Building a BusinessObjects Shared-Services Environment

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INSIGHT

2005 INTERNATIONAL USER CONFERENCE

Presentation Information (Hidden Slide)

- **Building a BusinessObjects Shared-Services Environment**
  - Three years ago, Credit Suisse First Boston's team was tasked in building and maintaining a global shared service to support diverse and strategic BI initiatives across multiple regions and product lines. CSFB now supports 60 different reporting applications with over 3,000 users running on a common infrastructure owned and supported by a single global service organization. See the organizational and technical challenges that CSFB overcame. Learn the critical steps required to deploy a global BI service, such as defining organizational role definitions, cost transparency and charge backs, virtual application silos, and integration with an enterprise-level job control system.
  - Miami, Monday November 7, 1:45pm

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Topics

- Project overview
- Shared-Services model
- Project organization
- Shared-Services funding
- Technical architecture
- Virtual application silos
- Value-added components
- Q&A

Project Overview – Company

CREDIT SUISSE | FIRST BOSTON

- **Credit Suisse First Boston (CSFB) is a leading global investment bank**
  - Serves institutional, corporate, government and high net worth clients
- **CSFB's businesses include:**
  - **Securities underwriting**
  - **Sales and trading**
  - **Investment banking**
  - **Private equity**
  - **Alternative assets**
  - **Financial advisory services**
  - **Investment research**
  - **Asset management**
- **CSFB is a proven leader across the spectrum of investment banking, capital markets and financial services**
  - Ranks in the top tier in virtually all major business segments
- **CSFB is a truly global institution**
  - Operates in more than 69 locations across more than 33 countries on five continents

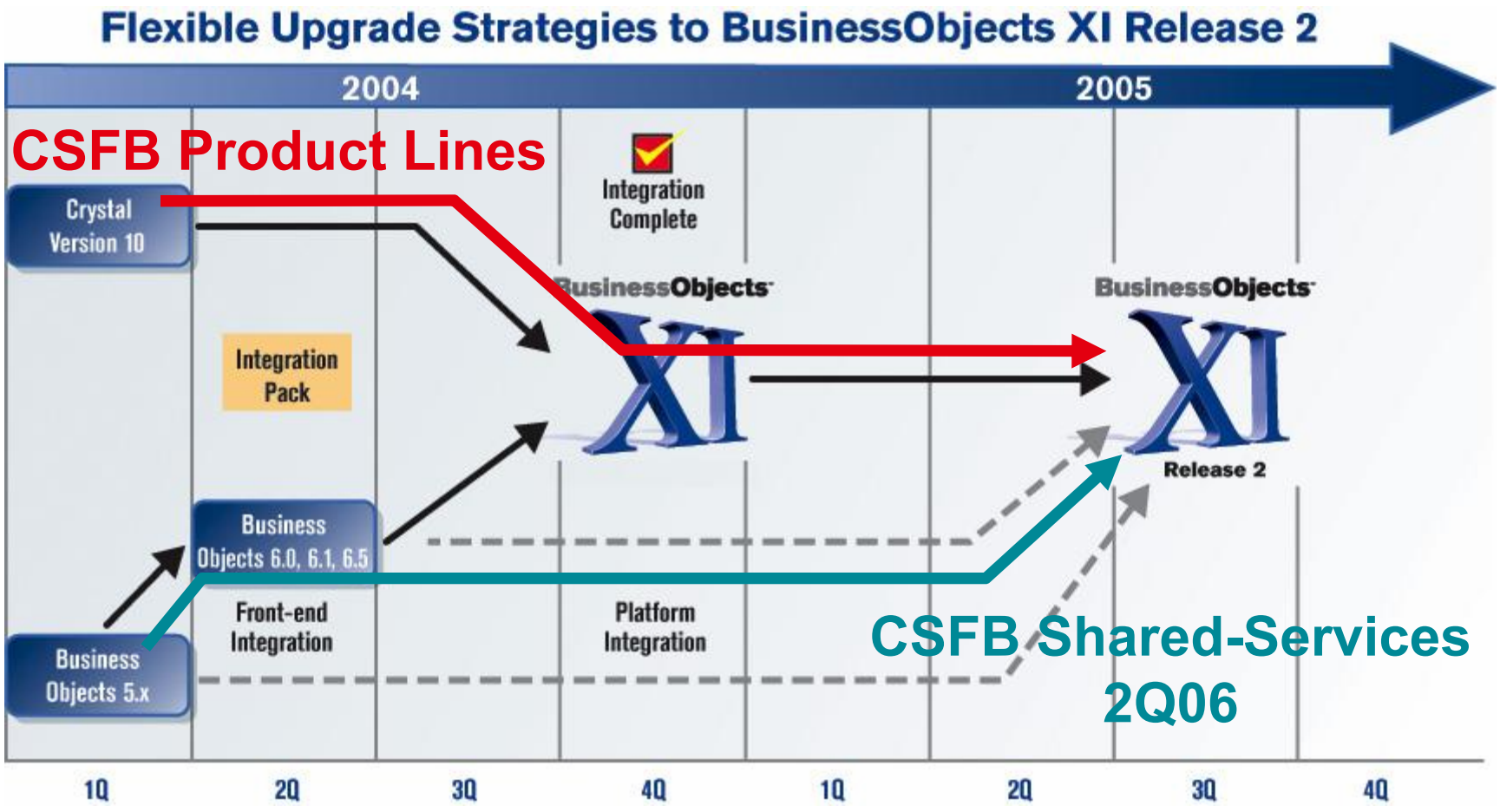
Project Overview – Deployment

BusinessObjects deployment at CSFB

- **BusinessObjects licensing w/Premium Support**
  - Legacy licensing has recently been consolidated into 8500 named user licenses for BusinessObjects XI Premium
    - includes BusinessObjects InfoView and Crystal
  - 3000 named users for Web Intelligence analysis
  - 1000 named users for BusinessObjects analysis
  - 1500 seats of Crystal Reports Advanced Developer
  - Licensing projected to be adequate thru 2006
- **Query and Analysis - BusinessObjects**
  - **Global Shared-Services for BusinessObjects 6.1b**
    60 Product Line reporting applications with over 3600 users
  - Legacy BusinessObjects Product Line deployments
    - 4 legacy Web Intelligence deployments are in the process of migrating to Shared-Services (additional 1000 users)
- **Reporting – Crystal Enterprise**
  - Approximately 5 Product Line deployments of Crystal Enterprise 10
- **Management dashboards – Enterprise Performance Management**
  - Interest expressed by a number of customers across multiple Product Lines
  - Attempting to get project sponsorship and funding

Project Overview – Product Roadmap

Overlay of CSFB migration strategy



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Shared-Services Model – Drivers

- **Lower cost**
  - Hardware (fewer servers)
  - Staff (fewer staff to support and maintain)
  - Smaller data center footprint
  - Improved vendor leverage for CSFB requirements
  - License utilization (negotiate the right deployment model)
- **Improved controls**
  - Software upgrades (supported versions)
  - Proper segregation across environments and duties
    - Separation of development, user acceptance test (UAT), production
    - Sarbanes-Oxley (SOX) Compliance
  - Release management (structured change management)
  - License management
  - Reduced IT and operational risk
    - Fewer moving parts
- **Eliminates redundancies**
  - Multiple products providing competing solutions
  - Training, engineering, and support

Shared-Services Model – Drivers (continued)

- **Aligns with IT strategy**
  - Data Center strategy
  - Ties into development methodology
  - Shared vs. dedicated servers
  - Institutionalizing efficiencies in our operating environment
  - Improved time to market
- **Impact on the procurement process**
  - Understand total cost of ownership before we enter into an agreement
  - Negotiation leverage
- **Support effectiveness**
  - Concentration of centralized support resources
  - Higher degree of specialized expertise
  - Less products = less complex

Shared-Services Model – Challenges

- **Buy in from IT**
  - View the Shared-Services team as the only service provider for the product
  - Funding the Shared-Services
  - Accepting selected products
- **Willing to compromise and be flexible**
  - Not as flexible as owning and managing your own solution
  - Must give up some control to centrally managed service
  - Exception process to use a competing product or service
- **Shared-Services challenges**
  - Establishing a funding/chargeback model that is transparent for the enterprise
  - Maintaining the equivalent service level as a product silo support team
  - Understanding the requirements across the enterprise

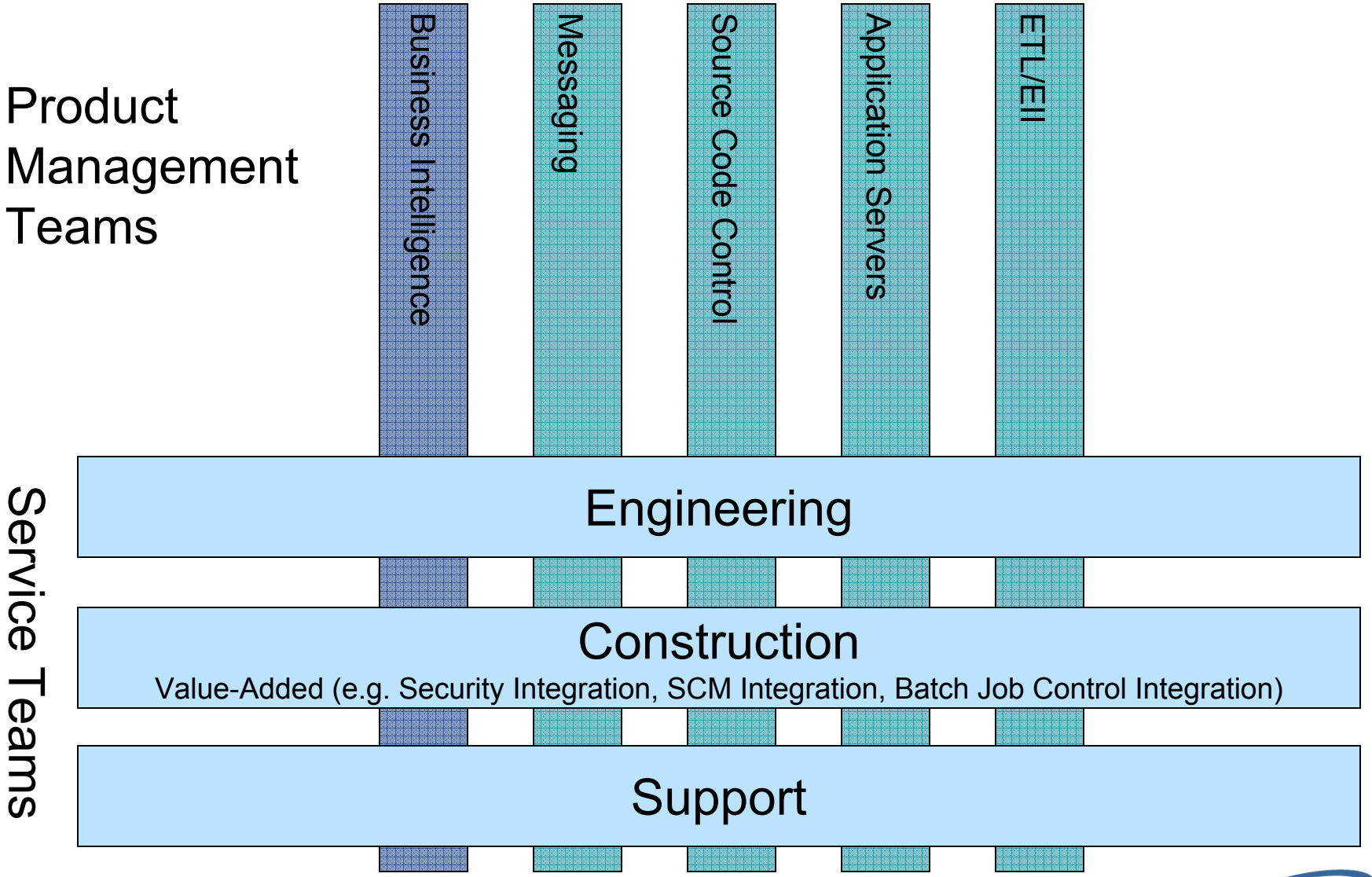
Shared-Services Model – Service Level Definitions

BusinessObjects at CSFB is a level 3 Shared-Service

	Build	Usage Standards	Support	Deployment	Development	*When Appropriate ?*
Level 3 Shared Service	Engineered Build	Corporate Enforced Standards	Centralized Support	Corporate Shared Infrastructure	Product Line Development	Global deployment across multiple product lines
Level 2 Centralized Support	Engineered Build	Corporate Enforced Standards	Centralized Support	Product Line Hardware Silo	Product Line Development	Scalability is limited
Level 1 Best Practices	Engineered Build	Corporate Recommended Standards	Product Line Support	Product Line Hardware Silo	Product Line Development	Initial point of entry to Shared Service model
Level 0 Project Silos	One-Off Builds	No Standards	Product Line Support	Product Line Hardware Silo	Product Line Development	Single Product line Specialized usage

Shared-Services Model – Organization

Generic org chart for corporate Shared-Services



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Project Organization – IT Requirements

CSFB is a distributed organization

- **Distributed business organization**
  - Front office Product Lines and back office are globally distributed
- **Distributed business intelligence projects**
  - Ownership distributed across all Product Lines and regions
- **Distributed data warehouses/data marts**
  - Located in regional data centers (New York, London, Singapore) for both global and local reporting applications
- **Heterogeneous data sources**
  - Oracle, DB2, Sybase, SQL Server, Informix
- **Non-standard project lifecycles**
  - Lifecycles vary across Product Lines/regions in maturity levels

Project Organization – Project Structure

Create a centralized service for a distributed organization

- **Provide a global state-of-the-art BusinessObjects business intelligence standard toolset**
  - Centralized product team
  - Centralized support services
  - Centralized engineering services
- **Product Line IT departments to retain full ownership of data and reporting applications**
  - BusinessObjects to be centrally owned and hosted on shared development, user test, and production environments
  - Each Product Line reporting application to be deployed in a **virtual silo** that isolates it from other applications running on the same shared server instance
- **SOX Compliant**
  - Controls to limit access to UAT and production environments
- **Partner with Business Objects to launch a global Shared-Service**
  - Engage Business Objects Professional Services for 6-month engagement to help define a technical architecture and develop standards
  - Contract for Business Objects Premium Support

Project Organization – Shared-Services IT Teams

Roles of the centralized Shared-Services IT teams

- **Enterprise Reporting and Analytics Product Team**
  - Overall program management
  - Vendor relationship management
  - As Center of Excellence (COE), provide global Business Objects integration services and product consulting expertise
  - Develop architectural roadmap
  - Design global shared infrastructure
- **Global Support**
  - Server support including deployment, configuration and monitoring
  - Security administration and change management
  - Day to day developer support
- **Global Engineering**
  - Engineer all workstation and server components

Project Organization – Customer IT Teams

Roles of the distributed IT application development groups

- **Technical project lead**
  - Liaises with CSFB BusinessObjects Product Team to agree on appropriate use of Business Objects products and technical architecture
  - Responsible for database design
  - Insures that the application development functions are properly staffed and trained
- **Universe designers**
  - Must be familiar with the application database design and data
- **Report writers**
  - Write canned reports and reporting templates for use by end users
- **SDK programmer (optional)**
  - For when the InfoView portal cannot satisfy requirements
  - Should understand the appropriate coding language (ASP, JSP)
- **Support/Training**
  - Train and support business users for their reporting application
  - Field first-line support calls for their business users
  - Refer 2nd-level support technical issues to CSFB Global Support
- **Administration by designated supervisors**
  - User administration for their development projects
  - Define and create application sub group security hierarchies

Project Organization – Product Lifecycle

Lifecycle for Shared-Services deployment of a new product

- **Product Team**
  - Define product roadmap
  - Deploy new candidate for release in lab
  - Procure additional infrastructure if required
  - Develop migration plans for service platform/customer applications
  - Revise product standards
- **Engineering Services**
  - Engineer workstation and server builds
    - Desktop BusinessObjects client scripted for automatic installation on up to 20,000 workstations with all required database drivers
- **Support Services**
  - Instantiate servers
  - Support project migrations to target environments
  - Provide 24x7 follow-the-sun support for production instances across all regions

Project Organization – Customer Lifecycle

Lifecycle for a new customer project on the Shared-Service

- **Product Team**
  - Customer adoption request
    - Customer completes web-based adoption form with high-level business and technical requirement
  - Requirements walk-thru
    - Customer meets with Product Team to walk-thru requirement and agree on appropriate product/architecture for best-fit solution
  - Proof-of-Concept
    - If necessary, Product Team conducts a POC with customer in sandbox environment
  - Project initiation
    - Product Team signs off on project and hands-off to Support Team
- **Support Services**
  - Support Team creates virtual silo on shared infrastructure
    - Development Team supplies database connection and user access requirements to Support Team
    - Support Team creates virtual silos for development, UAT and production on local shared infrastructure (1-2 day turnaround) and development begins
    - Development Team raises requests to Support Team for UAT and production migrations for universes and shared reports as required

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Shared-Services Funding

Funding is the biggest challenge for a Shared-Services project

- **The ideal model**
  - A Shared-Service should be centrally funded and have it's Total Cost of Ownership (TCO) charged back based upon usage metrics
- **Current challenges**
  - Our funding model is based upon Product Line business requirements
    - No means to fund an IT sponsored strategic project
  - Current IT focus is on cost reduction
    - To realize a lower TCO an investment is required in a Shared-Service before cost savings can be realized by the Product Lines
  - Company-wide cost transparency model not yet in place
    - We are able to report customer usage by project, however, there is not yet a means to allocate costs back to customers
- **Current state – Under Funded**
  - Cost of entire Shared-Services is charged to our department and allocated back to the business based upon generic revenue formula
  - Unable to add headcount to our service as usage grows
- **Recommendation**
  - Don't attempt to build a Shared-Service unless you have sponsorship/funding at the CIO level.

Credit Suisse has recently brought in a new group level CIO and we are optimistic about future strategic investment in IT Shared-Services

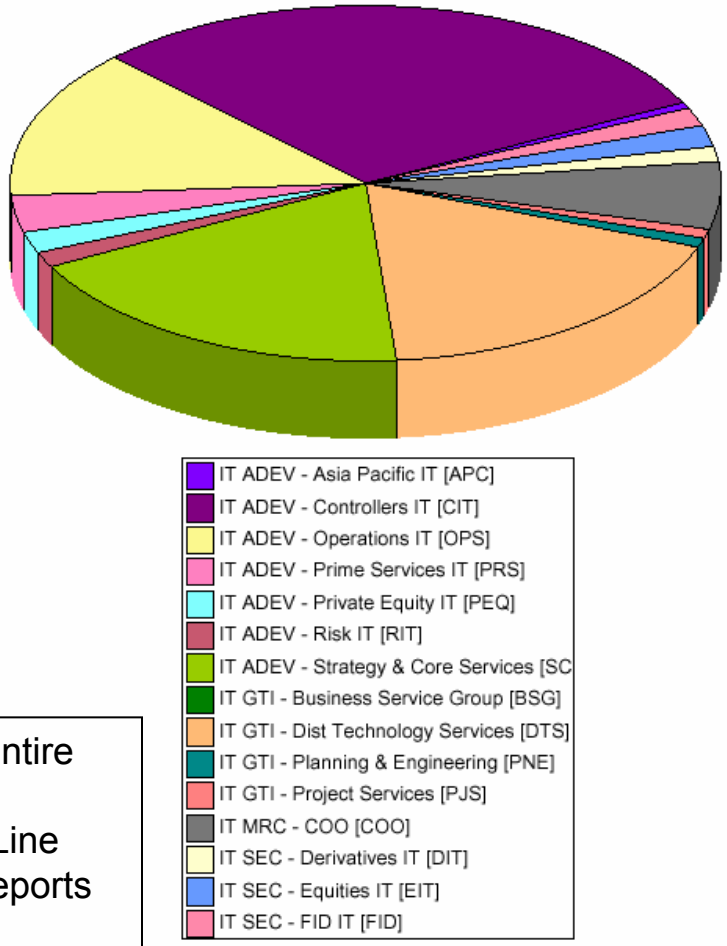
Shared-Services Funding – Production User Metrics

A sample from our monthly usage reporting metrics pack

Production Users by Department

Total Production Users: 3655

Department	Number of Users	Percentage
IT ADEV - Controllers IT [CIT]	1096	29.99 %
IT ADEV - Strategy & Core Services [SCS	680	18.60 %
IT GTI - Dist Technology Services [DTS]	651	17.81 %
IT ADEV - Operations IT [OPS]	498	13.63 %
IT MRC - COO [COO]	224	6.13 %
IT ADEV - Prime Services IT [PRS]	121	3.31 %
IT SEC - Equities IT [EIT]	81	2.22 %
IT ADEV - Private Equity IT [PEQ]	72	1.97 %
IT ADEV - Risk IT [RIT]	49	1.34 %
IT SEC - FID IT [FID]	48	1.31 %
IT SEC - Derivatives IT [DIT]	45	1.23 %
IT GTI - Planning & Engineering [PNE]	32	0.88 %
IT GTI - Project Services [PJS]	27	0.74 %
IT ADEV - Asia Pacific IT [APC]	18	0.49 %
IT GTI - Business Service Group [BSG]	8	0.22 %
	5	0.14 %
Sum:	**3655**	



A chargeback model has been developed that allocates the entire cost of the Shared-Service (Headcount, software licensing/ maintenance and server infrastructure) to individual Product Line business applications based upon the number of users and reports per reporting application.

Shared-Services Funding – Hardware ROI

Hardware comparison of Non-Shared vs. Shared

- **Product Line Non-Shared deployment (service level 1)**
  - **Would require: 84 Servers/63 Repositories globally**

    New York: 40 Servers + 30 Repositories

    10 Departments/Region * 4 Servers/Department = 40 Servers/Region

    10 Departments/Region * 3 Repositories/Department = 30 Repositories/Region

    London: 40 Servers + 30 Repositories

    10 Departments/Region * 4 Servers/Department = 40 Servers/Region

    10 Departments/Region * 3 Repositories/Department = 30 Repositories/Region

    Singapore: 4 Servers + 3 Repositories

- **Global Shared-Services deployment (service level 3)**
  - **Today: 20 Servers/12 Repositories Globally**

    New York: 8 Servers + 3 Repositories

    London: 8 Servers + 3 Repositories

    Singapore: 4 Servers + 3 Repositories

    Global: 3 Global Security Domain Repositories

Shared-Services Funding – ROI

Partial ROI for hardware and people

- **Product Line Non-Shared silo deployment (service level 1)**
  - Annual staffing cost: $8.2M
    - 47 full-time employees
  - Hardware purchase cost: $2.1M
    - 84 servers
- **Product Line silos with centralized support (service level 2)**
  - Not scalable
- **Global Shared-Services deployment (service level 3)**
  - Annual staffing cost: $2.6M ***(68% cost savings)***
    - 15 full-time employees
  - Hardware purchase cost: $.98M ***(53% cost savings)***
    - 20 servers
  - ***Shared-Services save $$$$$$$ and resources!!!!!***

Cost savings associated with server maintenance (administration, data center space, power, etc.) are not factored into this model.

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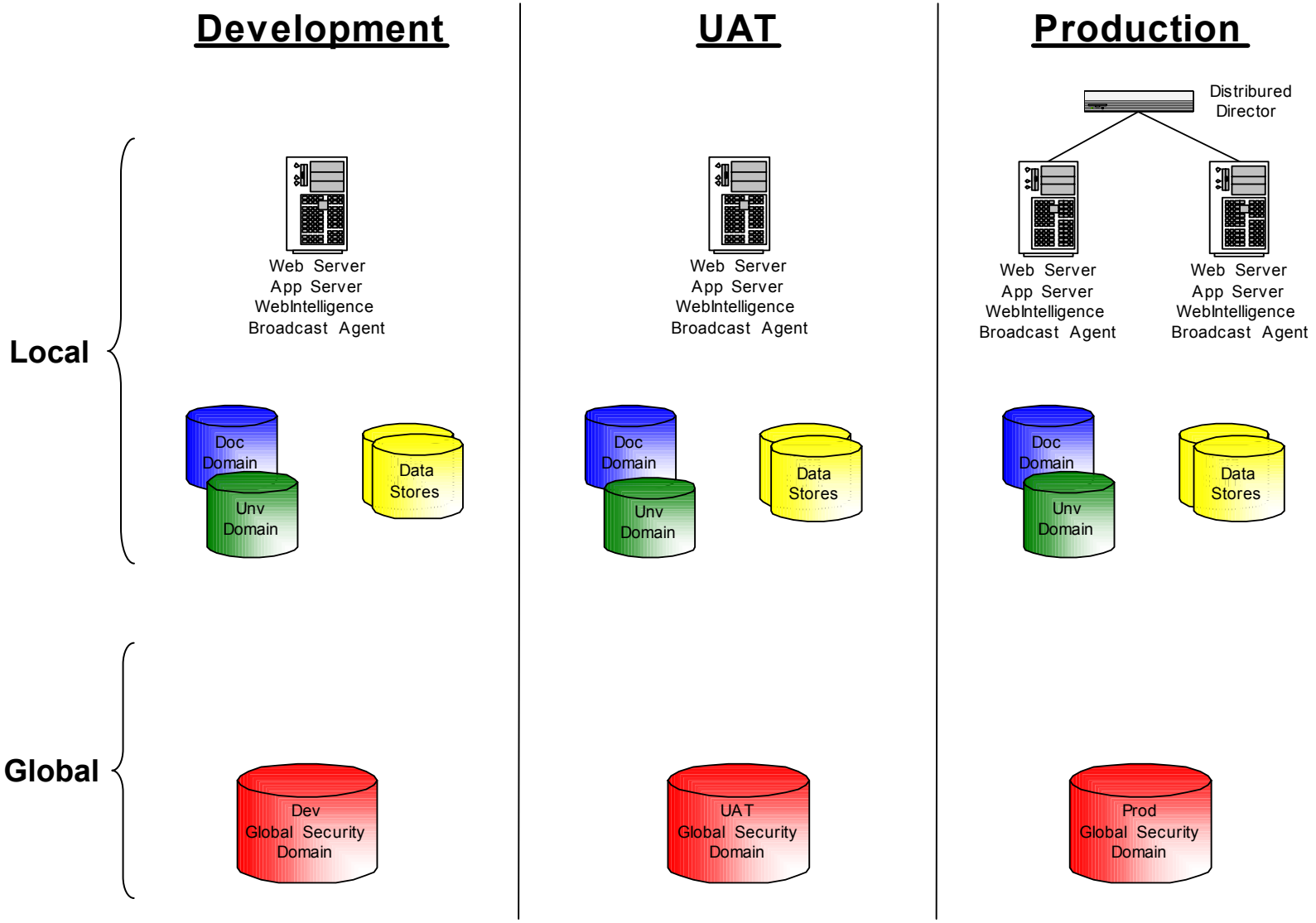
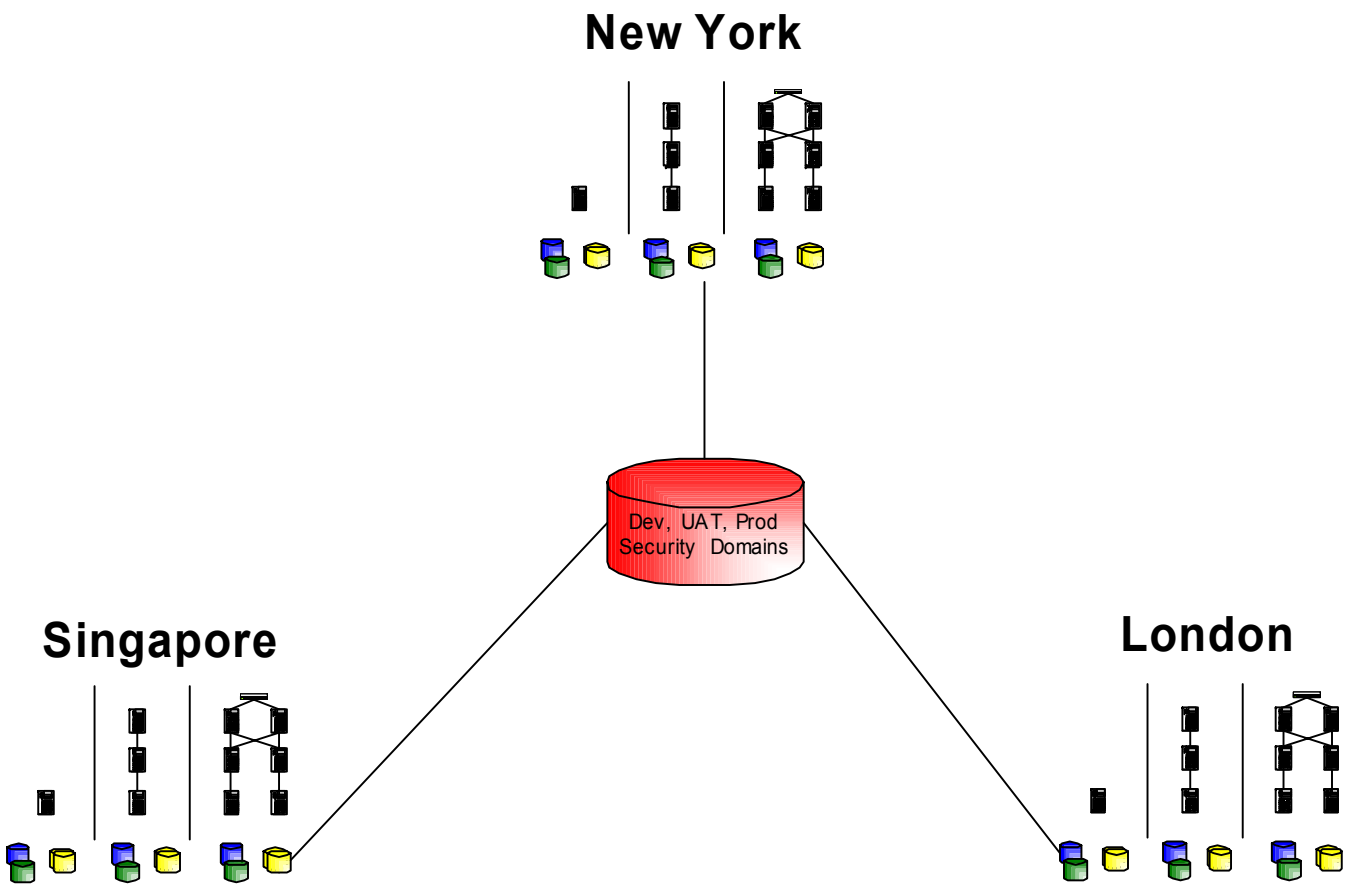
Technical Architecture – BusinessObjects Classic

Local Web Intelligence instances in each region



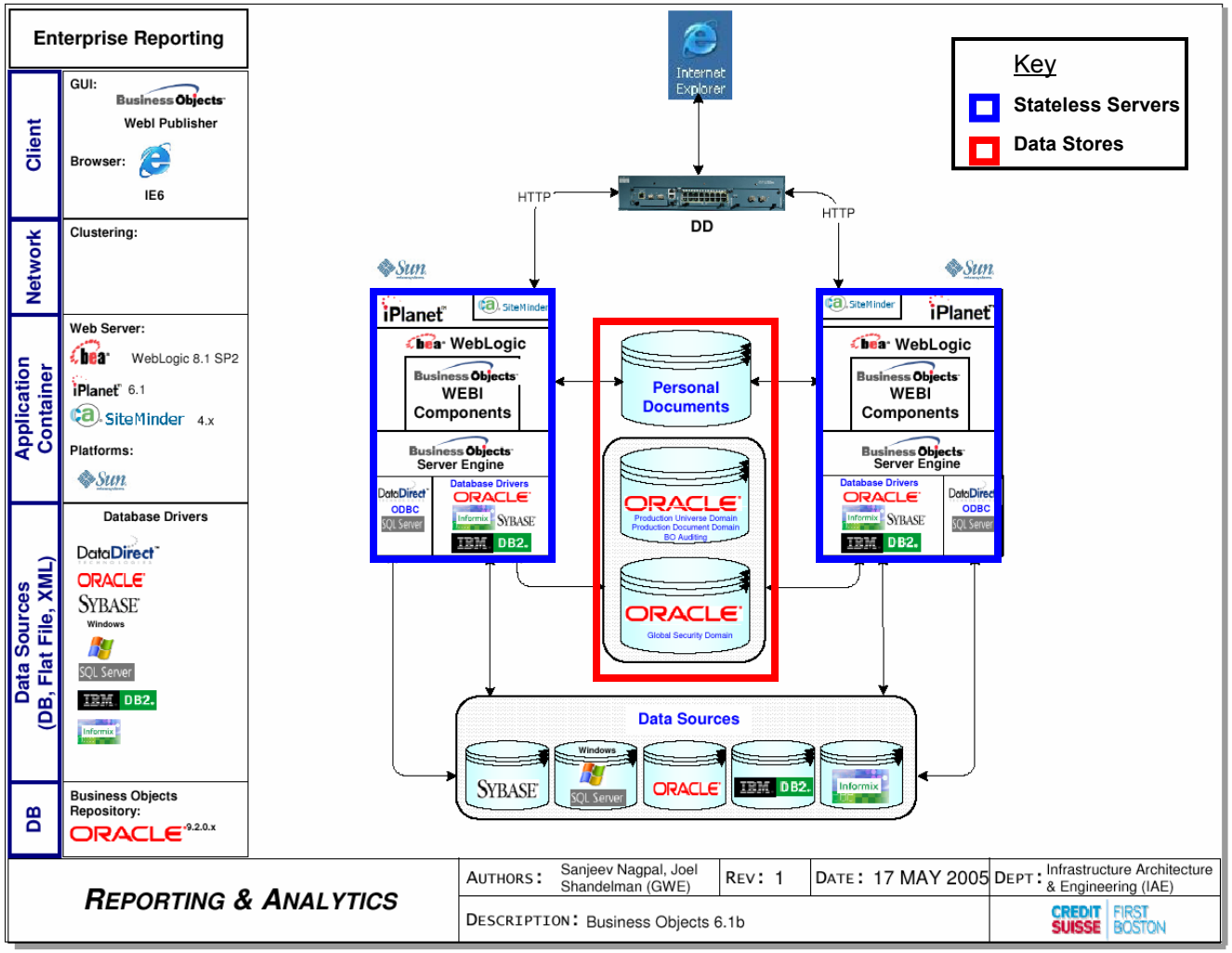
Technical Architecture – BusinessObjects Classic

Single global security domain for each environment



Technical Architecture – Current Blueprint

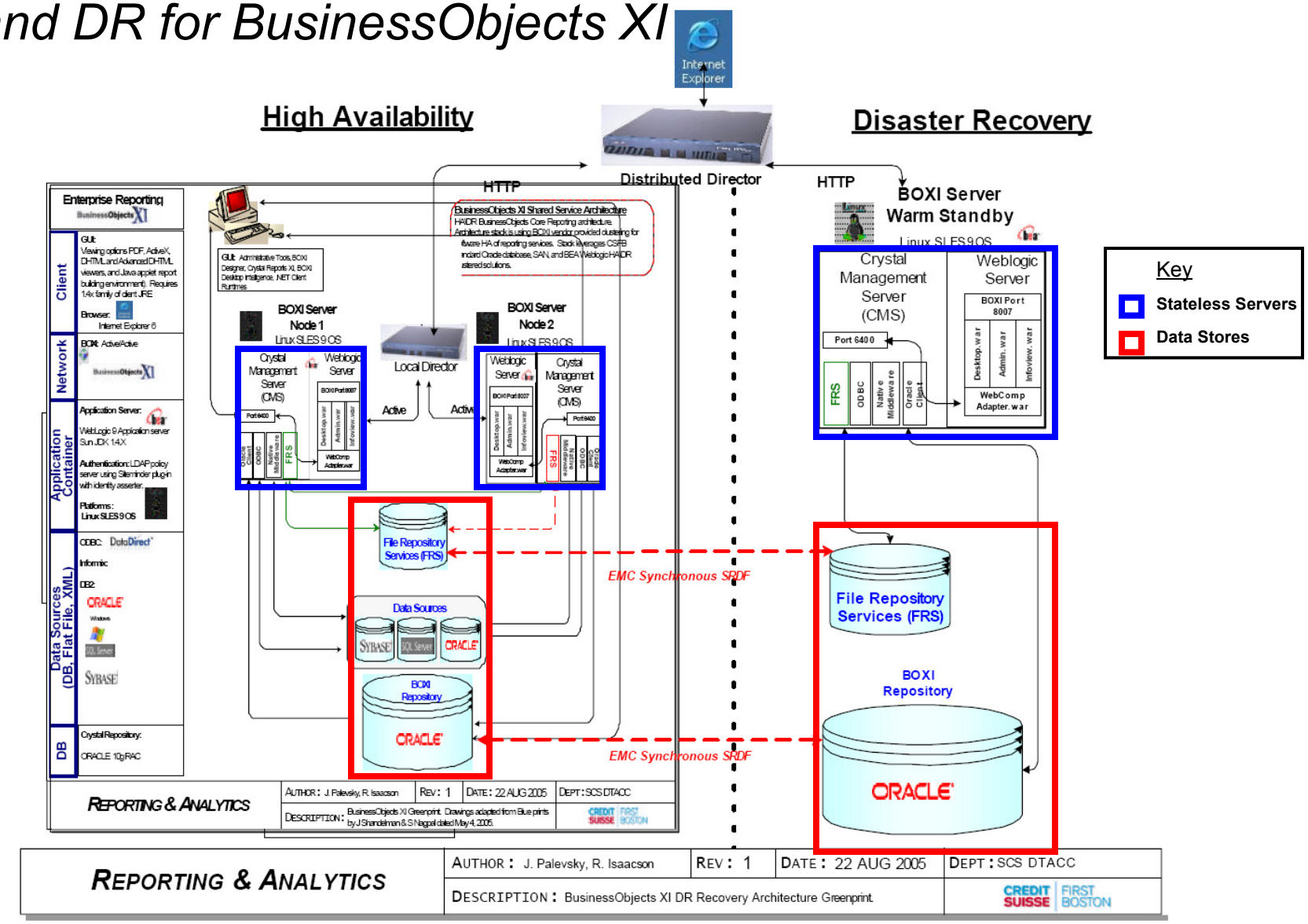
H/A and DR for BusinessObjects classic



Note: Disaster Recovery for personal documents and repositories not shown

Technical Architecture – Future Blueprint

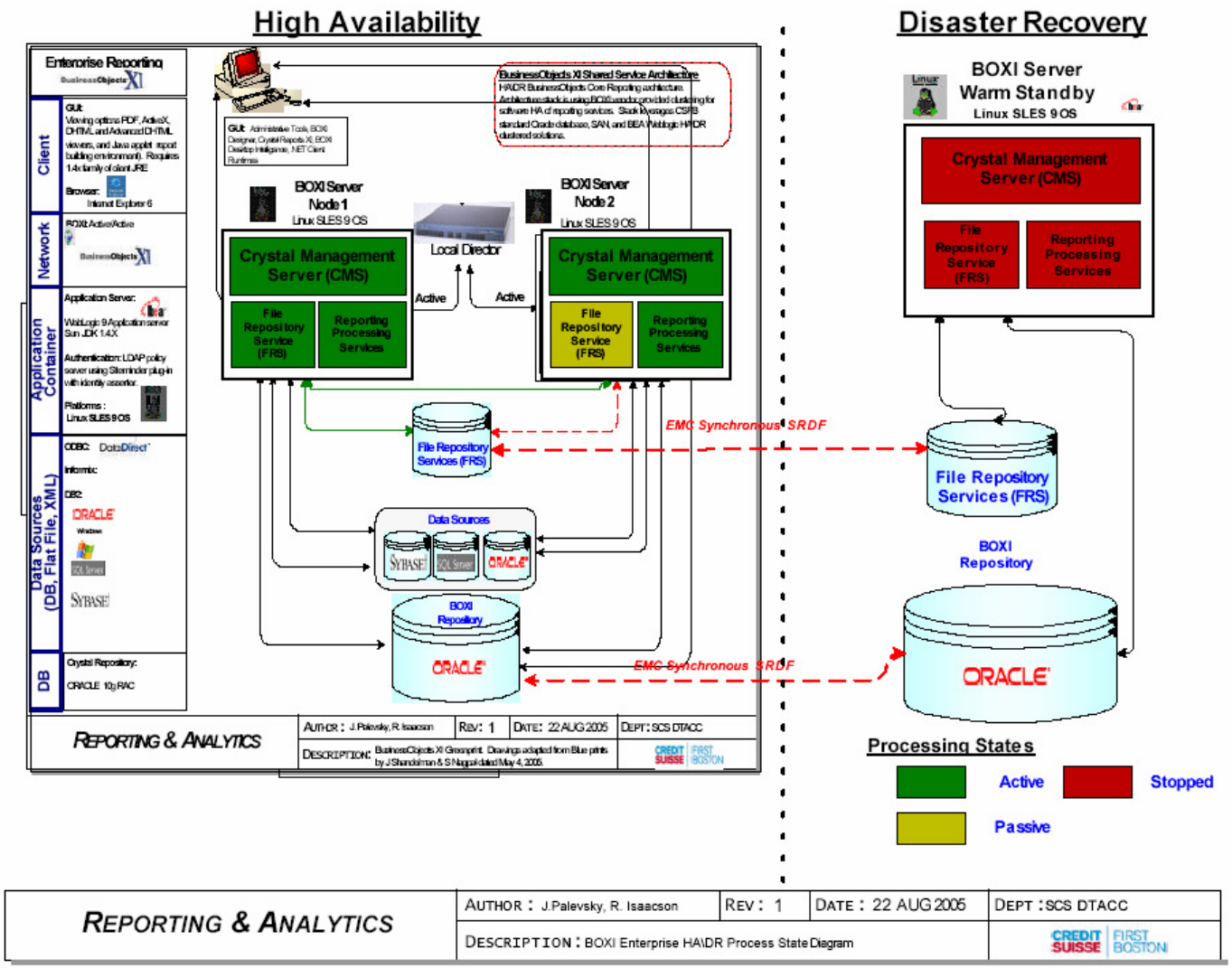
H/A and DR for BusinessObjects XI



Business Objects

Technical Architecture – Future Blueprint

Process states for BusinessObjects XI 3-node cluster



Business Objects™

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Virtual Application Silos – Overview

Basic concepts

- **Current deployment is BusinessObjects classic**
- **Regional web clusters and desktop builds available for use for day 1 development**
- **Desktop client available through end user request**
  - repository keys provided
- **Rebranded out-of-the-box InfoView available and supported**
- **Engineered SDK environments upon request (JSP,ASP)**
- **Application deployment secured through Supervisor**
- **Repository, network file share details hidden**

Virtual Application Silos – Application Model

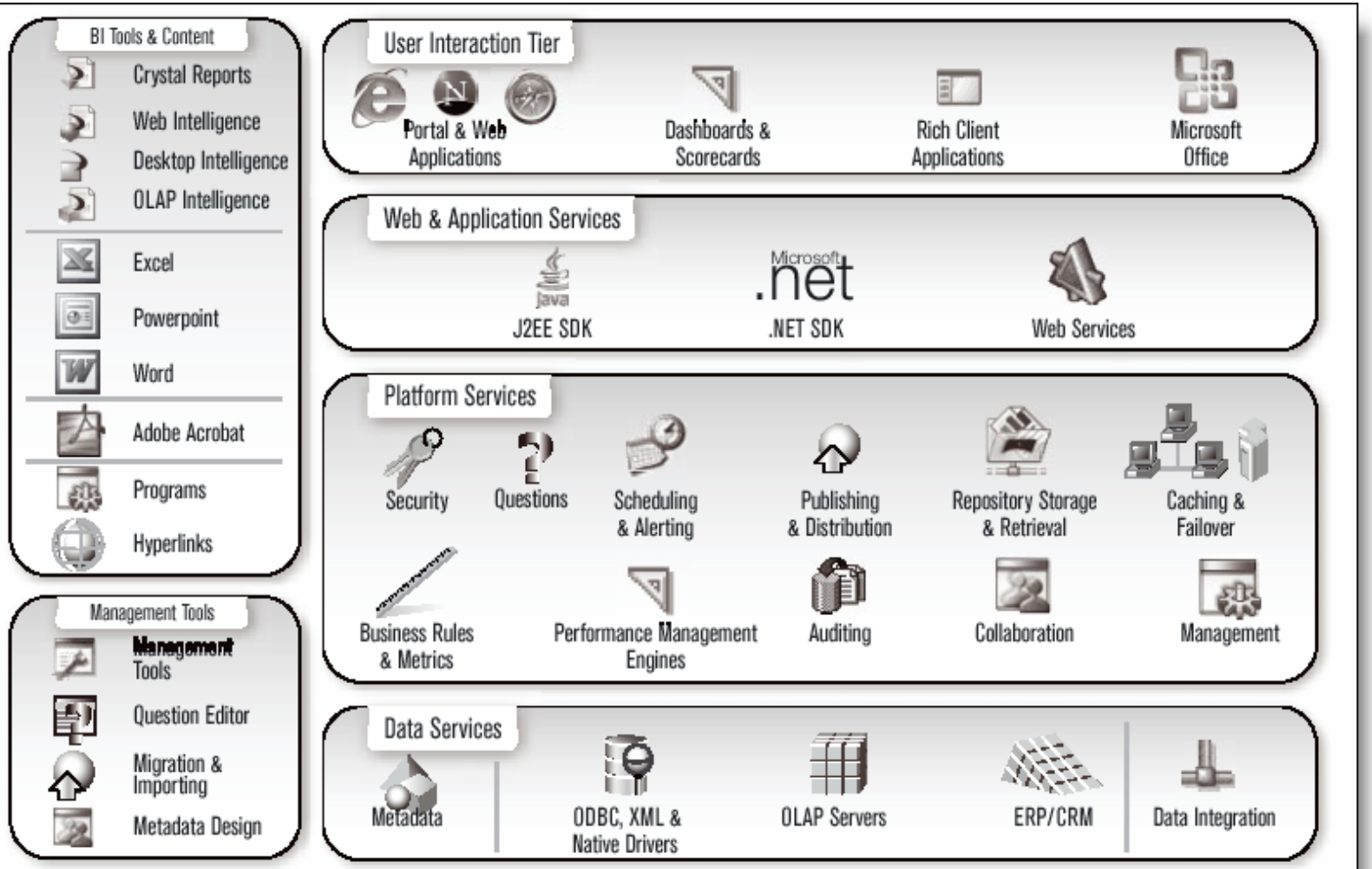
BusinessObjects component stack

Applications

Infrastructure

Differentiated Local services

Common Services



The BusinessObjects XI functional architecture and tools.

Business Objects

Virtual Application Silos – Design Considerations

Technical issues addressed

- **Core reporting deliverable**
  - Ability to handle multiple user instances spanning applications
    - Resource permissions (universe, report, row/column level security)
    - Command restrictions and most restrictive rule across instances
  - Development lifecycle enforcement → SOX control objective
    - Development personnel prohibited from moving development software or data to production
- **Application architecture**
  - Ability to expose the core REBean/WIBean/BusinessObjects SDK to development community
- **Shared-Services infrastructure**
  - Ability to monitor service pool and manage performance for both interactive and batch requirements

Virtual Application Silos – Security Structure

Application groups and role definitions

- **Group policy – defining command restrictions by role**
  - User, Power User, Developer
  - Environment variances
  - Resolve conflicts (XI R2 and ACL security)
  - Role based security by application, by resource
- **Resource assignment**
  - Done at a folder level by application
  - Local supervisor role can designate *n* levels of security for applying resource/ universe overrides

Sample user in 3 groups

Status in Group 1	Status in Group 2	Status in Group 3	Status applied to all instances
Enabled	Enabled	Hidden	Hidden
Disabled	Enabled	Enabled	Disabled
Enabled	Disabled	Hidden	Hidden

Power User

Command	DEV	UAT\PRD
Create and Edit Connections	● Enabled	● Hidden
Delete corporate documents sent by other users	● Enabled	● Hidden
Schedule corporate documents	● Enabled	● Hidden
Send Documents for Scheduled Processing	● Enabled	● Hidden
Send Documents to Repository	● Hidden	● Hidden
Edit Free-hand SQL Scripts	● Enabled	● Hidden
Edit Query SQL	● Enabled	● Hidden
Edit Free-hand SQL Scripts	● Hidden	● Hidden

Local Supervisor

Command	DEV	UAT\PRD
View all secured connections	● Hidden	● Hidden
Delete Document	● Enabled	● Hidden
Disable/Enable Document	● Enabled	● Enabled
Delete Universe	● Enabled	● Hidden
Edit Universe Attributes	● Enabled	● Enabled
Add Users to Group	● Enabled	● Enabled
Create Users	● Hidden	● Hidden

Virtual Application Silos – Custom Interface

Delivering an SDK environment

- **SDK engineering and build details**
  - Hub-spoke architecture running on Weblogic server farm
  - SDK deployments engineered with default InfoView.war and sample applications
  - Managed Weblogic server path settings include environment specific configuration files
  - Seamless migration of code across environments
  - Siteminder agent configured for LDAP integration

Weblogic cluster

Web Application (WAR)
- Dynamic Content (JSP)
- Static Content (HTML)
- REBean\WIBean Libraries (JAR)
- Other Required Libs (JAR)

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Environment Path
- Webi.properties
- Cluster_name.cfg
- Siteminder Agent

Virtual Application Silos – Capacity Analysis

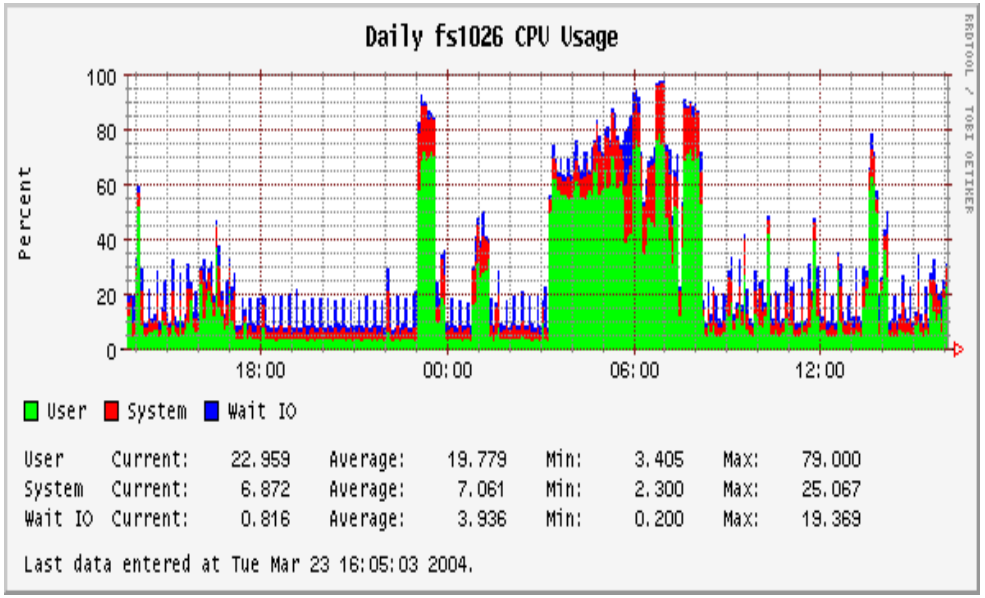
Processing tier

- **Considerations**
  - Understand maximum capacity figures based on basic sizing formula
  - Establish basic profile from development teams
  - Sizing and capacity estimation exercises not of much use with large range of usage profiles across applications
  - Using ORCA for SPARC monitoring usage
  - Vertically scale as required, Sun 1280's to 12X by 96 gigabyte physical memory
  - Future of XI architecture will help meeting processing service-level agreements

Basic sizing guideline

BusinessObjects (Full-Client)
•Heavy Processes (12/cpu) x 4 =48

Web Intelligence Documents
•Webi Sessions (30/cpu) x 4 = 120



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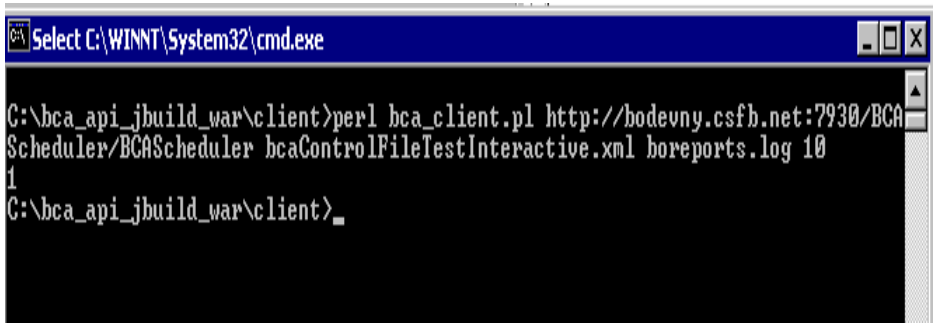
Value Added Components – BCA API

Broadcast Agent API requirements and parameters

- **Core requirements**
  - Scheduling jobs using traditional BCA no longer required
  - Use of enterprise Control-M job control product
  - Jobs run from the command line
    - Return code 1 for success, -1 for failure
  - Detailed logging for ease of troubleshooting
  - Thin client with minimum deployment effort

- **Required parameters**
  - HTTP Server URL
  - Path to batch parameter or configuration file (*.xml)
  - Log file Location
  - Log rotation rule

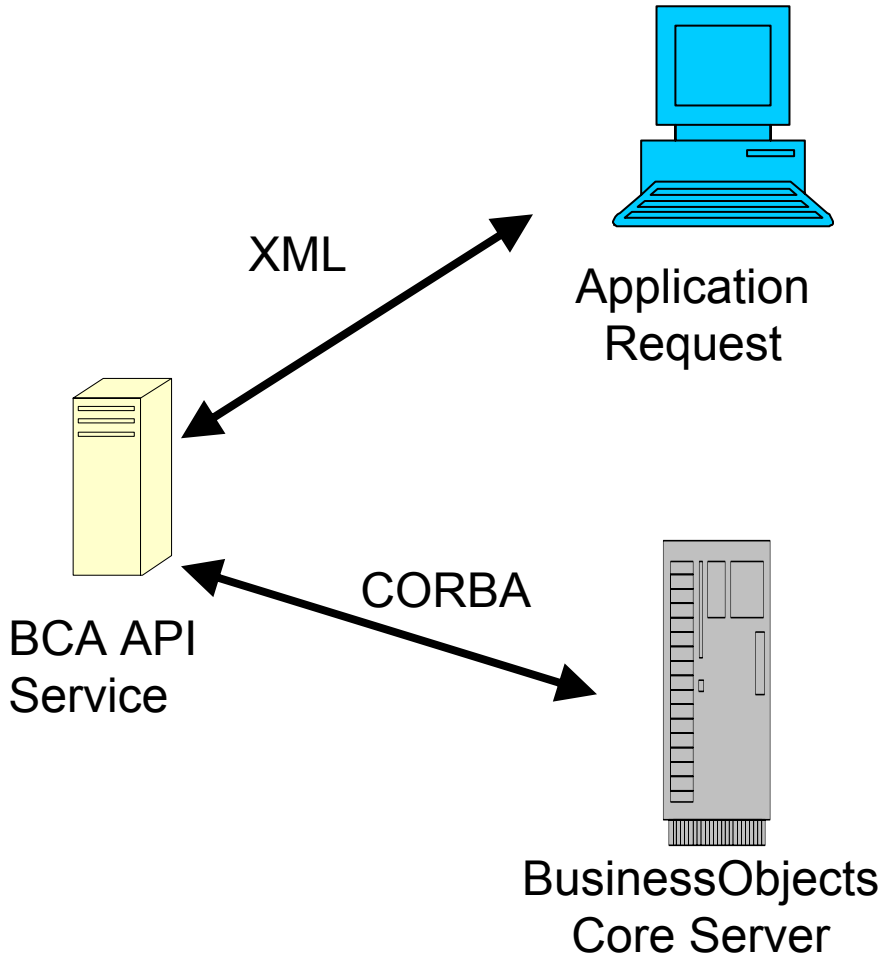



```
Tue Oct 11 18:20:46 2005 INFO Beginning+Processing+of+batch+feed+on+servlet.........
Tue Oct 11 18:20:46 2005 INFO INFO%3A+Attempting+to+create+a+session
Tue Oct 11 18:20:46 2005 INFO INFO%3A+Retrieved+Webi+Server+Object
Tue Oct 11 18:20:46 2005 INFO INFO%3A+Valid+session+opened+for+user+edetest
Tue Oct 11 18:20:46 2005 INFO INFO%3A+Session+and+Context+retrieved.
Tue Oct 11 18:20:46 2005 INFO INFO%3A+Document+UserList%2C+Begin+processing*******
Tue Oct 11 18:20:46 2005 INFO INFO%3A+This+is+a+Full-Client+report+for+in-line+prcessin
Tue Oct 11 18:20:46 2005 INFO INFO%3A+Document+has+been+opened+successfully
```

Value Added Components – BCA API Architecture

High-level overview

- **Web service architecture**
  - Thin client written in perl
  - Client does not know of service implementation details
  - Message based communication using XML
    - Stateless using HTTP protocol
  - Client location is independent of invocation
  - BCA API software delivered as J2EE servlet
  - Detailed logging for ease of troubleshooting



Value Added Components – BCA API Client

BCA API specification

- **XML Specification**
  - Username is system supplied ID
  - Ability to upload as agnostic document to Infoview
    - XLS and PDF format
  - Uses existing categories
  - Schema definition (.xsd) as published standard
  - Date postfix for archiving
  - FTP and email support 1 to N destinations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      <BobjUsername>edetest</BobjUsername>
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                  <Domain>NY_DEV_DOC</Domain>
                  <DatePostFix>false</DatePostFix>
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                        <Prompt>
                              <PromptName>Please enter user profile type</PromptName>
                              <PromptValue>General Supervisor</PromptValue>
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                                    <Attachment>pdf</Attachment>
                                    <Attachment>xls</Attachment> </Attachments>
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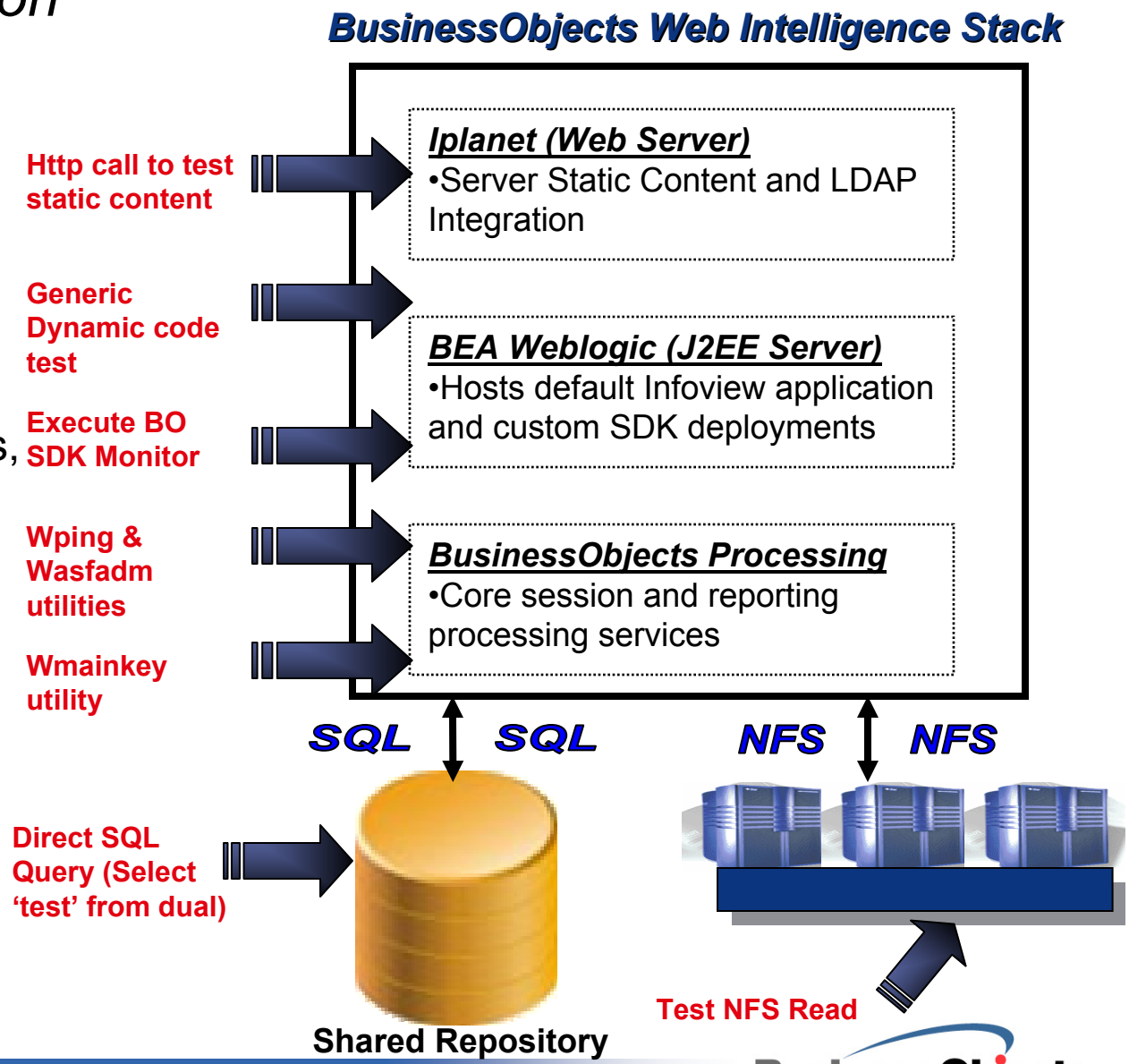
                           </Email></Emails>
            </Document> </Documents>
</ReportingBatch>
```

Value Added Components – Enhanced Monitoring

Technical specification

- **Identify failures by testing all levels of application stack**
  - Integrate with available custom built utilities
  - Independent perl client executes tests, provides alerts
  - All levels of application stack tested
  - Logs output
  - External event monitor identifies errors
  - Iplanet server stopped to allow failover



Value Added Components – Enhanced Monitoring

Monitor output

http://nys30x-002.fi.csfb.com:8000/cgi-bin/getMonitorLog.pl - Microsoft Internet Explorer

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Address http://nys30x-002.fi.csfb.com:8000/cgi-bin/getMonitorLog.pl Go Links

Business Objects Monitor Log

Date Time	Status	Details & Actions
[23-Sep-2005:03:37:08]	GOOD	No action required. All components are working
[23-Sep-2005:03:36:55]	GOOD	No action required. All components are working
[23-Sep-2005:03:36:43]	GOOD	No action required. All components are working
[23-Sep-2005:03:36:31]	GOOD	No action required. All components are working
[23-Sep-2005:03:36:18]	GOOD	No action required. All components are working
[23-Sep-2005:03:36:02]	GOOD	No action required. All components are working
[23-Sep-2005:03:35:21]	GOOD	No action required. All components are working
[23-Sep-2005:03:34:29]	ERROR	**Main test failed** INFO: Testing iPlanet INFO: iPlanet works fine INFO: Testing WebLogic ERROR: WebLogic server is down ACTION: WebLogic has to be (re)started
[23-Sep-2005:03:33:41]	ERROR	**Main test failed** INFO: Testing iPlanet INFO: iPlanet works fine INFO: Testing WebLogic ERROR: WebLogic server is down ACTION: WebLogic has to be (re)started
[illegible]	GOOD	No action re[illegible]rking

Business Objects™

Topics

- Project overview
- Shared-Services model
- Project organization
- Shared-Services funding
- Technical architecture
- Virtual application silos
- Value-added components
- Q&A

Q&A

- **Questions**

- **Contact information**

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