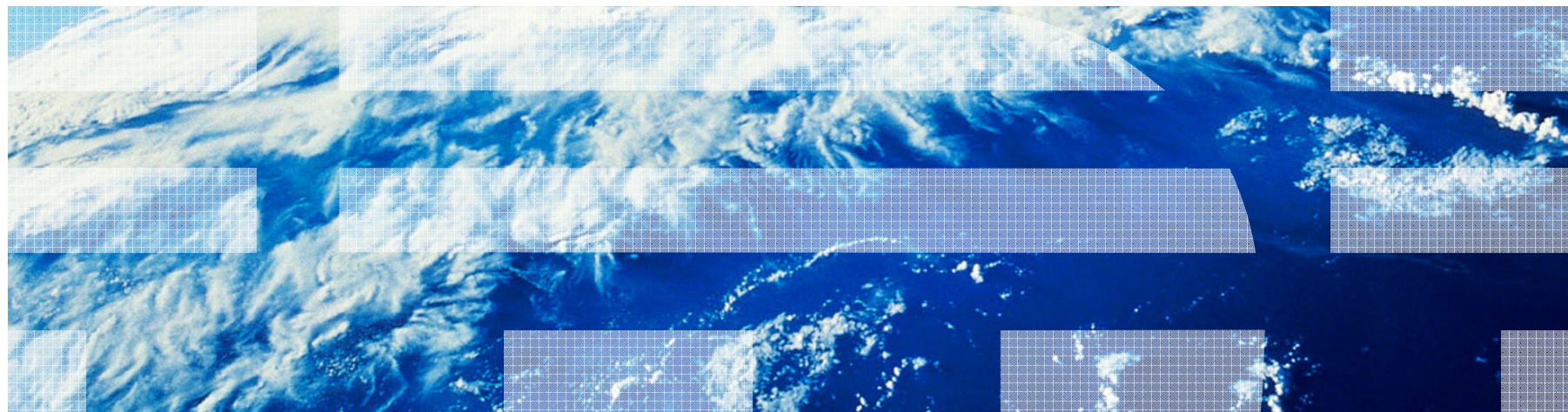

Exploring the TCO & TCA of leveraging System z for your Cognos 8 BI infrastructure

Jo Coutuer, Numius,
Managing Partner

Rebecca Wormleighton, IBM,
BI & PM Product Marketing and GTM Strategy,



Numius Team

- Leading provider of Performance Management Solutions in an international project context.
- 30+ highly skilled and professional consultants.
- IBM Advanced Business Partner
- Full range services, from Vision Creation, Business Analysis to Implementation, Architecture, Operations and Outsourcing.
- Multi-industry, multi-function experience.
- Focus on long-term partnerships.
- Trusted advisor role.



Agenda

- Why are organizations reconsidering their Business Analytics strategy?
- What are the best practices to consider when building your BA infrastructure?
- What does the total cost of ownership look like over 5 yrs?

How do you answer the important questions?

Who? Where? When? How? Which? Why?

“...What is our risk exposure today ?”



“...Are we using our stimulus funding effectively?”



“...Which treatments are ineffective and should be eliminated to lower costs?”

“...Do we have product issues or fraudulent claims from service?”



“Our prices are lower than others. Is this sustainable given our costs, or a future threat?”



“...How & when should we adjust plans to reduce churn & expand share?”



Shifting Market Dynamics

Will your Infrastructure be able to Support the shift?



- BA 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

- 3/4s 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 Analytics

....The Business Needs it!



Executive Management

Are we driving revenue growth effectively?

Marketing

Are we creating enough interest to ensure our success?

Sales

What is driving sales performance and pipeline?

Product Management

Are our products meeting our customers needs?

Human Resources

What are the talent and succession gaps we must address to ensure sustained performance?

Operations

Who is the best supplier – based on price, quality and delivery timelines?

Customer Service

Are we meeting our customers service level objectives, to ensure they keep coming back?



Business Analytics

....The Users Want it!

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

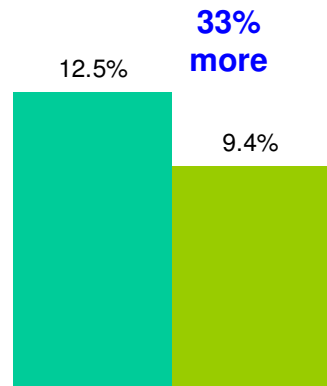
Secure access to information over the web with no training



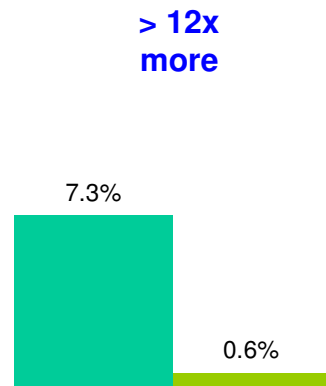
Cognos.
software

Companies that Invest in Business Insight Consistently Outperform

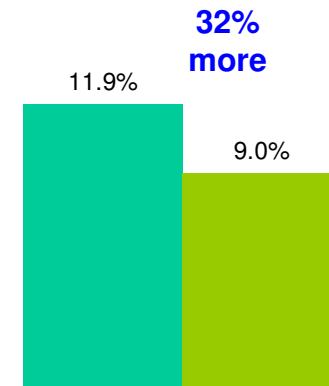
Revenue Growth
5 Year CAGR (2004-2008)





EBITDA
5 Year CAGR (2004-2008)



Return on Invested Capital
5 Year Average (2004-2008)



 Finance organizations with business insight
 All other enterprises

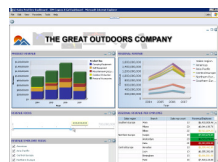


Revenue Growth: N = 580; EBITDA: N = 435; ROIC: N = 606
Source: IBM Global Business Services, The Global CFO Study 2010



Business Analytics

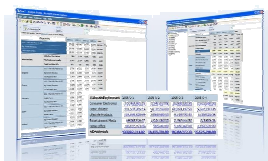
....Few are Satisfied Today!



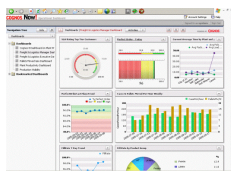
Dashboards



Reporting



Analysis



Real-time Monitoring



The Voice of the Business

- Need to ensure smart business decisions

With...

- For more users
- More/faster access to business data
- Less tools
- More functionality
- Work the way we work
 - How
 - What
 - When
 - Where



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

While....

- Reducing costs
- Reducing complexity
- Reducing the time to value
- Meeting SLA objectives
 - Performance
 - Availability/Reliability
- Ensuring security



Application & Web Servers



Data Integration & Data Quality Tools

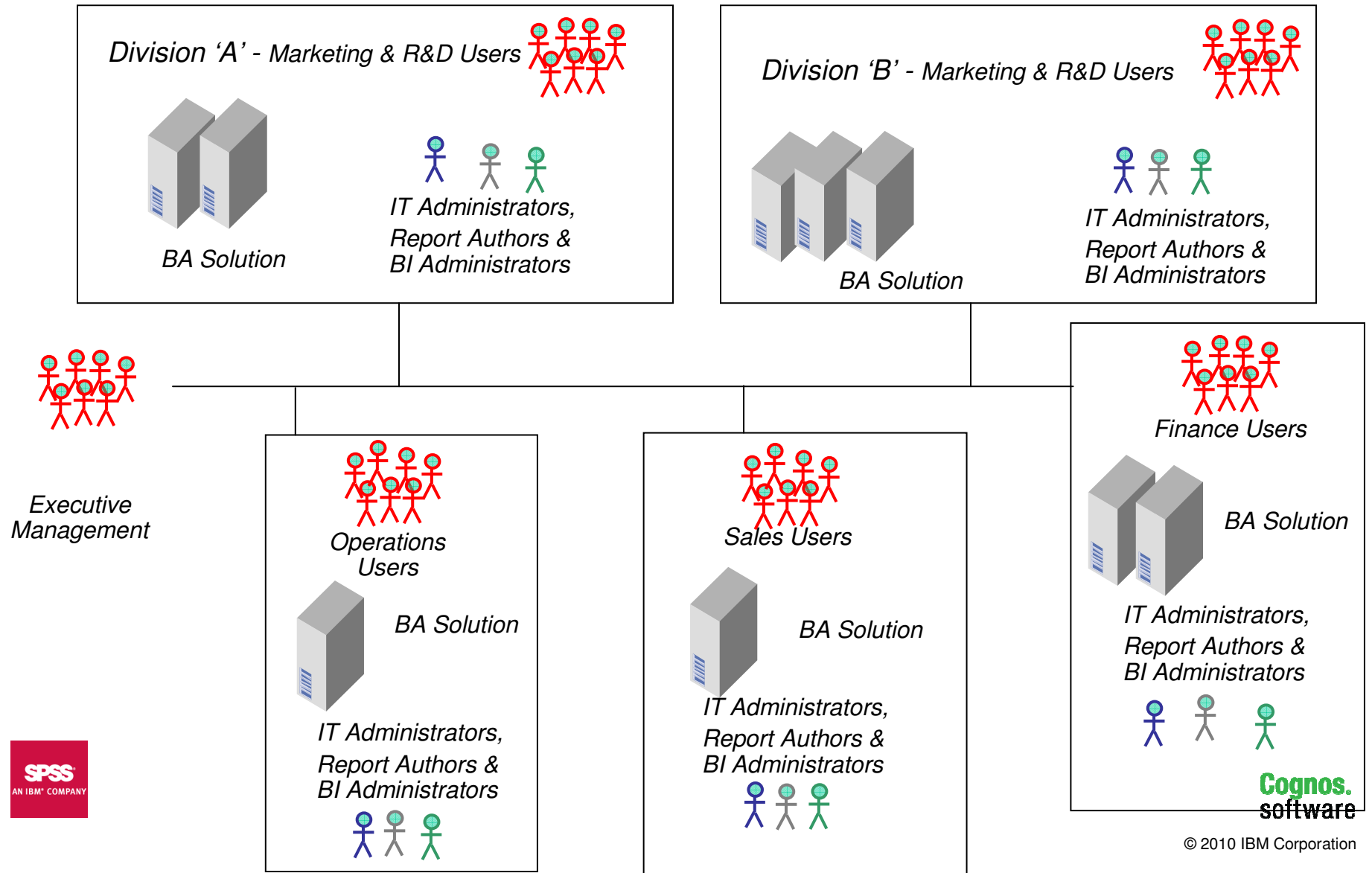


Security Providers & Firewalls

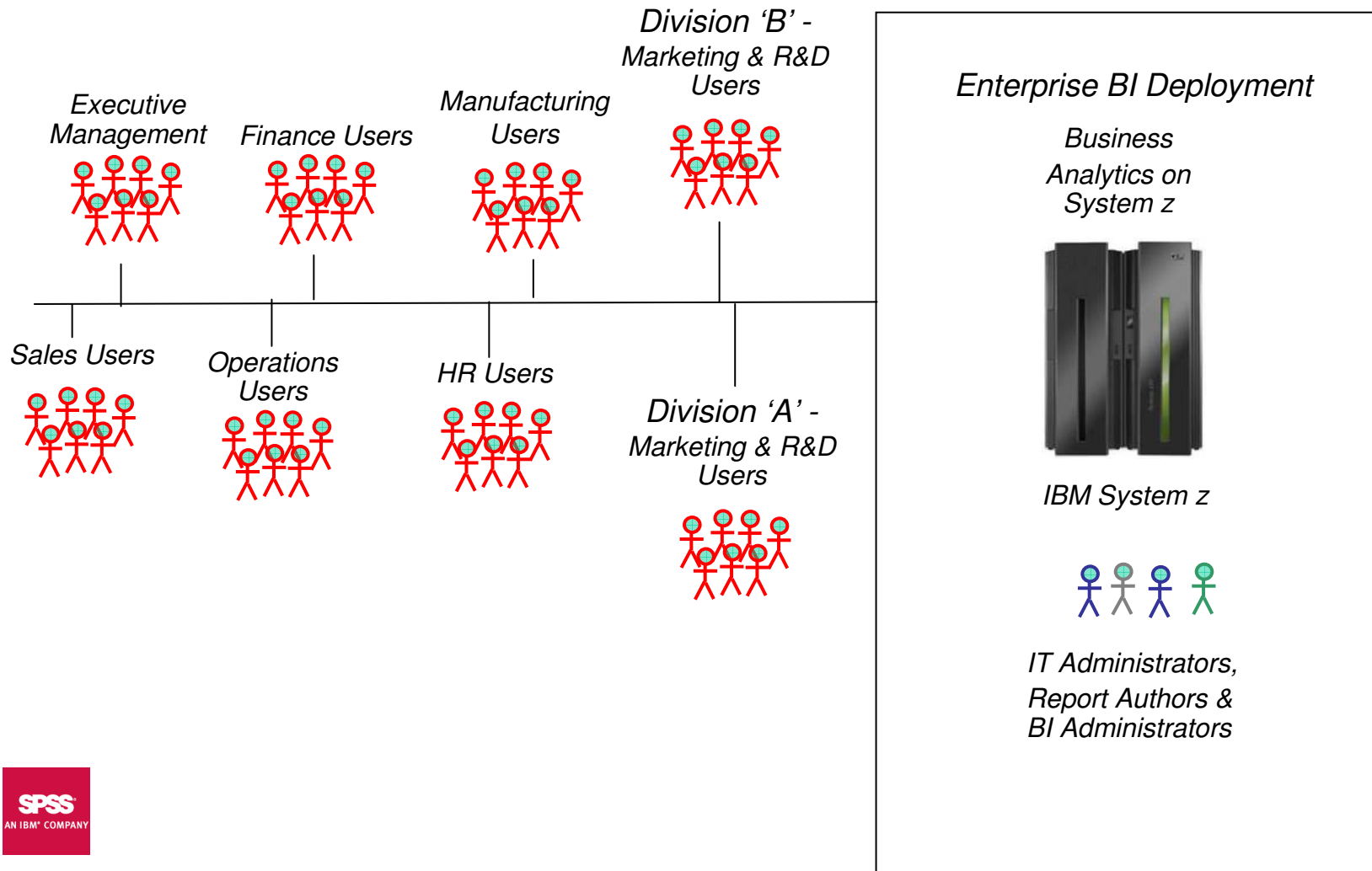


Platforms & Databases

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



IBM Business Analytics on System z

Meeting the needs of the Business and IT

How are we doing?

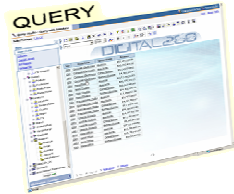


Real-time or historical; operational or strategic

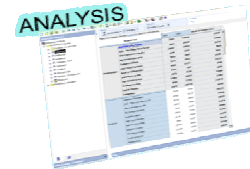
Why are we on/off track?



Guided or self-service access and exploration...



What should we do next?



Foresight using Statistical, Content, 'What-if' 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



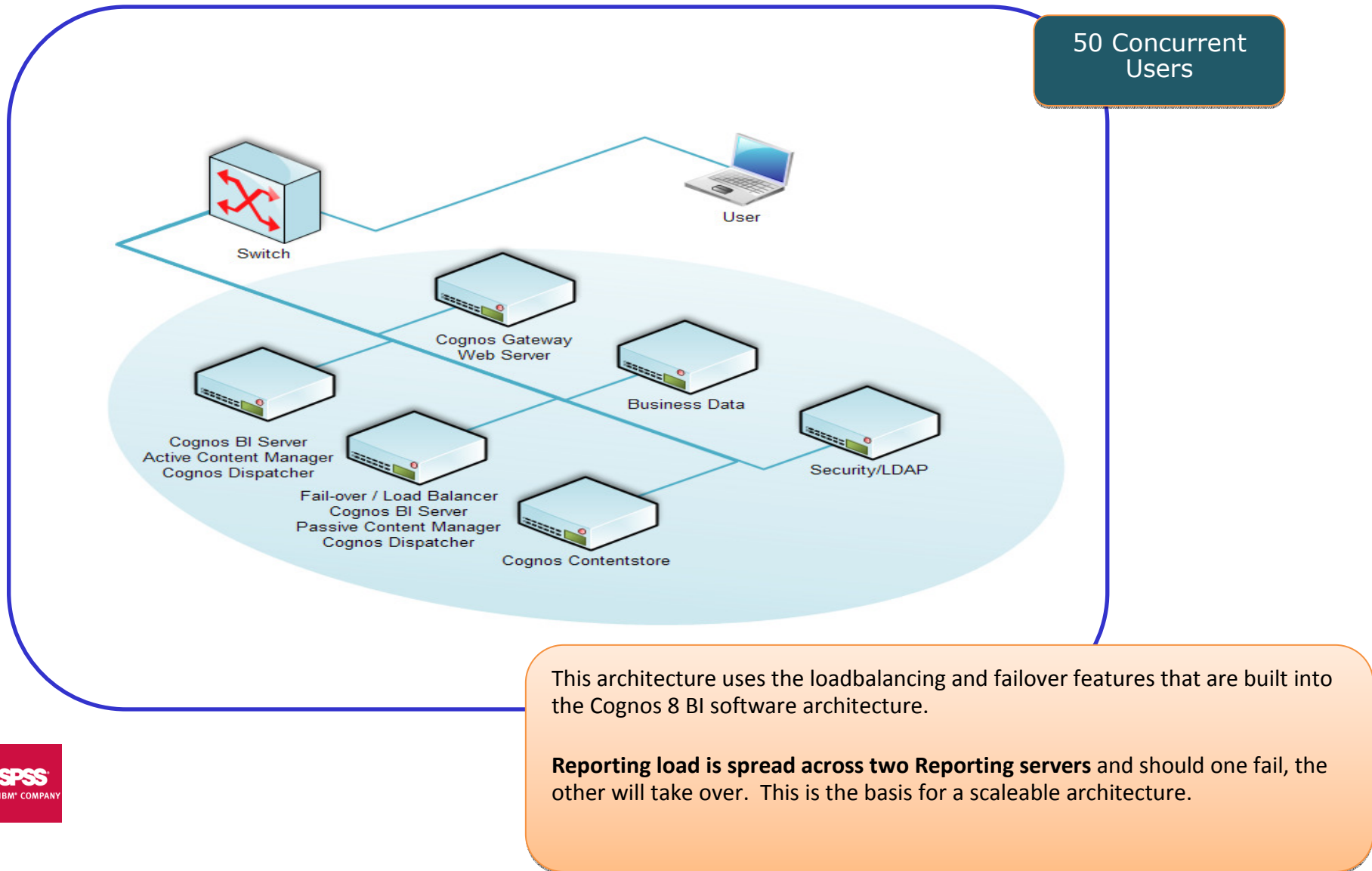
Fast Access to Data



Cognos. software

Business Analytics Infrastructure Considerations

Recommended Core Architecture

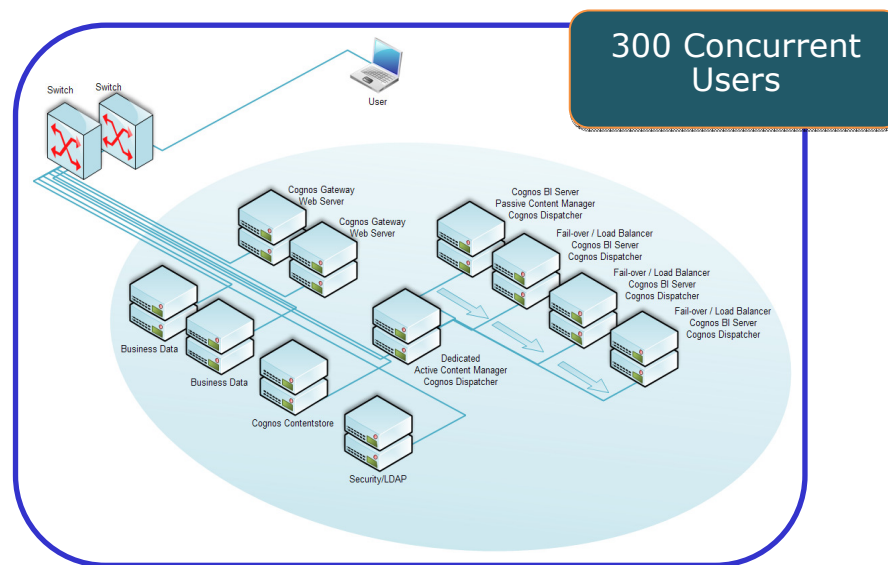
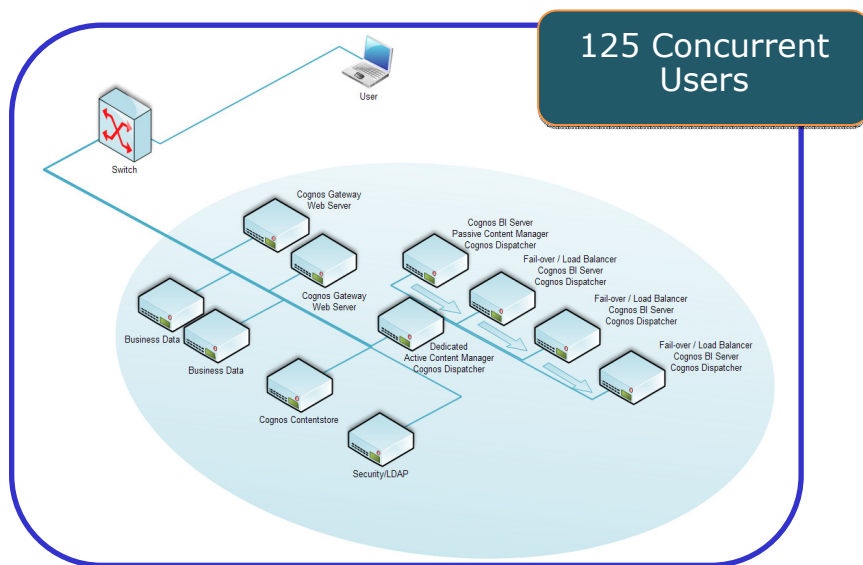


50 Concurrent Users

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 scalable architecture.

Introducing Focus and Redundancy



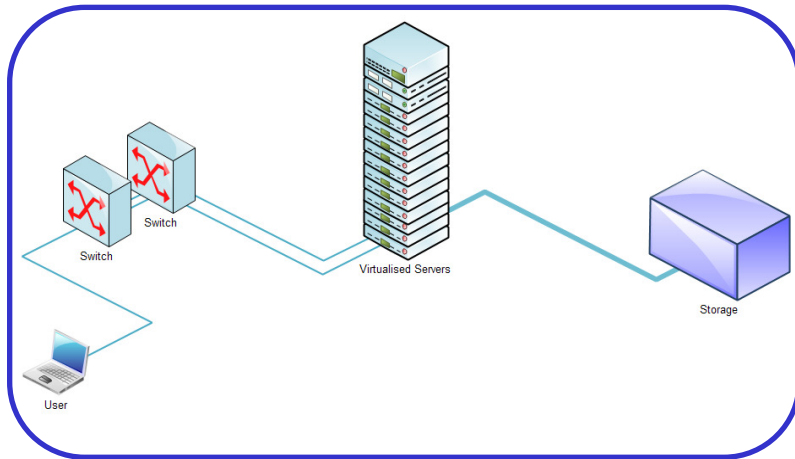
A further degree of “specialisation” is introduced at the Cognos 8 BI level by **dedicating a server to the dispatching of all requests to a farm of Cognos 8 BI application servers**, freeing even more capacity for the Cognos 8 BI Report servers to focus on their core business.

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.

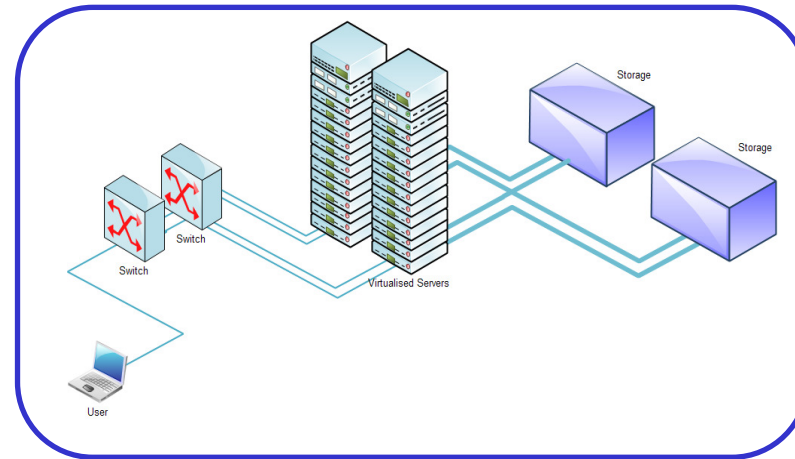
Redundancy is introduced throughout the environment to achieve high-availability.

Virtualizing and Resolving Failure Points



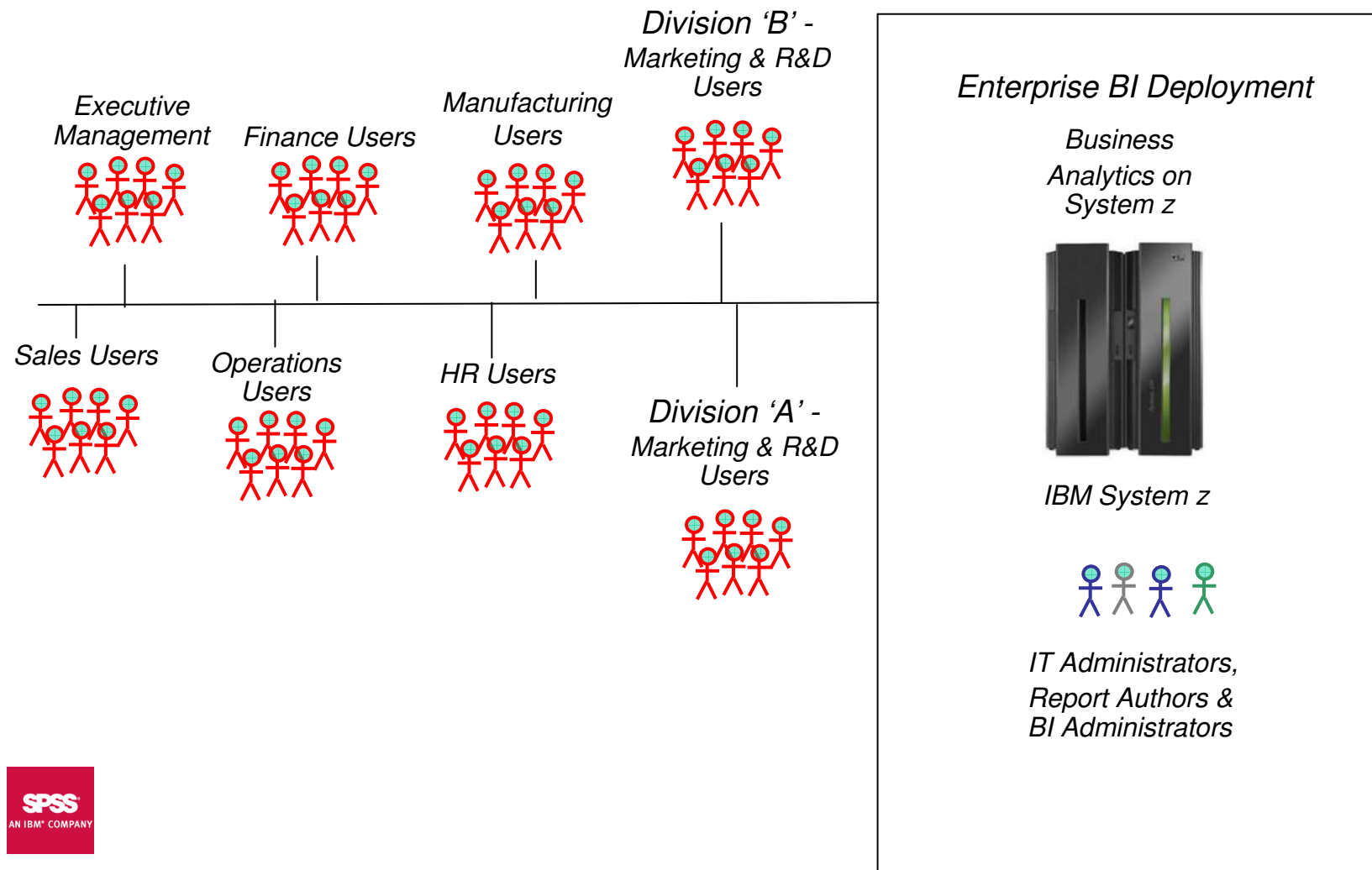
The distributed environment is **consolidated in a virtualized set-up** with high performance storage arrays.

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**.

YOUR Other Option! IBM Business Analytics on System z



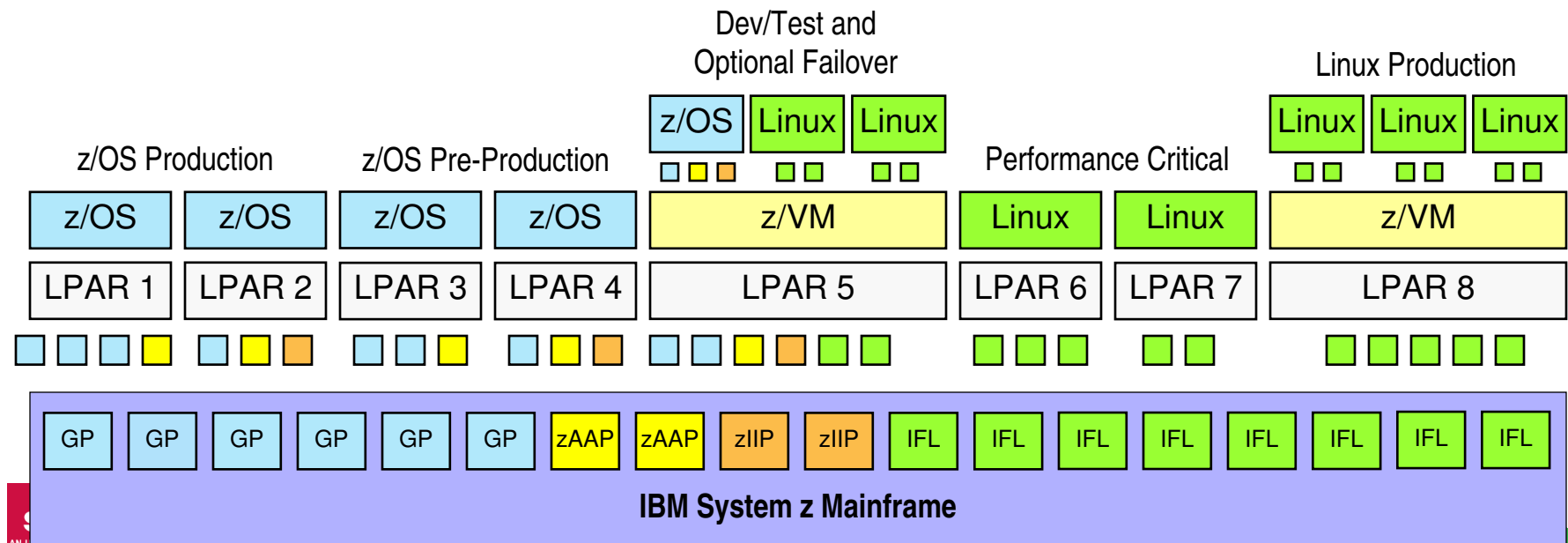
Why is System z the Right Infrastructure Choice for Business Intelligence?

- Provides an infrastructure for:
 - Centralizing of data
 - Standardization of service delivery
 - Corporate compliance
 - Metering, billing, chargeback and standardized on-boarding
- Provides effective & efficient utilization of existing resources:
 - Hardware & Software,
 - Human Resources
- Improves response time & agility to support the business
 - Reduce the time and speed associated with deploying BA
 - Rapid Provisioning
 - Simplified and faster access to the data on System z.
- Confidently meet the growing demands of the business
 - Scalability,
 - Reliability,
 - Availability and
 - Security

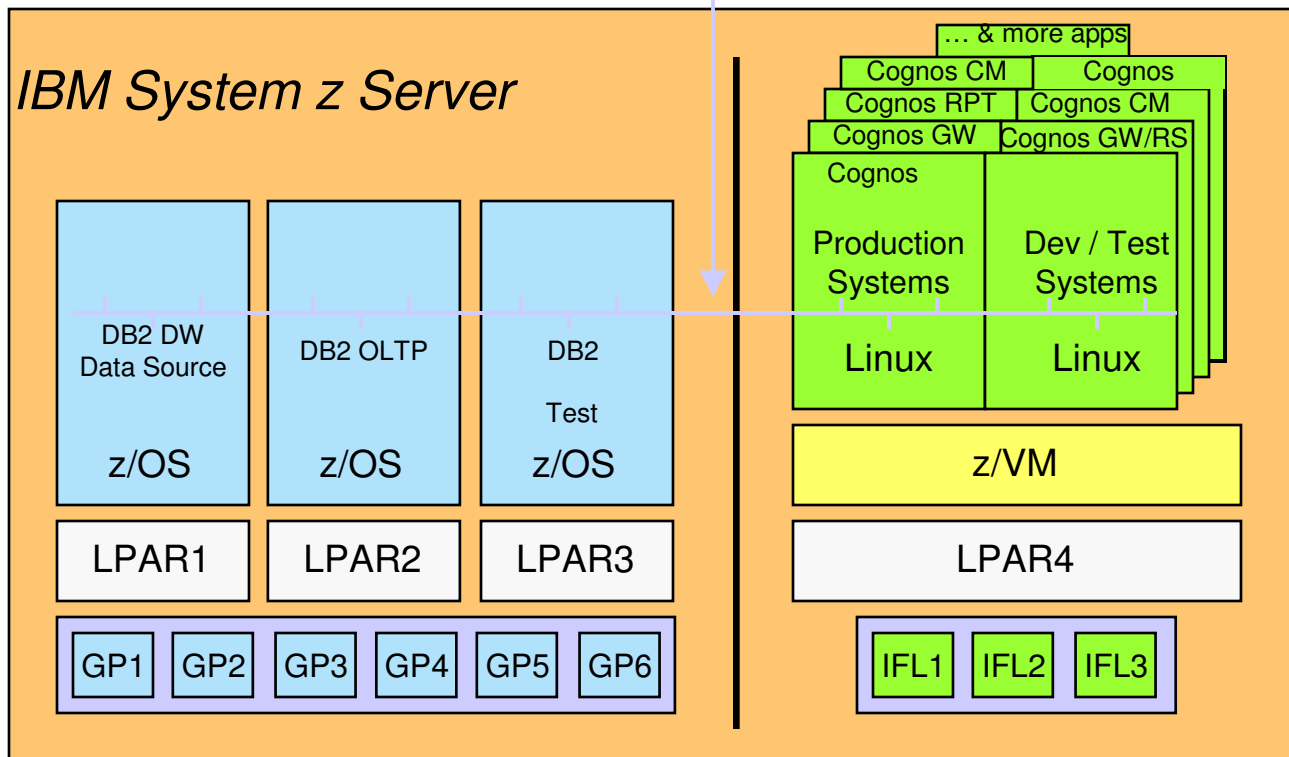


The Power and Flexibility of System z Virtualization

- Over 40 years of continuous innovation in virtualization technologies
- Architecture designed and optimized for resource **over commitment**
- Multiple images concurrently share all physical CPU and I/O resources
- Resources delivered **as needed, automatically**, based on business-oriented goals
- New OS images can be started without affecting ongoing work
- Hardware assists used to accelerate virtualization operations (e.g., SIE)



Cognos 8 BI for Linux on System z Sample Configuration



“Inside the box”
virtual networking or
physical networking

...a potential
source of cost
savings given
z/VM’s ability
to over-commit
CPU capacity

Virtually duplicated servers for
load balancing/failover/high
availability without additional
hardware on the floor

Success Story – Why Leverage Cognos 8 BI for Linux on System z

Objective: Using System z to standardize on a single BI solution

Requirements:

- **Demand for BI has really taken off**
 - New regulatory reporting requirements
 - Every new system, every new solution, every new application is having a business intelligence component
- **Multiple Cognos 8 BI deployments - 6+**
- **Wanted an enterprise BI standardized solution, but**
 - Needed higher capacity – grow from approx 400 to 1000 users
 - Do more with less - less researchers, less software, less hardware, same staff
 - Had available IFL's on System z

Results:

- **11 days to move from distributed to System z deployment model for Cognos 8 BI**
 - Quickly and easily meet new requirements
- **Consolidate multiple BI deployments on to a single platform**
- **Single point for BI administration**
- **Consolidate multiple disparate data sources**
- **Ensure 99.999% availability**
- **Offer a complete disaster recovery plan**
- **Additional green savings**



But is Business Analytics on System z Really an Option?

Examining the 5 Yr TCO for Business Analytics on
System z

Evaluated Business Scenarios

- IBM Cognos 8 BI Named User Sizing
 - 100
 - 1,000
 - 10,000
 - 20,000
 - 50,000
- Traditional infrastructure
 - + Full high-availability environment - where all potential points of failure have been made redundant.
 - + Technology Refresh implications
 - + Meeting future scalability requirements

RACEv

Right-Fitting Applications into Consolidated Environments

- An IBM Total Cost of Ownership tool and methodology:
 - Used to compare the many different cost and value parameters associated with today's varied enterprise computing deployment selections
 - Supports the analysis of
 - Server refresh, Linux on System z, Windows or Linux on VMware, AIX or Linux on POWER, and Linux or Solaris on Sun Zones or Logical Domains
 - Costing based on realistic defaults and 'get started' values, from 100's of real customer evaluations
 - 17 categories of cost
 - Support for System z, System p, x86 servers, and more
- Learn More about the RACEv Service
 - <http://www.mainframezone.com/it-management/straight-talk-for-mainframe-executives-right-fitting-applications-into-consolidated-environments-an-interview-with-ibms-monte-bauman>



TCO Study Assumptions

- Examined the TCO over 5 years
 - x86 (Windows based, Intel type microprocessor system) vs System z 10 Enterprise Class (Linux)
 - For consistency we have applied the same model for capacity planning across all sizes, costs would adjust to reflect specific customer requirements
 - All scenarios were based on starting net new with both x86 or System z servers
 - H/W and S/W requirements were based on stated Cognos 8 BI best practices
 - All scenarios included development, test and production environments
 - Business Analytics product: IBM Cognos 8 BI
 - Based on Named Users with the following breakdown
 - 70% Consumers
 - 10% Business Authors
 - 5% Professional Authors
 - 15% Analysis
 - User Concurrency Ratio
 - 1% for consumers and recipients
 - 3% for authors and analysts
 - Pricing was calculated based on estimated street price
 - 10,000+ users on System z – Solution Edition Pricing
 - 1st year costs include both the total cost of acquisition and maintenance
 - Costing comparison based on infrastructure costs – Cognos license cost a constant so not included



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%

100 Named IBM Cognos 8 BI Users

Total Cost over 5 Years (High Availability w/ Tech Refresh)	
x86 Approx \$3 Million	
System z Approx \$1.1 Million	

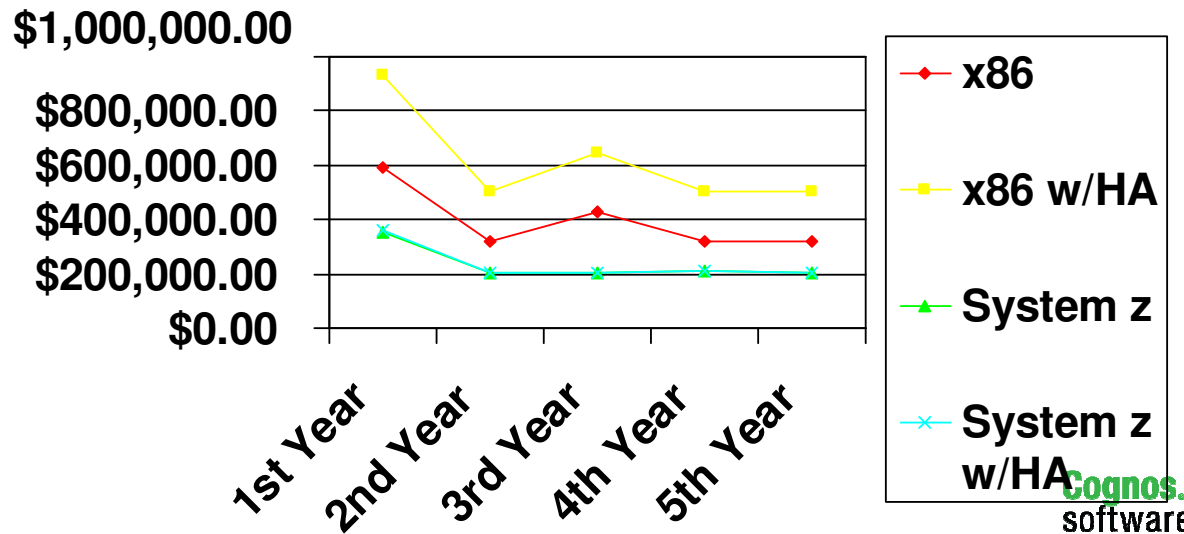
TCO Savings with System z	
Core	48.8%
High Availability	67.2%
Tech Refresh	40.6%
Tech Refresh w/ HA	61.6%
Growth - Core	44.4%
Growth w/ HA	64%

Server Savings	
System z vs x86	
No HA	1 vs 11
With HA	1 vs 17

CPU's Savings	
IFL's vs Cores	
No HA	0.5 vs 44
With HA	0.5 vs 69

Year over Year Infrastructure Costs

(High Availability w/ Tech Refresh)

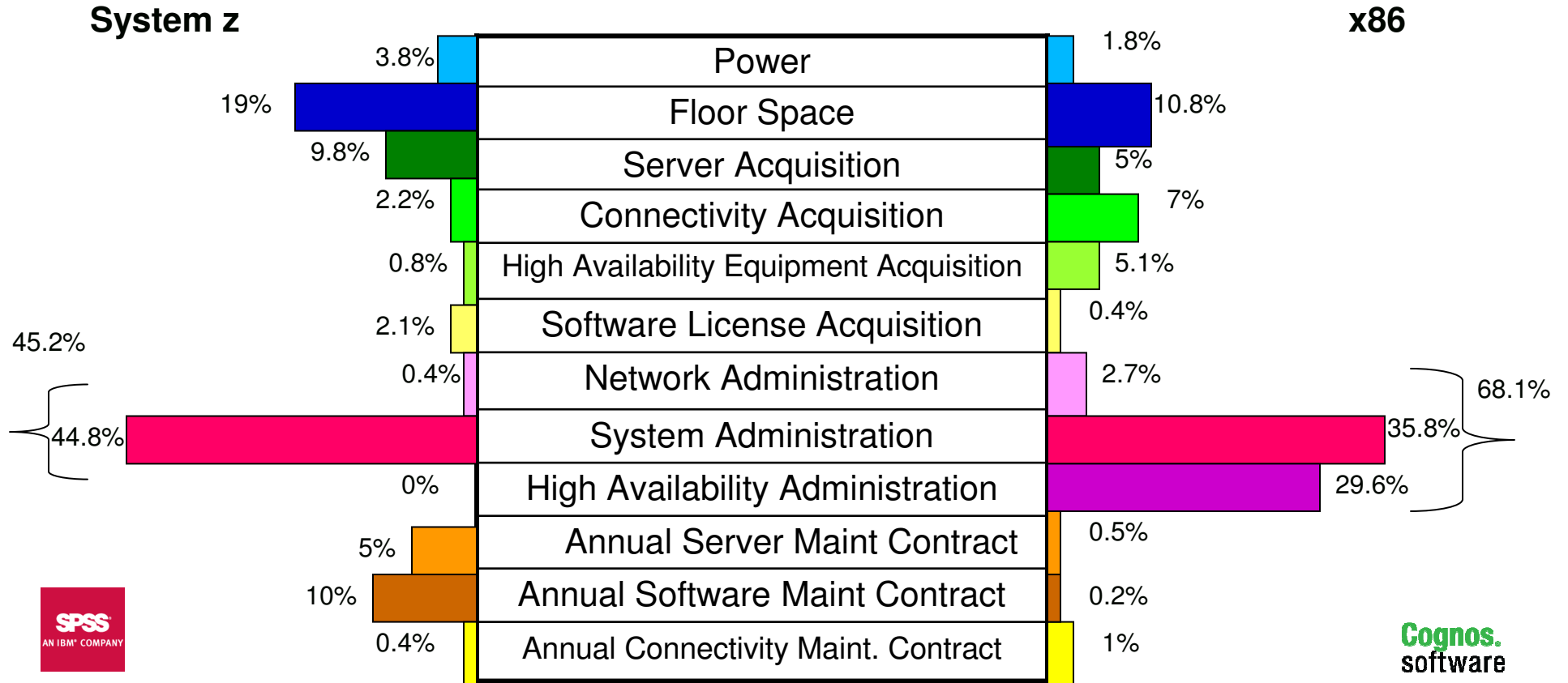


100 Named IBM Cognos 8 BI Users

% Breakdown of Total Infrastructure Cost Over 5 Years

Total Cost over 5 Years
x86 Approx \$3 Million
System z Approx \$1.1 Million

% of Total Infrastructure Cost Over 5 Years



1,000 Named IBM Cognos 8 BI Users

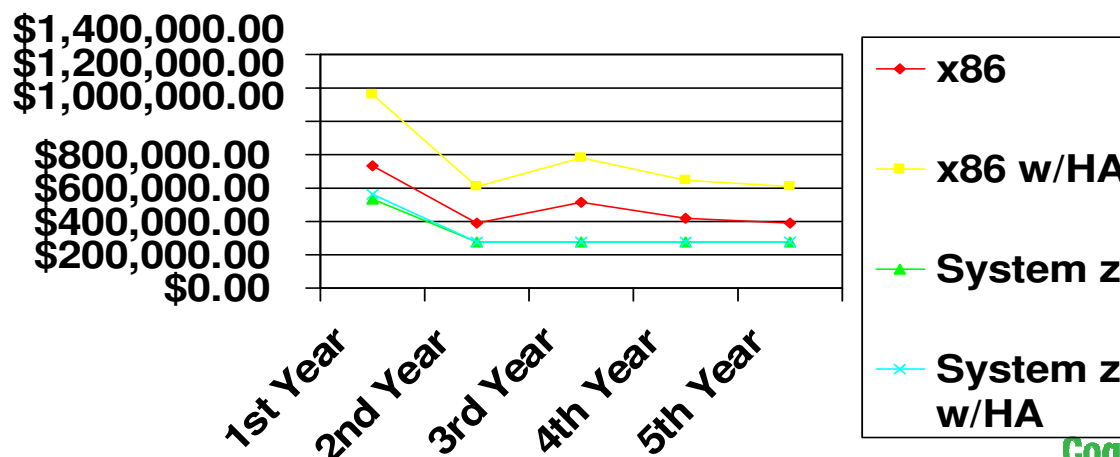
Total Cost over 5 Years (High Availability w/ Tech Refresh)
x86 Approx \$3.8 Million
System z Approx \$1.6 Million

TCO Savings with System z	
Core	28.3%
High Availability	53.6%
Tech Refresh	32.7%
Tech Refresh w/ HA	55.9%
Growth - Core	39.1%
Growth w/ HA	58.9%

Server Savings	
System z vs x86	
No HA	1 vs 14
With HA	1 vs 22

CPU's Savings	
IFL's vs Cores	
No HA	2.3 vs 56
With HA	2.3 vs 88

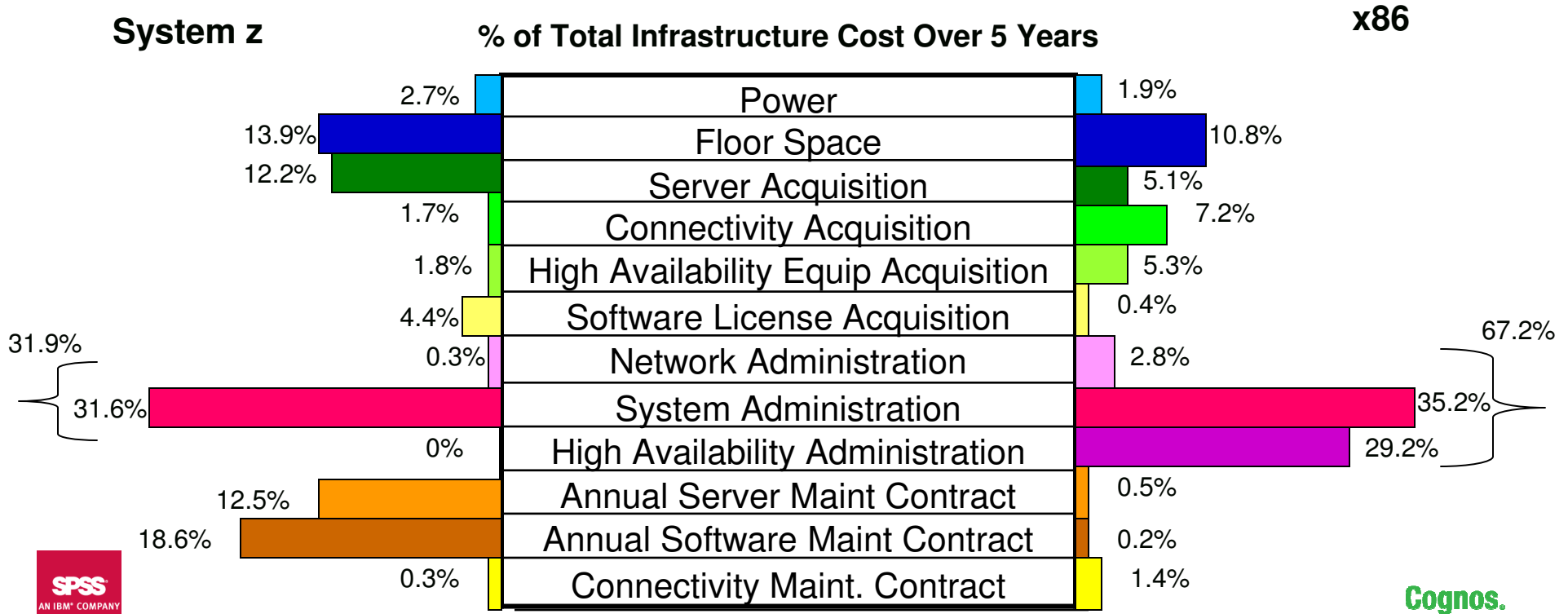
Year over Year Infrastructure Costs (High Availability w/ Tech Refresh)



1000 Named IBM Cognos 8 BI Users

% Breakdown of Total Infrastructure Cost Over 5 Years

Total Cost over 5 Years
x86 Approx \$3.8 Million
System z Approx \$1.6 Million



10,000 Named IBM Cognos 8 BI Users

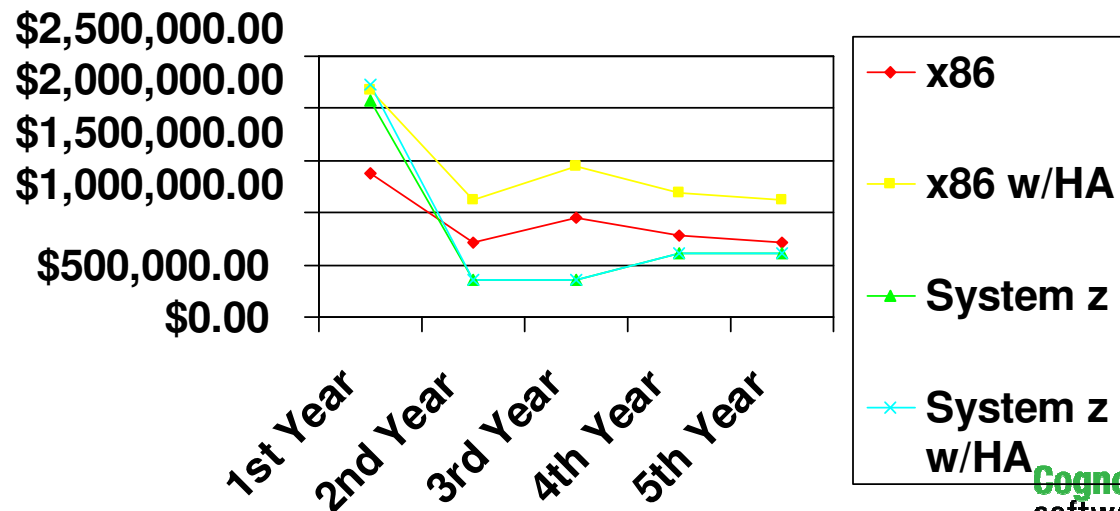
Total Cost over 5 Years (High Availability w/ Tech Refresh)	
X86 Approx \$7 Million	
System z Approx \$4.1 Million	

TCO Savings with System z	
Core	6%
High Availability	38%
Tech Refresh	11.9%
Tech Refresh w/ HA	41.2%
Growth - Core	16.1%
Growth w/ HA	43%

Year over Year Infrastructure Costs

(High Availability w/ Tech Refresh)

Server Savings System z vs x86		CPU's Savings IFL's vs Cores	
No HA	1 vs 27	No HA	22.9 vs 108
With HA	1 vs 42	With HA	22.9 vs 170

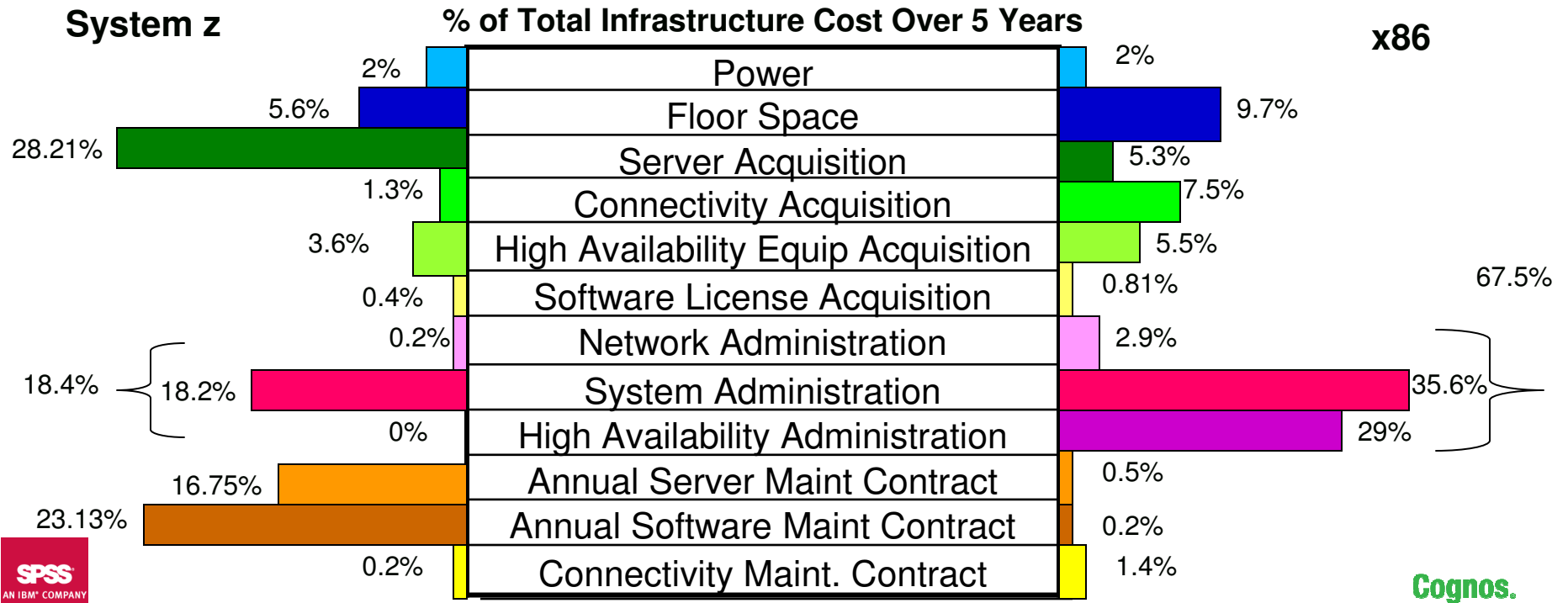


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software

10,000 Named IBM Cognos 8 BI Users

% Breakdown of Total Infrastructure Cost Over 5 Years

Total Cost over 5 Years
X86 Approx \$7 Million
System z Approx \$4.1 Million



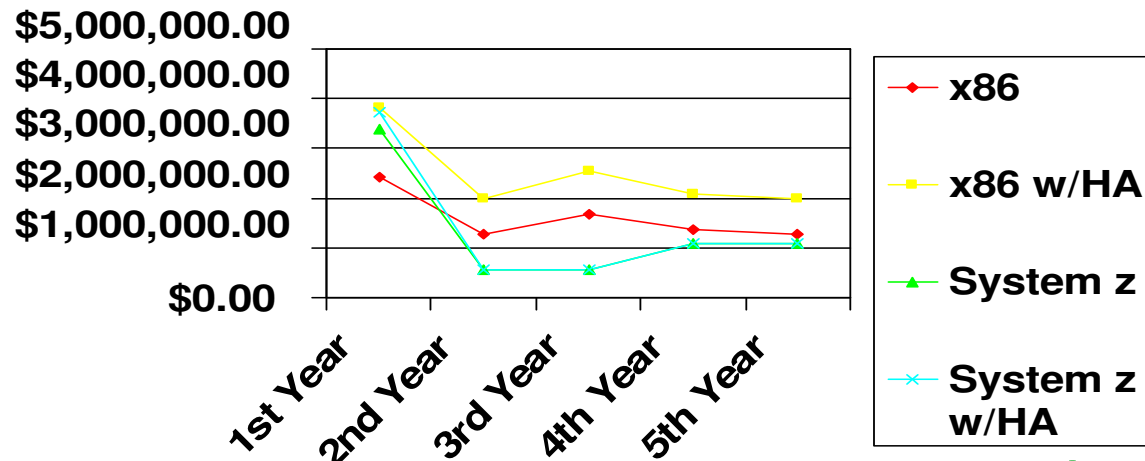
20,000 Named IBM Cognos 8 BI Users

Total Costs over 5 Years (High Availability w/ Tech Refresh)	
X86 Approx \$12.4 Million	
System z Approx \$7 Million	

TCO Savings with System z	
Core	10.7%
High Availability	40.5%
Tech Refresh	16.3%
Tech Refresh w/ HA	43.6%
Growth - Core	11.3%
Growth w/ HA	39.9%

Server Savings System z vs x86		CPU's Savings IFL's vs Cores	
No HA	1 vs 47	No HA	48.3 vs 188
With HA	1 vs 74	With HA	48.3 vs 295

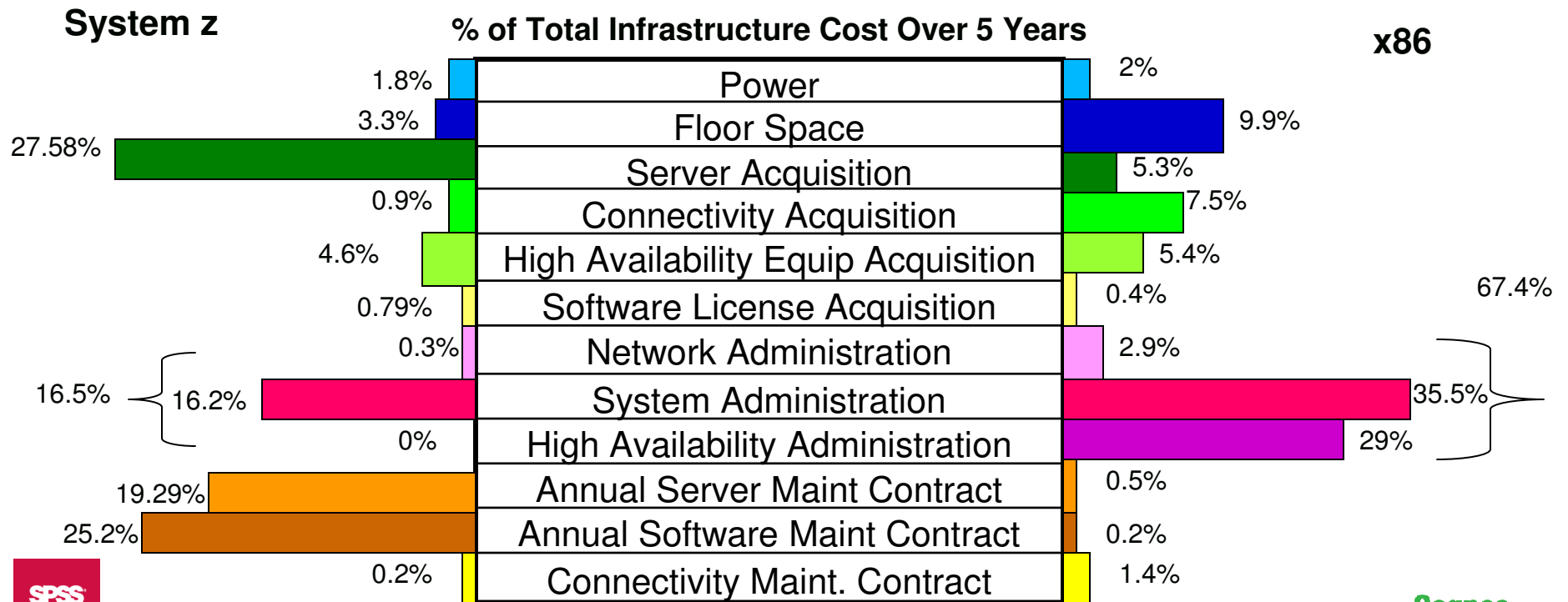
Year over Year Infrastructure Costs (High Availability w/ Tech Refresh)



20,000 Named IBM Cognos 8 BI Users

% Breakdown of Total Infrastructure Cost Over 5 Years

Total Costs over 5 Years
X86 Approx \$12.4 Million
System z Approx \$7 Million



50,000 Named IBM Cognos 8 BI Users

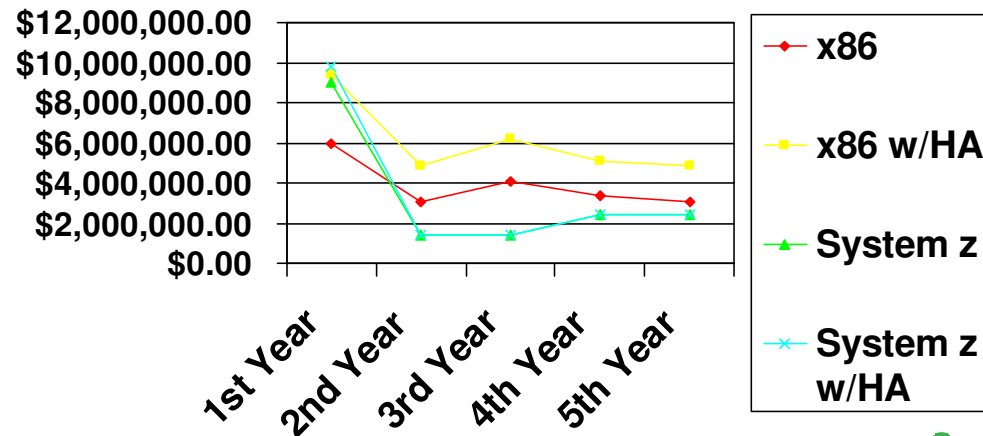
Total Cost over 5 years (High Availability w/ Tech Refresh)	
x86 Approx. \$30.5 Million	
System z Approx \$17.5 Million	

TCO Savings with System z	
Core	8.9%
High Availability	39.3%
Tech Refresh	14.6%
Tech Refresh w/ HA	42.4%
Growth - Core	15.8%
Growth w/ HA	42.6%

Server Savings System z vs x86	
No HA	3 vs 117
With HA	3 vs 184

CPU's Savings IFL's vs Cores	
No HA	121.7 vs 468
With HA	121.7 vs 735

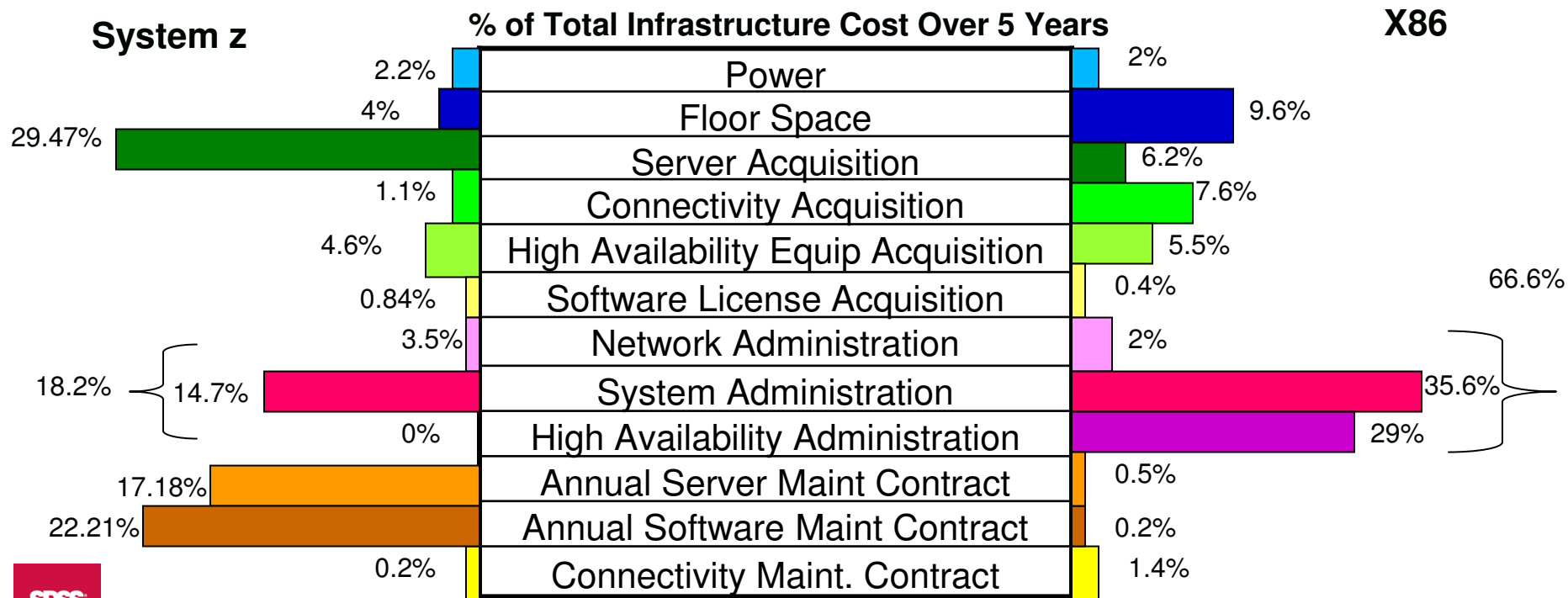
Year over Year Infrastructure Costs (High Availability w/Tech Refresh)



50,000 Named IBM Cognos 8 BI Users

% Breakdown of Total Infrastructure Cost Over 5 Years

Total Cost over 5 years
x86 Approx. \$30.5 Million
System z Approx \$17.5 Million



Cognos 8 BI for Linux on System zPerformance Testing

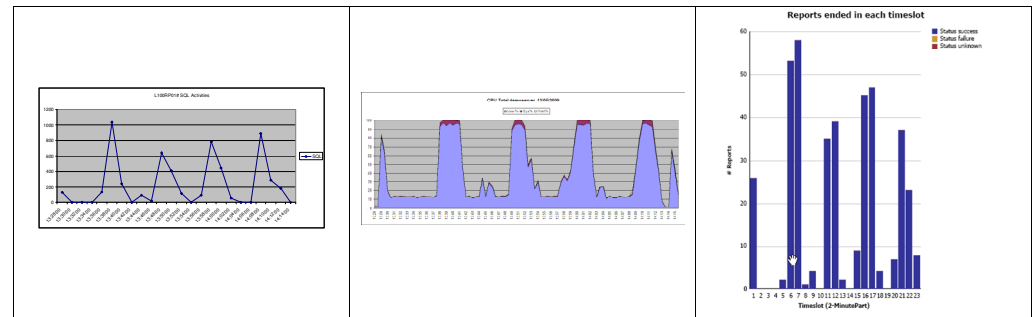
- **Customer provided the need:**
 - Processes operational and financial data for 10.000 other companies and exchanges info with 250 B2B partners.
 - Faced with performance & stability issues and could not expand it's BI any further.
- **IBM Provided the Test Infrastructure:**
 - Cognos 8 BI v3 and Websphere 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.



Then There's Price!

What's the Real Price of Business Intelligence Software?

Source: Gartner "What's the Real Price of Business Intelligence Software?" James Richardson, 01 April 2010

“Price **should not be the sole driving consideration** in vendor selection. **Total cost of ownership** should be a key consideration, but only within the context of a solution that first and foremost, **meets requirements.**”

Return on Investment

IBM Cognos Business Intelligence: Impacting the Bottom Line

The image is a collage illustrating the return on investment for IBM Cognos Business Intelligence. It features several key elements:

- Harrah's Sign:** A large, illuminated sign for Harrah's is shown in the background. An orange starburst graphic is overlaid on it, containing the text "\$78.5M".
- United States Coast Guard Website:** A screenshot of the United States Coast Guard website is shown in the foreground. An orange starburst graphic is overlaid on it, containing the text "\$28M". The website header includes "United States Coast Guard" and "U.S. Department of Homeland Security". The main content area features a "Featured Photo" section with a description of a Coast Guard cutter trip to the 2009 Portland Rose Festival.
- SPSS Logo:** The SPSS logo, "AN IBM COMPANY", is visible in the bottom left corner.
- Cognos Software Logo:** The Cognos software logo is located in the bottom right corner.

IBM Business Analytics on System z

Meeting the needs of the Business and IT

How are we doing?

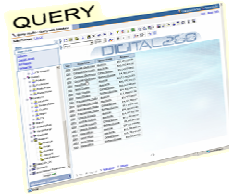


Real-time or historical; operational or strategic

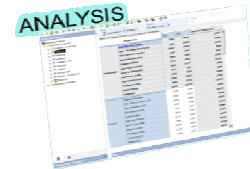
Why are we on/off track?



Guided or self-service access and exploration...



What should we do next?



Foresight using Statistical, Content, 'What-if' 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



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Flexible Deployment Options



IBM Business Analytics on System z

- **Meeting all your Business Needs:**

- Providing the right information, in the right hands at the right time with the complete range of BI capabilities the business needs: including real-time monitoring, reporting, analysis & dashboarding.
- Proven Return of Invest: Driving a profound impact on optimizing business results

- **At a Reduced Total Cost of Ownership:**

- Average savings over 5 years: 36%
- Average savings in CPUs: 87%
- Average savings in servers: 96%
- Total cost of acquisition is either cheaper (100/1000) or equal to (10,000 – 50,000) with System z vs x86
- Regardless of size System z more cost effective from an administrative and facilities perspective
- % of total costs over 5 years holds steady with an x86 infrastructure and does not offer any volume discounts from a facilities/administrative perspective
- System Administration savings with System z for the 10,000 to 50,000 user deployments is equal to the TCO over 5 years for Cognos 8 BI for Linux on System z
- The TCO for high availability is consistently approximately 50% cheaper with System z

*And It can only gets better for existing System z customers with existing capacity or who just need to add extra capacity.



Don't Believe us....

Complete your own study based on YOUR specific infrastructure....

- Contact your IBM Sales Rep and zCognos@us.ibm.com, today!
 - Request a Right-Fitting Applications into Consolidated Environments (RACE) Analysis

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Albert Einstein.....

- **Three Rules of Work:
Out of clutter find simplicity;
From discord find harmony;
In the middle of difficulty lies opportunity.”**

IBM Business Analytics on System z



Thank You

