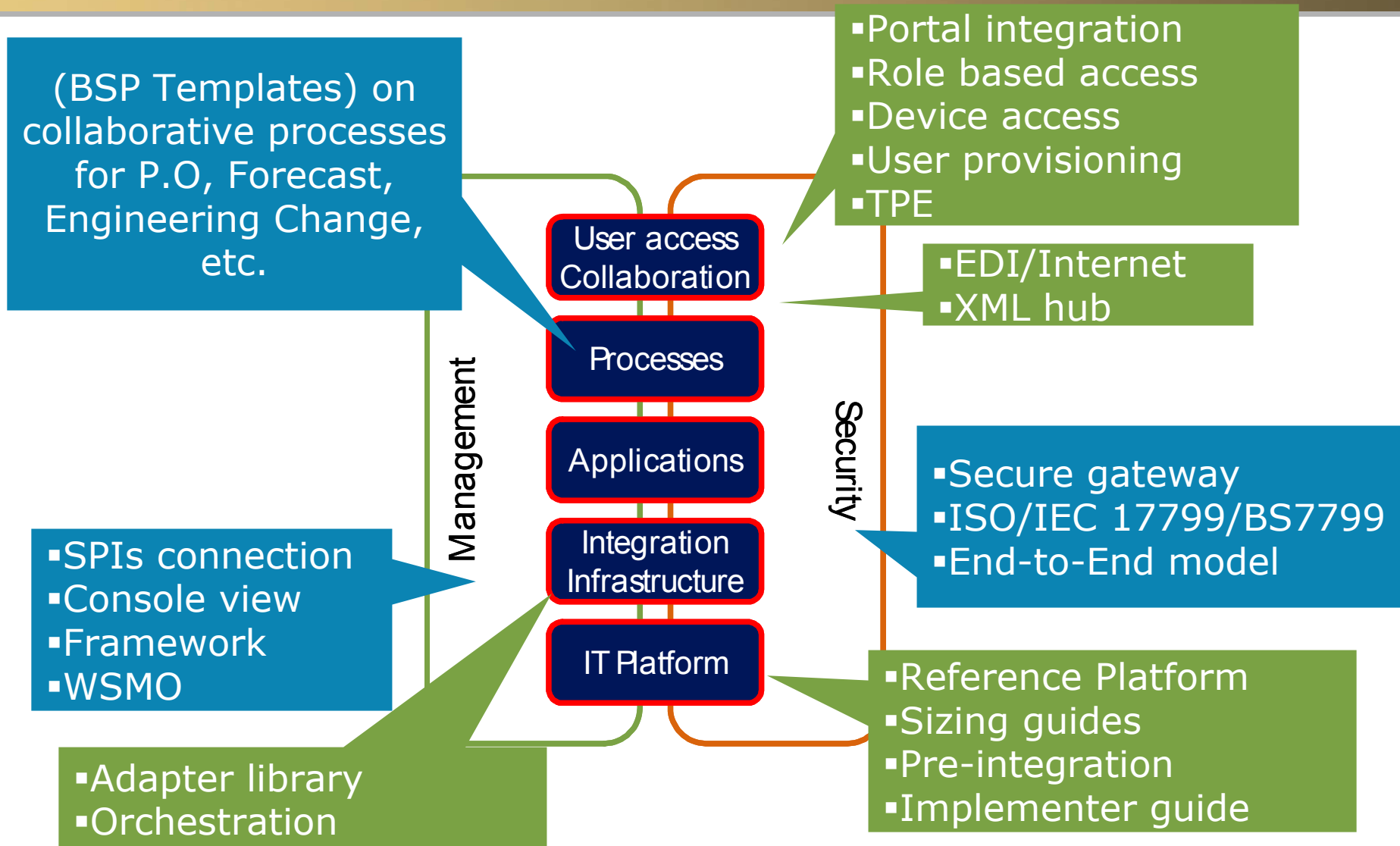
- *Deployment Accelerators*
  - **I.T. accelerators**
    - Secure EDI over the internet
    - User Provisioning
    - Role Based Access
    - Workflow Integration
    - Deployment and Revision Management
    - Activity Monitoring
    - Portal Integration
  - **Process templates**
    - BSP-provided
    - Workflows, process maps

Example Templates

(BSP Templates) on collaborative processes for P.O, Forecast, Engineering Change, etc.

- Portal integration
- Role based access
- Device access
- User provisioning
- TPE

- EDI/Internet
- XML hub

User access Collaboration

Processes

Applications

Integration Infrastructure

IT Platform

Management

Security

- SPIs connection
- Console view
- Framework
- WSMO

- Secure gateway
- ISO/IEC 17799/BS7799
- End-to-End model

- Adapter library
- Orchestration

- Reference Platform
- Sizing guides
- Pre-integration
- Implementer guide

Key Learnings

- The "whole" can be greater than the sum-of-the-parts when technology partnerships are focused on a common, shared objective

- Aligning the technology partnership with business partnerships is in the critical path for success

- Customer Advisory Board will be critical in shaping the CBI offering moving forward: customer/industry driven

- Reference architectures and sample templates drive progress to positive KPI's, accelerate ROI, and should be viewed by the vendor as value-add investments that yield tangible results

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