

IBM Software

Business Analytics **Forum** 2010

See The Future Of Decision Making

November 3-5, 2010

Gold Coast – QLD – Australia

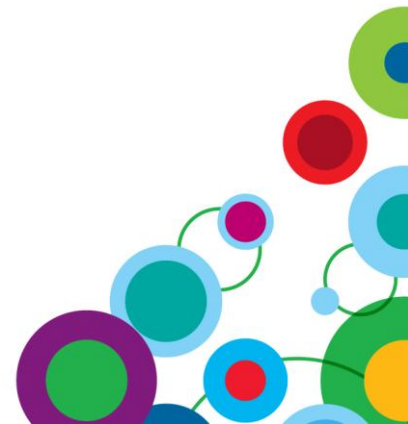
Leverage System z for Business Analytics

Nick Lancuba
APAC SWAT Team – BI
+ Tiger Team Z
Cognos Software





Agenda



Shifting Market Dynamics

- **Business Analytics: Strategic Asset/Mission Critical**
 - Broader, more intense users
 - High availability & performance expectations
 - Access to more data
- **Troubled economy**
 - Do more with less – business & IT
 - Economies of scale/consolidation
- **Corporate regulatory compliance driving security**
- **Environmental concerns**



IBM: 2009 CIO survey results

CIOs select their ten most important visionary plan elements

- **3/4 of CIOs anticipate moving to a strongly centralized, shared infrastructure to improve economies of scale**
- **83% say Business Intelligence & Analytics is their top focus area**



Business Analyticsall parts of the business need it!





Business Analytics....lots of users with different needs!

BUSINESS MANAGER

Fast access to relevant information to make better operational decisions

LINE MANAGER

Real-time monitoring to continuously adjust operations activities

EXECUTIVE

At-a-glance view of financial and operational performance

FINANCIAL & BUSINESS ANALYST

Free to explore and analyze, and assemble insight for others

EMPLOYEES

Receive scheduled, personalized content and subscribe to most relevant for their role

CUSTOMER & PARTNERS

Secure access to information over the web with no training



A full range of capabilities is needed for optimized decisions



Executive



Business Manager



Line Manager



Casual Business User



Business Analyst



Financial Analyst

How are we doing?

Why are we on/off track?

What should we do next?



Real-time or historical; operational or strategic

Guided or self-service access and exploration...

Foresight using Statistical, and Predictive Analytics...

Common Business Model



Message Sources



Relational Sources



Application Sources



OLAP Sources



Modern and Legacy Sources



Business Analytics

....Few are Satisfied Today!



Dashboards



Reporting



Analysis



Real-time Monitoring

The Voice of the Business
“Need to ensure smart business decisions”



Executive



IT



Business Manager



Architect



Casual Business User



Administrator

The Voice of IT
“Need to simplify the delivery, access & management of our expanding data infrastructure”



Application & Web Servers



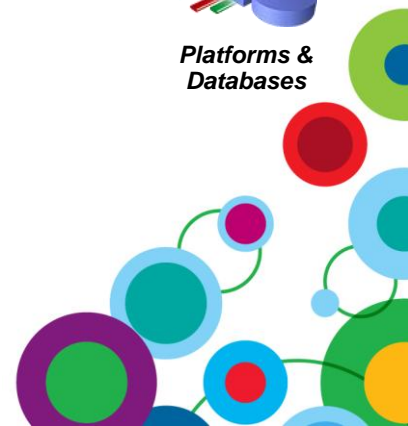
Data Integration & Data Quality Tools



Security Providers & Firewalls

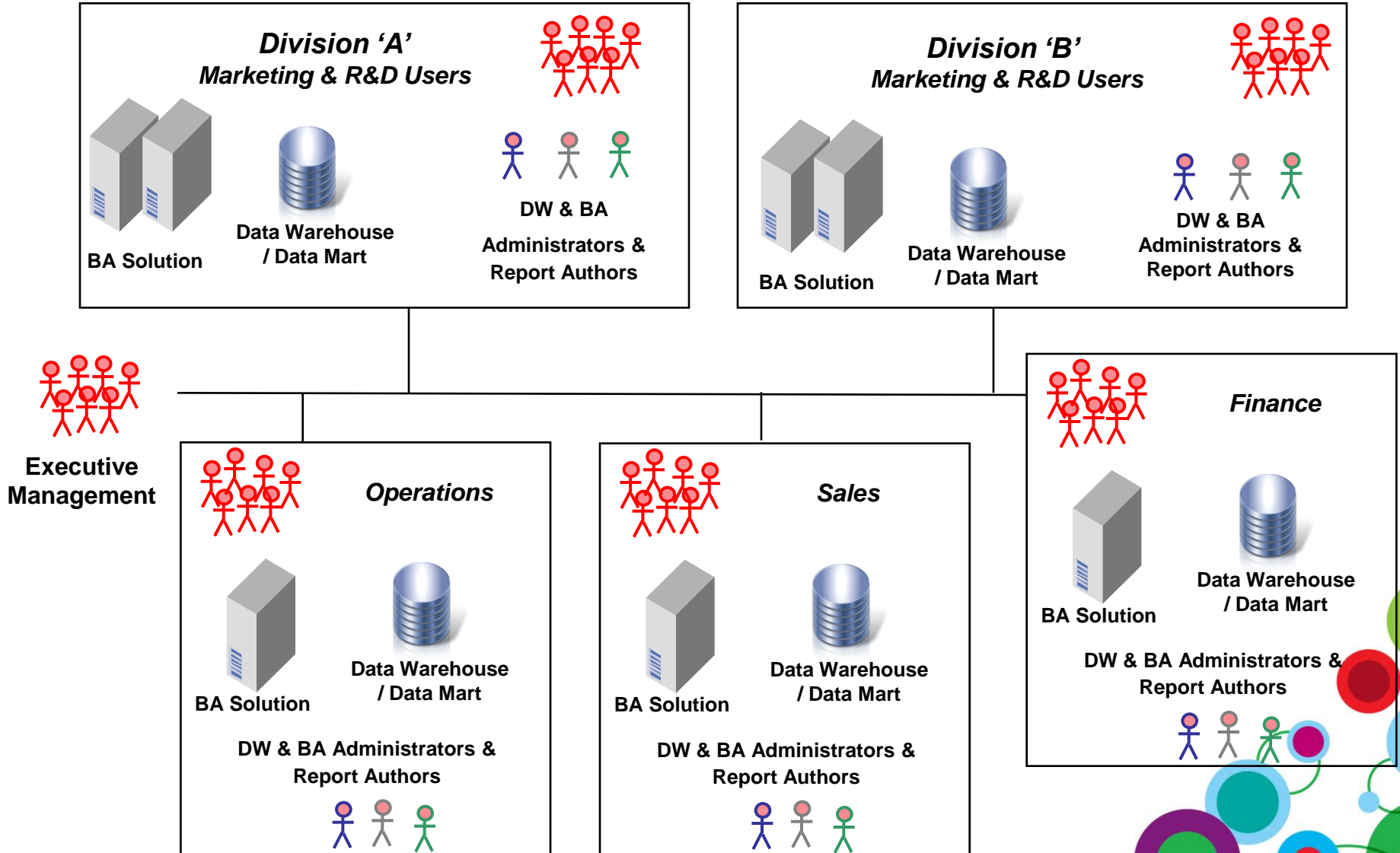


Platforms & Databases





Today's Traditional Business Analytics Infrastructure ...a Distributed approach





Challenges

Business Analytics

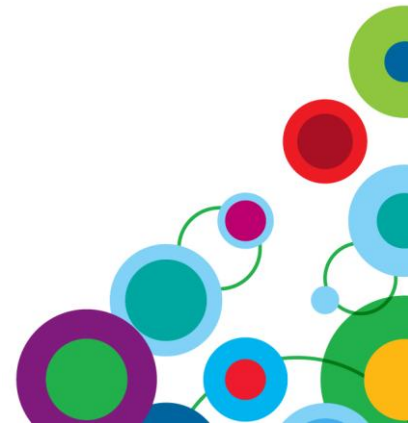
- Too many BA tools
- Disparate tools lack functionality
- Users need access to more data and different kinds of data (transactional & historical)
- Infrastructure costs are a barrier to entry
- System performance and availability not meeting expectation
- Information quality/security is in question
- Takes too long to deploy, access, and grow BA

Data Management

- Delay in accessing transactional data
- Queries taking too long to execute
- Difficult to manage expanding data sources and servers
- Server capacity not being maximized
- Data quality in question
- Minimal control over data access
- Increased risk as data is transferred from system to system
- Non-existent or inadequate disaster recovery plan due too high cost
- No economies of scale

The hidden costs of disappointed customers....

- *Disappointment = Reduced Usage =*
- *Underutilization of software investment &*
- *Unattained Business Advantages*



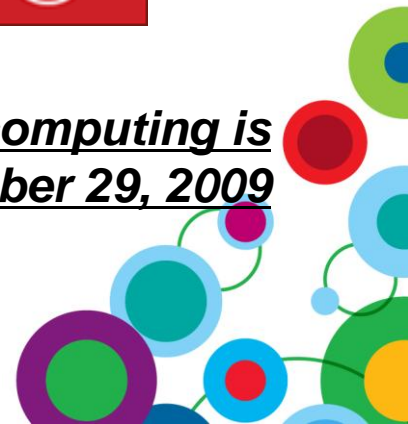


IBM System z...the platform for the future

"you cannot think seriously about your longer-term IT architecture without thinking equally seriously about what today's mainframe environment has to offer"



CIO Magazine: Mainframe computing is set for a rebirth – September 29, 2009



Customers Selected z to Meet These Critical Business Needs

High business growth



HIGH SCALABILITY

Continuous business operations



**HIGH AVAILABILITY
/RELIABILITY**

Flexibility and speed to respond



**EXTREME
VIRTUALIZATION**

Reduce business risk



SECURITY

**Green strategy
Energy and space**



EFFICIENCY

Secure Cloud Services



CLOUD



System z: The Right Infrastructure Choice for Business Analytics & Data Warehousing



Gives all decision makers complete, consistent, timely and relevant information



- ✓ *Fast access to transactional data to facilitate Operational BA*
- ✓ *Reduces data latency*
- ✓ *Provides a single version of the truth*
- ✓ *Offers SQL access to non relational source data*

Reduces IT cost and complexity



- ✓ *Centralizes resources / Minimizes data movement/duplication*
- ✓ *Reduces hardware, software and facilities*
- ✓ *Maximizes server capacity*
- ✓ *Offers greater economies of scale*

Ensures SLA are met with high user satisfaction and ROI



- ✓ *Unmatched system performance, reliability and security*
- ✓ *High availability (99.999% uptime)*
- ✓ *Accelerates performance for complex queries*

Simplifies deployment and growth of BA implementations



- ✓ *Reduces time, resource and cost of starting/expanding BA investment*
- ✓ *Automates and facilitates self-service provisioning*
- ✓ *Pre-integrated end to end DW and BA solution on a single platform*



Business Analytics OPTIONS

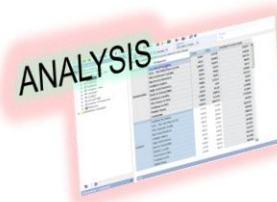
IBM Cognos Business Intelligence for Linux on System z

IBM Cognos Now! for Linux on System z

IBM SPSS for Linux on System z

IBM Business Analytics on System z

Meeting the needs of the Business and IT



*Real-time or historical;
operational or strategic*

*Guided or self-service
access and exploration...*

*Foresight using Statistical, Content,
and Predictive Analytics...*



Executive



**Business
Manager**



**Casual
Business User**



**Line
Manager**



**Business
Analyst**



**Financial
Analyst**

*Just in Time
Capacity*



*Fast Time
to Value*



*Mission
Critical*



*Reduced
Cost*



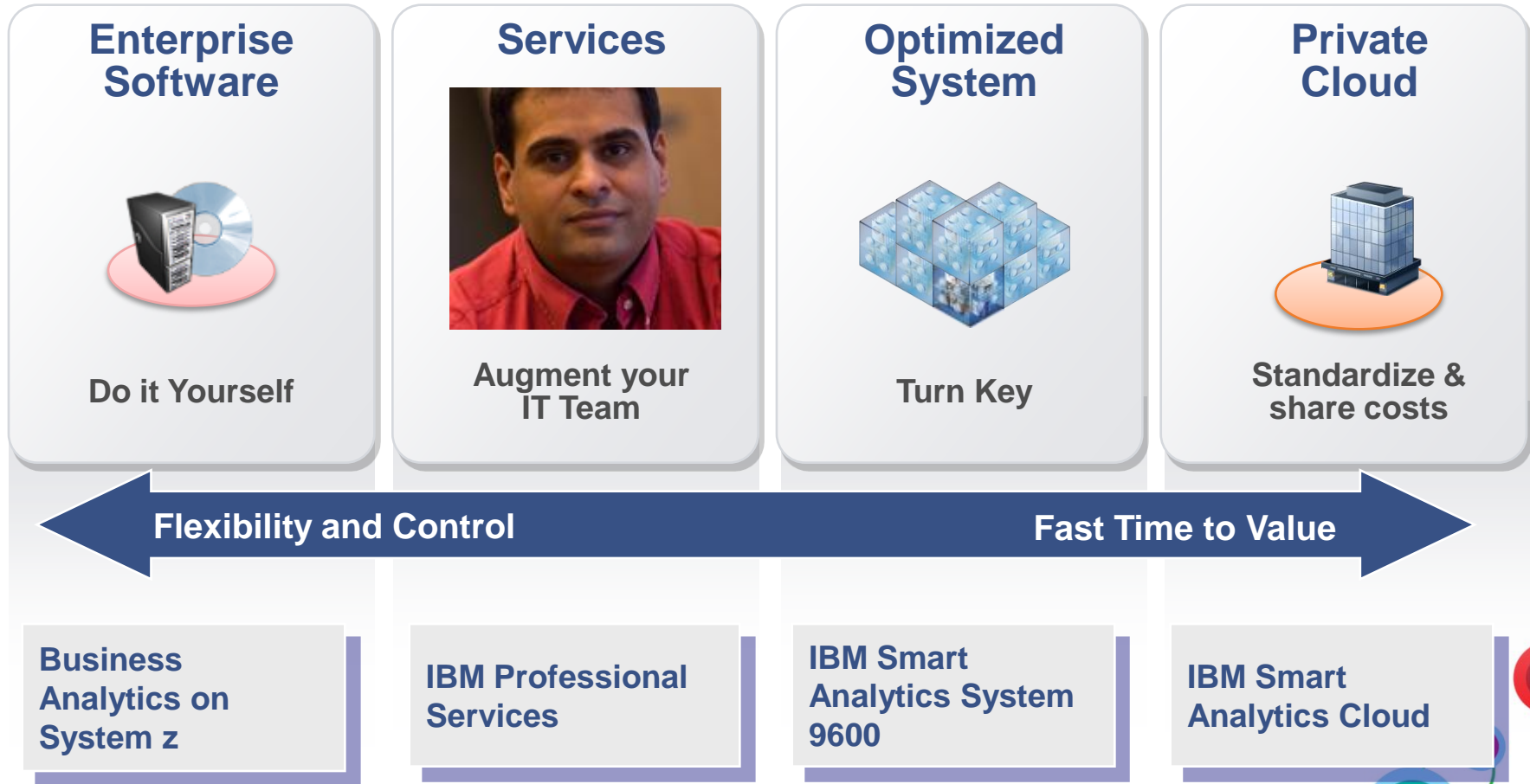
*Security &
Governance*



*Fast Access
to Data*



Flexible Deployment Options





Smart Analytics System 9600

High Value Dynamic Warehousing

System z



InfoSphere Warehouse



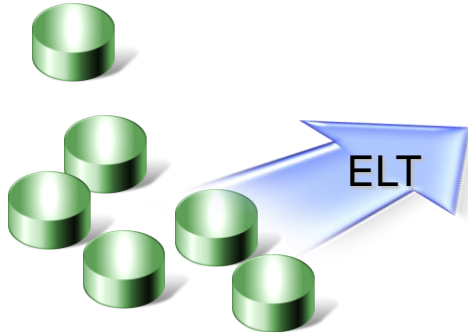
Cognos 8 BI



Cognos.
software



Implementation Services



ELT

Operational Source Systems
Structured/ Unstructured Data




**DB2 for z/OS VUE
(option for MLC)**

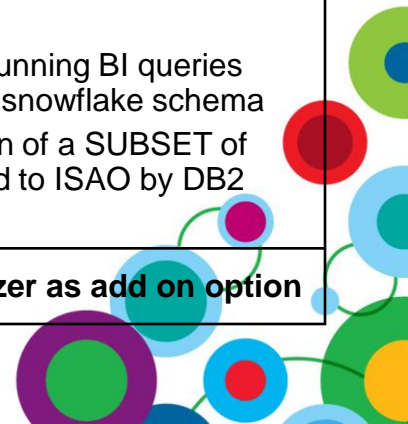
DB2 Utilities Suite





Comparing the Smart Analytics offerings in System z:

IBM Smart Analytics System 9600	IBM Smart Analytics Optimizer
 <p data-bbox="794 458 1248 529">Uses Services of Accelerator </p> <p data-bbox="131 591 311 615">GA June 2010</p>	 <p data-bbox="1025 591 1180 615">GA 4Q 2010</p>
<p data-bbox="144 662 929 729">Complete, end-to-end environment for BI workload Processes ALL queries submitted by end-users</p> <p data-bbox="144 748 297 776">Software:</p> <p data-bbox="204 796 890 862">Includes z/OS, DB2 for z/OS, Linux, InfoSphere Warehouse, Cognos, DB2 Connect</p> <p data-bbox="144 876 301 911">Supports:</p> <p data-bbox="204 925 838 1025">Data movement / ETL End user tools (Cognos) / BI queries/reports Data Storage (Data warehouse)</p> <p data-bbox="144 1043 923 1105">Runs in z/OS-DB2 LPAR, Linux for System z LPAR for Tooling</p> <p data-bbox="144 1125 807 1186">Is an all purpose environment to deploy any BI workload</p>	<p data-bbox="1025 648 1765 715">Workload optimized, appliance-like, add-on to a Data Warehouse on System z</p> <p data-bbox="1025 733 1779 801"><i>MUST connect TO a DB2 for z/OS environment that is running a BI workload</i></p> <p data-bbox="1025 811 1669 843">Will enhance a Smart Analytics System 9600</p> <p data-bbox="1025 858 1180 886">Software:</p> <p data-bbox="1074 901 1785 996">Includes ISAO software running on blades and connects to DB2 for z/OS to enable query routing to ISAO</p> <p data-bbox="1025 1011 1186 1043">Supports:</p> <p data-bbox="1074 1058 1792 1229">(Subset of) complex and long-running BI queries with access to data in a star or snowflake schema Order of magnitude acceleration of a SUBSET of queries that are selected/routed to ISAO by DB2 for z/OS</p>
<p data-bbox="123 1272 1827 1305">For acceleration of multidimensional star schema queries, use IBM Smart Analytics Optimizer as add on option</p>	





The Smart Analytics Cloud solution offering

Creates ...

That delivers ...

Smart Analytics Cloud

A private cloud within the enterprise

A solution for delivering business intelligence to the entire organization

The solution components ...

IBM software

Cognos 8 BI

A broad range of BI capabilities



Open, enterprise-class BI platform

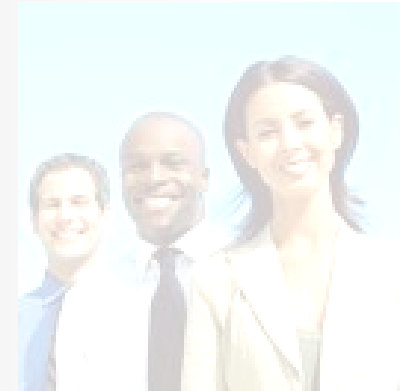
IBM hardware

IBM System z

Centralize, Virtualize & Simplify the BI infrastructure



IBM Services



- **Phase 1:** Create awareness of, a strategy for and a governance foundation for BI across the organization
- **Phase 2:** Preparation for the Smart Analytics Cloud
- **Phase 3:** Install the base cloud, integrate into the corporate enterprise and test the cloud use cases
- **Phase 4:** Educate the enterprise for on-going success with the Smart Analytics Cloud

Geared towards large BI customers who are focused on supporting a large multi-tenant (or cross lines of business) install base of users.





Why Cloud ????

- The proliferation of BI and Analytic tools and deployments around the enterprise often resulting in multiple tools and tens (if not more) overall deployments
- Ability to support and comply with corporate and regulatory standards when no two BI deployments look exactly alike
- Rising costs as each instance requires ongoing operations costs plus initial start-up costs which include hardware, set-up costs, software, etc.
- The need for a cohesive BI/Analytics strategy for the corporation.
- Utilization of skilled workers is ineffective when there are many deployments requiring ongoing operations and support
- BI Cloud works hand in hand with the enterprise centralization initiatives





Value Proposition for Cloud ????

- Centralization enables a core concentrated BI service that is standardized across the lines of business and user install base without removing the LOB control to own and manage their own end to end BI solution
- A concentrated service strategy for BI supports simpler enforcement of corporate and regulatory standards, including security and boarding processes
- A subscription model, based on user chargebacks enables departmental budgets to stretch farther and cover more users
- Reduced costs overall with greater operational efficiency and a centralized service strategy based on economies of scale
- More efficient utilization of the BI skilled workforce with a centralized service strategy





IBM's Large-scale BI Private Cloud What, Why & How

IBM Cloud Computing

**Cloud Computing
with System z**

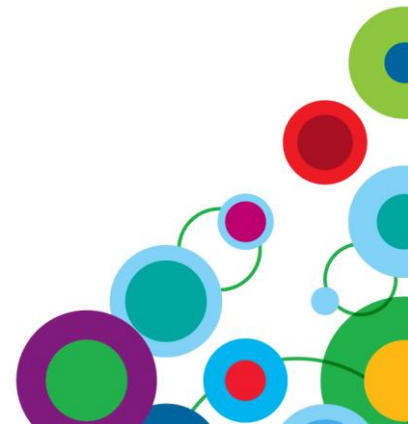




IBM WW Blue Insight Scope

Service delivery scope is business domain agnostic...

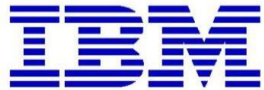
- Who is using *Blue Insight*
 - Sales Commissions
 - Sales Management
 - Sales Operations
 - Supply chain – Fulfillment, Procurement
 - Finance – Expense, revenue
 - Brand/Unit reporting
 - Channel reporting – Direct, Business Partner, Web
- How many users does *Blue Insight* support
 - 2009 – 72K users (exceeded 2009 objective of 55k)
 - 2010 projection is 120K users
 - 2011 projection is 200K users (Steady state)





Introducing IBM's *Blue Insight*

In the spotlight



*Our commitment to informed decision making led us to consider private cloud delivery of Cognos via System z, which is the enabling foundation that makes possible **+\$20M savings over 5 years.***

-IBM CIO Office

Blue Insight enables IBM to deliver business intelligence (BI) with greater efficiency across the enterprise

- Establishes a corporate strategy for service delivery of BI
- Reduces the time and cost to deliver BI to new divisions and departments
- Maintains current departmental business processes, corporate security and compliance
- Maximizes departmental budgets by subscribing to standard services
- Private cloud solution implementation offers economies of scale and flexibility

Customer results:

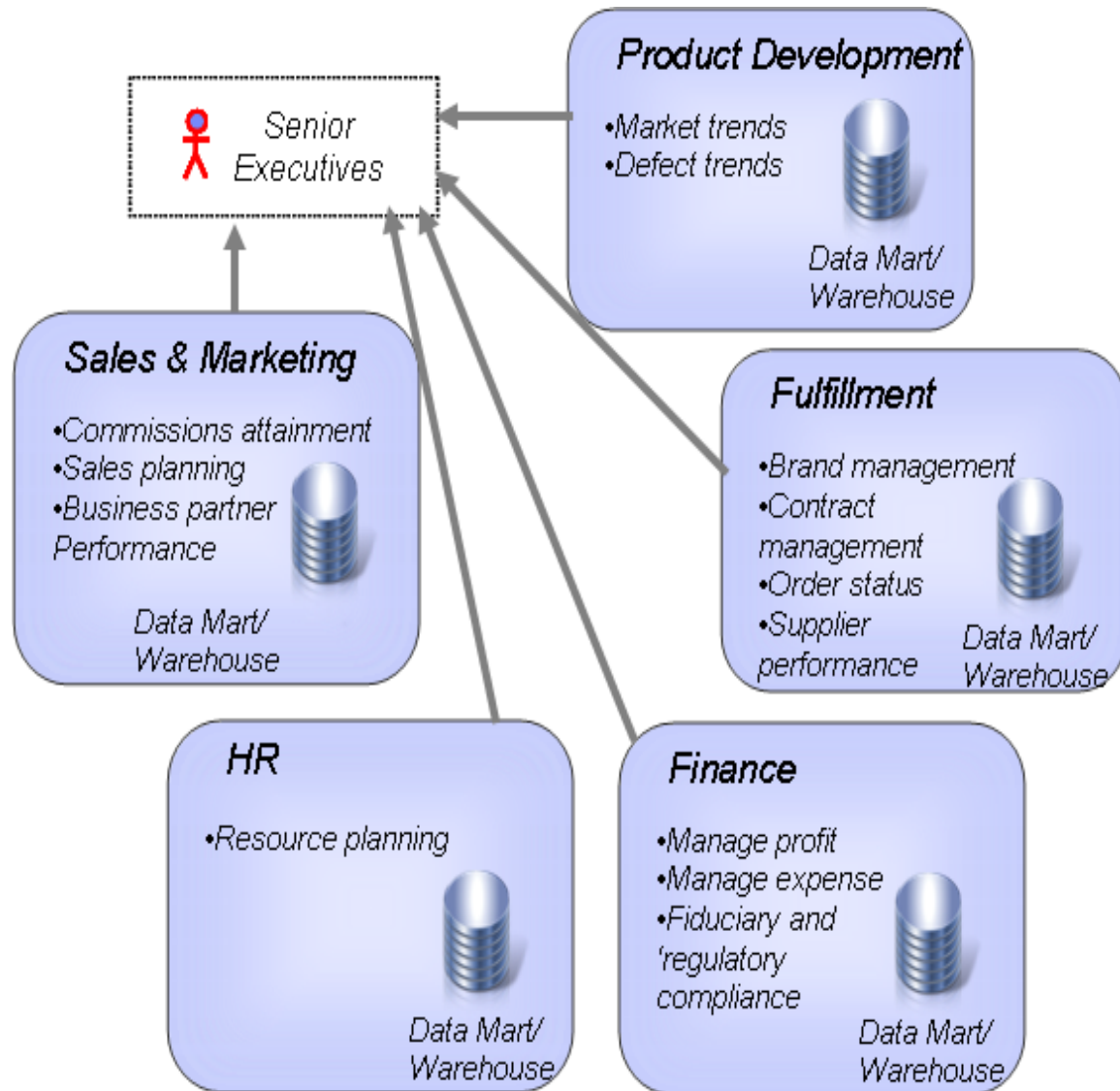
- Consolidating +20 multi-product, departmental BI deployments to Cognos 8 BI on System z
- Deploying a private cloud to support +200,000 named users across our global workforce
- Realizing value from +60 data sources across IBM

Learn more: <http://www.ibm.com/systems/z/solutions/cloud/smart.html>



Evaluation of IBMs Historic BI Environment

- Segmented investments in BI tooling and infrastructure
 - Budget distribution based on operational process, relegated BI investments selection to affordability
- Silo'd metric development
 - Redundant and possibly competing
- Lack of tooling standardization
 - Multiple 3rd party vendors
 - Inflexible BI staffing
- Limited visibility to the total cost of business intelligence costs for the enterprise
 - Top down budget distribution
- Organizational reluctance to a centralized service
 - “Been there before” reaction
 - Fear of loss of autonomy to react to local business drivers





IBM Business Issues

- Need to move at “business speed”
 - Adopters need to be able to react to changing business needs in real time

- Predisposition to maintaining control and autonomy over business metric delivery solutions
 - Reluctance to relegate responsibility for unit level BI KPIs and solutions that deliver status
 - Need to tailor information to specific consumer needs

- Investment decisions are made based on budget

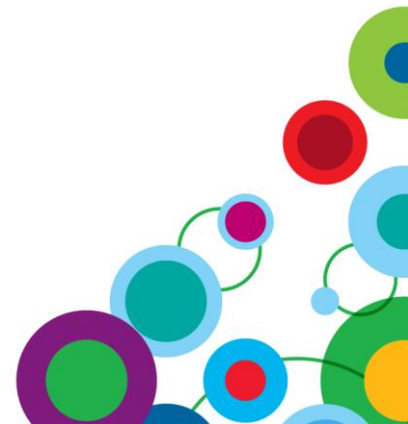
- Business distracted with operational support for tooling, reducing focus on business problems





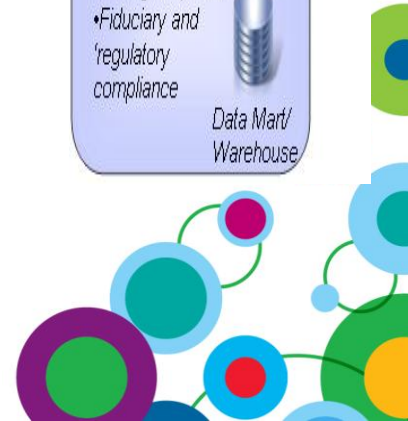
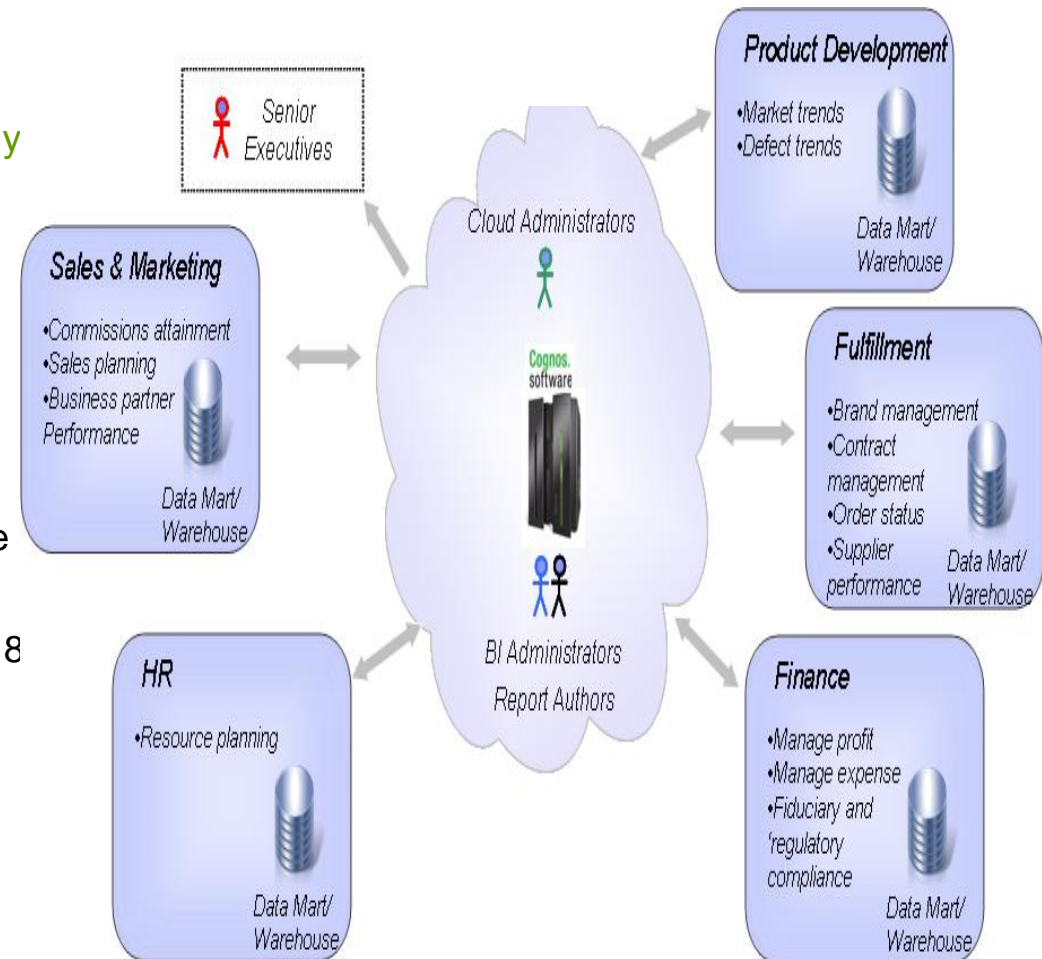
IBM IT Issues

- Lack of BI/Analytics strategy
 - Drove independent evaluation and investment decisions in BI tooling
 - No common SW and HW standards
- Fractured BI skill pools
 - Different BI tooling did not lend itself to workforce flexibility
- High infrastructure costs
 - Decentralized Infrastructure and SW costs increased initiative costs
 - Reduced the number of initiatives that could be funded
 - Server utilization was poor
- Long deployment times
 - Each deployment required HW acquisition and SW installation
- Inability to share content between distributed BI deployments
 - Drove duplication of efforts
 - Conflicting content
 - Questions regarding trusted metrics and data source usage



IBMs Strategic Response

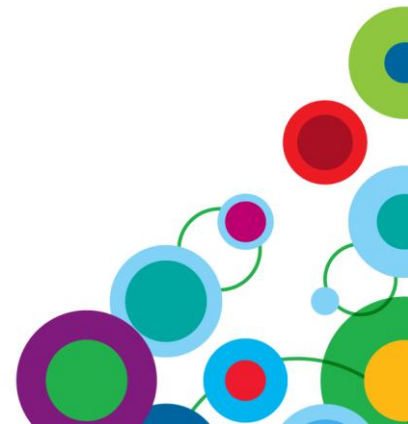
- Deliver centralized defined BI services
 - Leverage our “Greener planet” strategy and investments
 - Common Boarding process, infrastructure and operations
- Align solution pattern with adopter usage pattern
 - Share all available, elastic and reliable BI infrastructure
 - zSeries, WAS, DB2 and Cognos 8 BI
 - Standardizes tooling strategy
 - Enables flexibility of BI delivery skills
- Delivery pattern allows adopters to maintain solution autonomy
 - Focus is delivery of a defined service





Expected Business Value & Soft Savings

- Controlling infrastructure deployments and centralization
 - Avoid investment in a projected 35-50 BI installations
- Common governance
 - Data / BI governance can be implemented consistently for all adopters
 - Legal and regulatory issues are solved centrally
 - Process certifications are simplified
- Maximize content sharing
 - Sharing of data source modeling
 - Reuse of report content





Customer Successes System z for your Cognos 8 BI



Business Analytics

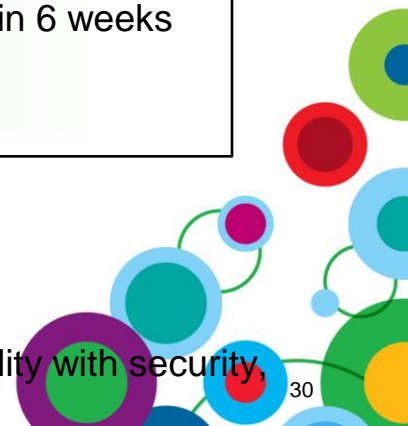


Cognos 8 BI on System z – Customer Successes

- IBM FMS Team
 - Internal deployment of Cognos on System z by GBS team
 - Migration from Brio to Cognos in 4 months
 - In Production supporting up to 47000 users on System z10
- Numius Business Partner
 - Proof of concept migration from HP+Oracle+Win+Cognos to System z+ DB2z+Cognos
 - Significant performance gain – 1 report to 400+ reports
 - Customer success webcast delivered + IOD presentation
- Blueinsight
 - Internal Cognos@IBM project
 - 60+data sources, federated to System z
 - 20 LOBs consolidated and hosted
 - Target support for 200,000 users

- Miami Dade County
 - Existing Cognos customer – redeployed existing apps from Unix to System z in 6 weeks
 - With NEW capability, Go!Dashboard, Go!Mobile, Federation
 - In Full Production to 3000 users

- Key Customer Value Points:
 - Utilize spare IFL capacity – virtualization/consolidation value
 - Speed to deployment/value and simplicity of migration
 - Enterprise BI Service delivery platform – standardized service offering capability with security, process compliance and predictive scalability



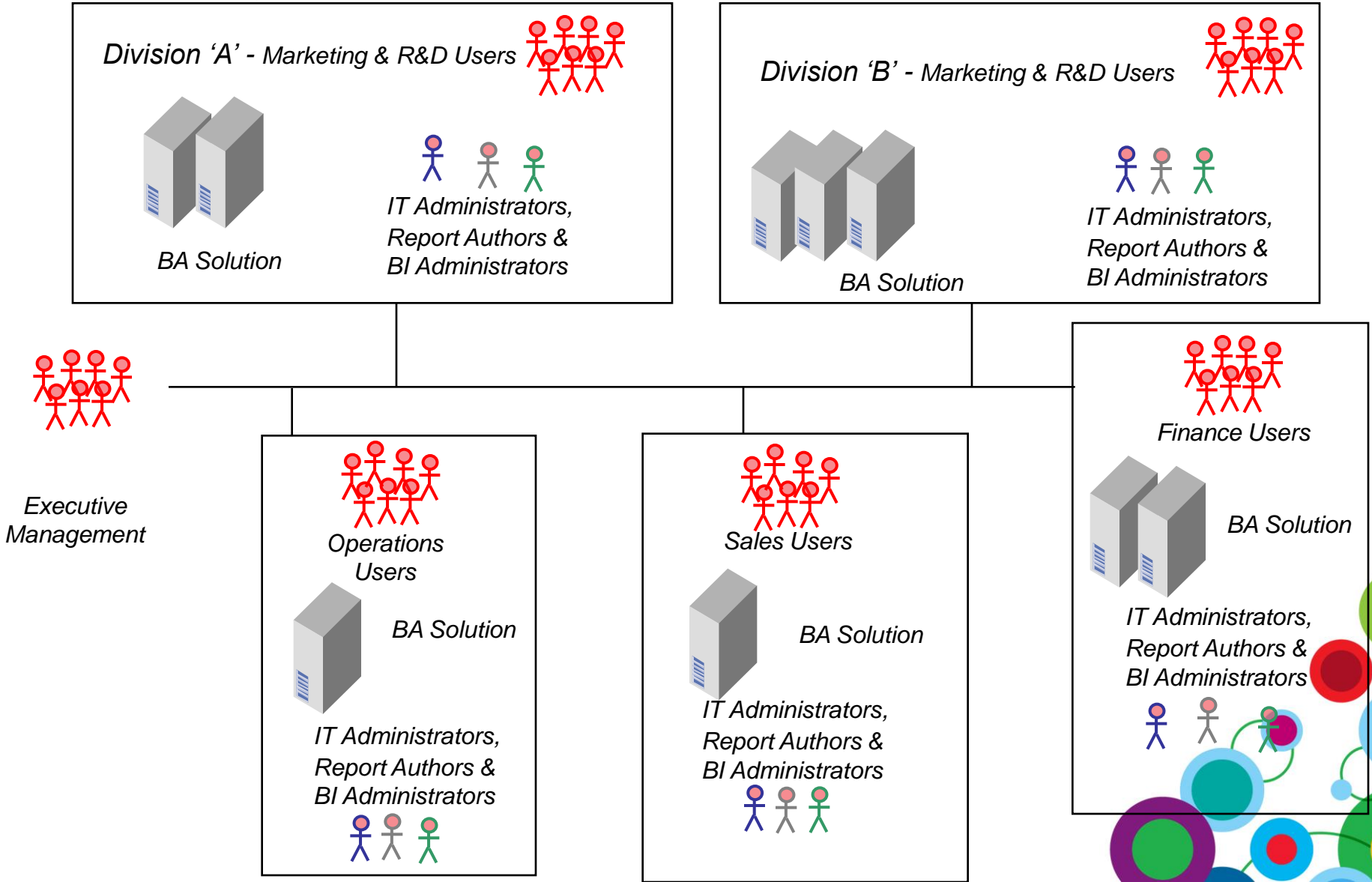


Business Analytics Infrastructure Considerations

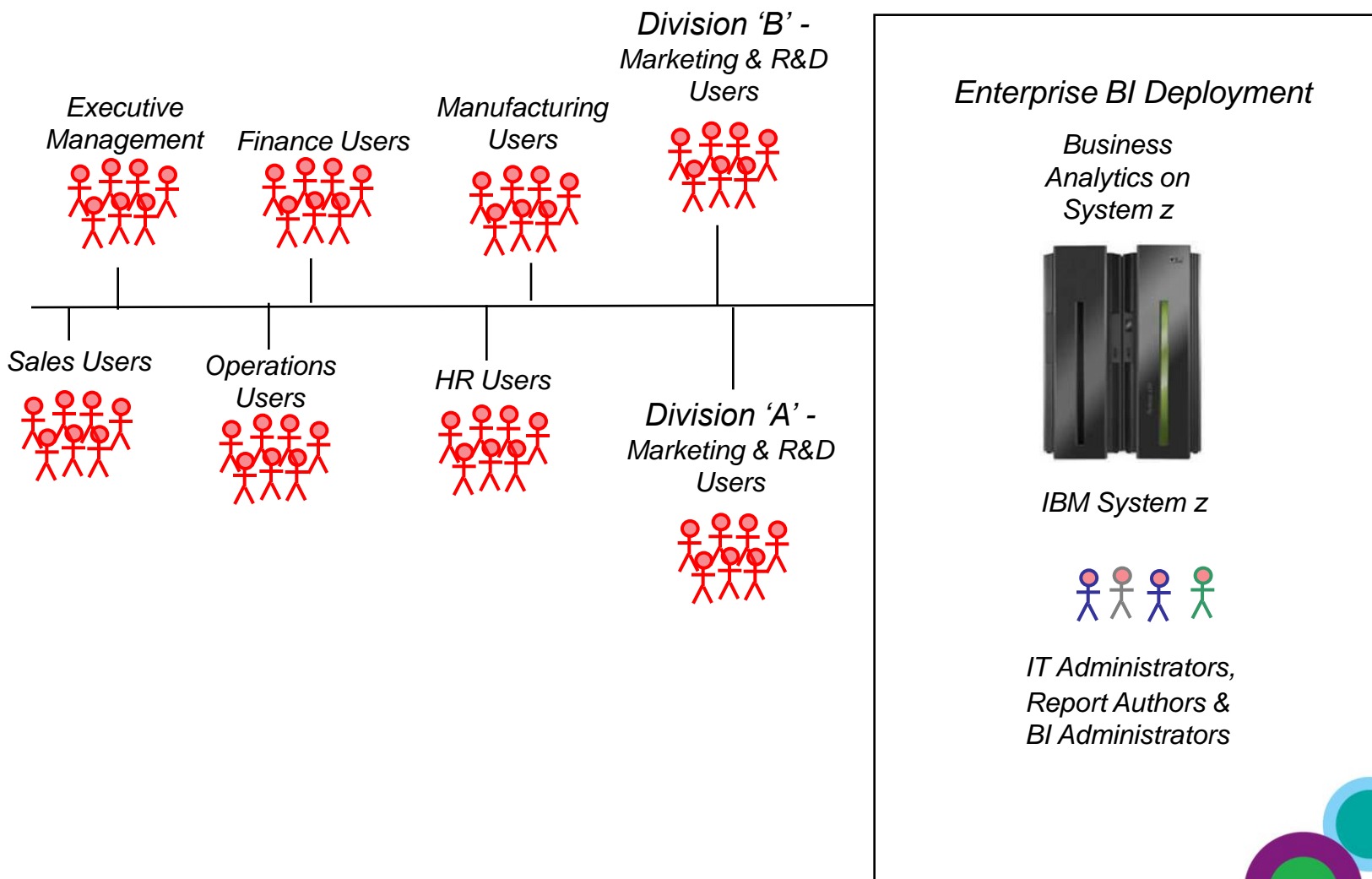




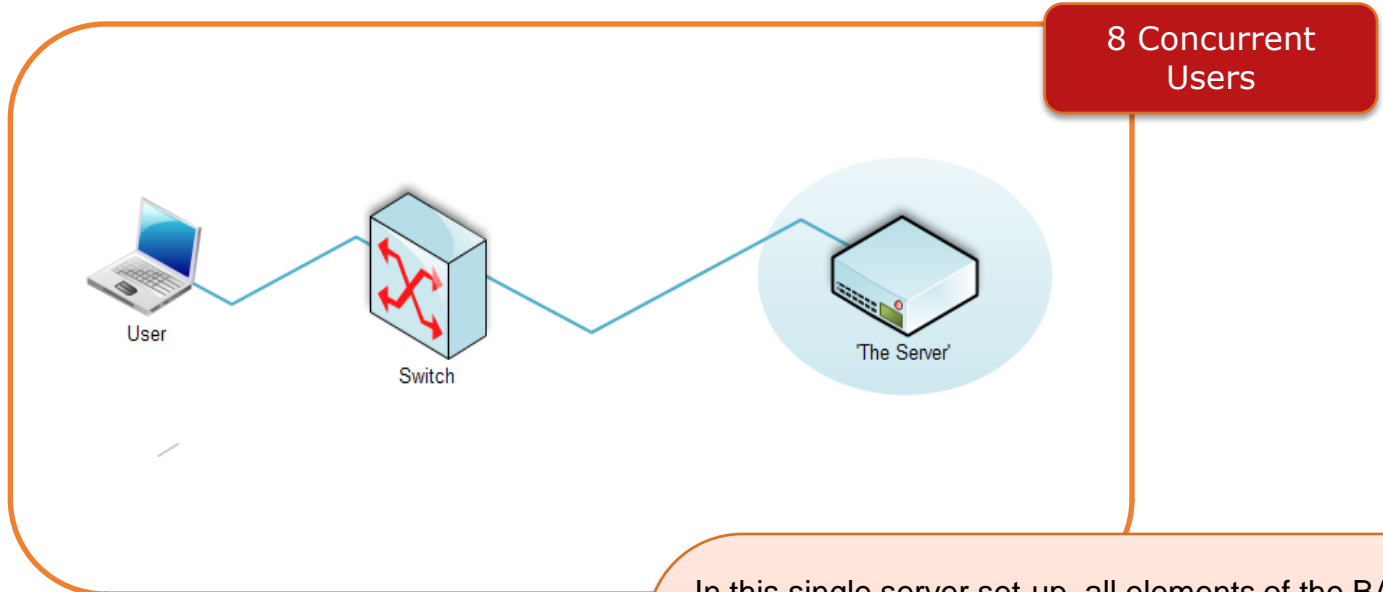
Today's Traditional BA Infrastructure ...Making it Difficult to Meet Shifting Demands



But what if YOU had Another Option? IBM Business Analytics on System z



Typical Set-up



In this single server set-up, all elements of the BA environment are gathered in one server.

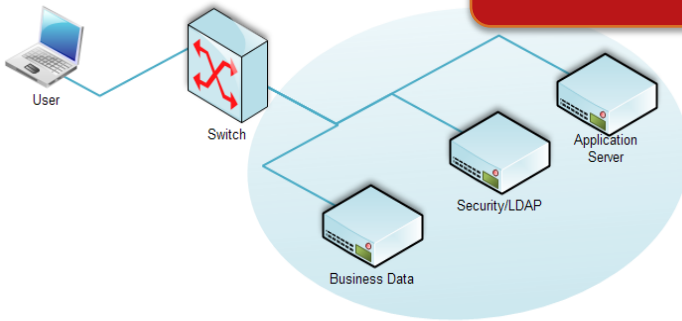
Competition for resources is fierce and productivity collapses in multi-user mode due to this competition.

Additionally, you have created a **massive single point of failure.**

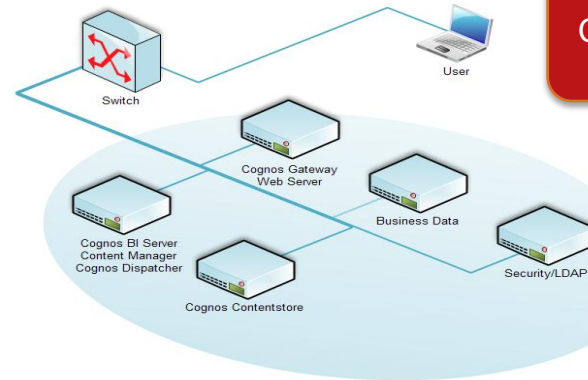


Moving Ahead

15 Concurrent Users



24 Concurrent Users



In this realistic starter set-up, **the Cognos 8 BI application layer is seperated from the business data** (e.g. Data warehouse or operational sources) and from the security layer.

Within Cognos 8 BI, different functions (e.g. the Web server, Content Store – Metadata management, Report services, Log services,...) still compete for resources and lead to suboptimal performance.

The Application(+web) server layer is a point of failure. No measures have been taken to reduce vulnerability.

This set-up is very wide spread.

In order to resolve competition between important functions, **the Webserver functionality gets a dedicated server, as well as the Metadata database** (Cognos 8 BI Contentstore).

Access to the Metadata database does not compete with access to the Business data.

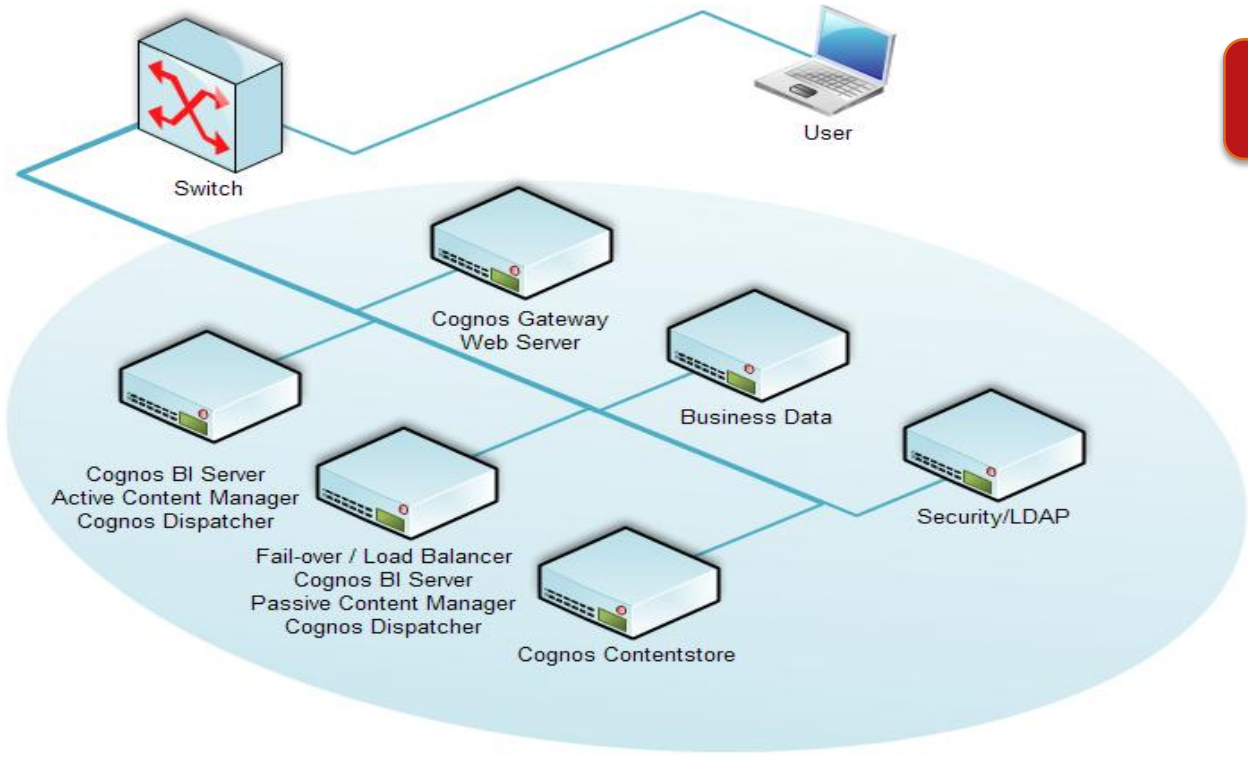
The Cognos 8 BI Application server can now focus on its core business, which is producing report output.

This should be the basic architecture.

Still, this architecture does not provide any failover or load balancing functionality whatsoever.



Recommended Core Architecture



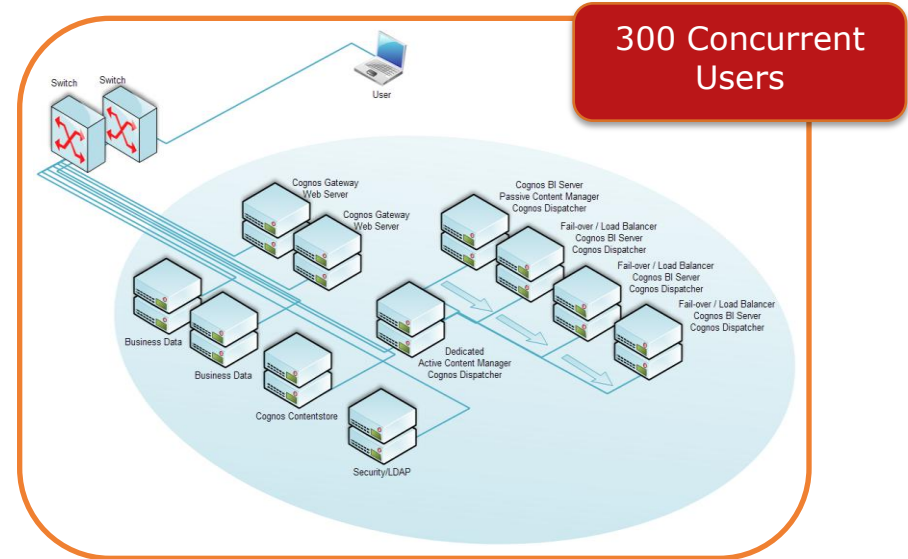
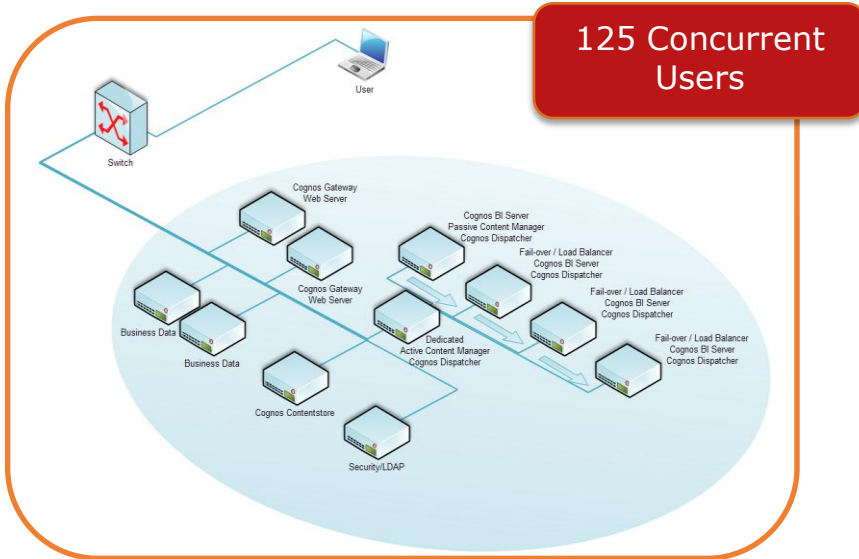
50 Concurrent Users

This architecture uses the loadbalancing and failover features that are built into the Cognos 8 BI software architecture.

Reporting load is spread across two Reporting servers and should one fail, the other will take over. This is the basis for a scaleable architecture.



Introducing Focus and Redundancy



A further degree of “specialisation” is introduced at the Cognos 8 BI level by **dedicating a server to the dispatching of all requests to a farm of Cognos 8 BI application servers**, freeing even more capacity for the Cognos 8 BI Report servers to focus on their core business.

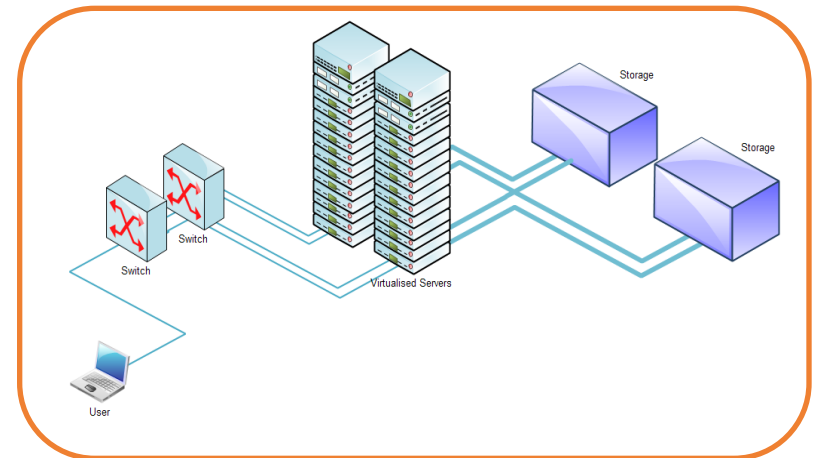
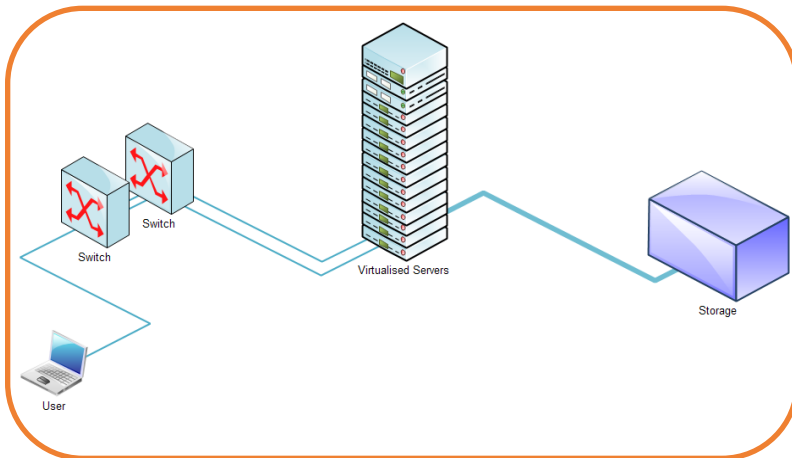
Within such a farm of application servers, workload can be routed to clusters of servers depending on the type of workload (e.g. OLAP) or the security role membership of the active user.

Still the environment is not a high-availability environment.

Redundancy is introduced throughout the environment to achieve high-availability.



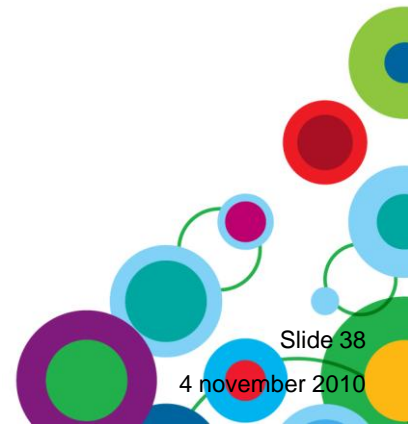
Virtualizing and Resolving Failure Points



The distributed environment is **consolidated in a virtualized set-up** with high performance storage arrays.

The virtual host as well as the storage create potential failure points.

To **resolve failure points**, the virtual host **infrastructure as well as the storage are duplicated**.





Architectural Summary

- **Core Architecture**

- One server for Cognos, one for data source, one for LDAP (3+)
- Multiple specialized servers - each Cognos component (web, report server, content manager, content store) on its own server, another for data source, another for LDAP (6+)
- No failover capability

- **Load balancing/failover**

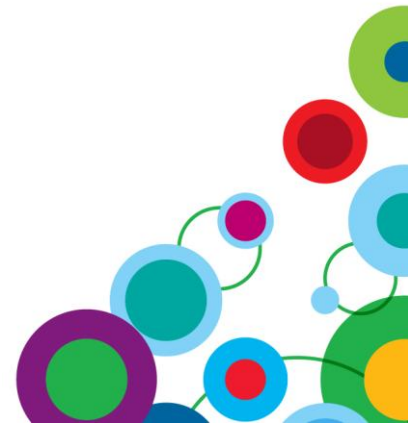
- One additional server to share report server load and be standby content manager (7+)
- Automatic failover done by Cognos, data servers continue to a point of failure

- **High Availability**

- Additional redundant hardware for critical components (14+)
- Cost/benefit tradeoffs
 - Server sprawl and associated costs
 - Consolidation through virtualization

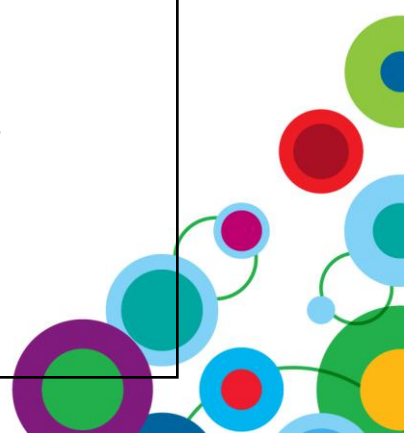
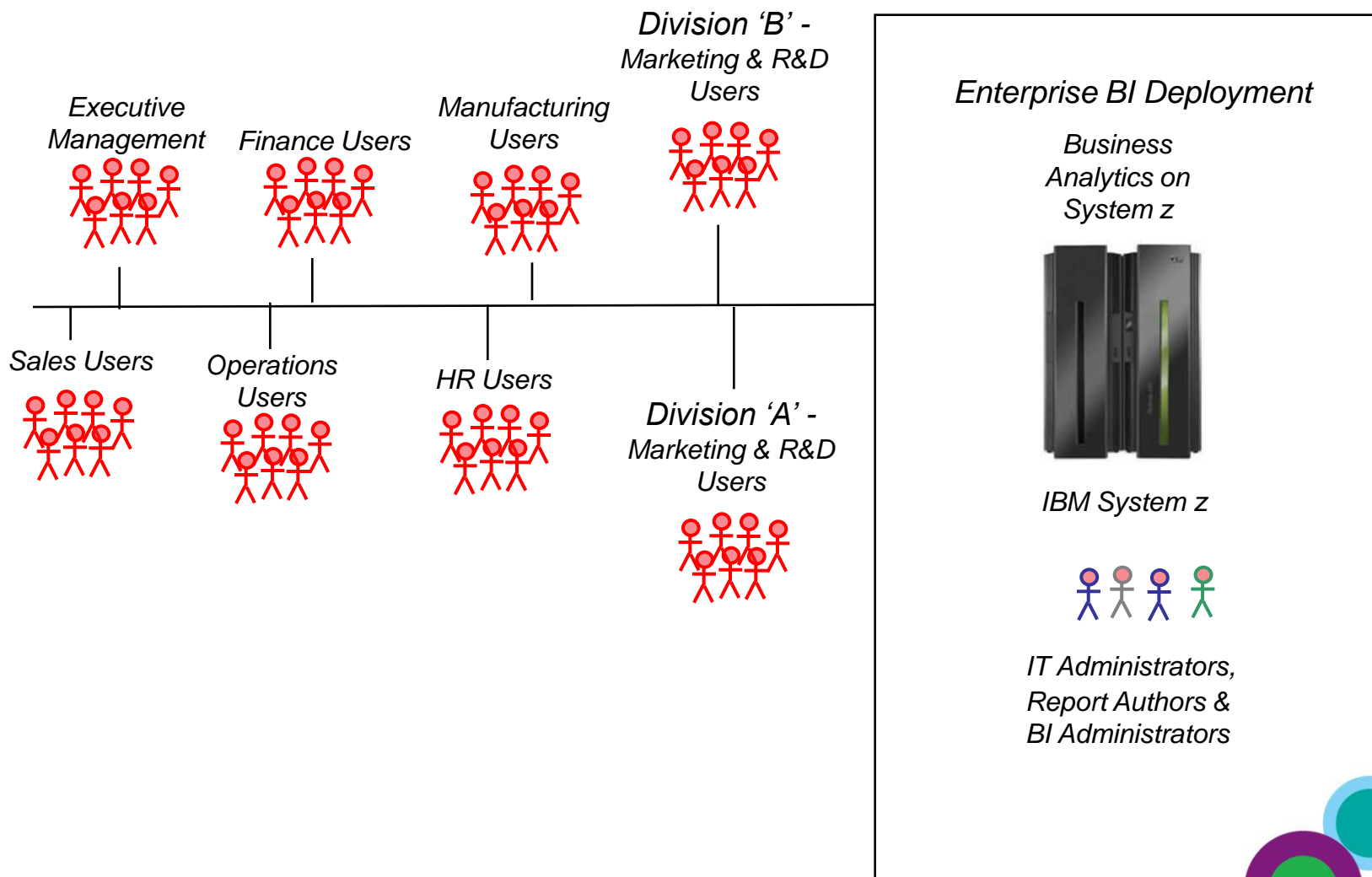
- **Continuous Availability**

- All components are duplicated, perhaps a different site



YOUR Other Option!

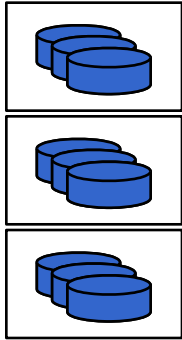
IBM Business Analytics on System z



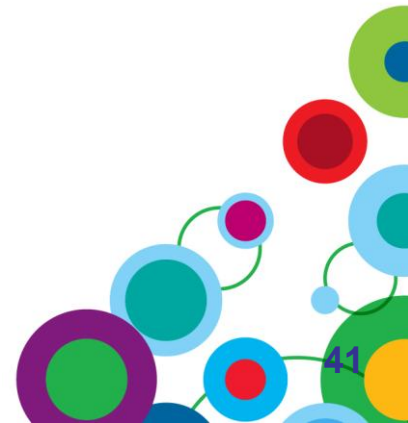
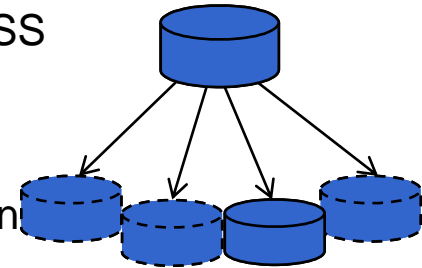
Comparison



- Distributed over multiple servers
- An easy sell but ...
- How consistent are extracts, transformations, integrations and summarizations?
- Redundancy of data magnified
- Security concerns over physically moving data
- Analytic results between groups are inconsistent
- Generally must create physical data marts



- Consolidated
- Is a sound foundation upon which to build future DSS needs
- Data acquisition and delivery is consistent and documented
- Maintains historical integrity
- Provides full data lineage meta data
- Stable, consistent data values and calculations
- Can create physical or (less costly) virtual data marts





Distributed Costs

vs

Centralisation

- **Cost of running additional workload on distributed servers goes up nearly linearly**
 - **Labor !!!! - Admin staff costs increase in proportion to number of servers**
 - **New workload requires additional servers**
 - **Cost of additional servers / software licenses are nearly linear**
 - **Electrical and air conditioning costs also increasing**
- **Need to rethink scale out strategies in terms of cost per unit**

- **Cost of running additional workload on mainframe generally goes down as total workload grows**
 - **Labor costs remain roughly same as workload grows**
 - **Mainframe pricing policies designed to favor additional workload**
 - **Lower software costs per transaction as workload grows**
 - **Lower electrical and air conditioning consumption than server farms**
- **Mainframes running high workloads are very cost efficient platform**



Conclusion



- **Reducing cost and complexity in BI infrastructure is mandatory today**
 - Consolidation efforts to System z expand its usage from transactional processing to DW/BI
- **Leverage your investment in System z:**
 - Mainframe still THE standard for mission-critical apps – and BI now is mission- critical
 - New technology and price points make System z a cost-effective option (Cognos and SPSS for BI)
- **Data integration (ETL, quality processing, etc.) easier same platform as most operational data**
 - Reduce data latency, redundancy and complexity



Conclusion - continued



- **Maximize utilization of mainframe**

- They can be used at 90+% utilization, 24 hours by 7 days
- Reverse trend and consolidate BI workload onto System z – think about virtual data marts

- **Minimize other costs**

- Minimize software tool costs
- Minimize power costs
- Minimize outages and security breaches
- Minimize labor costs





The Proof?

Examining the 5 Yr TCO for Business Analytics on System z



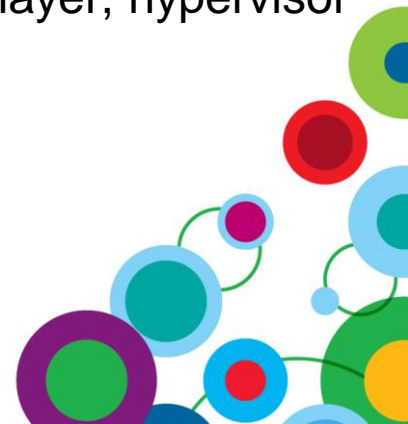
Business Analytics

Measuring Total Cost of Ownership

Standard Hard Costs



- **Power:** powering and cooling the servers
- **Floor Space:** floor space consumed by the servers
- **Server acquisition**
- **Server Maintenance:** after warranty
- **Connectivity acquisition:** network ports or SAN ports and cables
- **Connectivity maintenance:** network ports, SAN ports and cables (after warranty)
- **Software licenses:** the cost to acquire software licenses
- **Software maintenance:** cost to maintain (support & subscription) software
- **Network Administration:** bandwidth placed on physical network for each case
- **System Admin:** the cost of people administering the hardware layer, hypervisor layer and operating system layer

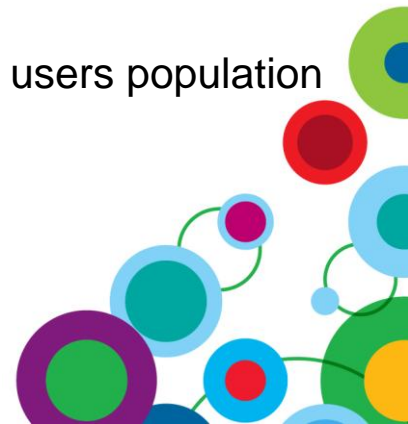


Measuring Total Cost of Ownership

Additional Incremental Costs



- Technology Refresh Requirements
 - On average the standard practice within the IT world is to do a technology refresh every 3 years (36 months) in an effort to realize:
 - Operational cost savings,
 - Avoid incremental data center capital spending, and
 - Gain capacity to support growing, business-critical BI needs
- High Availability Considerations
 - Equipment acquisition: the cost of the equipment acquired to provide for disaster recovery capabilities
 - Equipment operation: the cost of operating the acquired disaster recovery equipment
- Growth Considerations
 - Meeting the needs of tomorrow....
 - Building an infrastructure which will scale to meet the growing demands as the business users usage grows
 - Building an infrastructure which will accommodate a growing BI users population
 - Anticipated Average Growth Rate over 5 yrs
 - Year 2 – 50%
 - Year 3 – 50%
 - Year 4 – 20%
 - Year 5 – 10%



Cognos BI TCO/TCO Study Deployed on System z vs x86



- **Product Focus:** IBM Cognos 8 BI
- **Objective:** Explored the TCO of choosing an x86 based infrastructure vs System z for a Cognos 8 BI deployment
- **Scenarios studied:**
 - Multiple deployment sizes (100, 1,000, 10,000, 20,000, 50,000)
 - For each size of deployment sizes we then evaluated:
 - The TCO of a standard deployment based on Cognos 8 BI best practices
 - + High availability
 - + Technology Refresh.
 - + Scalability
 - Explored all the acquisition, management and maintenance costs for a Cognos 8 BI infrastructure over 5 years were included
 - All 1st year costs included the acquisition costs of the hardware.

The Results

- Average savings over 5 years of choosing System z: 36%
- Total cost of acquisition is the same across both platforms
- System Administration cost savings with System z is equal to the TCO over 5 years for Cognos 8 BI for Linux on System z
- x86 infrastructure does not offer the any volume discounts from a facilities/administrative perspective
- High availability is approximately 50% cheaper with System z
- Existing System z customers only stand to further reduce there TCO.

Learn more: ibm.com/software/systemz/telecon/15jun



Cognos 8 BI for Linux on System z

....Performance Testing

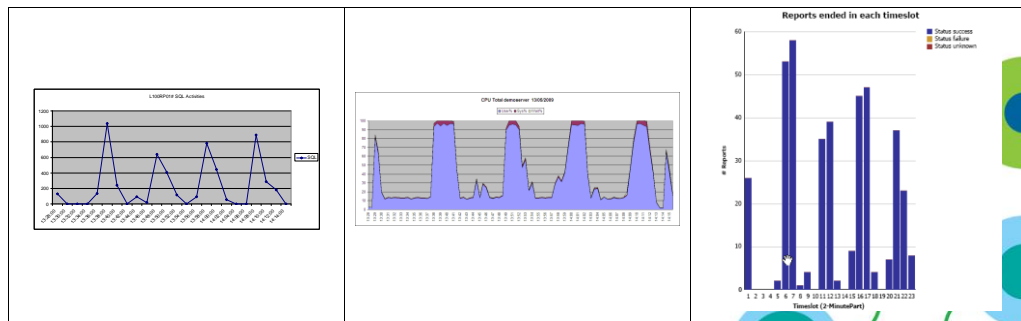


- **Customer provided the need:**
 - Processes operational and financial data for 10.000 other companies and exchanges info with 250 B2B partners.
 - Faced with performance & stability issues and could not expand it's BI any further.
- **IBM Provided the Test Infrastructure:**
 - Cognos 8 BI v3 and Websphere set-up on a zLinux and a DB2 instance on z/OS.
- **Numius Provided the Expertise:**
 - Ported existing application from the distributed to System z:
 - Cognos 8 BI
 - Oracle on HP-UX to DB2 on z/OS
 - MS-SQL on Wintel to DB2 on zLinux)
 - MS-IIS on Wintel to WebSphere on zLinux).
- **Cognos Provided the Flexibility:**
 - Cognos 8 BI - open to Operating Systems and Database Systems, no redevelopment was required

The Results

Cognos 8 BI for Linux on System z

- By adhering to our best practises could support more users and deliver faster performance.
- There was no change in functionality at the Cognos 8 BI level, so no impact whatsoever for the end-user.
- Not one report timed out, not one user was rejected. Even when the system slowed down, it remained stable.
- No redesign was needed to achieve his objective of reaching out to a large community.





Wrap up





IBM Business Analytics and Data Warehousing on System z

Value Creation for the Enterprise

Leverage System z to enable the delivery of timely, accurate business information quicker to facilitate proactive decision making with less resource and expense

- A complete range of BI capabilities including reporting, analysis and dashboards to enable smart business decisions when and where it is needed
- Author, share and use reports that draw on data across all enterprise sources for better business decisions.
- Real-time monitoring
- Predictive Analytics

Business Analytics on System z

System z

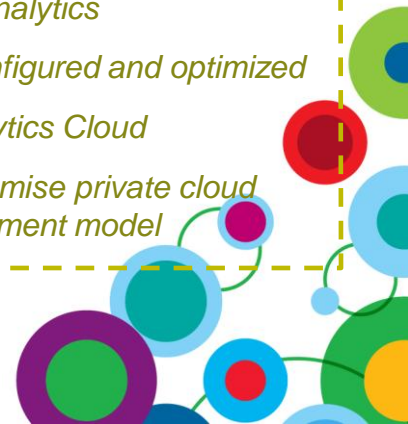
- High performance & workload management for mission critical apps
- Reduced costs through energy efficiency, consolidation, industry leading virtualization
- Improved risk management with System z security and resiliency
- Proven reliability and availability for world-class Quality of Service

The Proof

Flexible Deployment Options

- Average savings over 5 years of choosing System z: 36%
- System Administration cost savings
- High availability is approximately 50% cheaper with System z
- Performance - support more users and deliver faster performance.
- No redesign was needed

- IBM Smart Analytics System 9600
 - Integrated HW, SW and services to deliver enterprise level analytics
 - Preconfigured and optimized
- IBM Smart Analytics Cloud
 - On premise private cloud deployment model



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