An Introduction to SAP for the Mainframer

Mike Mardis
IBM System z
SAP Technical Architect
Advanced Technical Skills
TSS Worldwide

Atlanta, GA
USA

Tel +1 404 487 2227
Fax +1 404 487 2227
Mobile +1 404 487 2227
mardis@us.ibm.com

Technology · Connections · Results

March 11–16, 2012
Omni CNN Center
Atlanta, Georgia

SHARE in Atlanta

INFRASTRUCTURE:

SOONER OR LATER,

IT MATTERS.

Technology is everything beneath the application layer being implemented. The application layer cannot meet business needs unless the technology layer is sized and architected correctly.
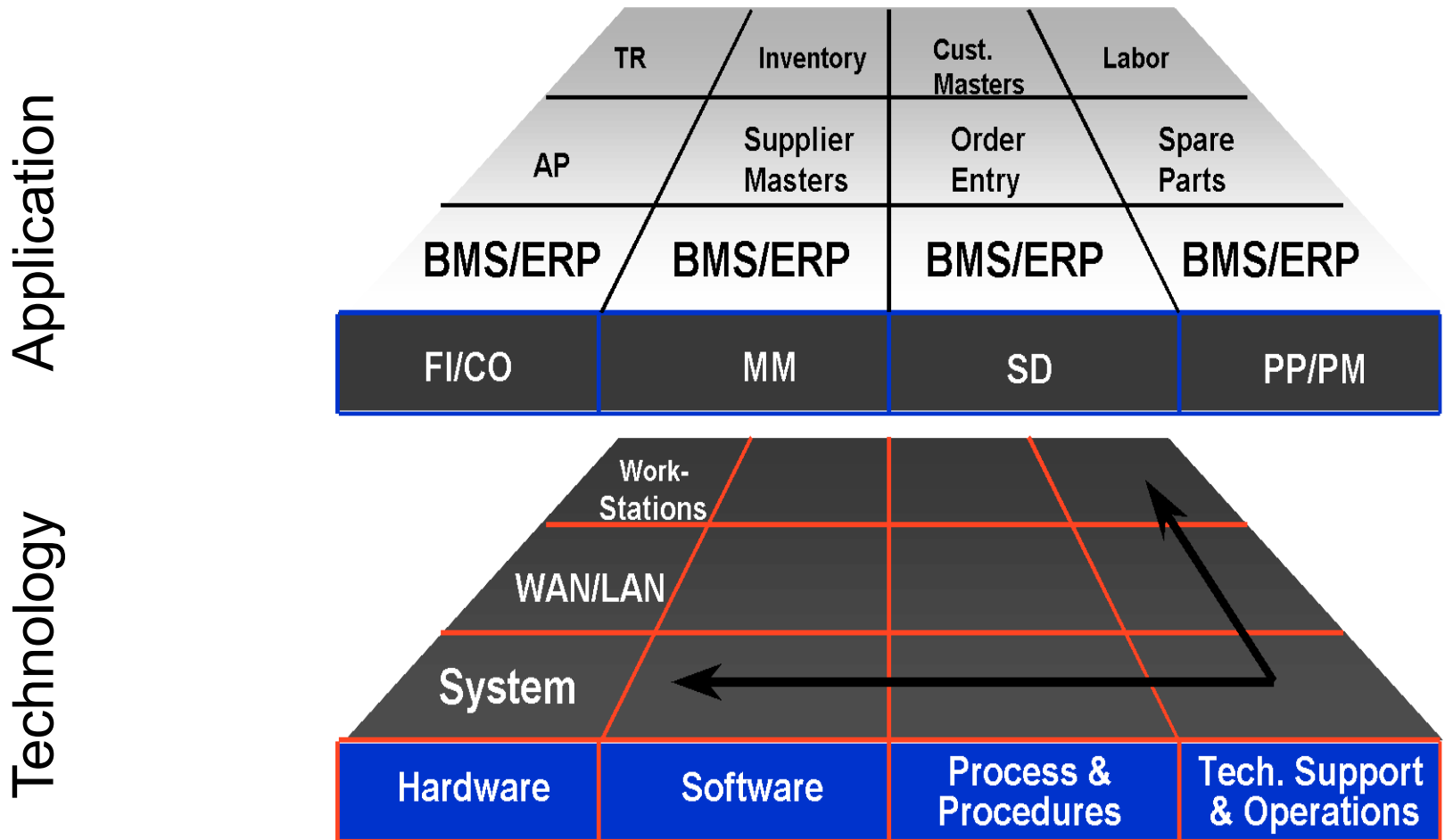
Agenda

- SAP AG and SAP products overview
- SAP technical architecture
- System z architecture for SAP
- SAP Projects
- Reference Architecture, analyst papers, contacts, and other supporting documentation

Agenda

- **SAP AG and SAP products overview**

- SAP technical architecture

- System z architecture for SAP

- SAP Projects

- Reference Architecture, analyst papers, contacts, and other supporting documentation

SAP the Company

- Founded in 1972, SAP is the world leader in enterprise applications in terms of software and software-related service revenue. Based on market capitalization, we are the world's third largest independent software manufacturer. We have more than 109,000 customers in over 120 countries. The SAP Group includes subsidiaries in every major country and employs more than 53,000 people. *(2010 Annual Report)*

The Global Research & Development Network

Portfolio of Software and Services

Core Competencies

Business Process	Business Analytics	Technology	Services
– Enterprise resource planning (hr, finance and operations) – Supplier relationship management – Product lifecycle management – Supply chain management – Customer relationship management – Collaboration – Industry specific applications	– Business intelligence – Enterprise information management – Enterprise performance management – Governance, risk, and compliance – Sustainability	– Application foundation – Database – Integration/orchestration – Mobility platform	– Implementation consulting – Business analytics consulting – Transformational consulting – Custom development – Support and maintenance – Program management and quality assurance – Education and training

Solution Categories

Development Center
- Bangalore & Gurgaon INDIA
- Budapest HUNGARY
- Dublin IRELAND
- Montreal & Toronto CANADA
- Markdorf GERMANY
- Palo Alto USA
- Paris FRANCE
- Ra'anana ISRAEL
- São Leopoldo BRAZIL
- Shanghai & Chengdu CHINA
- Sofia BULGARIA
- Sophia Antipolis FRANCE
- Vancouver CANADA
- Walldorf & St. Leon-Rot GERMANY

SAP Research Locations
- Bangalore INDIA
- Belfast UNITED KINGDOM
- Brisbane AUSTRALIA
- Darmstadt GERMANY
- Dresden GERMANY
- Dublin IRELAND
- Karlsruhe GERMANY
- Montréal CANADA
- Palo Alto USA
- Paris FRANCE
- Pretoria SOUTH AFRICA
- Ra'anana ISRAEL
- Sofia BULGARIA
- Sophia Antipolis FRANCE
- St. Gallen SWITZERLAND
- Sydney AUSTRALIA
- Vancouver CANADA
- Walldorf GERMANY
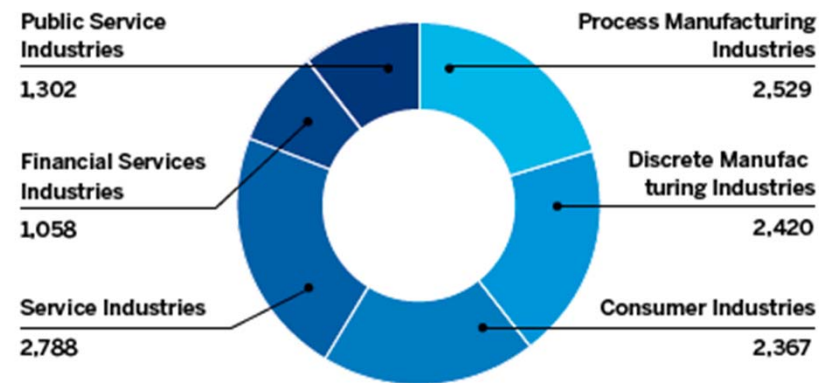- Zurich SWITZERLAND

Co-Innovation Labs
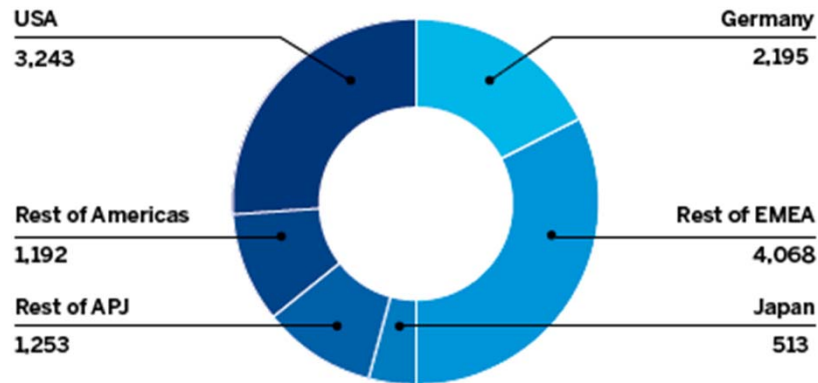- Bangalore INDIA
- Palo Alto USA
- Sao Paulo BRAZIL
- Tokyo JAPAN

Sybase Research and Development Locations
- Alpharette USA
- Concord USA
- Dublin USA
- Pune INDIA
- Reston USA
- Shanghai CHINA
- Singapore SINGAPORE
- Waterloo CANADA

Revenue by Region

Revenue by Industry

Revenue by Region		Revenue by Industry	
USA	3,243	Public Service Industries	1,302
Germany	2,195	Process Manufacturing Industries	2,529
Rest of Americas	1,192	Financial Services Industries	1,058
Rest of EMEA	4,068	Discrete Manufacturing Industries	2,420
Rest of APJ	1,253	Service Industries	2,788
Japan	513	Consumer Industries	2,367

(€ millions)
2010 Annual Report

Ok, so SAP did well in 2010. What about 2011?

Best ever year

Software Revenue	SSRS Revenue	Operating Margin
+25%*	+17%*	+110bps*

- Best year in SAP's 40 year history driven by our successful innovation strategy
- Q4 was the largest quarter ever
- 8th consecutive quarter of double digit SSRS growth
- Significant momentum resulting in separation from competition
- Outperformed company guidance and market expectations

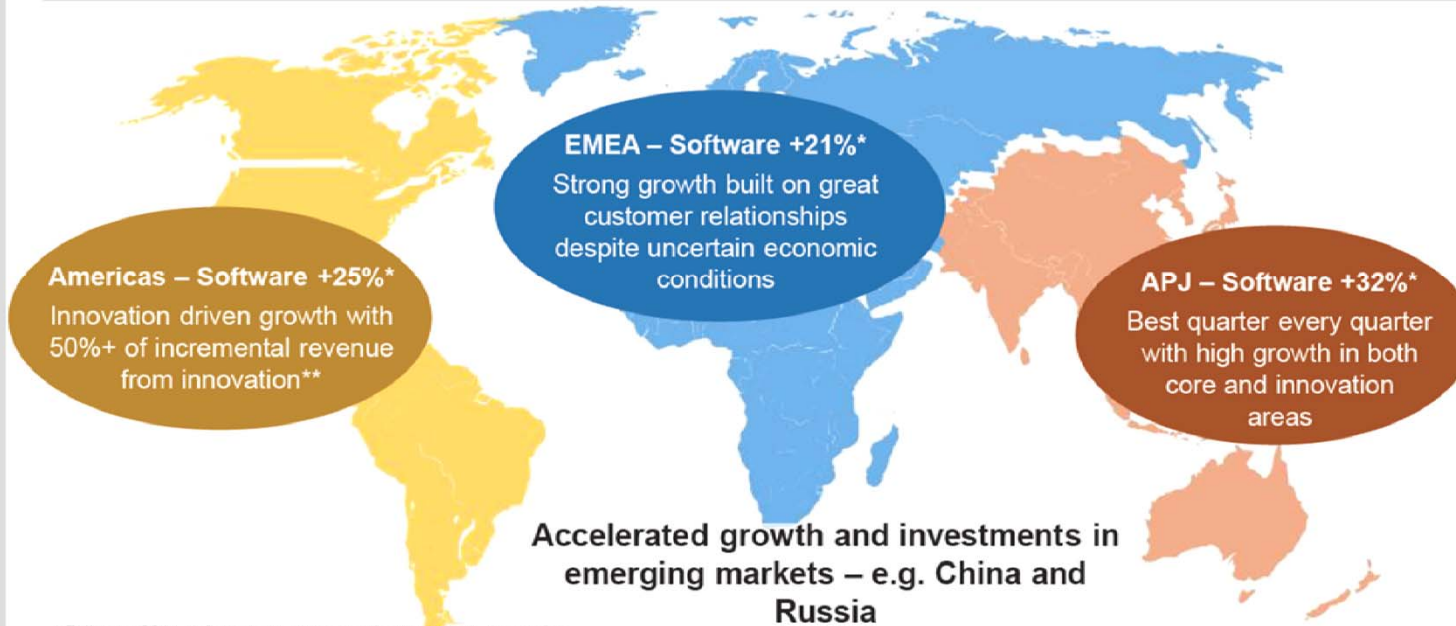* Full year 2011 numbers, based on non-IFRS, at constant currencies

28

In 2011, SAP beat their 2010 performance

Stunning 20%+ growth across all regions

EMEA – Software +21%*
Strong growth built on great customer relationships despite uncertain economic conditions

Americas – Software +25%*
Innovation driven growth with 50%+ of incremental revenue from innovation**

APJ – Software +32%*
Best quarter every quarter with high growth in both core and innovation areas

Accelerated growth and investments in emerging markets – e.g. China and Russia

* Full year 2011 software revenue growth at constant currencies
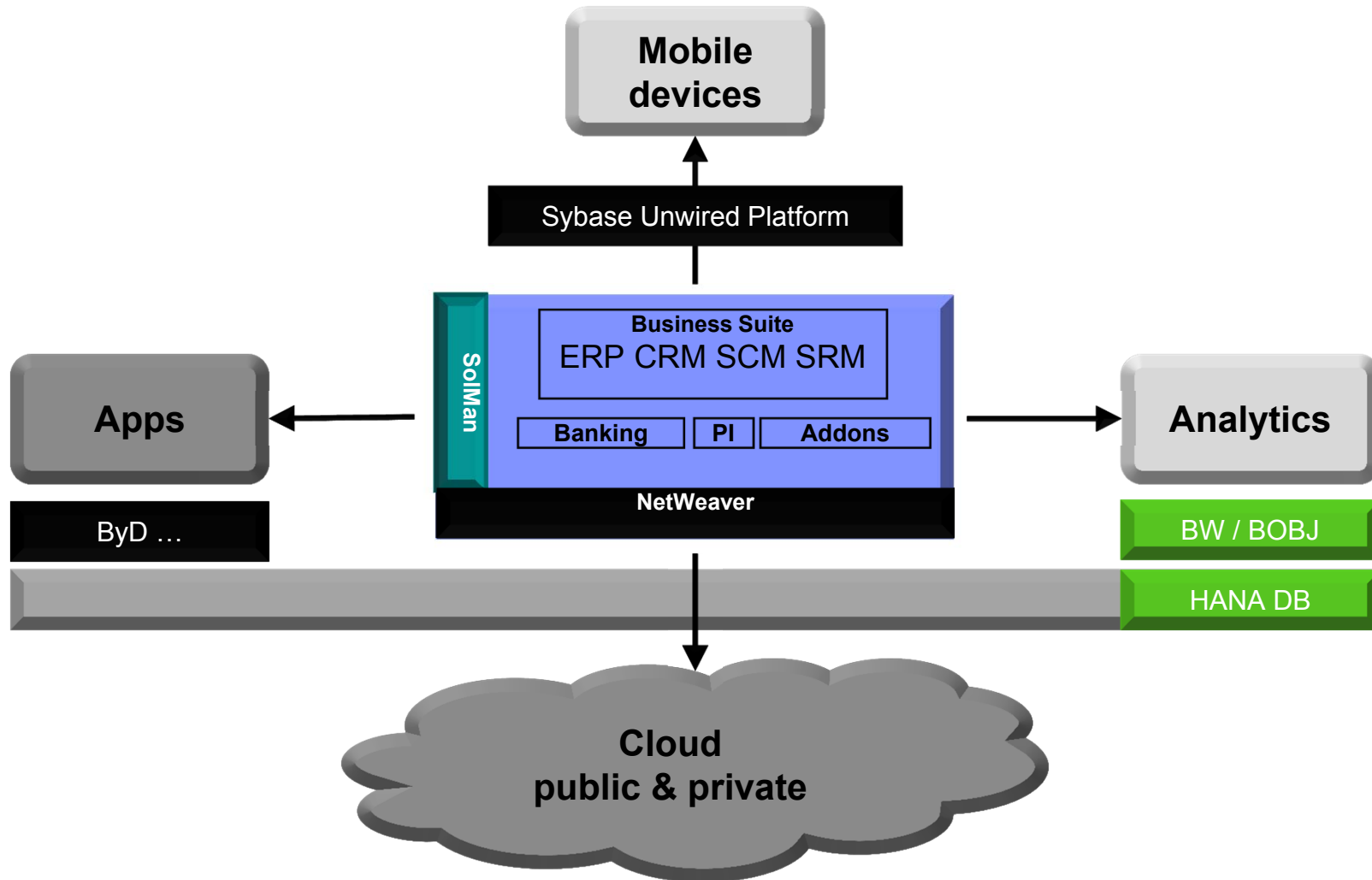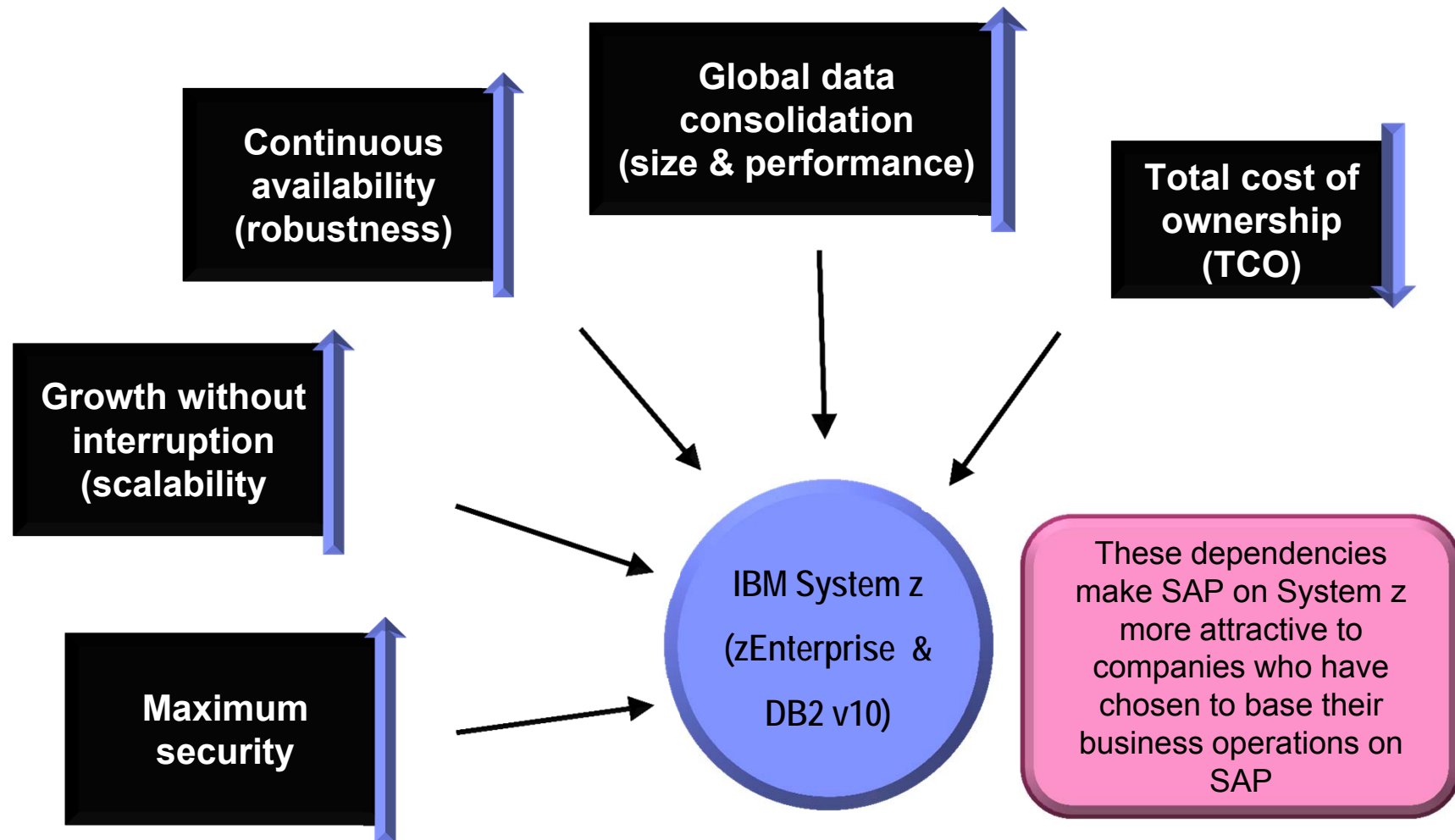** Full year incremental revenue in actual currency

29

SAP Strategy in a Nutshell
Add More Value to the Core

Mobile devices

Sybase Unwired Platform

SolMan

Business Suite
ERP CRM SCM SRM

Banking | PI | Addons

NetWeaver

Apps

ByD …

Analytics

BW / BOBJ

HANA DB

Cloud public & private

Requirements to SAP Core
A Perfect Match with IBM System z Capabilities

Continuous availability (robustness)

Global data consolidation (size & performance)

Total cost of ownership (TCO)

Growth without interruption (scalability

Maximum security

IBM System z (zEnterprise & DB2 v10)

These dependencies make SAP on System z more attractive to companies who have chosen to base their business operations on SAP

IBM is an all-level partner of SAP:

From strategic consulting beyond SAP implementation up to infrastructure and hosting all SAP customer's needs are covered.

Joint development:

- SEM - Strategic Enterprise Management
- APO - Advanced Planning Optimizer
- CRM - Customer Relationship Management
- SRM - Supplier Relationship Management
- EP - Enterprise Portals
- Basel 2

Technology:

- Consolidated solution development
- Versatile SAP/IBM technology projects
- Migration tools

Consulting:

- 26,000 SAP resources in over 80 countries
- Global SAP Relationship
- 21 Global Delivery Centers
- Global Consistency and reach

Middleware:

- Software Partner:
  - DB2 UDB
  - MQSeries
  - Websphere
 - Lotus, Alloy
  - Tivoli etc…

IBM & SAP

Platforms:

- BladeCenter
- System x
- Power Systems (p, i, Linux)
- System z
- System Storage
- Linux

Customer Support:

- Joint competence centers
- Problem processing
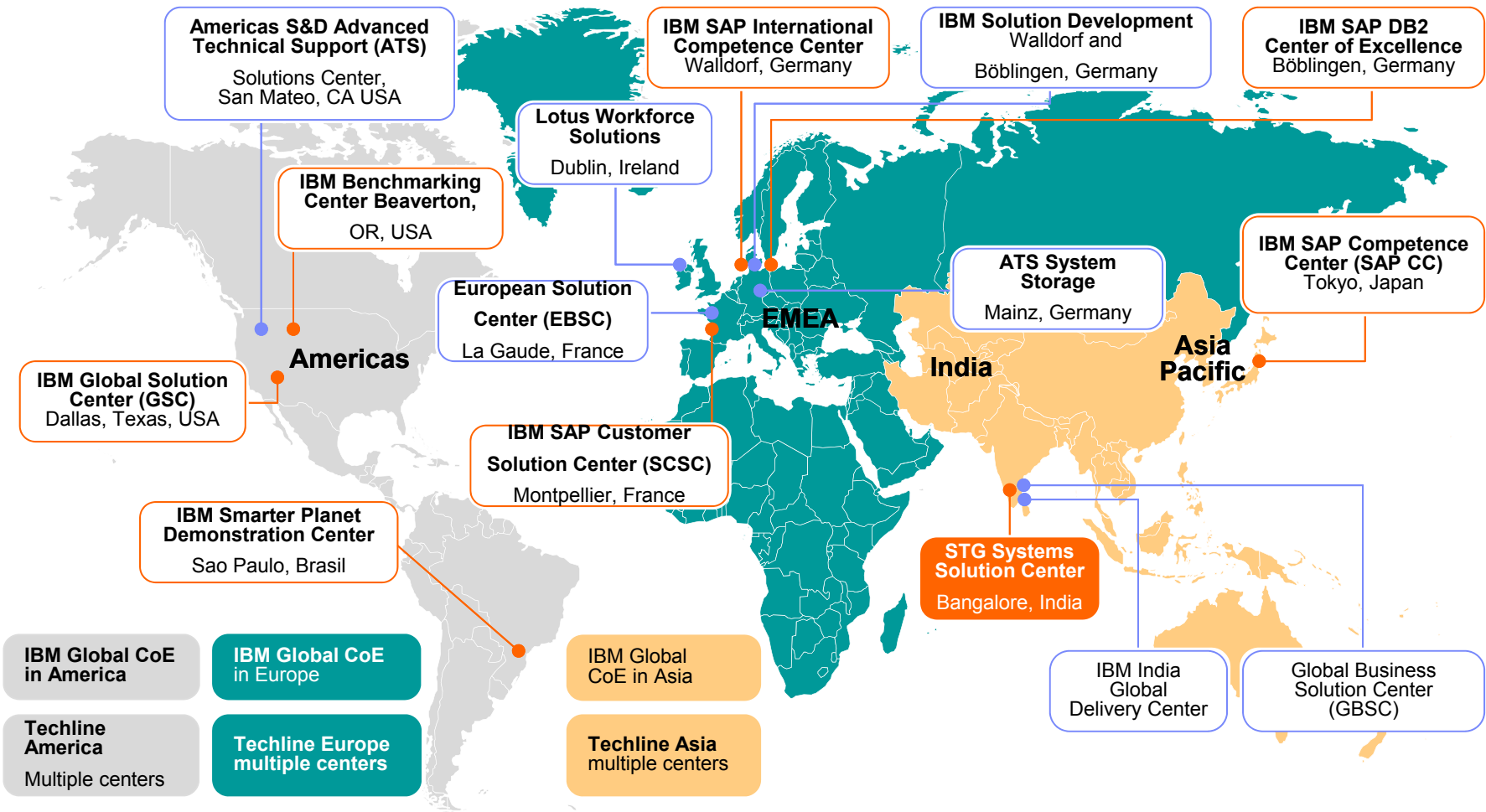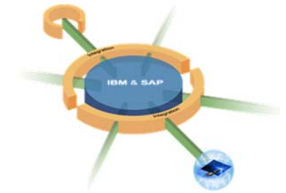- Managed Services
- SAP Leasing
- SAP Insight
- RUN SAP

Branches:

- Consolidated branch solutions, plans, templates for e.g.:
  - banking, retail, insurance, utilities, automotive, public
- Joint references
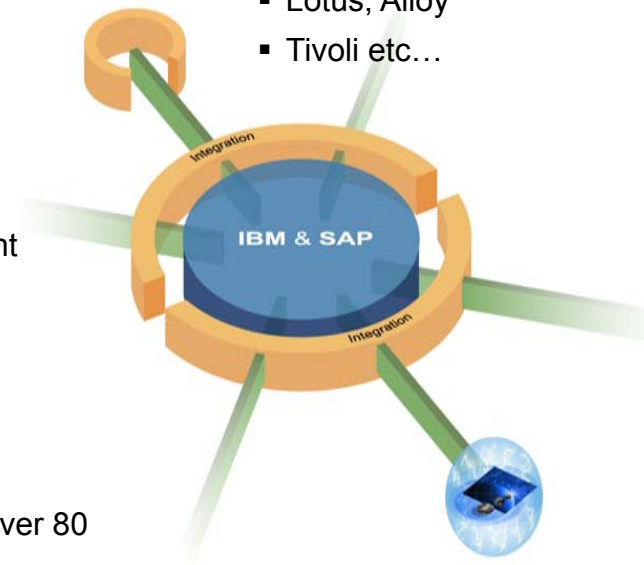
A global team of more than 26,000 IBM employees develops and supports solutions for and with SAP

Americas S&D Advanced Technical Support (ATS)
Solutions Center,
San Mateo, CA USA

IBM SAP International Competence Center
Walldorf, Germany

IBM Solution Development
Walldorf and
Böblingen, Germany

IBM SAP DB2 Center of Excellence
Böblingen, Germany

Lotus Workforce Solutions
Dublin, Ireland

IBM Benchmarking Center Beaverton,
OR, USA

European Solution Center (EBSC)
La Gaude, France

ATS System Storage
Mainz, Germany

IBM SAP Competence Center (SAP CC)
Tokyo, Japan

Americas

EMEA

India

Asia Pacific

IBM Global Solution Center (GSC)
Dallas, Texas, USA

IBM SAP Customer Solution Center (SCSC)
Montpellier, France

IBM Smarter Planet Demonstration Center
Sao Paulo, Brasil

STG Systems Solution Center
Bangalore, India

IBM Global CoE in America	IBM Global CoE in Europe	IBM Global CoE in Asia
Techline America	Techline Europe	Techline Asia
Multiple centers	multiple centers	multiple centers

IBM India Global Delivery Center

Global Business Solution Center (GBSC)

SAP/IBM Worldwide Collaboration
Development Labs

IBM Toronto
- DB2 Connect

IBM Böblingen
- IBM System z Technology Center for SAP
  Leadership
  Architecture
  Development
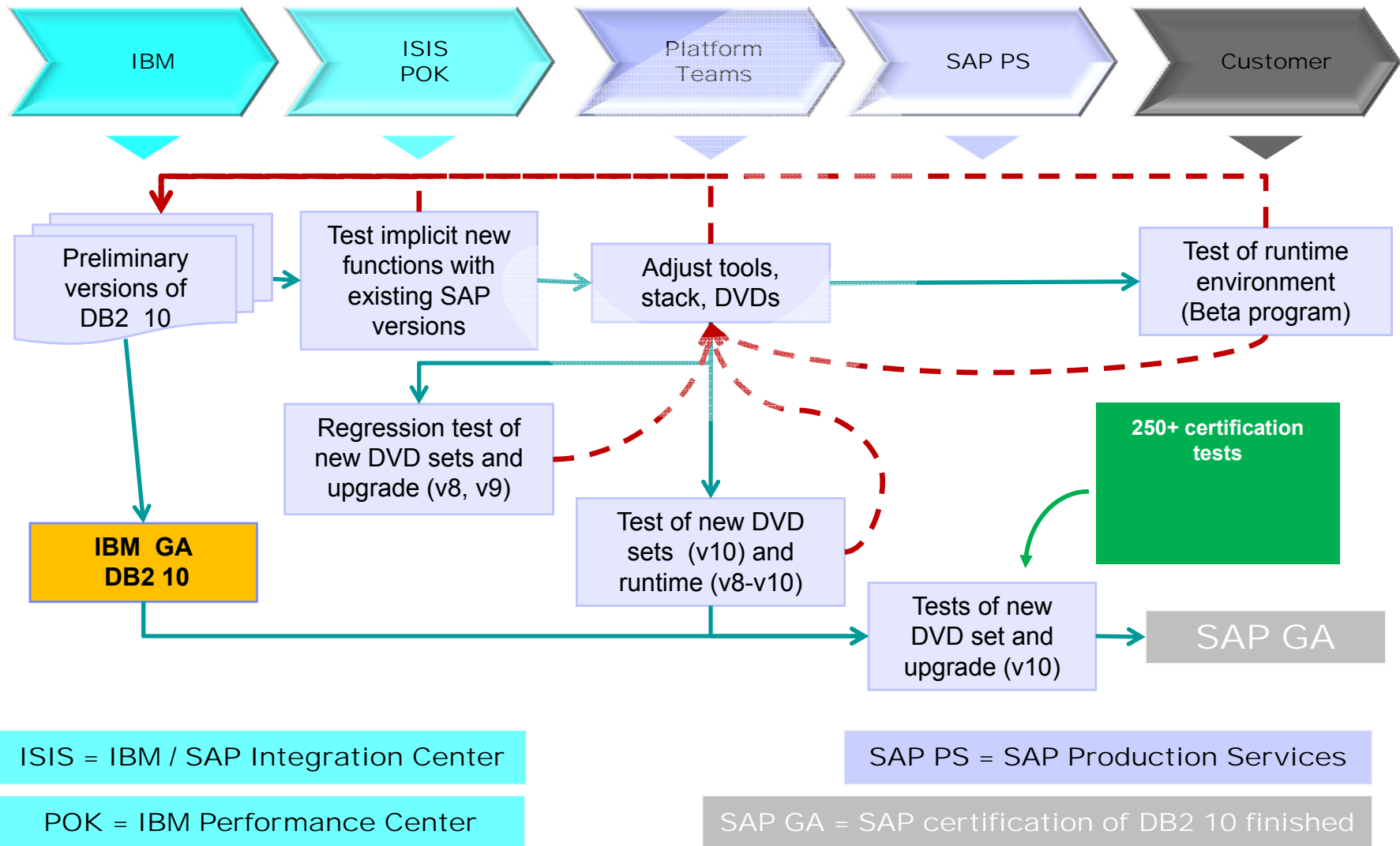- Development for SAP on IBM Systems
- Tivoli for SAP
- Linux on System z

IBM Poughkeepsie
- SAP on System z Performance Evaluation
- z/OS Development

IBM Silicon Valley
- DB2 for z/OS
- IBM/SAP Integration & Support Center (ISIS)

SAP Walldorf
- Joint SAP/IBM Development for IBM Systems
- ISICC

IBM Bangalore
- DB2 Connect

SAP/IBM Worldwide Collaboration
DB2 10 Quality Assurance

| IBM | ISIS POK | Platform Teams | SAP PS | Customer |

Preliminary versions of DB2 10

Test implicit new functions with existing SAP versions

Adjust tools, stack, DVDs

Test of runtime environment (Beta program)

Regression test of new DVD sets and upgrade (v8, v9)

IBM GA DB2 10

Test of new DVD sets (v10) and runtime (v8-v10)

250+ certification tests

Tests of new DVD set and upgrade (v10)

SAP GA

ISIS = IBM / SAP Integration Center

POK = IBM Performance Center

SAP PS = SAP Production Services

SAP GA = SAP certification of DB2 10 finished

© 2012 IBM Corporation

39 years of IBM SAP partnership

2011 *HANA (in-memory), TSAM (Cloud Computing), DB2 pureScale, SAP Gateway integration with Lotus, Best of class concepts on zEnterprise and Power Systems*

2010 *SAP Business Suite for IBM Blue Harmony project; SAP Cloud Computing*

2009 SAP IBM Alloy product; Retail Trilogy project

2008 Tivoli + SAP Solution Manager integration; Banking reference architecture

2007 Enablement of virtualization capabilities; Rational Suite for SAP

2006 SAP BW Accelerator on IBM BladeCenter

2005 Dynamic Infrastructure for SAP Adaptive Computing Product

2003 Foundation of the Collaboration Technology Support Center

2002 IBM and SAP establish joint SCM Center of Excellence

2001 IBM and SAP form a Strategic Alliance

1999 DB2 becomes the strategic database for SAP

1993 Foundation of the IBM SAP International Competence Center

1972 IBM becomes Logo and Development Partner of SAP

IBM and SAP Partnership - Qualified, Awarded, Proven

- **Certified Global SAP Partner**
  - Global Service Partner
  - Global Technology Partner
  - Global Cloud Service Partner
  - Global Hosting Partner
- **With a record total of 22 awards, IBM has been recognized with an SAP Pinnacle Award every year since it's inception**
- **IBM provides 36 certified solutions at SAP´s Partner Information Center, next competitor has 9 certifications (Status: 2010)**
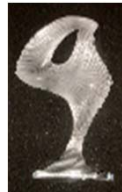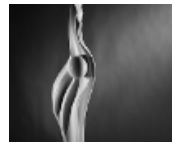
2005	2006	2007	2008	2009	2010	2011
2 awards for IBM	2 awards for IBM	3 awards for IBM	3 awards for IBM	4 awards for IBM	2 awards for IBM	2 awards for IBM

- **IBM itself is one of the largest productive SAP users**
  - 40,000+ SAP production users, mixed release levels, all on IBM hardware
  - Improved bookings efficiency by 40%
  - Increased labor productivity by 15%
  - Reduced server build cycle times by 30%

SAP Award of
Excellence for IBM

Agenda

- SAP AG and SAP products overview
- **SAP technical architecture**
- System z architecture for SAP
- SAP Projects
- Reference Architecture, analyst papers, contacts, and other supporting documentation

© 2012 IBM Corporation

SAP Solution Overview
High Level Architecture

- SAP's applications run on the Application Layer servers.

- SAP's application code and user data are on the Database Layer servers.

- End users run GUI/Browser software on their Presentation Layer workstations.

- Users often access the SAP application servers via the Intranet/Internet Layer servers.

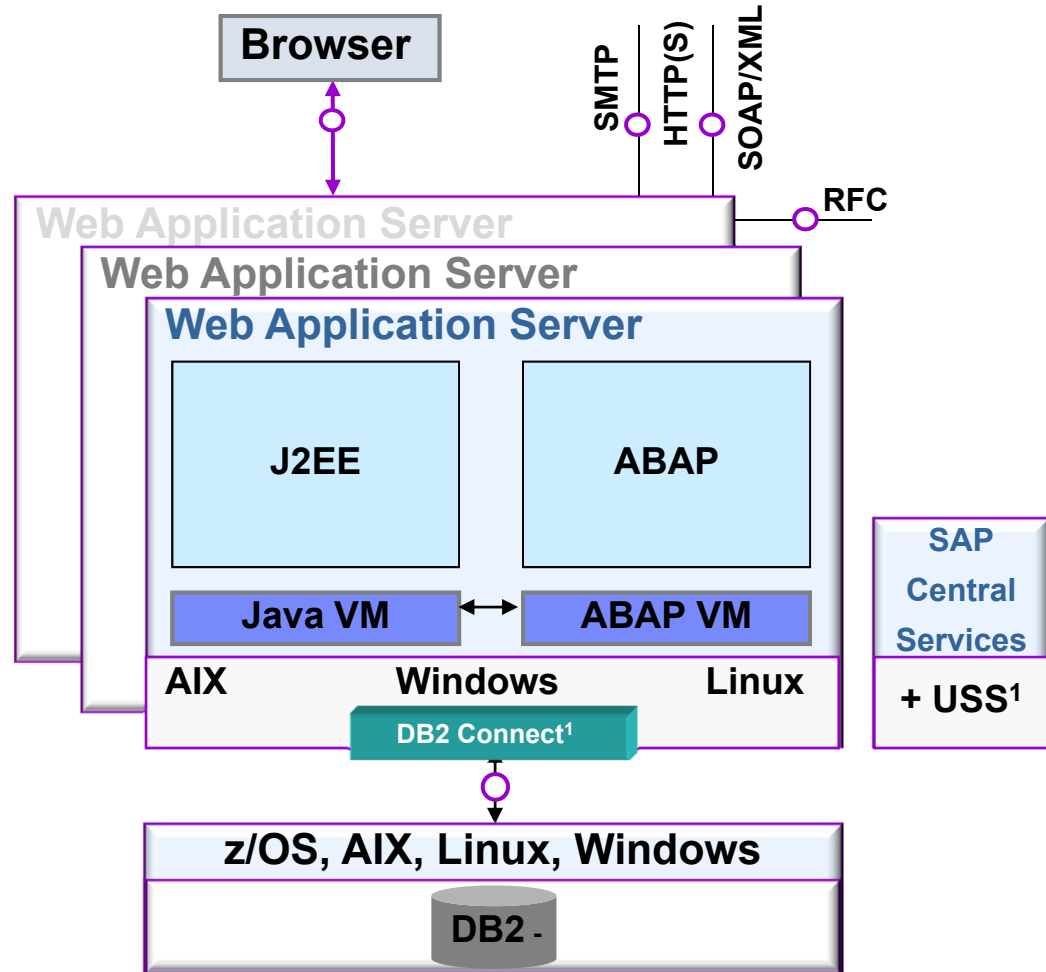- Storage devices (DASD/Disk) are present on all layers, but the most sophisticated are on the database servers.

Database layer

Application layer

Intranet / Internet layer

Presentation layer – Windows PC / Browser
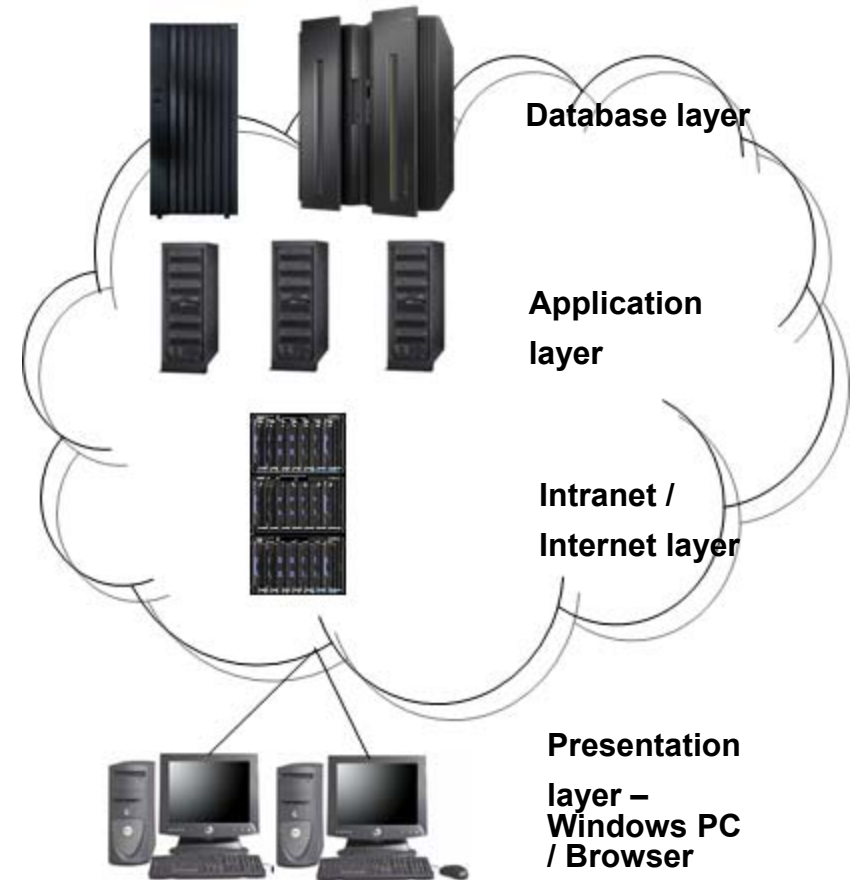
SAP Architecture
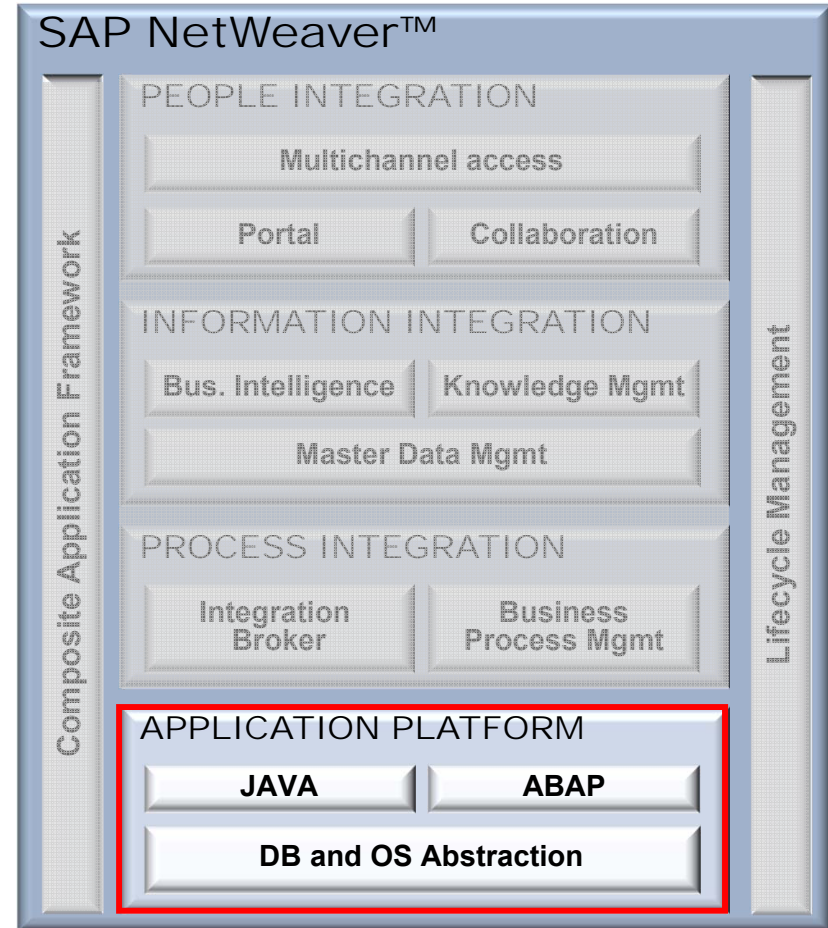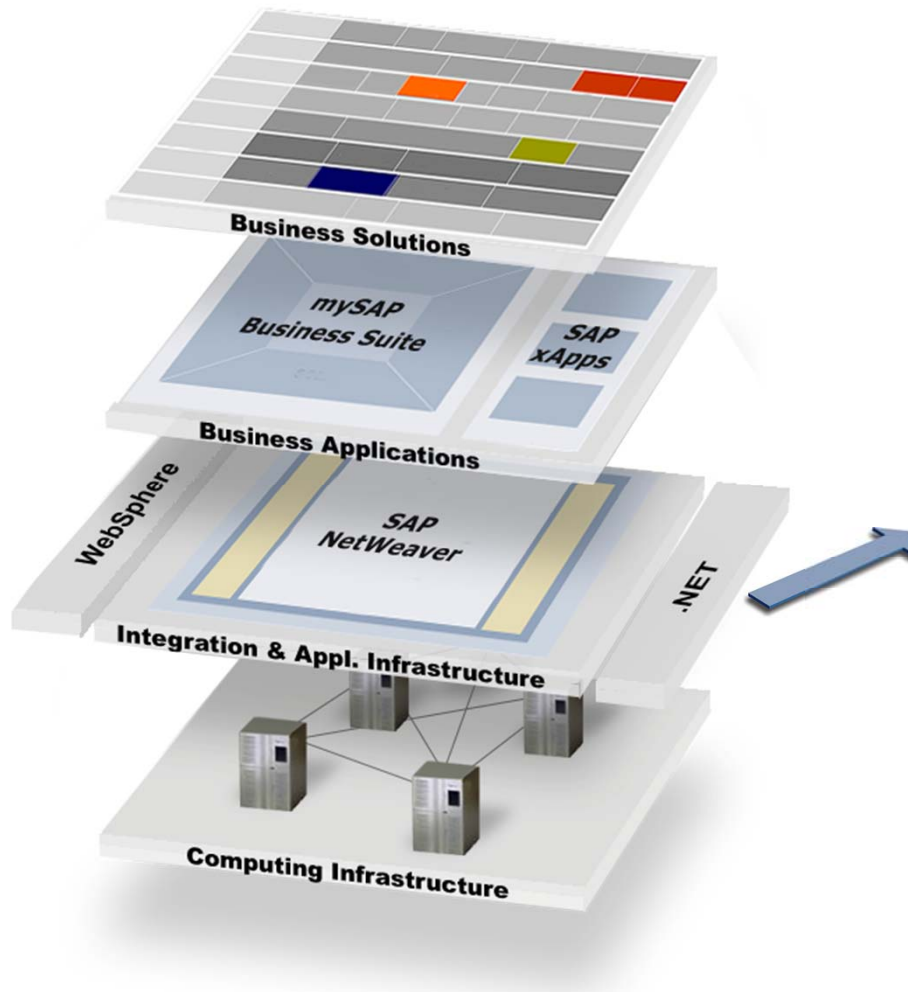
IBM's implementation flexibility

Browser

SMTP
HTTP(S)
SOAP/XML
RFC

Application Server platforms for SAP

Web Application Server

Web Application Server

Web Application Server

| J2EE | ABAP |

Java VM ⟷ **ABAP VM**

SAP Central Services platforms for SAP

AIX   Windows   Linux

DB2 Connect[1]

SAP Central Services

+ USS[1]

Database Server platforms for SAP

z/OS, AIX, Linux, Windows

DB2 -

[1]For z/OS as the database

SAP System Landscape Complexity
Multi-tier, multi-platform heterogeneous architecture

One size DOES NOT fit all.
SAP demands a "best fit"
architecture.

DEV
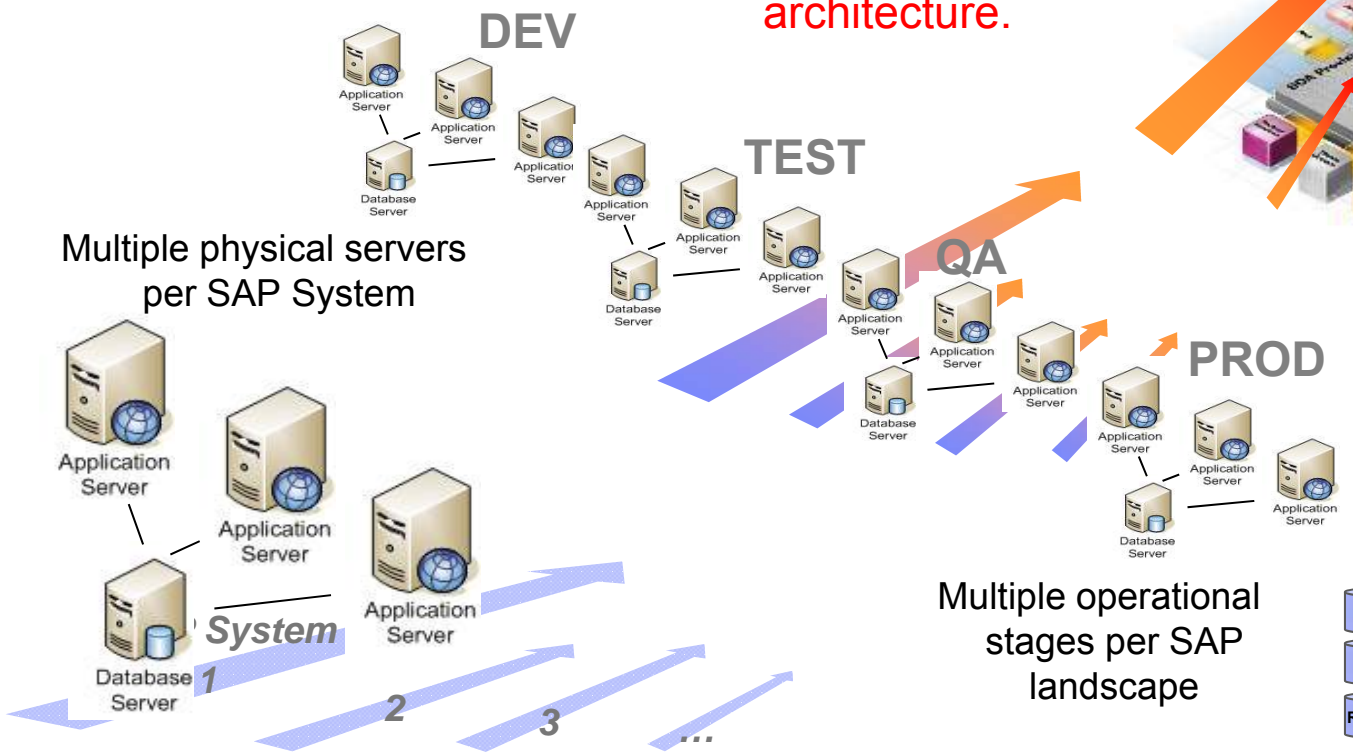
Multiple physical servers
per SAP System

TEST

QA

PROD

Multiple system
landscapes per SAP
product implemented

System

1

2   *3*   *...*

Multiple operational
stages per SAP
landscape

A database with multiple networked systems
and storage for each stage (lifecycle)

Stages:

Original Data	PRD, QA, Test, DEV
Backup Flashcopy	PRD, QA, Test, DEV
Recovery Flashcopy	
Recovery Flashcopy	PRD
Recovery Flashcopy	
Refresh Flashcopy	QAS, Test
Clone Flashcopy	PRD, DEV

24
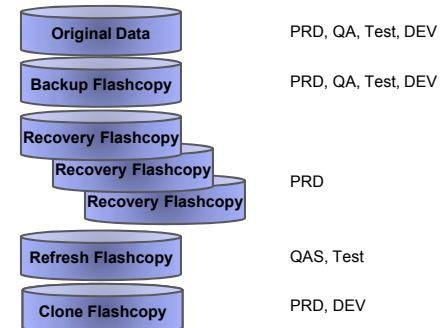
Single Points of Failure in an SAP System

Affects planned and unplanned outage avoidance plus denial of service due to performance issues

Msg Svr is Single Point of Failure, but not critical. Will restart

Logon Load Balancing and Web Dispatcher keep App Servers from being SPOF

CI (SCS/ASCS)

Msg Svr

Enq Svr

AS

Dp

| WP1 | WP2 | WP3 |

AS

Dp

| WP1 | WP2 | WP3 |

AS

Dp

| WP1 | WP2 | WP3 |

Enq Svr is Single Point of Failure

Replicated enqueue provided by SAP

Single Point of Failure

(delegate reliability to DB vendor)

Data Base Server

Leverage the database vendor's clustering capability

Only 20% of typical SAP infrastructure is a SPOF

Promote to Production Approval and Transport Process

- •Project Lead opens request in
  master.
- •Developers create tasks in request.
- •Project Lead approves and closes
  requests.
- •Test Manager approves import
  and Basis moves requests to QAS.
- •After testing Training Manager
  approves import and Basis moves
  requests to TRG.
- •Production Owner approves
  requests for import then Basis
  moves requests to PRD.

DEV	QAS	TRG	PRD

© 2012 IBM Corporation
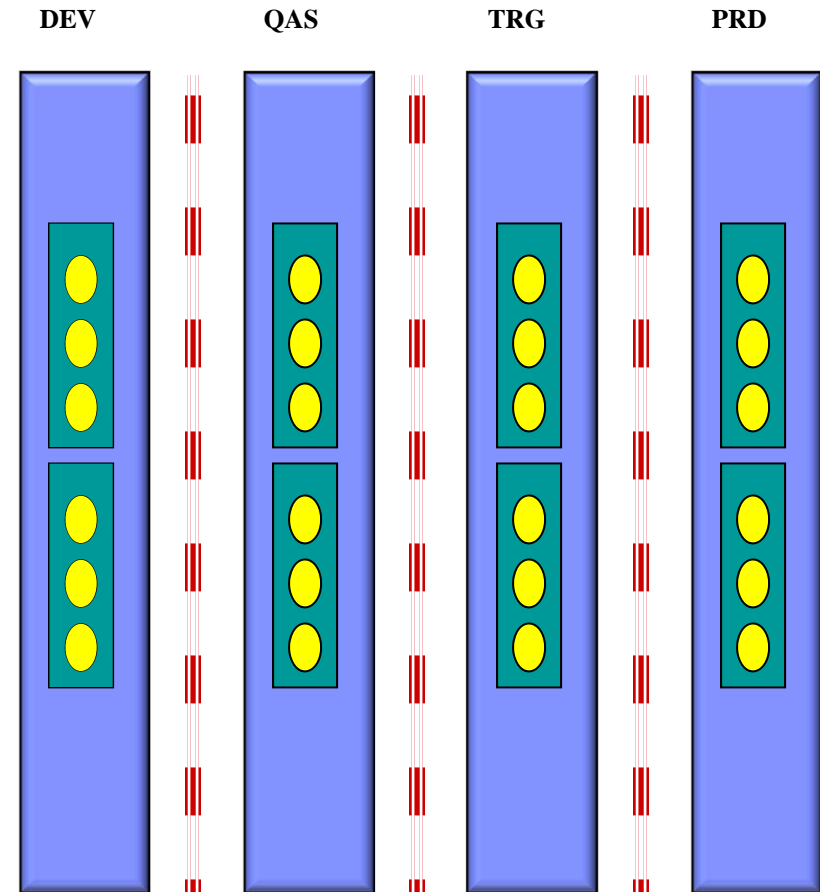
Technical Change Management ensures the integrity of changes across the landscape

Solution Manager

Business corrections and changes → Customizing Distribution

ERP DEV	→ Transport →	ERP QAS	→ Transport →	ERP PRD
CRM DEV	→ Transport →	CRM QAS	→ Transport →	CRM PRD
SCM DEV	→ Transport →	SCM QAS	→ Transport →	SCM PRD
BI DEV	→ Transport →	BI QAS	→ Transport →	BI PRD
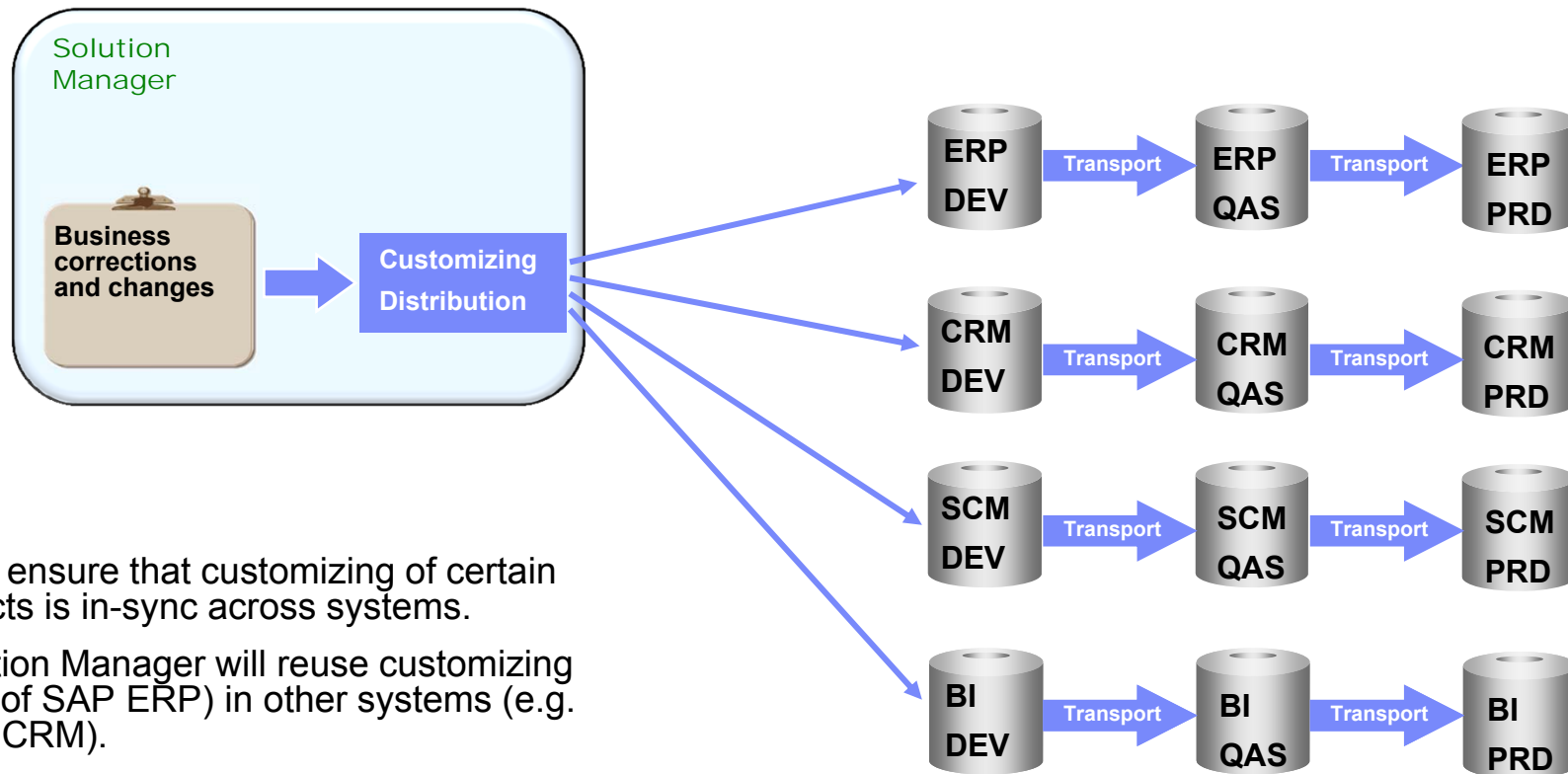
- Must ensure that customizing of certain objects is in-sync across systems.

- Solution Manager will reuse customizing (e.g. of SAP ERP) in other systems (e.g. SAP CRM).

- It avoids redundant customizing activities in a solution landscape.

Multi-development phases
Promote to Production (PTP)

- ❑ Phase 1 PTP path
- ❑ Phase 2 instance copies – retain SIDs
- ❑ Phase 2 development
- ❑ Phase 2 PTP path, Phase 1 continues with maintenance
- ❑ Phase 2 golive
- ❑ Final PTP path for phases 1 and 2

© 2012 IBM Corporation
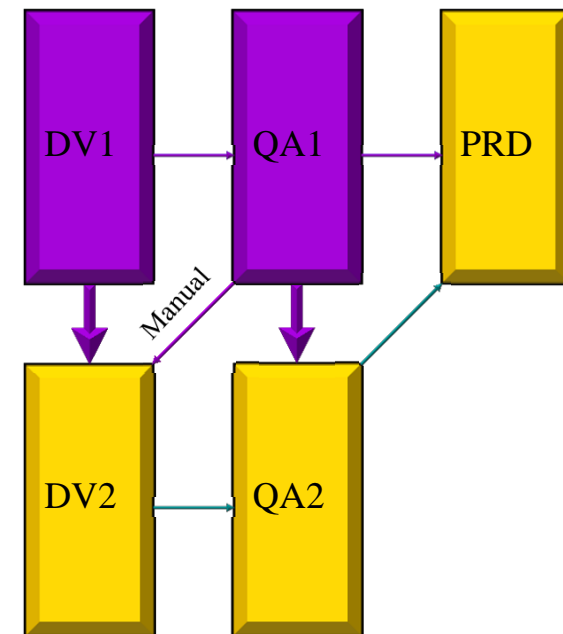
SAP HANA
Replication Mechanisms

DB2 for z/OS fully supported as source database!
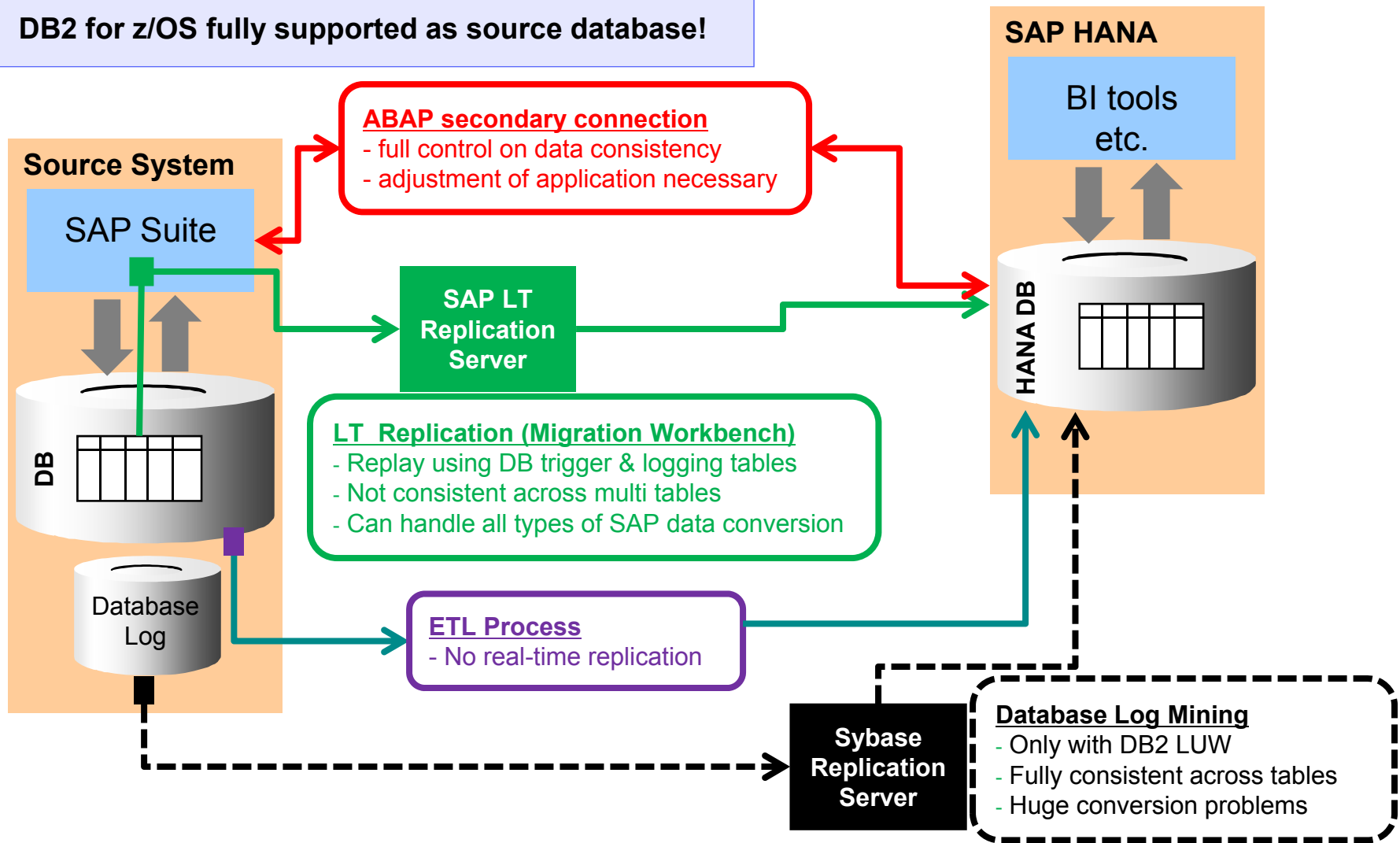
SAP HANA

BI tools etc.

Source System

SAP Suite

DB

ABAP secondary connection
- full control on data consistency
- adjustment of application necessary

SAP LT Replication Server

HANA DB

LT Replication (Migration Workbench)
- Replay using DB trigger & logging tables
- Not consistent across multi tables
- Can handle all types of SAP data conversion

Database Log

ETL Process
- No real-time replication

Sybase Replication Server

Database Log Mining
- Only with DB2 LUW
- Fully consistent across tables
- Huge conversion problems

Agenda

- SAP AG and SAP products overview
- SAP technical architecture
- **System z architecture for SAP**
- SAP Projects
- Reference Architecture, analyst papers, contacts, and other supporting documentation

System z family:

IBM zEnterprise BladeCenter
Extension (zBX)

IBM zEnterprise 196
(z196)

IBM zEnterprise 114
(z114)

IBM DB2 Analytics
Accelerator V2.1

IBM DataPower XI50z

IBM BladeCenter HX5 (7873)

IBM BladeCenter PS701

Technology Evolution with Mainframe Specialty Engines

The most efficient and effective consolidation platform

IBM zBX Intel eX5 blade 2011

IBM zBX Power 7 blade 2010

IBM System z Integrated Information Processor (zIIP) 2006

IBM System z Application Assist Processor (zAAP) 2004

Integrated Facility for Linux® (IFL) 2001

Internal Coupling Facility (ICF) 1997

Integration of 16 core/32 thread Intel blades with KVM for Linux and Windows workloads

Integration of 8 core/32 thread Power blades with PowerVM for AIX workloads

Designed to help improve resource optimization for eligible data workloads within the enterprise

Incorporating Java into existing mainframe solutions

Support for zVM and zLinux workloads and open standards

Centralized data sharing across mainframes

Fully supported by SAP (see SAP Note 1650076 and 1492000)

33

© 2012 IBM Corporation

A look inside the IBM zEnterprise System

SAP applications on Linux on z/VM, Power, and Intel blades as part of a broader enterprise encompassing distributed workloads – managed by the URM

System z Hardware Management Console (HMC) with Unified Resource Manager

System z 196 or 114

- z/OS DB
- Legacy
- Linux on System z App Svr
- Linux on System z App Svr
- z/VM

System z PR/SM™

z HW Resources

Support Element

Select IBM Blades

- Linux and Windows on System x
- AIX on POWER7

Blade Virtualization

Blade Virtualization

Optimizers

- DataPower
- Future Offering [1]
- Future Offering [1]
- Future Offering [1]

Blade HW Resources

zBX

Private data network (IEDN)

Customer Network

Customer Network

Unified Resource Manager

Private Management Network INMN

Private High Speed Data Network IEDN

35

[1] All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represents goals and objectives only.

DB2 for z/OS Optimized for SAP

DB2 10

- Full 64-bit runtime support
- Reducing internal latch contention
- Workfile spanned records, PBG support
- in-memory enhancements
- Auto-stats
- Default SAP settings for DB2
- Access path stability and hints enhancements
- Hash access path
- Parallel index update at insert
- Numerous optimizer enhancements
- Query parallelism enhancements: lifting restrictions
- More granular DBA privileges
- More online schema changes for table spaces, tables and indexes via online REORG
- Automatically delete CF structures before/during first DB2 restart
- Allow non-NULL default values for inline LOBs
- Loading and unloading tables with LOBs
- Full Decimal Floating Point support
- 'Last committed' locking semantics
- Easier SQL paging through resul
- Online REORG for LOB
- Online add log
- …

DB2 9

- Optimistic locking
- Modify early code without requiring an IPL
- APPEND option for inserts
- Relief for sequential key insert
- LOB performance and scalability
- Utilities CPU reduction
- Faster restart of data sharing
- CLONE Table: fast replacement of one table with another
- Renaming column, index, and schema
- Table space that can add partitions, as needed for growth
- Improve ability to create an index onli
- Online reorganization with no
- Parallel unload and reload d
- ...

DB2 V8

- VS Constraints / - Unicode
- Automate BackupRecovery
- 64bit DB2 Connect for zLinux
- Multiple DISTINCT Clauses
- Lock Contention on SAP Cluster Tables
- Fast Retrieval of Most Recent Value
- Create Deferred Index Enhancement
- Provide DSTATS Functionality
- Convert Column Type
- Altering CLUSTER Option
- Adding Columns to Index
- Index-only Access Path for VARC
- Changing Number of Partitions
- Partitioning Nonclustering Ke
- ...

V8 includes 53 features explicitly requested by SAP

V9 includes > 40 features for SAP

Dominated by >40 features for SAP

SAP on System z Solution Architecture of today:
Workloads are inherently heterogeneous
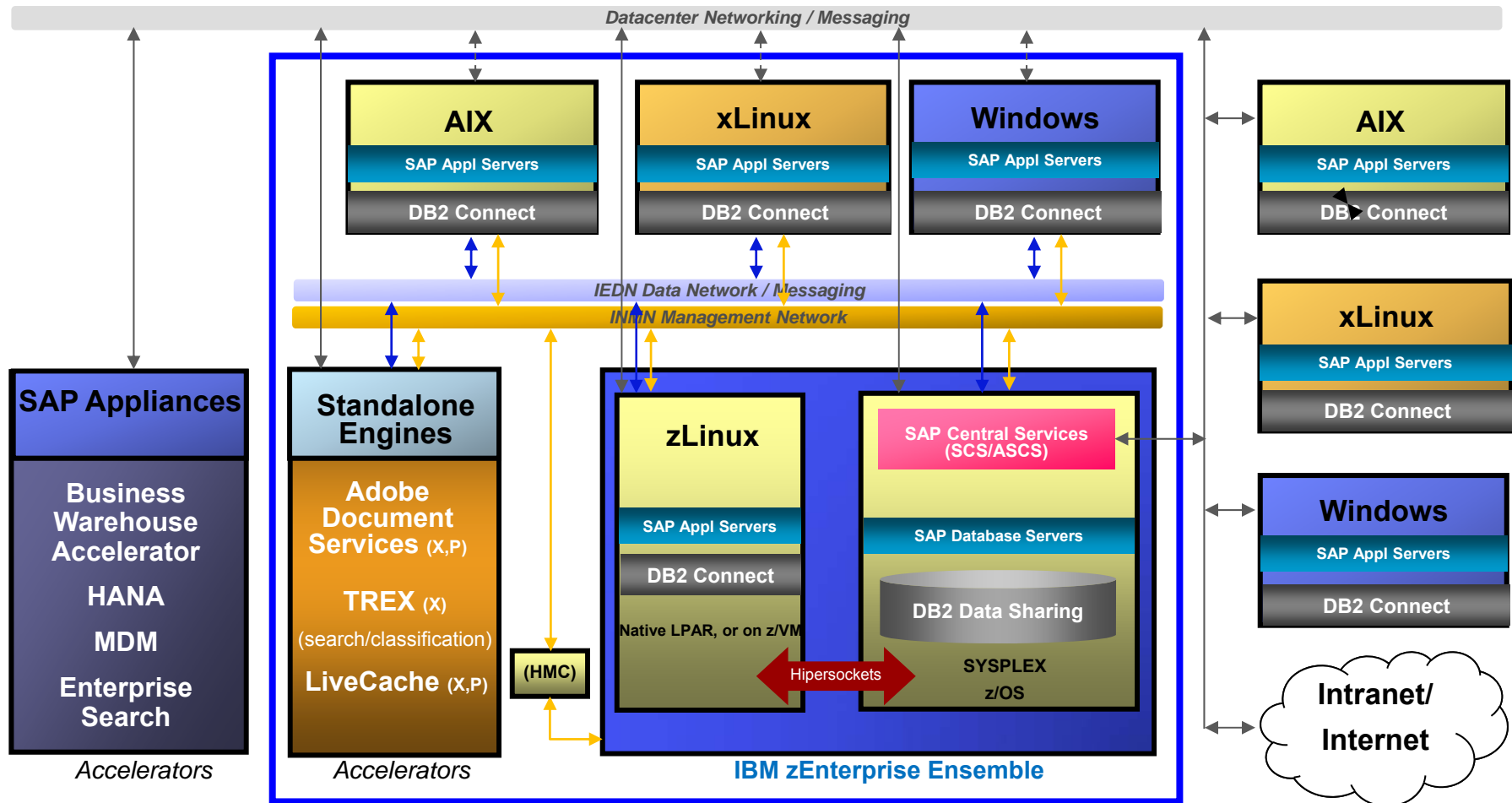
System z in an SAP environment without a zEnterprise Ensemble
zEnterprise covers most of the application server computing requirements for today's SAP customers

Oracle and DB2 LUW on System z are NOT certified by SAP

Yes, Oracle and DB2 LUW do run under Linux for System z …
but, they are <u>not</u> certified under Linux for System z with SAP
and are <u>not</u> planned for certification in the future

Business Continuity
System Setup for Continuous Availability and Disaster Recovery

© 2012 IBM Corporation
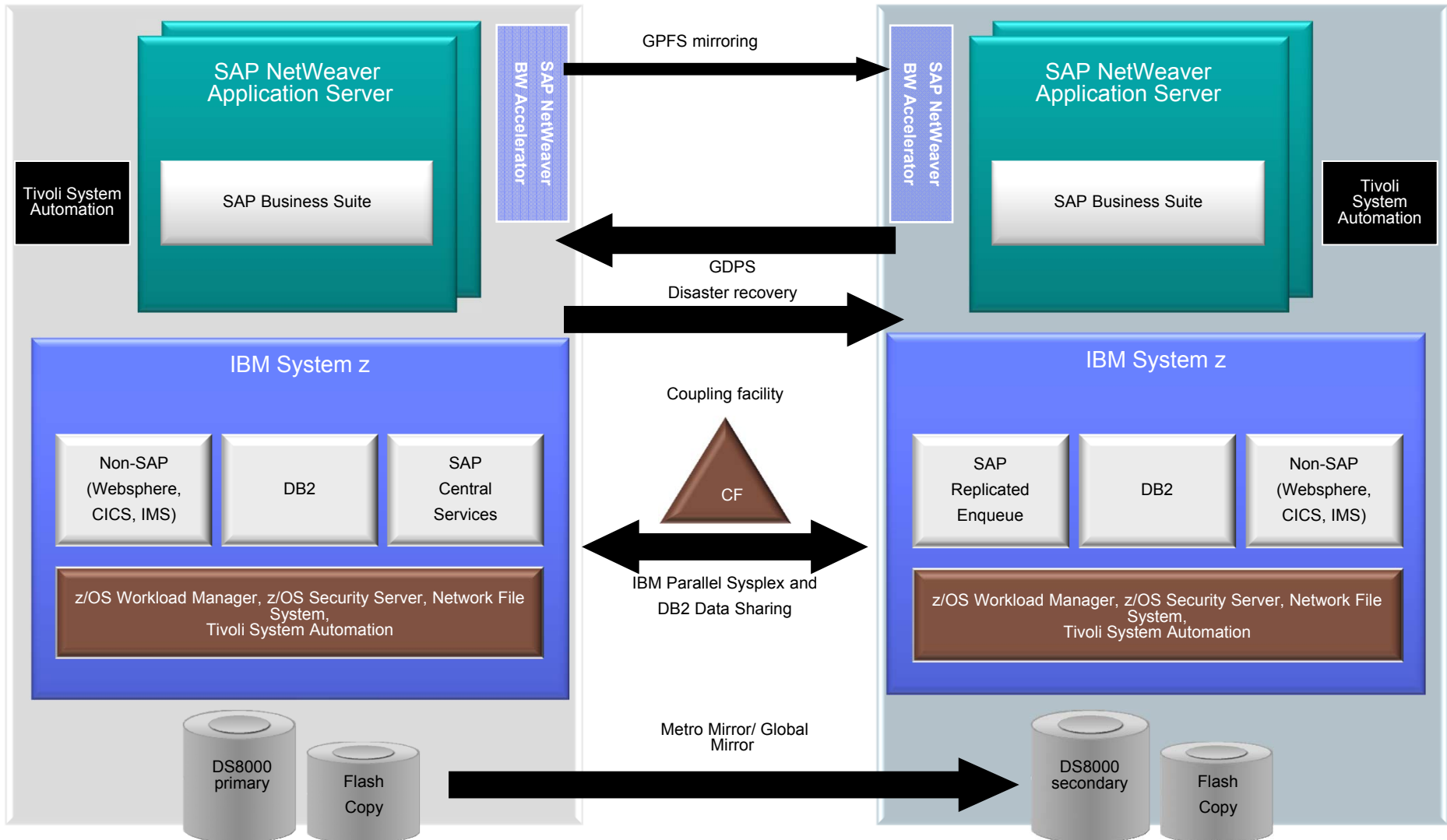
System z Solution Editions
Unmatched value, competitively priced

- *Enterprise Linux*
- *Cloud Computing*
- *Data Warehousing*
- *SAP*
- *WebSphere®*
- *ACI*
- *Chordiant*
- *Application Development*
- *GDPS®*
- *Security*

- **Special package pricing for new workloads on IBM System z10™ and IBM zEnterprise™**
  - IBM System z® hardware (standalone footprint or isolated LPAR)
  - Prepaid hardware maintenance
  - Comprehensive middleware stack
  - Services and Storage (as needed)
- **Mainframe qualities of service**
  - Security, availability and scale
  - Industry leading virtualization, systems management and resource provisioning
- **Solution Edition Futures**
  - Exploitation of IBM zEnterprise BladeCenter® Extension (zBX) workload optimizers and IBM Unified Resource Manager

System z Solution Edition for SAP
The platform of choice for a highly available database for SAP

REVISED

z/Solution
Editions

- **Description**
  - SAP is a leading provider of Enterprise Resource Planning (ERP) solutions
  - IBM software for the SAP database includes z/OS, DB2 for z/OS, DB2 Connect™, and a robust suite of DB2 tools
  - Combine with the System z Solution Edition for Enterprise Linux to run both the SAP data base and the Application Server on System z

- ***New***
  - zEnterprise BladeCenter Extension (zBX) & the IBM Unified Resource Manager may optionally be included as part of the System z Solution Edition for SAP.

  - This environment is of particular value to clients who choose to implement the SAP Database Server with z/OS and DB2 on the z196 and the SAP Application Server with AIX on POWER7 blades or on Windows or Linux on Intel blades.

  - Blades are not included as part of this offering.

Agenda

- SAP AG and SAP products overview

- SAP technical architecture

- System z architecture for SAP

- **SAP Projects**

- Reference Architecture, analyst papers, contacts, and other supporting documentation

Project Phase Implementation Cost Factors

Administrative Costs
6%

Infrastructure
Support Costs
10%

ERP SW Licenses
6%

ERP SW Maintenance
5%

Application Dev &
Support Costs
25%

DB+OS Licenses
3%

Internal
Infrastructure Staffing Costs
8%

Hardware Costs
8%

External Consulting Costs
29%
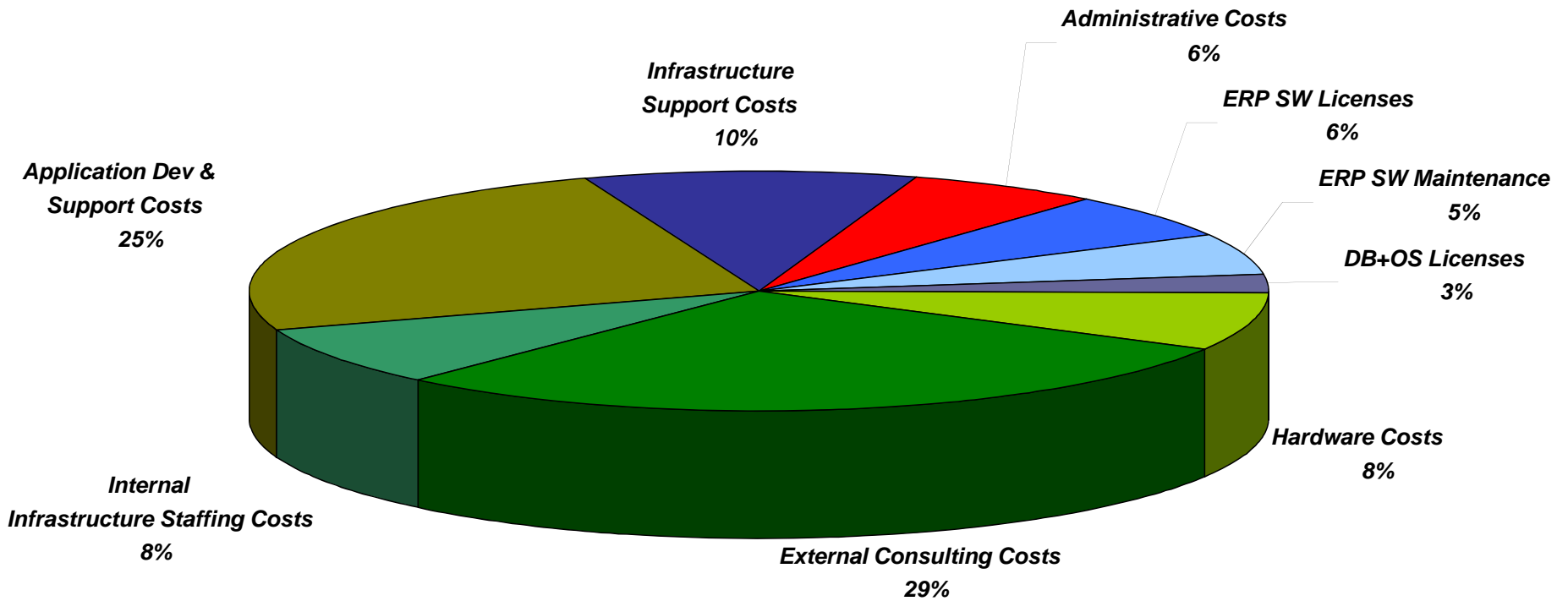
SAP application SAPS typically have a 4:1 ratio of application SAPS to database SAPS*

Database layer

Application layer

Intranet / Internet layer

Presentation layer –

Windows PC / Browser
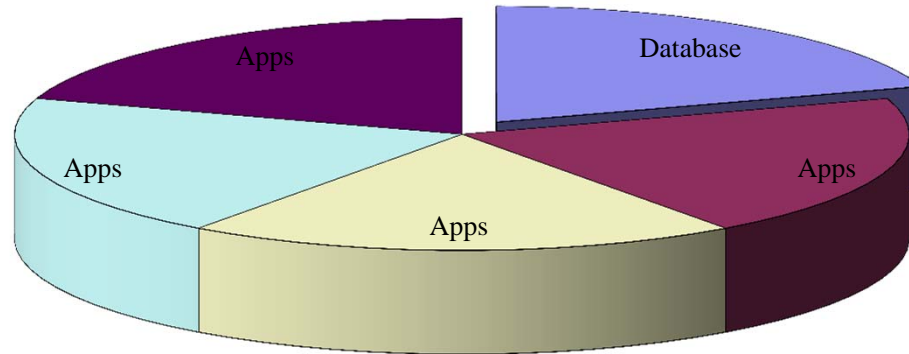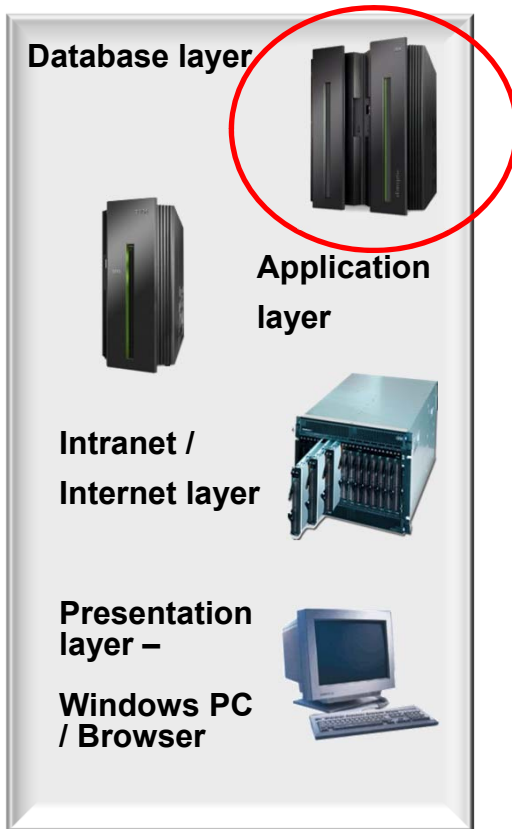
Only about 20% of the SAPS run on the critical database component.

* BI has a ratio closer to 2:1.

The timeline map shows when capacity will be needed to meet peak project requirements. The map helps avoid bringing on excess capacity.
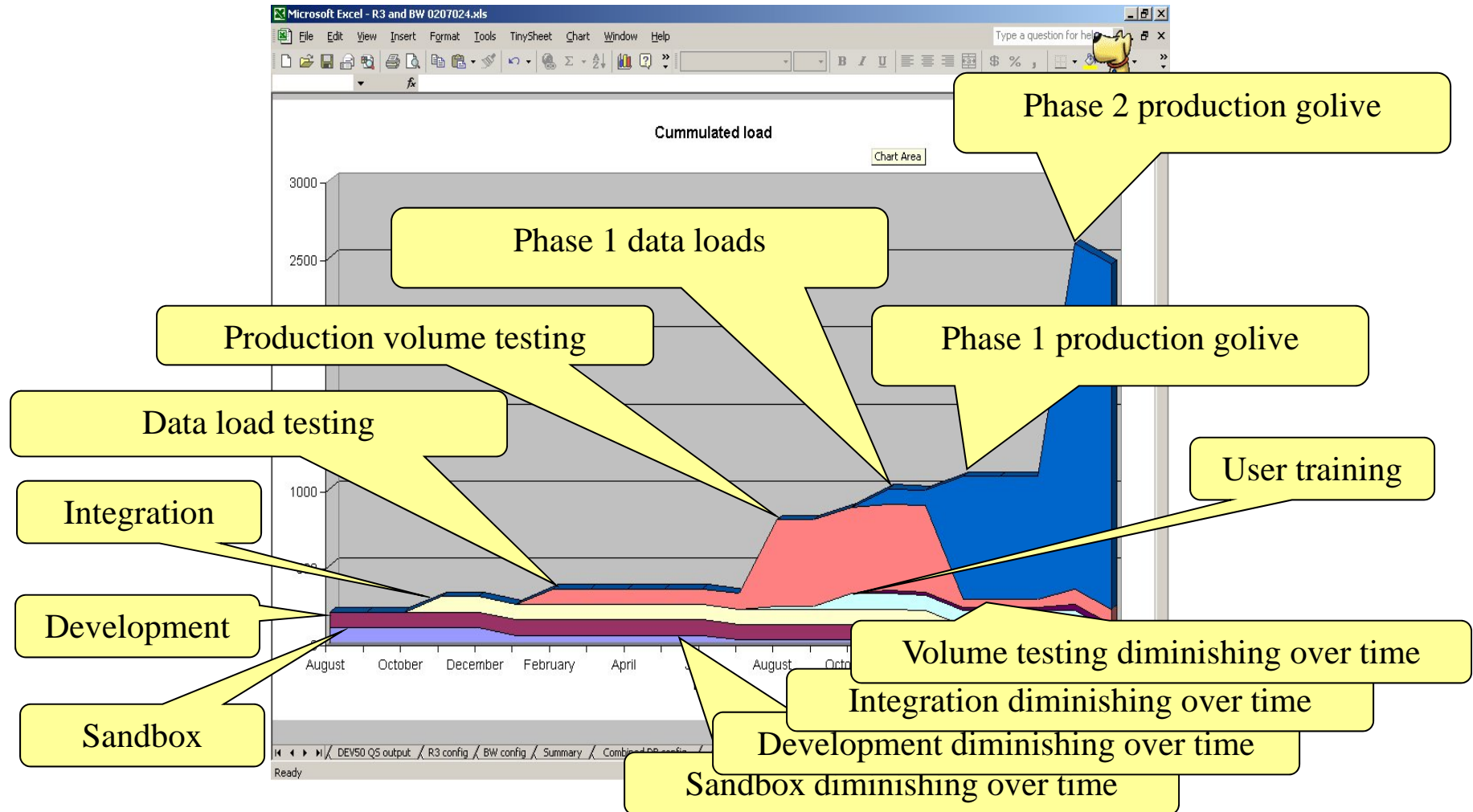
Project activities such as upgrades or future rollouts will result in additional capacity surges not shown here.

© 2012 IBM Corporation

Service Level Objectives (SLO) affect the architectural design and subsequently the selection of hardware products and software tools. SLOs document the "Cost" of not achieving them.

SLO "Wants"

Desires

Response times

Availability

Recoverability

SLOs also have a direct impact on processes and people issues.

SLO "Needs"

Functional Architect

Business owners

Executive signoff

Coordination to validate requirements

Costed SLO

SLO Survey

Revenue delay

Revenue loss

Customer loss

Business impact costs are established

46
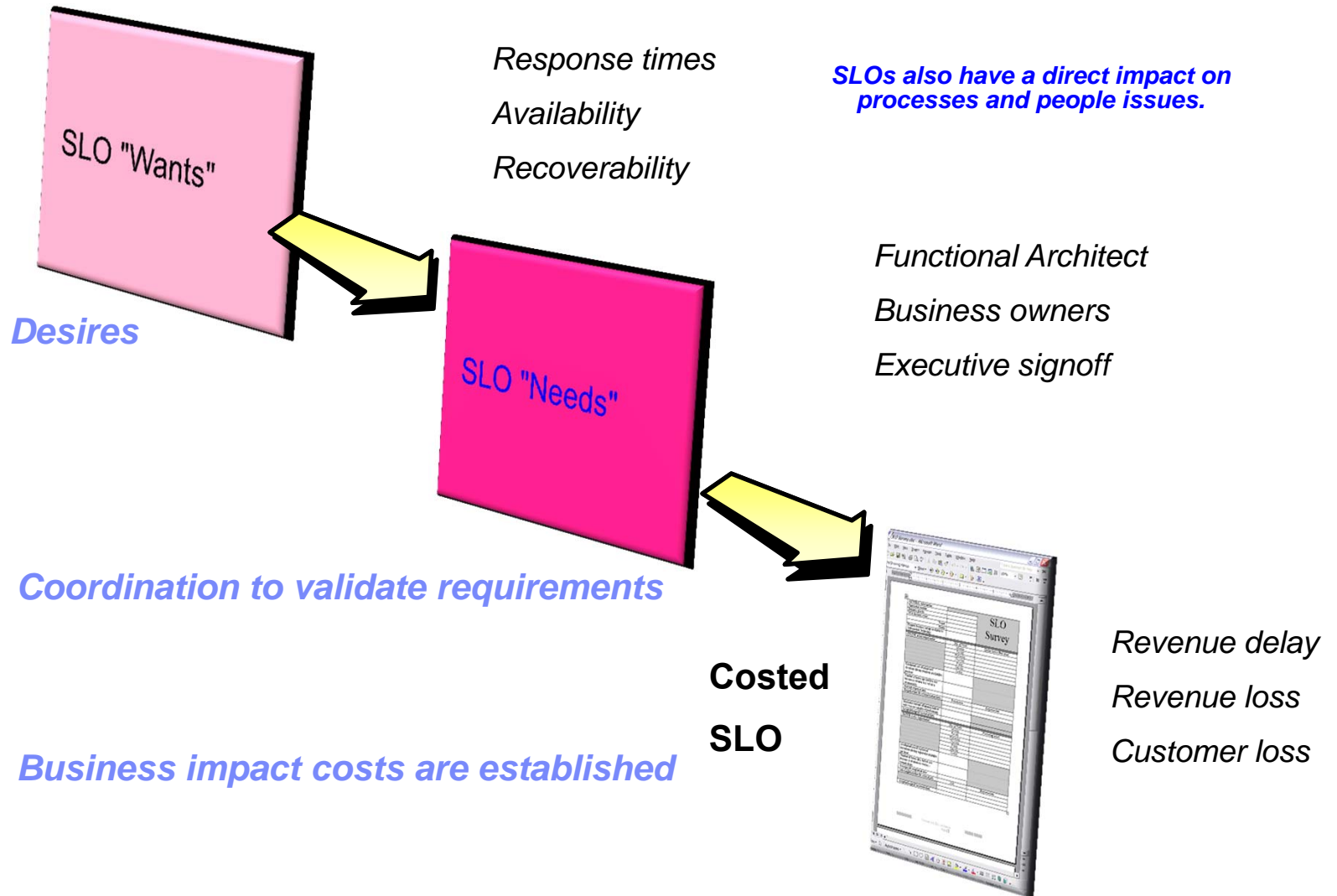
Sizings estimate capacity requirements based on SAP benchmark results, IBM laboratory tests, and real world customer experiences.
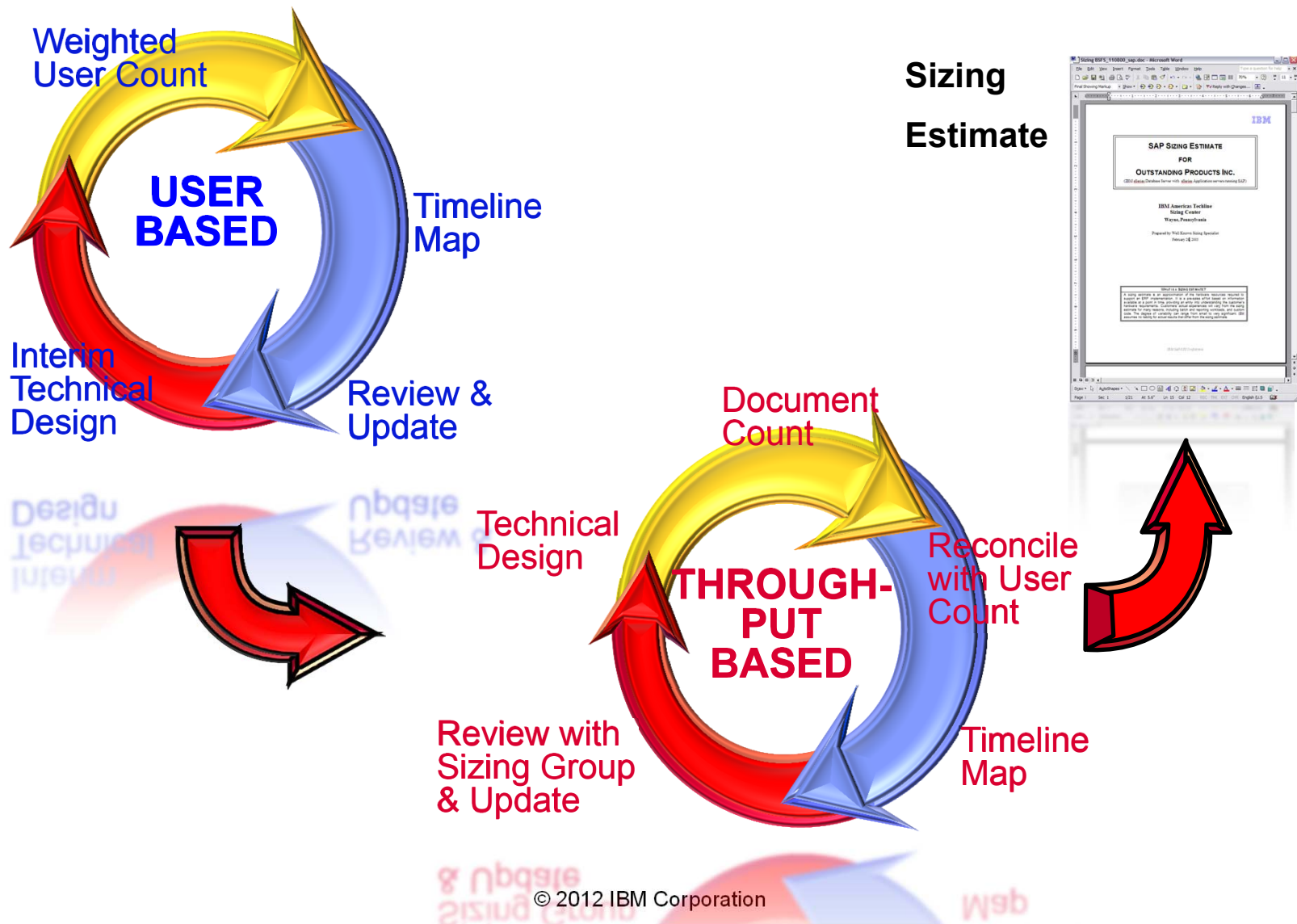
Weighted
User Count

USER BASED

Timeline
Map

Interim
Technical
Design

Review &
Update

Sizing

Estimate

Document
Count

Technical
Design

**THROUGH-
PUT
BASED**

Reconcile
with User
Count

Review with
Sizing Group
& Update

Timeline
Map

Agenda

- SAP AG and SAP products overview
- SAP technical architecture
- System z architecture for SAP
- SAP Projects
- **Reference Architecture, analyst papers, contacts, and other supporting documentation**

SAP Reference Architectures
SAP Community Network - SAP on DB2 for z/OS (SDN)

- **SAP Business Suite on IBM System z Reference Architecture for System Infrastructure**
  http://www.sdn.sap.com/irj/sdn/db2?rid=/library/uuid/7071c07f-d0d1-2c10-47a8-b19735a31850

- **SAP for Banking on System z Reference Architecture**
  http://www.sdn.sap.com/irj/sdn/db2?rid=/library/uuid/a00e4718-314f-2b10-19a6-a76f257addaf

- **SAP for Insurance on System z Reference Architecture**
  http://www.sdn.sap.com/irj/sdn/db2?rid=/library/uuid/806914a9-16df-2b10-96a0-eec0b1296f10

Key reasons customers implement SAP solutions on IBM System z

1. **Continuous Availability**
   - 99.999% application availability
   - Continuous availability for critical SAP functions
   - Unplanned and planned outages avoidance – near zero downtime

2. **Scalability**
   - Vertical and horizontal scalability
   - Parallel Sysplex with Coupling Facility and DB2 Data Sharing

3. **Large Database Manageability (SAP Optimized)**
   - Multi-Terabyte Databases w/ HW data compression
   - Online Backup and Reorg
   - Unique I/O subsystem and Storage technology (Flashcopy, Snapshot)

4. **Consolidation and integration with other applications**
   - Mixed workload management
   - Simplified operation and fewer support personnel
   - Data and application colocation, local connectors, hipersockets

5. **Security**
   - Designed to deliver system integrity and highest levels of security
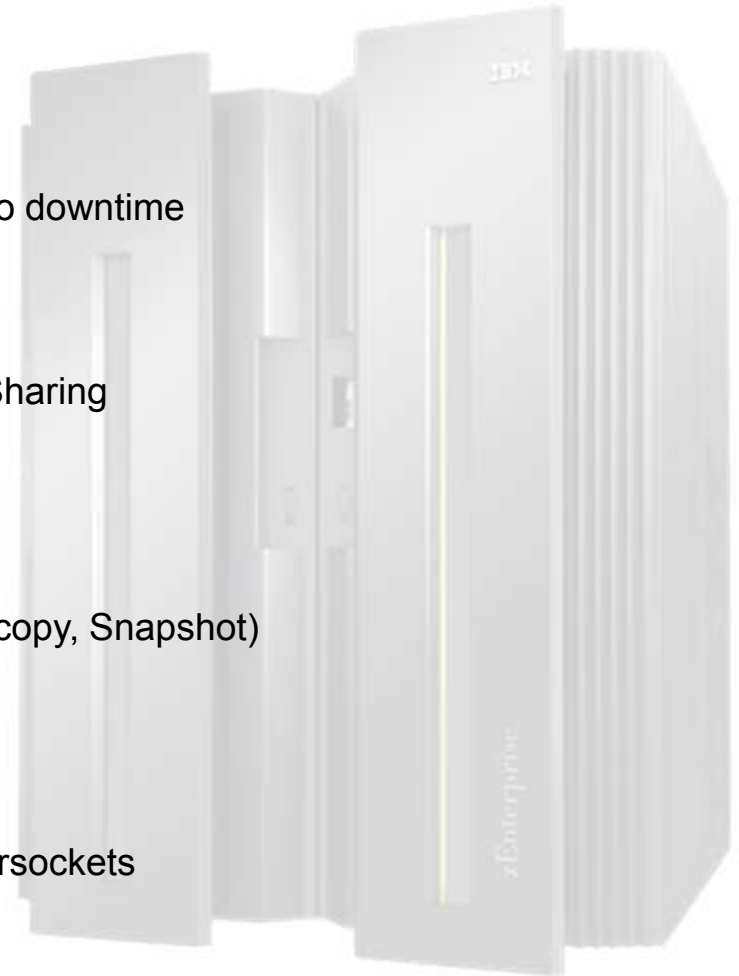
Tightly integrated SAP/IBM development and support teams

System z Value Proposition for SAP applications

- IBM's System z running SAP applications offers the ultimate choice in security, stability and scalability in the marketplace through world-class workload management and an industrial-strength database server. <u>SAP on System z platform delivers to the customers **continuous availability** to mission critical applications and data by avoiding outages for any hardware or database maintenance thru implementation of DB2 for z/OS Data Sharing.</u>

- The difference between High Availability (= unplanned outages avoidance) and continuous availability (= planned outages avoidance) translates into superior Total Cost of Ownership, as the difference between 99.99% and 99.86% application availability to users can represent more than 50 million dollars outage costs in Retail Industry (see more details in the referenced ITG Study).

Figure 15
Availability Levels and Costs of Outages Detail
for IBM System z and HP Integrity/Oracle RAC Deployment Scenarios

Company	Consumer Products	Automotive Parts	Electronic Components	Retail Chain	Airline
IBM SYSTEM z SCENARIO					
Availability Level	99.99%	99.99%	99.99%	99.99%	99.99%
Three-year costs ($000)	2,523.7	3,029.2	915.6	4,961.7	1,295.7
Five-year costs ($000)	4,206.2	5,048.7	1,526.0	8,269.5	2,159.6
HP INTEGRITY/ORACLE RAC SCENARIO					
Availability	99.87%	99.90%	99.92%	99.86%	99.84%
Three-year costs ($000)	33,313.0	36,350.7	13,276.4	59,540.4	18,140.5
Five-year costs ($000)	55,521.7	60,584.4	22,127.4	99,234.0	30,234.1

INDUSTRY MANAGEMENT BRIEF

April 2007

ECONOMIC VALUE OF THE IBM SYSTEM z
For SAP Enterprise Deployments
in Supply Chain Operations

International Technology Group
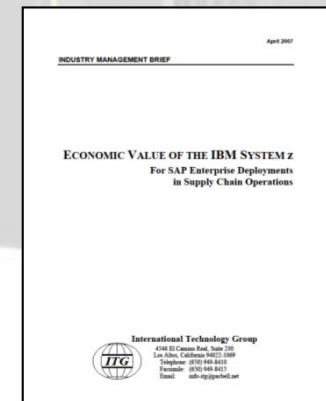
IBM's internal project uses an Inner Ring / Outer Ring Architecture

Inner Ring

Leverages *purchased* SAP integration and applications

"integration you buy"

Outer Ring

Consists of best of breed IBM solutions with *constructed* WebSphere and InfoSphere integration

"integration you build"

© 2012 IBM Corporation
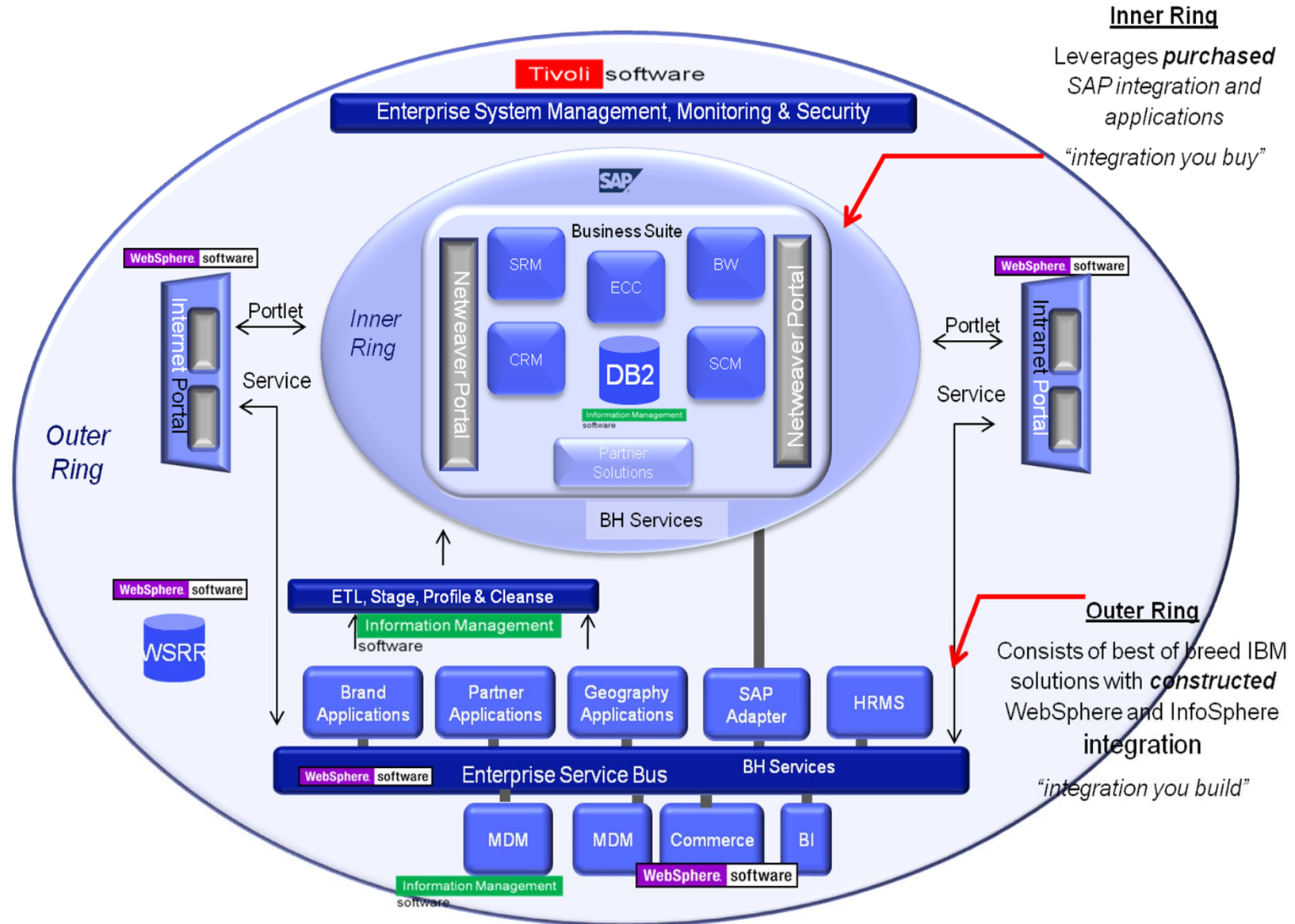
Worldwide SAP/z Tiger Team

Objective: Position System z as the ultimate database server for the enterprise

Tiger Team is both a technical and a sales team supporting all geographies with expert SAP skills

- Assist local teams in specific account situations

- Skills transfer

- Conduct education and SAP specific Five In A Box or Fit For Purpose value sessions

- Help the teams understand and use the System z price model for SAP

- Target large SAP installations not meeting their service level objectives or not realizing their total cost of ownership objectives

- Move beyond SAP ERP into SAP Core Banking, Retail, Automotive, BI/BIA

© 2012 IBM Corporation

Portfolio of workshops and support provided by worldwide team

Infrastructure Selection Workshop (1 to 2 days)
- Understanding SAP infrastructure requirements – strengths and weaknesses
- Understanding distributed solutions for SAP infrastructure requirements
- Understanding System z "fit for purpose" for SAP database requirements
- Understanding System z "fit for purpose" for SAP application server requirements

- Overview of sizing activities, inputs, and outputs
- SAP consolidation, Highly Available & Disaster Recovery architecture
- High level architecture design

SAP Architecture Design Workshop (3 days)
- Business requirement definition, Promote to production
- Lifecycle and client definition, Logon Group, Web Dispatcher, and workload splitting
- Operations mode (normal and DR) definition
- CEC/System, LPAR, and DB member definition

- Application server and SCS/ASCS definition
- Storage, flashcopy, and shared filesystem definition
- Networking design
- Project plan definition

Installation Planning Workshop (2 days)
- z/OS and DB2 preparation
- Recommended parameters

- Application Server preparation
- Sample planning

Platform/database Migration Workshop (3 days)
- Migration planning
- Migration activity preparation
- Migration execution activities

- Migration tuning to reduce downtime
- Post migration activities

SAP Performance and Tuning Workshop
- Performance and tuning background
- Database

- WebAS
- Code changes

Continuous Availability Demonstration – planned and unplanned outage avoidance (IBM or customer premises)
- Realtime demonstration on customer premises
- Planned outage avoidance
- Unplanned outage avoidance

- See what the SAP user sees and experience what they experience
- Screen cam projection also available where network access is unavailable
- Static Power Point also available for shorter briefings to higher level audiences

SAP/z Health Check and Golive Support with knowledge transfer (remote or onsite)
- Advance review of critical applications
- Realtime monitoring of golive workloads
- Review of installation parameters
- Review of configuration options

- Configuration recommendations
- Interface with SAP level 1 support
- Recommended changes for best practices
- Knowledge transfer to customer personnel

ADM530 Course -- SAP on DB2 for z/OS Administration
- Preparing platform to run SAP on zDB2
- Administer DB2 for z/OS
- Implement database backup strategies

- Find performance bottlenecks
- Learn about availability options for zSAP
- Offered four times per year

Infrastructure Selection workshops

ATS Offerings

Health Check

ADM 530

54

Offered on an individual request basis only (i.e., not necessarily regularly scheduled), and offered on an as available basis (i.e., we cannot always guarantee that there will be people available when requested).

Portfolio of workshops and presales support provided by ISICC SAP/z Team

Customer briefings: Running SAP on System z and IBM Storage   (1/2 to 2 days)

- Demonstrate and proof IBM and SAP close collaboration
- Reviewing SAP infrastructure requirements – strength and weakness assessments
- Understanding distributed solutions for SAP infrastructure
- Understanding System z "fit for purpose" for SAP
- Assessing system integration requirements
- Meet the SAP developers
- Overview of sizing activities, inputs, and outputs
- Revisit reference implementations

- SAP consolidation, Highly Available & Disaster Recovery architectures
- High level architecture design, database design considersations
- Assessing storage solutions and implementations
- Understanding IBM software solutions for SAP on z
- Understanding SAP/z Solution Edition and DB2 OEM offerings
- Continuous Availability Demonstration – planned and unplanned

SAP Infrastructure Solutions - Customer Workshop (1 to 3 days)

- Business requirement definition, Promote to production
- Lifecycle and user definitions, user groups and workload type and distribution
- Operations mode (normal and DR) definition and assessments
- CEC/System, LPAR, and DB member definition
- Application server and SCS/ASCS definition, layout

- Storage, data backup and shared file system definition
- System automation, monitoring, workload management
- Security considerations & design
- Migration considerations
- Experts from SAP and IBM attending

Solution References

- Build and provide reference stories
- brief solution analysts

- manage reference contacts or visits

… find more details on http://w3.tap.ibm.com/w3ki2/display/isicc/Home

Who are our customers?

- The world's largest oil company runs SAP on System z

- One of the world's largest airlines runs SAP on System z

- One of the world's top ten utility company runs SAP on System z

- World's largest home improvement specialty retailer runs SAP on System z

- The second largest retailer in the United States runs SAP on System z

- One of the largest employers in the United States run SAP on System z for its HR system

- One of the world's largest beverage company runs SAP on System z

- One of Europe's largest insurance company runs SAP on System z

- World's largest industrial gas provider runs SAP on System z

- One of the world's largest manufacturer of packaging products runs SAP on System z

- One of the world's largest manufacturer of farm equipment runs SAP on System z

- One of the world's largest chemical companies run SAP on System z

- Three of the world's largest banks run SAP on System z
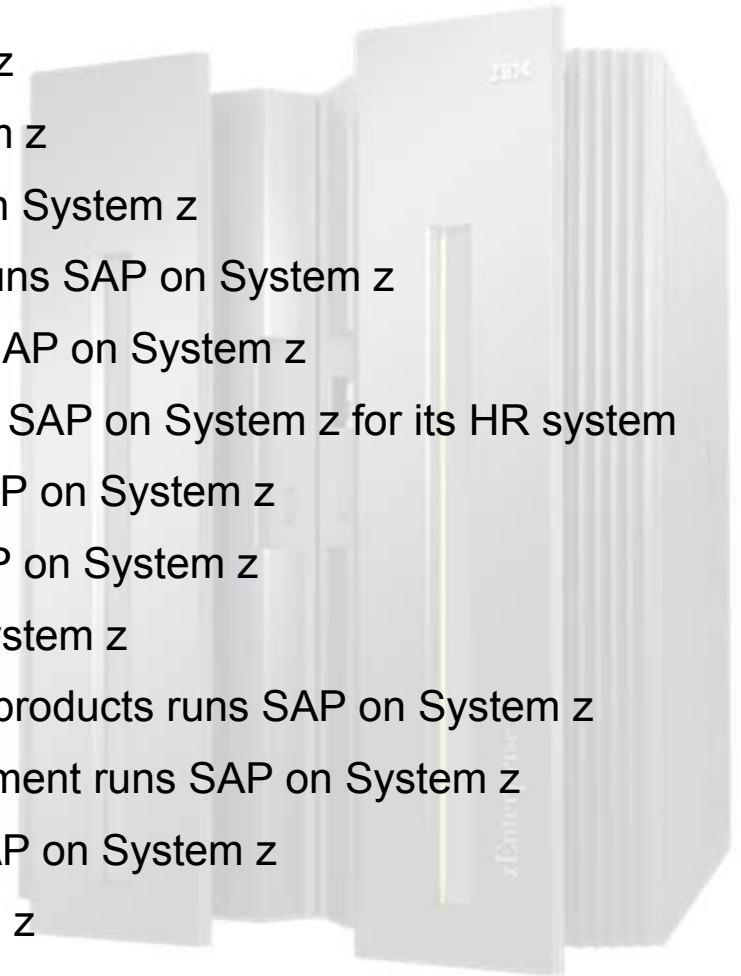
SAP References on Demand

SAP References On Demand
Please select your search criterias.

KMD	Communications	Computer Services	NE IOT	Denmark
Komatsu Ltd.	Industrial	Construction	GMU	Japan
Kommunale Datenverarbeitung Region Stuttgart Zweckverband / Rechenzentrum Region Stuttgart GmbH	Public	Government	NE IOT	Germany
Metro Inc. Technical Paper	Distribution	Retail	NA IOT	Canada
Nationwide Building Society	Financial Services	Financial Markets	NE IOT	UK
Postbank AG	Financial Services	Banking	NE IOT	Germany
Progress Energy	Communications	Energy & Utilities	NA IOT	USA
ProQuest Dialog	Communications	Media & Entertainment	NA IOT	USA
Retail Trilogy	Distribution	Retail	NE IOT	Germany
SAP for Automotive PoC				
Schwenk Zement AG	Industrial	Construction / Architecture / Engineering	NE IOT	Germany
Shikoku Electric Power Co., Inc.	Communications	Energy & Utilities	JAP	Japan
University of Arkansas	Public	Education	NA IOT	USA
University of Arkansas	Public	Education	NA IOT	USA
Versorgungsanstalt des Bundes und der Länder	Public	Government	NE IOT	Germany
Whirlpool (2008)	Distribution	Consumer Products	NA IOT	USA
Whirlpool (2010)	Industrial	Industrial Products	NA IOT	USA
Zaklad Ubezpieczen Spolecznych	Public	Government	GMU	Poland
Zürcher Kantonalbank	Financial Services	Banking	NE IOT	Switzerland

HELP:
Click on he
Disable

Custome
-- Any --

IBM sect
-- Any Sector
Communicat
Distribution
Financial Se
Industrial
Public
Services

Use Ctrl+left

48 result(s) found

http://ehngsa.ibm.com/gsa/ehngsa/home/s/r/srod/web/public/SROD-online/workbook.html
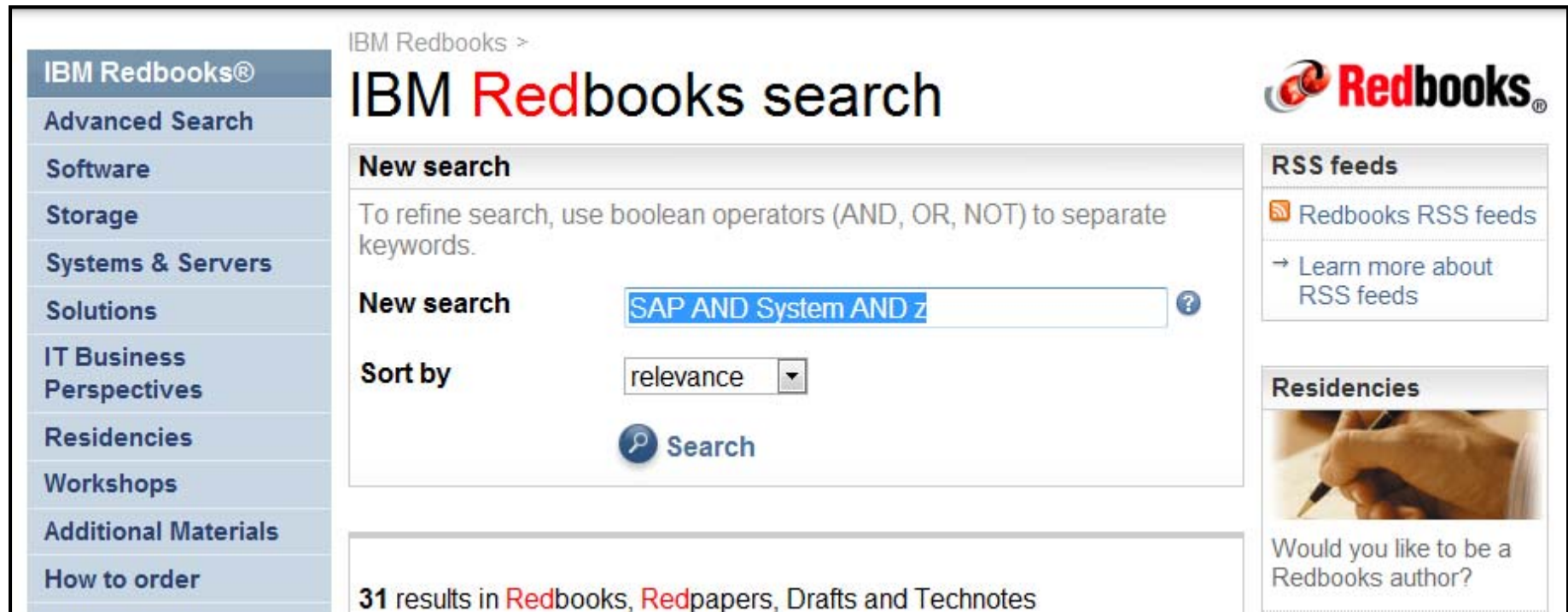
SAP/z Redbooks and Documentation

Two technical documents from 2010 (one from IBM, one from SAP)

- Business Continuity for SAP on IBM System z, SC33-8206-03
  http://publibfp.dhe.ibm.com/epubs/pdf/iapacs03.pdf

- Implementing High Availability for SAP NetWeaver 7.1 Technology on System z
  http://www.sdn.sap.com/irj/sdn/db2?rid=/library/uuid/d0935882-878a-2c10-3b80-e4def4262679

Numerous Redbooks available on http://www.redbooks.ibm.com

© 2012 IBM Corporation

New case studies in 2011 for SAP on IBM System z

- Aug 2011 Eletrobras Termonuclear SA solves company fusion challenges with SAP and IBM

  http://www.ibm.com/common/ssi/cgi-bin/ssialias?subtype=AB&infotype=PM&appname=SNDE_SP_SP_BREN&htmlfid=SPC03345BREN&attachment=SPC03345BREN.PDF

- June 2011 Sony Europe maximizes availability for SAP applications with IBM System z, Power Systems and DB2

  http://w3-01.ibm.com/sales/ssi/cgi-bin/ssialias?infotype=RF&subtype=CS&htmlfid=STRD-8JBKHV&appname=crmd

- June 2011 Endress+Hauser maximizes availability and resiliency with Linux on System z

  http://www-01.ibm.com/software/success/cssdb.nsf/cs/ARBN-8J8NYJ?OpenDocument&Site=corp&ref=crdb

- May 2011 Banco Pastor slashes costs and boosts efficiency with SAP and IBM

  http://www.ibm.com/software/success/cssdb.nsf/cs/STRD-8GZF32?OpenDocument&Site=corp&ref=crdb

- May 2011 El Corte Ingles, Spain, Retail

  http://w3-01.ibm.com/sales/ssi/cgi-bin/ssialias?infotype=CR&subtype=NA&htmlfid=0CRDD-8GSE5S&appname=crmd

- June 2011 New York City Police Department, US, Government

  http://w3-01.ibm.com/sales/ssi/cgi-bin/ssialias?infotype=CR&subtype=NA&htmlfid=0GNCS-842RHW&appname=crmd
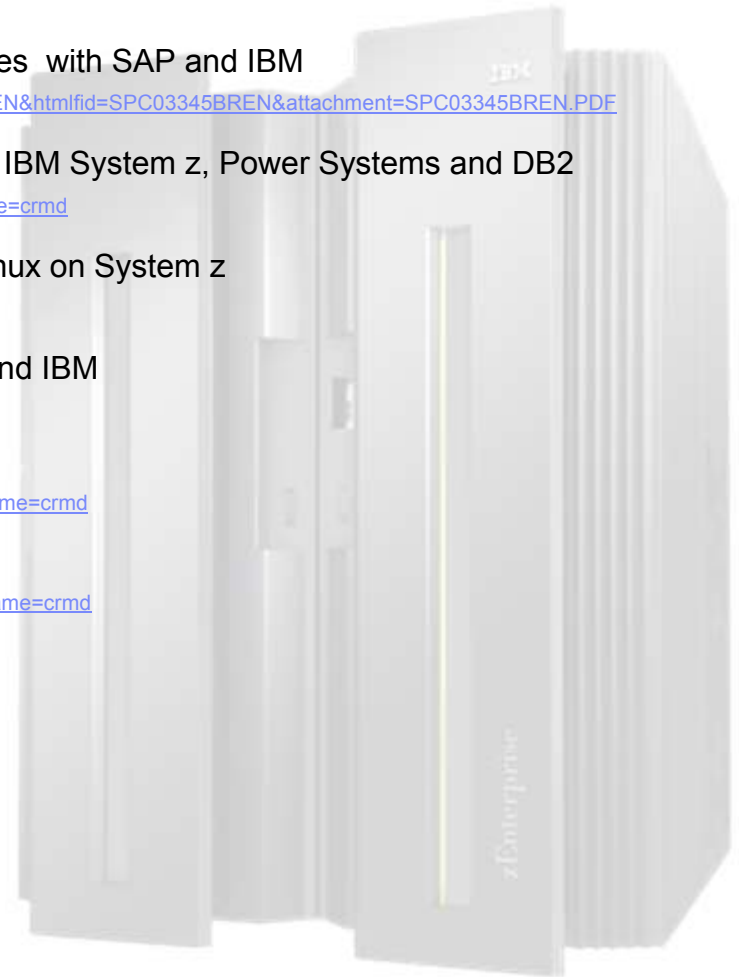
SAP/z Case Studies

- SCHWENK Zement builds its future with SAP applications, IBM DB2 and IBM System z (published 11/09/2010)
  http://www.ibm.com/software/success/cssdb.nsf/CS/STRD-8AZLRA?OpenDocument&Site=gicss67sap&cty=en_us

- Shikoku Electric powers up with IBM System z9 solution (published 05/28/2010)
  http://www.ibm.com/software/success/cssdb.nsf/CS/DLAS-84RPFX?OpenDocument&Site=gicss67sap&cty=en_us

- KDRS/RZRS boosts client service with SAP ERP on IBM Systems (published 04/29/2010)
  http://www.ibm.com/software/success/cssdb.nsf/CS/STRD-84WDBN?OpenDocument&Site=gicss67sap&cty=en_us

- Baldor consolidates hundreds of servers and cuts IT and energy cost (published 03/10/2010)
  http://www.ibm.com/software/success/cssdb.nsf/CS/STRD-83LL69?OpenDocument&Site=gicss67sap&cty=en_us

- BCBS Minnesota achieves a significant TCO reduction by virtualizing SAP applications on IBM System z (published 01/11/2010)
  http://www.ibm.com/software/success/cssdb.nsf/CS/STRD-7ZGH73?OpenDocument&Site=gicss67sap&cty=en_us

- University of Arkansas creates new learning with SAP and IBM (published 08/07/2009)
  http://www.ibm.com/software/success/cssdb.nsf/cs/STRD-7UPJCV?OpenDocument&Site=gicss67sap&cty=en_us

- gkd-el achieves 30 percent TCO reduction by migrating its SAP systems to IBM System z10 (published 06/04/2009)
  http://www.ibm.com/software/success/cssdb.nsf/CS/STRD-7S2G54?OpenDocument&Site=gicss67sap&cty=en_us

- gkd-el boosts SAP system throughput by 270% and cuts costs by 30% by migrating SAP solutions to IBM System z10 Enterprise Class (published 01/23/2009; validated 07/05/2010)
  http://www.ibm.com/software/success/cssdb.nsf/CS/STRD-7NKMWM?OpenDocument&Site=gicss67sap&cty=en_us

- Belarusian Railways transforms operations and reporting with SAP and IBM (published 01/07/2009; validated 07/05/2010)
  http://www.ibm.com/software/success/cssdb.nsf/cs/STRD-7N3KZD?OpenDocument&Site=gicss67sap&cty=en_us

- Harnessing the power of IBM System z and SAP for Retail at dm-drogerie markt (published 01/07/2009; validated 07/05/2010)
  http://www.ibm.com/software/success/cssdb.nsf/cs/STRD-7N3MDK?OpenDocument&Site=gicss67sap&cty=en_us

- Beiersdorf cuts costs and boosts resilience with IBM System z and DB2 for SAP software (published 05/10/2007; validated 06/09/2010)
  http://www.ibm.com/software/success/cssdb.nsf/CS/STRD-732LCV?OpenDocument&Site=gicss67sap&cty=en_us

- Postbank Systems "bullet-proofs" its business resilience with IBM and SAP (published 05/23/2005; validated 07/13/2009)
  http://www.ibm.com/software/success/cssdb.nsf/CS/DNSD-6C4MM9?OpenDocument&Site=gicss67sap&cty=en_us

Articles and case studies published by others

- Kärcher - Complete SAP NetWeaver Business Warehouse Upgrade in Eight Weeks (February 2010)
  https://websmp204.sap-ag.de/~sapidp/011000358700000162292010E

- Gruppo API Consolidates Distributed Platforms to System z10 (March 18, 2010)
  http://www.mainframezone.com/it-management/Interviews/gruppo-api-consolidates-distributed-platforms-to-system-z10

- BANCO PASTOR REDUCES COSTS AND IMPROVES SCALABILITY WITH RED HAT, SAP®, AND IBM SOLUTIONS
  http://rhcustomers.files.wordpress.com/2009/10/red-hat-case-study_banco-pastor.pdf or http://customers.redhat.com/?s=pastor

- SAP on Linux on a Mainframe! The Colacem Case Study. Case Study by Clabby Analytics (Published 01/26/2009; validated 07/05/2010)
  http://www.clabbyanalytics.com/uploads/Colacem_Case_Study_Final_Final.pdf

- Baldor's System z "1%" Solution. Case Study by Clabby Analytics (03-2009)
  http://www.clabbyanalytics.com/uploads/BaldorFINAL.pdf

Additional Resources

- IBM/SAP International Competency Center (ISICC): http://www.ibm.com/solutions/sap

- IBM ATS Sizing Group: http://www.ibm.com/support/techdocs/atsmastr.nsf/PubAllNum/PRS261

- IBM Insight for SAP: http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS381

- IBM System z for SAP: http://www.ibm.com/servers/eserver/zseries/software/sap/

- Solution Edition for SAP: http://www.ibm.com/systems/z/solutions/editions/sapapp/index.html

- Solution Edition for Enterprise Linux: http://www.ibm.com/systems/z/solutions/editions/linux.html

- IBM Redbooks search page: http://www.redbooks.ibm.com/

- IBM Redbooks for SAP on System z: http://www.redbooks.ibm.com/cgi-bin/searchsite.cgi?query=sap+and+"system+z"&SearchOrder=1&SearchFuzzy=FALSE

- IBM Techdocs search page: http://www.ibm.com/systems/migration-capabilities.html

- Accelerating Deposits Management with SDD: http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101442

- Migrating to IBM Systems: http://www.ibm.com/systems/migration-capabilities.html

The Analysts on System z Cost and Value

Recent Analysts Studies

Batwick Group: SAP Consolidation - Improving reliability, performance and agility

- Bathwick Group analyst Gary Barnett published a new white paper that describes how companies have chosen IBM System z to consolidate their SAP landscapes into a single environment and the reliability, performance, agility and cost-reduction benefits they've gained as a result. The paper features several client examples and concludes:

  "If your business relies on SAP, it's essential that you ensure that your SAP infrastructure delivers reliability and flexibility, ideally at the lowest cost possible. While recently it has been conventional wisdom to rely on horizontal scaling using racks of blades and technologies like VMware to deliver SAP, it's important to note that you now have a choice when it comes to consolidating and simplifying your infrastructure. IBM's zEnterprise platform offers you a choice, and has proven to be the right choice for a number of organizations.„

Josh Krisher: IBM zEnterprise Opens New Horizons for SAP Customers

- Analyst Josh Krischer published a white paper that outlines the reasons IBM zEnterprise is an ideal platform for organizations of all sizes looking to simplify management and reduce costs by consolidating their SAP infrastructures. The paper concludes:

  "SAP ERP on System z has always been a solid enterprise platform; however, the zEnterprise platform now adds even more reasons to consider this option. zEnterprise raises the bar by offering an integrated system for heterogeneous hardware, as well as software platforms that address the major infrastructure requirements of businesses looking for security, business continuity, and performance. Practically any SAP application can run on a single zEnterprise system. The various blade technologies offer flexibility in selecting options for web applications. The Unified Resource Manager acts as a central point of control – a centralized governance system that can manage an underlying z/OS, Linux on System z, AIX on POWER, or Linux and Windows on System x under a single-management umbrella, thus simplifying system management at lower management costs. The dedicated private network eliminates the needs for external, security-vulnerable connections, reduces the number of hops, reduces latency, and eliminates the need for inter-platform encryption."

© 2012 IBM Corporation

What Analysts write on IBM System z Value – Sources (page 1/2)

TBR (Technology Business Research), 04/2011: IBM System z is remaking the mainframe, broadening its appeal in cloud and analytics

http://tbrnewscommentary.wordpress.com/2011/04/01/ibm-system-z-is-remaking-the-mainframe-broadening-its-appeal-in-cloud-and-analytics/

MainframeZone.com, 03/2011: CIO Perspective: The Value of the IBM zEnterprise System

http://www.mainframezone.com/it-management/management-insight/cio-perspective-the-value-of-the-ibm-zenterprise-system/print

Triton Consulting, 10/2010: DB2 10 for z/OS - A Smarter Database for a Smarter Planet
https://www14.software.ibm.com/webapp/iwm/web/signup.do?lang=en_US&source=sw-infomgt&S_PKG=wp-z-db2-smarter

Clipper Group, 09/2010:   zEnterprise Breaks Through Pricing Barriers — Big Rewards Will Promote Growth

http://www.clipper.com/research/TCG2010041.pdf

Software Strategies, 07/2010:   New IBM zEnterprise™ System Redefines Enterprise Computing – System-of-Systems Flagship Adds New Dimension

http://public.dhe.ibm.com/common/ssi/ecm/en/zsl03106usen/ZSL03106USEN.PDF

Clabby Analytics, 10/2010:   Swiss Re: A Strong Focus on Business Process Flow and Workload Optimization

http://www.clabbyanalytics.com/uploads/SwissRe_Final.pdf

ITG Management Brief, 05/2010: BUSINESS CASE FOR IBM SYSTEM Z. Bottom-Line Impact of Availability and Recovery for SAP Enterprise Systems

http://www.ibm.com/common/ssi/cgi-bin/ssialias?infotype=SA&subtype=WH&appname=STGE_ZS_ZS_USEN&htmlfid=ZSW03183USEN&attachment=ZSW03183USEN.PDF

ITG Executive Summary, 05/2010: BUSINESS CASE FOR IBM SYSTEM Z. Bottom-Line Impact of Availability and Recovery for SAP Enterprise Systems

http://www.ibm.com/common/ssi/cgi-bin/ssialias?infotype=PM&subtype=XB&appname=STGE_ZS_ZS_USEN&htmlfid=ZSE03004USEN&attachment=ZSE03004USEN.PDF

What Analysts write on IBM System z Value – Sources (page 2/2)

ITG Management Brief, 05/2010: VALUE PROPOSITION FOR IBM SYSTEM Z. SAP Enterprise Deployments

in the Public Sector

http://www.ibm.com/common/ssi/cgi-bin/ssialias?infotype=SA&subtype=WH+F6&appname=STGE_ZS_ZS_USEN&htmlfid=ZSW03182USEN&attachment=ZSW03182USEN.PDF

ITG Executive Summary, 05/2010: VALUE PROPOSITION FOR IBM SYSTEM Z. SAP Enterprise Deployments

in the Public Sector

http://www.ibm.com/common/ssi/cgi-bin/ssialias?infotype=PM&subtype=XB&appname=STGE_ZS_ZS_USEN&htmlfid=ZSE03003USEN&attachment=ZSE03003USEN.PDF

Josh Krischer & Associates GmbH, 07/2009:   SAP ERP on System z – state-of-the-art business resilience with the highest level of security

http://www.joshkrischer.com/files/SAP_on_System_z.pdf

Clabby Analytics, 07/2009:   Are You Considering Migrating Away From Your Sun Server

http://www.clabbyanalytics.com/uploads/Sun_to_Mainframe_Rev_2.pdf

Clabby Analytics, 04/2009:   Baldor's System z 1%" Solution

http://www.clabbyanalytics.com/uploads/BaldorFINAL.pdf

DataDirect Technologies, 03/2009:   Lowering Mainframe TCO through zIIP Specialty Engine Exploitation

http://www.cnetdirectintl.com/direct/fr/2009/progress/0909_centreressources_sp/ressources_sp/1006/shadow/whitepaper_TCO_zIIPExploitationBenchmarks.pdf

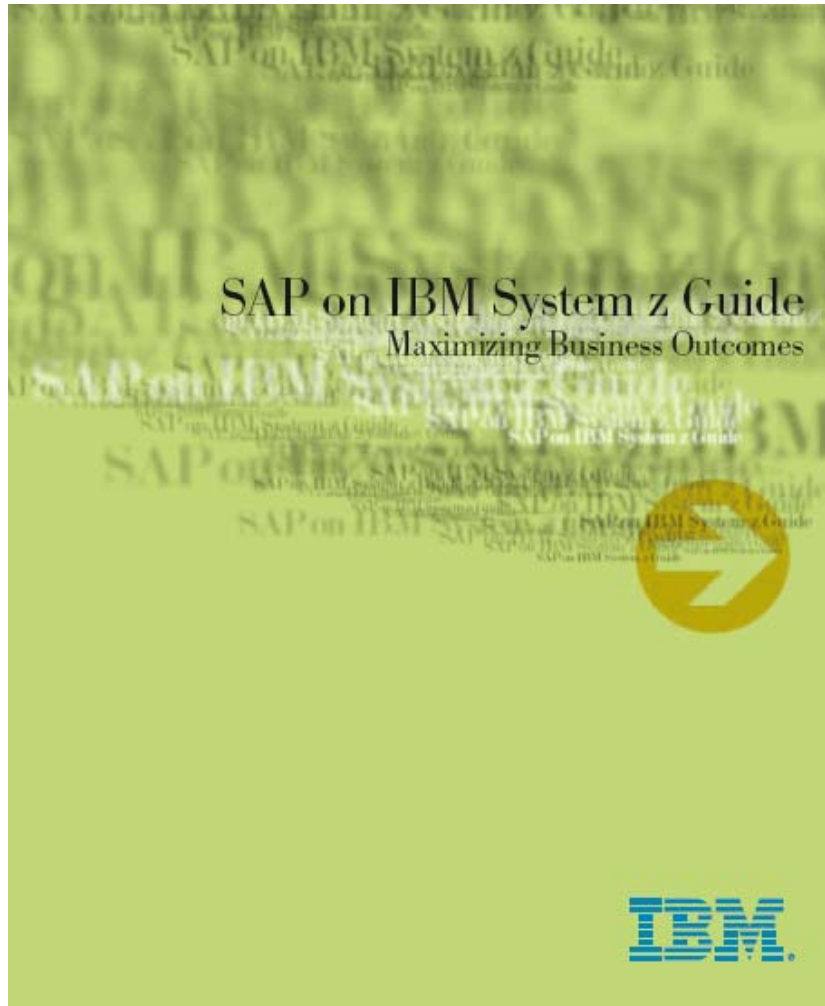Winter Corporation, 07/2008:   Large-Scale Testing of the SAP NetWeaver BI Accelerator on an IBM Platform

ftp://ftp.software.ibm.com/common/ssi/sa/wh/n/spw03004usen/SPW03004USEN.PDF

Wintergreen Research, 2007.   Mainframe As A Green Machine -- And More. ROI -- 2007 to 2013

ftp://ftp.software.ibm.com/systems/z/pdf/Mainframe_vs._Distributed_2007_all.pdf

SAP on System z Guide Book

Brand new document

Value Proposition
Reference Customers
Reference Architecture
DB2 for z/OS Optimized for SAP
Joint Solutions

Find out how combining the IBM System z portfolio with offerings from SAP enhances operating dexterity, and how IBM zEnterprise System with its unique "fit for purpose" flexibility provides even more value for SAP applications in a multi-platform environment that can be managed E2Eas a single system.

Order free copies of "SAP on IBM System z Guide. Maximizing Business Outcomes" at:
http://www.ibm-sap.com/mentorsystemz

© 2012 IBM Corporation

Retail Trilogy

A joint IBM and SAP project to fuse function and infrastructure

The Retail Trilogy Project provides comprehensive IT information to optimize retailers' investment in SAP for Retail running on IBM platforms.

High-volume point-of-sale (POS) data, combined with the need to turn transaction data into actionable business information, represents a continuing challenge for retailers of all sizes. This challenge demands extreme performance and scalability from the supporting software applications and IT infrastructure. And retailers want reassurance that their infrastructure and applications will interface smoothly to best meet their

These results were accomplished with real-world retail scenarios, using only immediately available and fully supported elements of the SAP and IBM solutions for retail.

The project focused on three solutions—the Retail Trilogy—that address time-critical and scalability concerns for retailers. The Retail Trilogy includes:

We're here to help

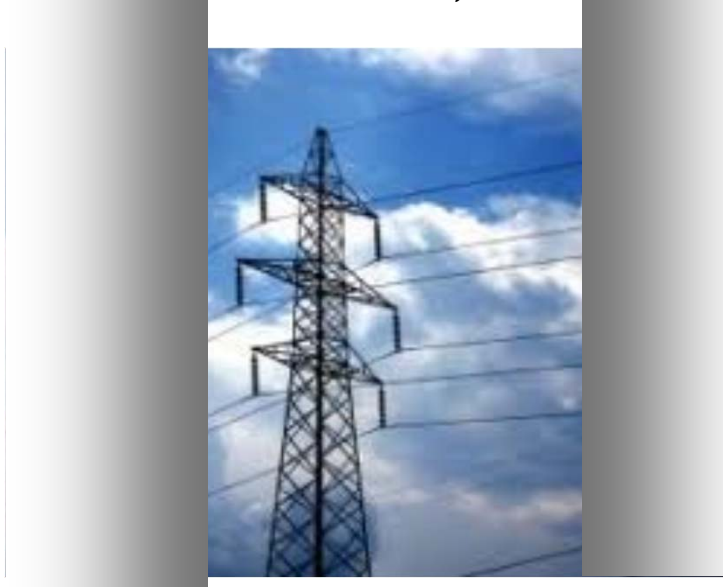Questions? Contact an IBM-SAP specialist.

E-mail IBM

Retail Trilogy video

Watch the short video to hear from members of the project team.

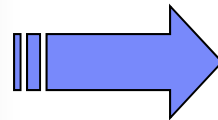- http://www.ibm.com/solutions/sap/us/en/solution/Y067170X54924F07.html

Italian Utility Company Using SAP

The Current: z10 + p595 AIX for SAP Central Instance and Application Servers, with DB2 for z/OS database, 60K bills per hour
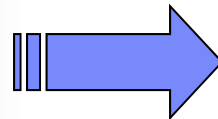
Client Requirement

- *Achieve 200K bills per hour*

Provide up-to-date technology
  - z196+ p770

✓ Results: achieved **250K** bills per hour

✓ **300+%** improvement

Provide hybrid technology
  - z196+ zBX

✓ Results: achieved **430K** bills per hour

✓ **600+%** improvement

Hybrid Computing Benefits:

✓ Over **600%** improvement in current configuration
✓ Hardware setup: implementation of zBX Power Blades in only **2 days**
✓ Very good linear **scalability** either on scale-up for DB2 on z, or scale out on pBlades on zBX
✓ **Low latency** due to the dedicated IEDN network

SAP Core Banking Benchmark

Internal IBM ONLY Distribution

IBM Sets World Record Running SAP Banking Solution on zEnterprise with DB2 10: 150 Million accounts!

IBM has announced a new world record result in running SAP Banking on IBM zEnterprise™ System with DB2® 10 for z/OS®. The outcome of the benchmark underlines that the zEnterprise is the most scalable mainframe ever, and the most appropriate platform for large enterprises. A core bank system with 150 million banking accounts, based on SAP for Banking 7.0, reached record results with typical workload for both day and night processing scenarios:

- Day processing (online usage that generally occurs during the daytime) achieved throughput of more than 59 million account postings per hour
- Night processing (account balancing that generally occurs overnight in batch mode) settled more than 37 million accounts per hour balanced in night processing scenarios.

Benchmark Summary: http://www.ibm.com/solutions/sap/us/en/news/

Announcement Support and Resources:
Benchmark marketing resources are being developed. Stay tuned for:

- SAP Radio Webcast - Date TBD. Join this webcast **(to be scheduled at the end of October)** to get the information you need to discuss the benchmark results and what they mean for your Banking Clients. Speakers: David Zimmerman, Global Solutions Executive, IBM Global Banking, IBM Sales & Distribution, Finance Sector and Dr. Paul Lekkas, Distinguished Engineer; zSeries performance and capacity planing IBM Sales & Distribution.

- IBM SAP Core Banking Sales Kit (internal and available now -- benchmark results to be added shortly)

- IBM 150 Million SAP Banking Solution Benchmark Solution Brief (external)

World record running SAP banking solution on zEnterprise with DB2 10

[Huge SAP database load of 150 million accounts **and based on SAP for Banking 7.0]**

Day processing **achieved throughput of more than 3X** the number of account postings per hour than prior capabilities.

Night processing **settled more than 3X** the number of accounts balanced per hour than prior capabilities.

zEnterprise is the ideal platform for handling scalability with ease.

INFRASTRUCTURE:

SOONER OR LATER,

IT MATTERS.

धन्यवाद
Hindi

Dank Je Wel
Dutch

Спасибо
Russian

谢谢
Simplified Chinese

תּוֹדָה רַבָּה
Hebrew

ありがとう
Hiragana Japanese

Cám ơn
Vietnam

Siyabonga
Zulu

متشكر
Arabic

Gracias
Spanish

Thank You
English

Dankie
Afrikaans

有り難う
Kanji Japanese

Dziekuje
Polish

Kærar þakkir
Icelandic

감사합니다
Korean

Obrigado
Brazilian Portuguese

Merci
French

Danke
German

多謝
Taiwanese

謝謝
Traditional Chinese

Kiitos
Finish

Tak
Danish / Norwegian

多謝
Cantonese

Tack Så Mycket
Swedish

Grazie
Italian

நன்றி
Tamil

عزيزم
Farsi

Köszi Szépen
Hungarian

ขอบคุณ
Thai

Diolch
Welsh

Mike Mardis
IBM System z
SAP Technical Architect
Advanced Technical Skills
TSS Worldwide

Atlanta, GA
USA

Tel +1 404 487 2227
Fax +1 404 487 2227
Mobile +1 404 487 2227
mardis@us.ibm.com

zEnterprise

zEnd!

Trademarks

The following are trademarks of the International Business Machines Corporation in the United States and/or other countries.

IBM*	System z
IBM logo*	System 9*
DB2*	System z10
FICON*	z9
GDPS*	z10
HiperSockets	z/OS*
Parallel Sysplex*	z/VM*
RACF*	z/VSE

* Registered trademarks of IBM Corporation

The following are trademarks or registered trademarks of other companies.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency, which is now part of the Office of Government Commerce.

* All other products may be trademarks or registered trademarks of their respective companies.

Notes:

Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries, and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Prices subject to change without notice. Contact your IBM representative or Business Partner for the most current pricing in your geography.

Special notices

This document was developed for IBM offerings in the United States as of the date of publication. IBM may not make these offerings available in other countries, and the information is subject to change without notice. Consult your local IBM business contact for information on the IBM offerings available in your area.

Information in this document concerning non-IBM products was obtained from the suppliers of these products or other public sources. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. Send license inquires, in writing, to IBM Director of Licensing, IBM Corporation, New Castle Drive, Armonk, NY 10504-1785 USA.

All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

The information contained in this document has not been submitted to any formal IBM test and is provided "AS IS" with no warranties or guarantees either expressed or implied.

All examples cited or described in this document are presented as illustrations of the manner in which some IBM products can be used and the results that may be achieved. Actual environmental costs and performance characteristics will vary depending on individual client configurations and conditions.

IBM Global Financing offerings are provided through IBM Credit Corporation in the United States and other IBM subsidiaries and divisions worldwide to qualified commercial and government clients. Rates are based on a client's credit rating, financing terms, offering type, equipment type and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension or withdrawal without notice.

IBM is not responsible for printing errors in this document that result in pricing or information inaccuracies.

All prices shown are IBM's United States suggested list prices and are subject to change without notice; reseller prices may vary.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

Many of the pSeries features described in this document are operating system dependent and may not be available on Linux. For more information, please check: http://www.ibm.com/servers/eserver/pseries/linux/whitepapers/linux_pseries.html.

Any performance data contained in this document was determined in a controlled environment. Actual results may vary significantly and are dependent on many factors including system hardware configuration and software design and configuration. Some measurements quoted in this document may have been made on development-level systems. There is no guarantee these measurements will be the same on generally-available systems. Some measurements quoted in this document may have been estimated through extrapolation. Users of this document should verify the applicable data for their specific environment.

Revised February 6, 2004

© 2012 IBM Corporation

Special notices (cont.)

The following terms are registered trademarks of International Business Machines Corporation in the United States and/or other countries: AIX, AIX/L, AIX/L(logo), alphaWorks, AS/400, Blue Gene, Blue Lightning, C Set++, CICS, CICS/6000, CT/2, DataHub, DataJoiner, DB2, DEEP BLUE, developerWorks, DFDSM, DirectTalk, DYNIX, DYNIX/ptx, e business(logo), e(logo)business, e(logo)server, Enterprise Storage Server, ESCON, FlashCopy, GDDM, IBM, IBM(logo), ibm.com, IBM TotalStorage Proven, IntelliStation, IQ-Link, LANStreamer, LoadLeveler, Lotus, Lotus Notes, Lotusphere, Magstar, MediaStreamer, Micro Channel, MQSeries, Net.Data, Netfinity, NetView, Network Station, Notes, NUMA-Q, Operating System/2, Operating System/400, OS/2, OS/390, OS/400, Parallel Sysplex, PartnerLink, PartnerWorld, POWERparallel, PowerPC, PowerPC(logo), Predictive Failure Analysis, pSeries, PTX, ptx/ADMIN, RISC System/6000, RS/6000, S/390, Scalable POWERparallel Systems, SecureWay, Sequent, ServerProven, SP1, SP2, SpaceBall, System/390, The Engines of e-business, THINK, ThinkPad, Tivoli, Tivoli(logo), Tivoli Management Environment, Tivoli Ready(logo), TME, TotalStorage, TURBOWAYS, VisualAge, WebSphere, xSeries, z/OS, zSeries.

The following terms are trademarks of International Business Machines Corporation in the United States and/or other countries: AIX/L(logo), AIX 5L, AIX PVMe, AS/400e, BladeCenter, Chipkill, Cloudscape, DB2 OLAP Server, DB2 Universal Database, DFDSM, DFSORT, Domino, e-business(logo), e-business on demand, eServer, GigaProcessor, HACMP, HACMP/6000, i5/OS, IBMLink, IBM Virtualization Engine, IMS, Intelligent Miner, iSeries, NUMACenter, POWER, POWER Hypervisor, Power Architecture, Power Everywhere, POWER Hypervisor, PowerPC Architecture, PowerPC 603, PowerPC 603e, PowerPC 604, PowerPC 750, POWER2, POWER2 Architecture, POWER3, POWER4, POWER4+, POWER5, POWER5+, POWER6, Redbooks, Sequent (logo), SequentLINK, Server Advantage, ServeRAID, Service Director, SmoothStart, SP, S/390 Parallel Enterprise Server, ThinkVision, Tivoli Enterprise, TME 10, TotalStorage Proven, Ultramedia, VideoCharger, Visualization Data Explorer, X-Architecture, z/Architecture.

A full list of U.S. trademarks owned by IBM may be found at: http://www.ibm.com/legal/copytrade.shtml.

UNIX is a registered trademark in the United States and other countries licensed exclusively through The Open Group.

Linux is a registered trademark of Linus Torvalds in the United States, other countries or both.

Microsoft, Windows, Windows NT and the Windows logo are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Intel, Itanium and Pentium are registered trademarks and Intel Xeon and MMX are trademarks of Intel Corporation in the United States and/or other countries

AMD Opteron ia a trademark of Advanced Micro Devices, Inc.

Java and all Java-based trademarks and logos are trademarks of Sun Microsystems, Inc. in the United States and/or other countries.   Revised June 10, 2004

Other company, product and service names may be trademarks or service marks of others.