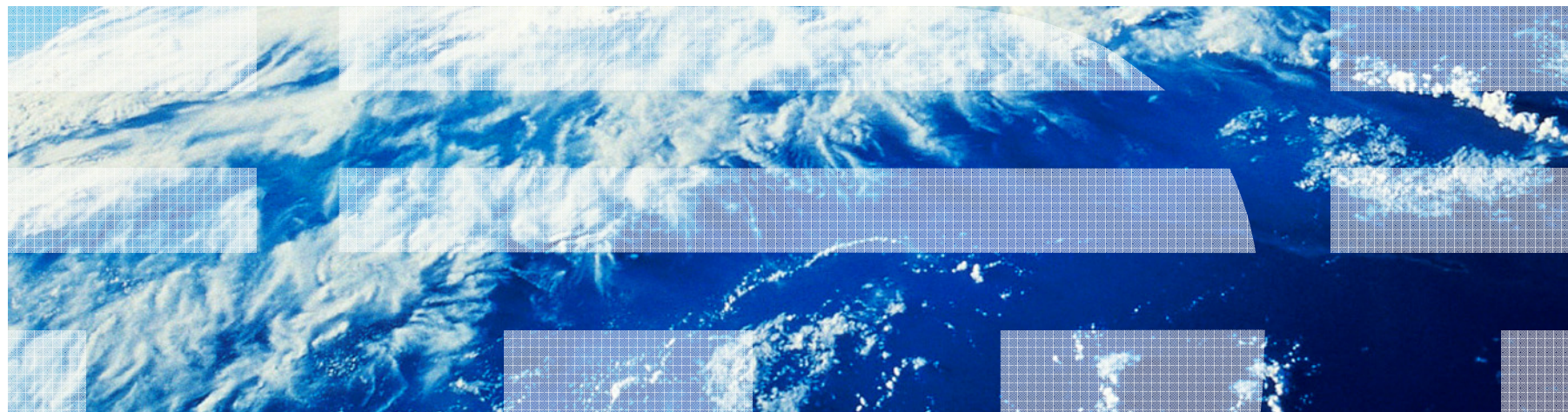


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# Exploring the TCO & TCA of leveraging System z for your Cognos 8 BI infrastructure

**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?

## Product Management

Are our products meeting our customers needs?

## Sales

What is driving sales performance and pipeline?

## Operations

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

## Human Resources

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

## 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

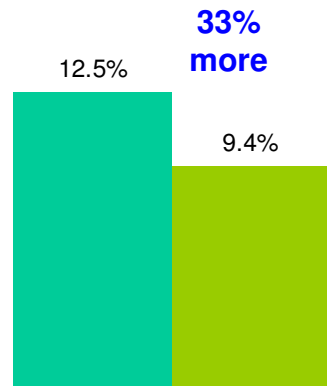
Secure access to information over the web with no training



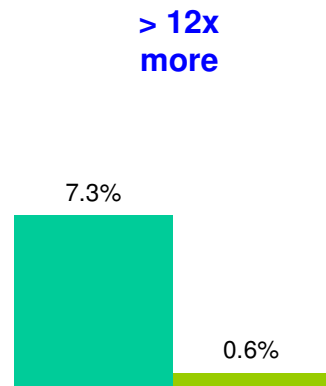
**Cognos.**  
software

# Companies that Invest in Business Insight Consistently Outperform

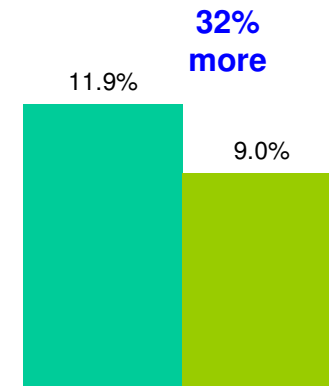
**Revenue Growth**  
5 Year CAGR (2004-2008)



**EBITDA**  
5 Year CAGR (2004-2008)



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



- Finance organizations with business insight
- All other enterprises



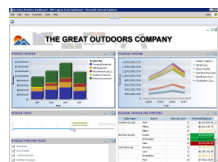
Revenue Growth: N = 580; EBITDA: N = 435; ROIC: N = 606  
Source: IBM Global Business Services, The Global CFO Study 2010





# Business Analytics

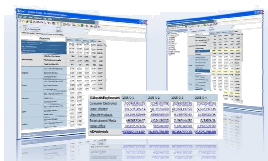
....Few are Satisfied Today!



**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



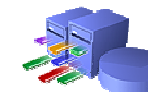
**Application & Web Servers**



**Data Integration & Data Quality Tools**

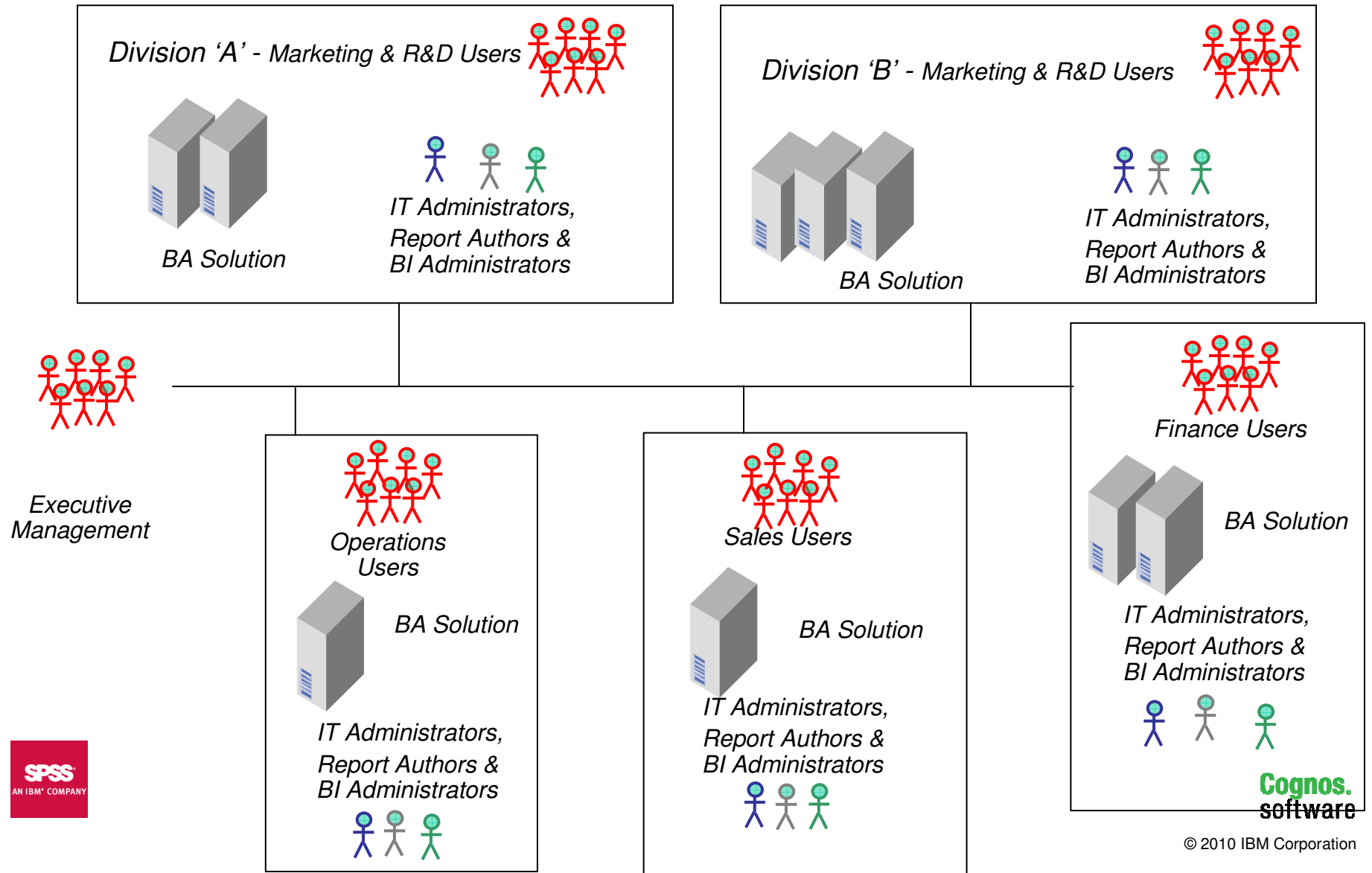


**Security Providers & Firewalls**

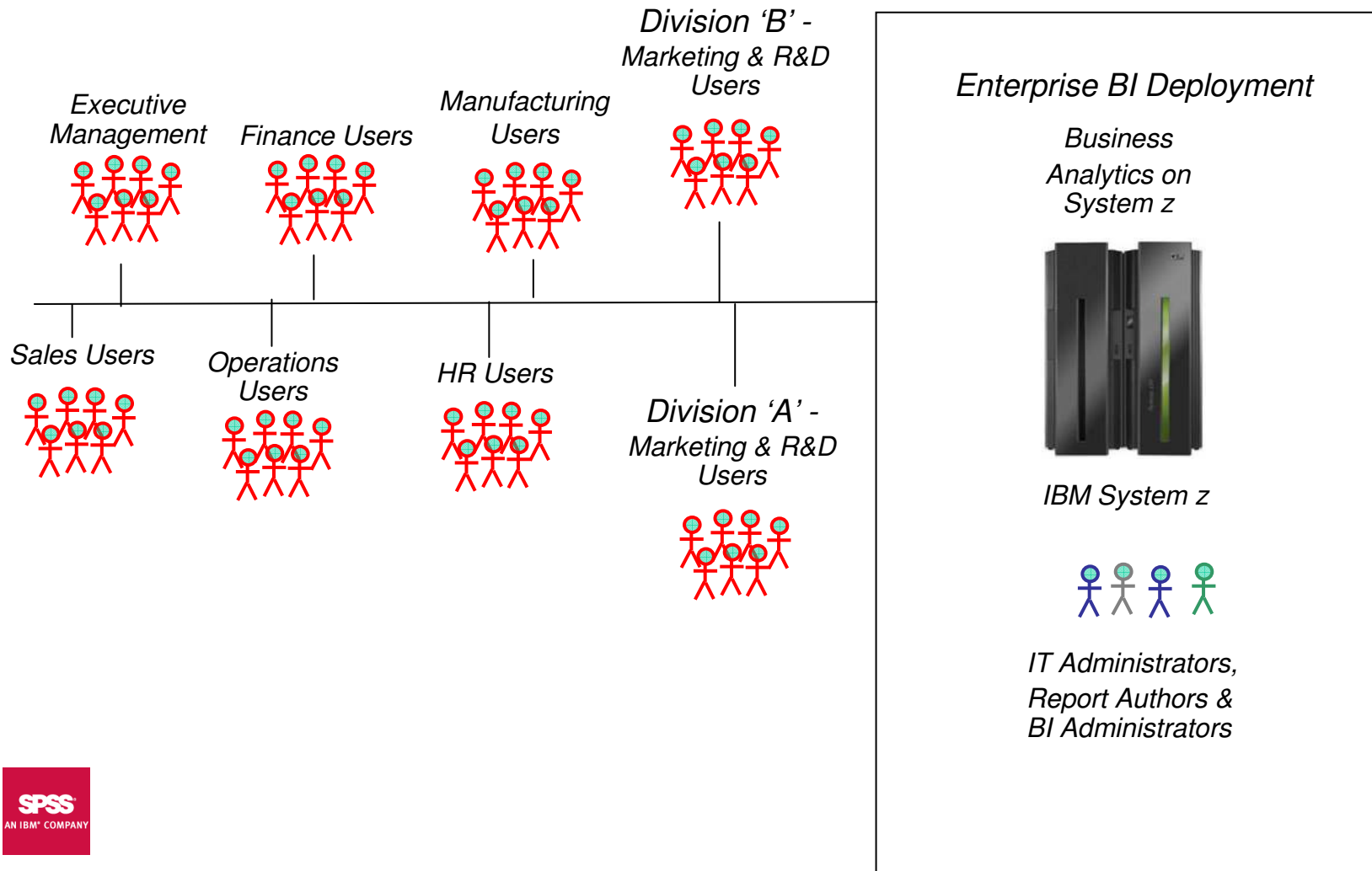


**Platforms & Databases**

# 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



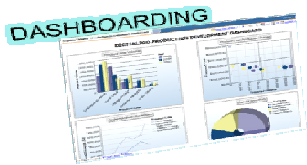
# IBM Business Analytics on System z

Meeting the needs of the Business and IT

**How are we doing?**

**Why are we on/off track?**

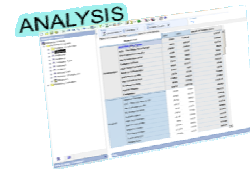
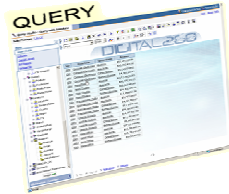
**What should we do next?**



*Real-time or historical; operational or strategic*



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



*Foresight using Statistical, 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**



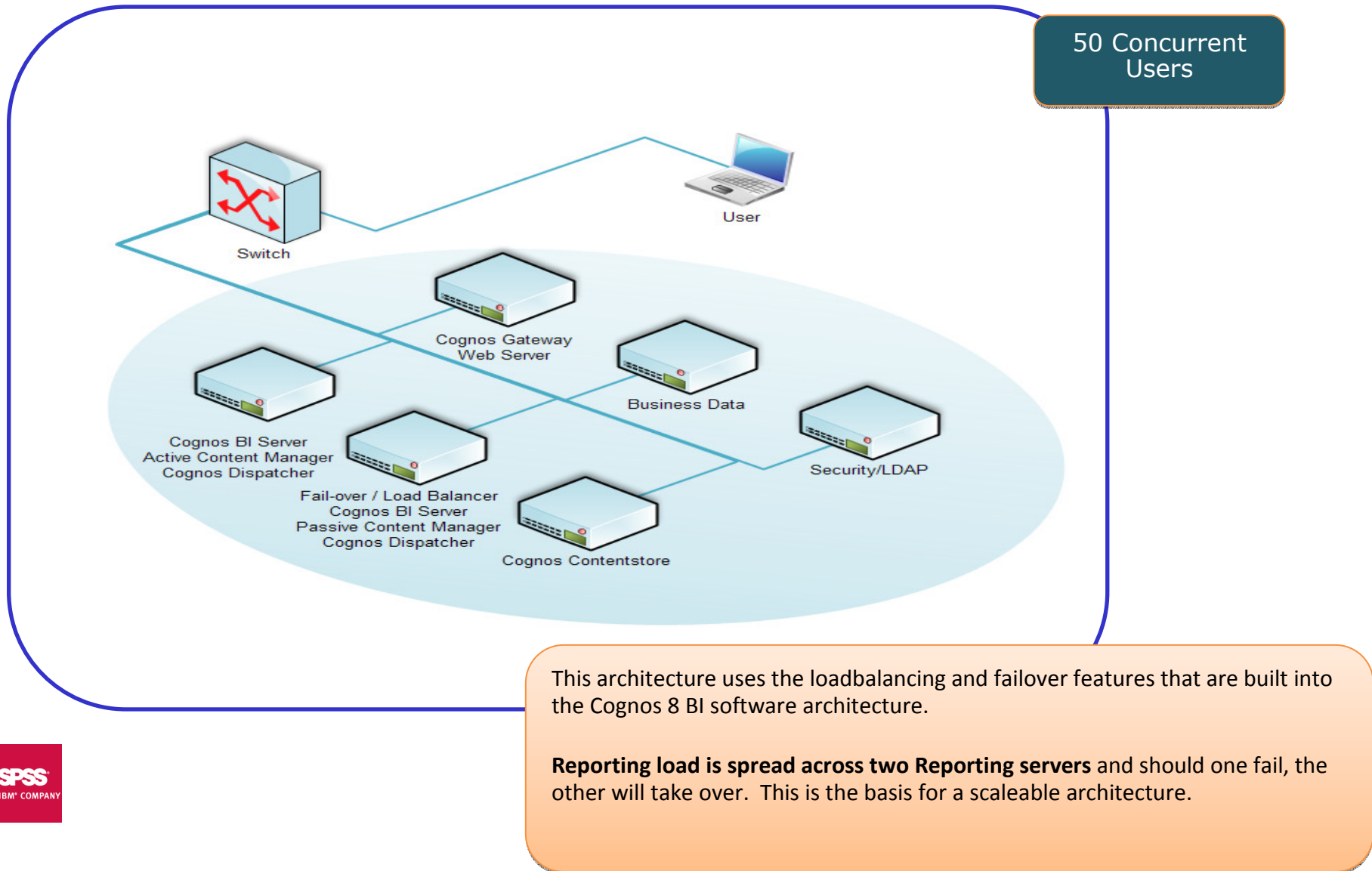
**Fast Access to Data**



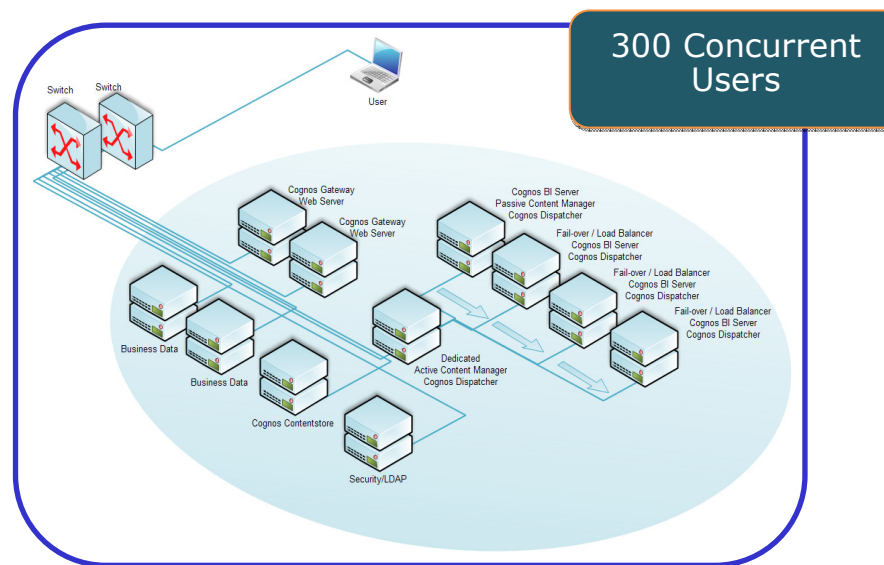
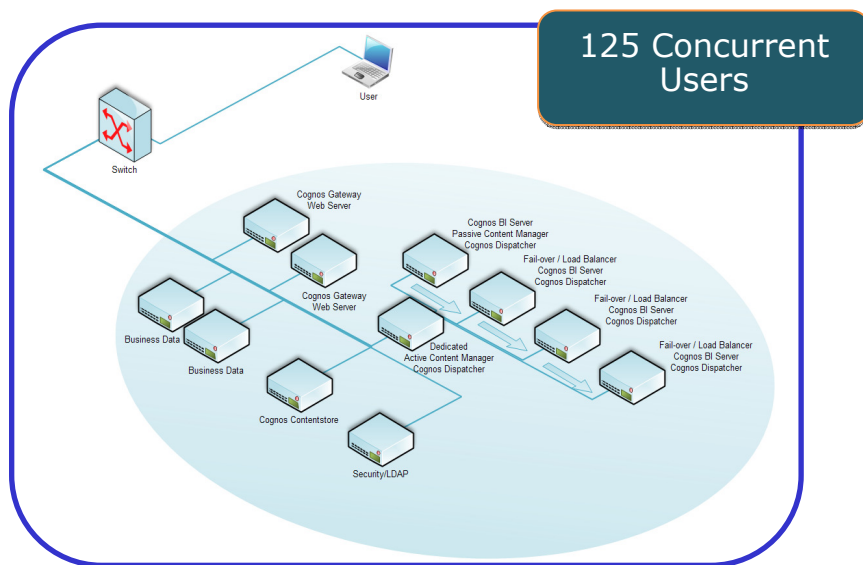
**Cognos. software**

# Business Analytics Infrastructure Considerations

# Recommended Core Architecture



# Introducing Focus and Redundancy



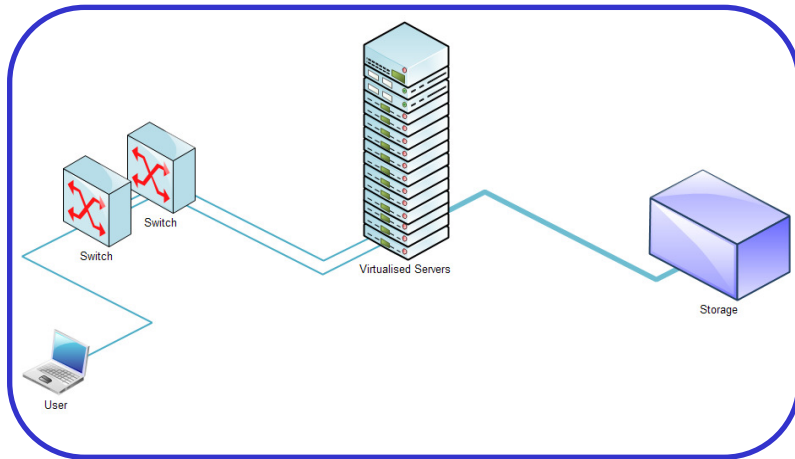
A further degree of “specialisation” is introduced at the Cognos 8 BI level by **dedicating a server to the dispatching of all requests to a farm of Cognos 8 BI application servers**, freeing even more capacity for the Cognos 8 BI Report servers to focus on their core business.

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.

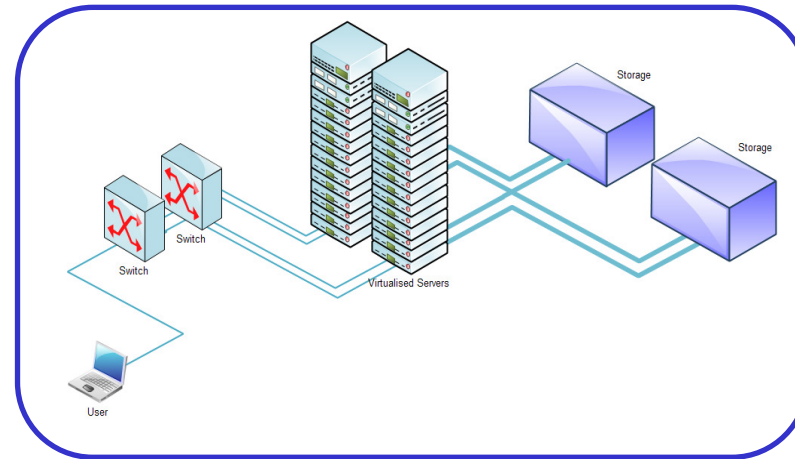
**Redundancy is introduced** throughout the environment to achieve high-availability.

# Virtualizing and Resolving Failure Points



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

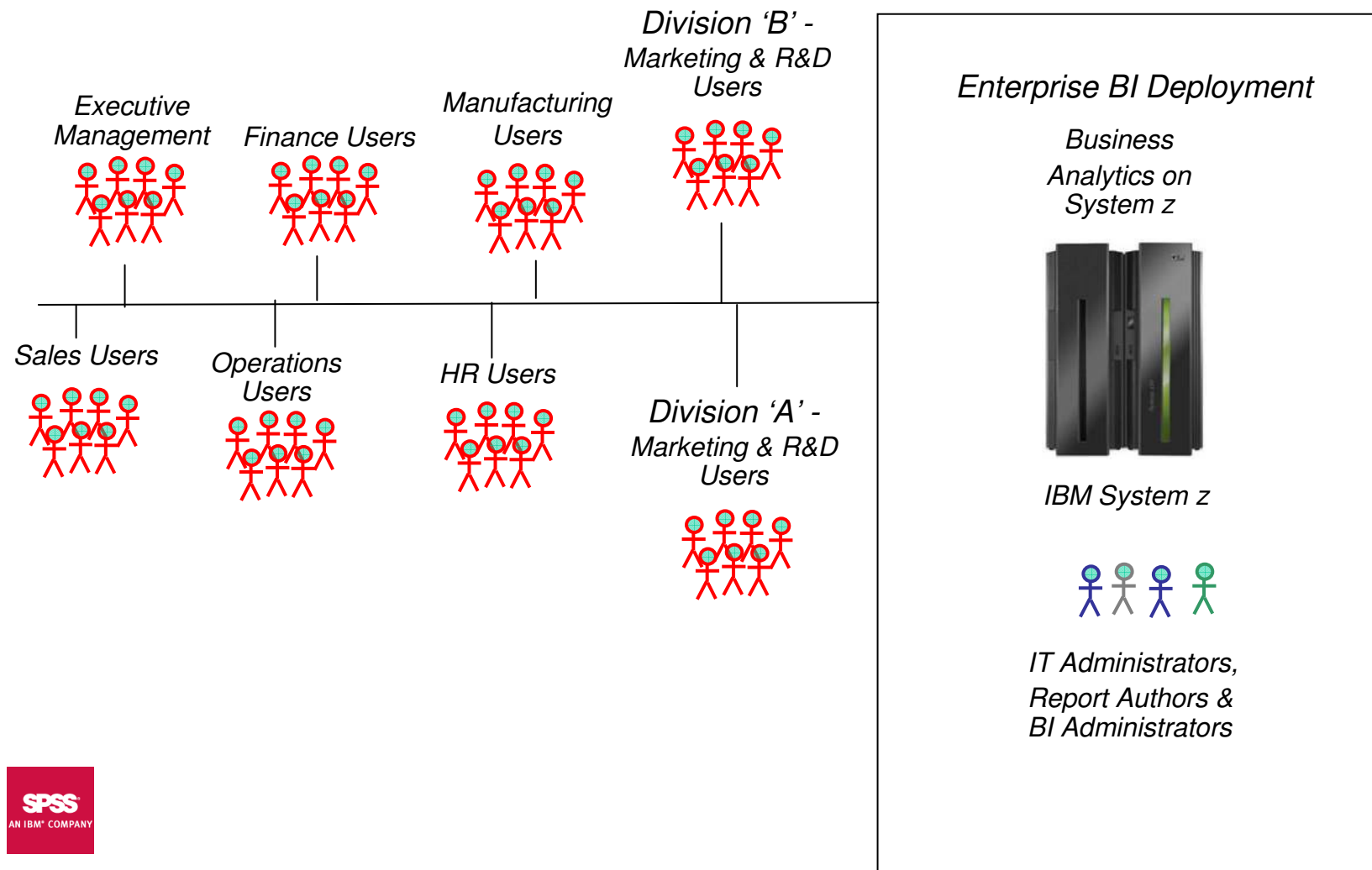
The virtual host as well as the storage create potential failure points.



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



# YOUR Other Option! IBM Business Analytics on System z



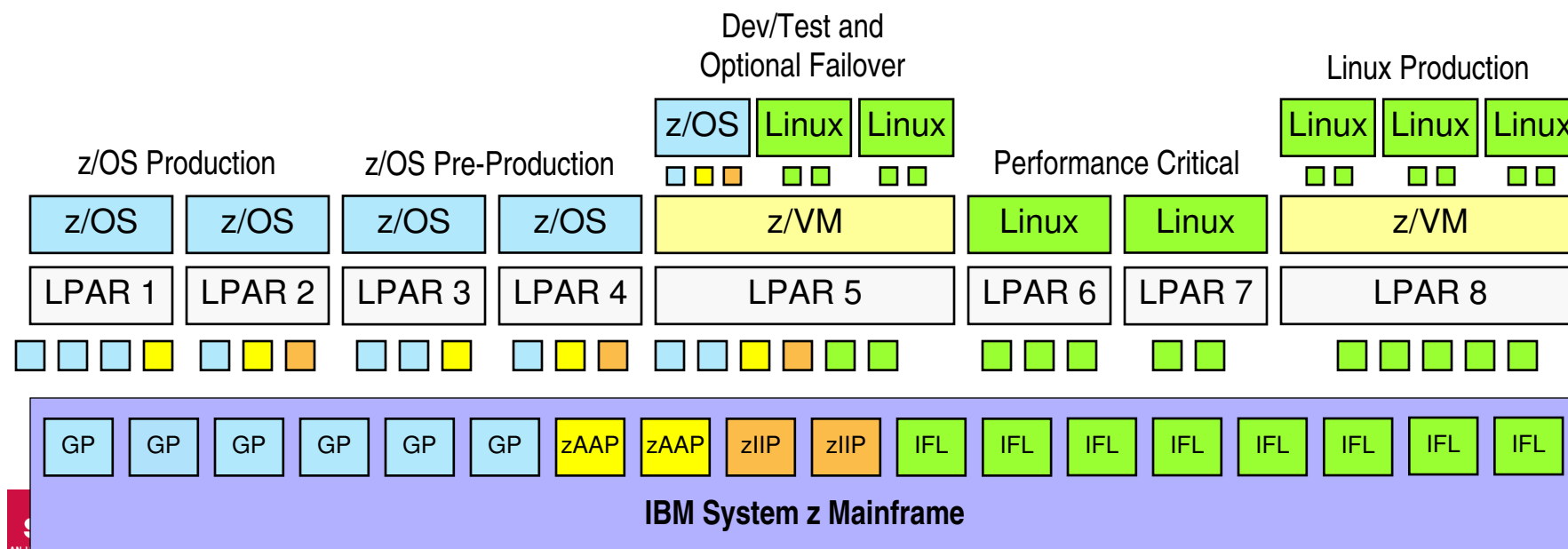
# Why is System z the Right Infrastructure Choice for Business Intelligence?

- 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

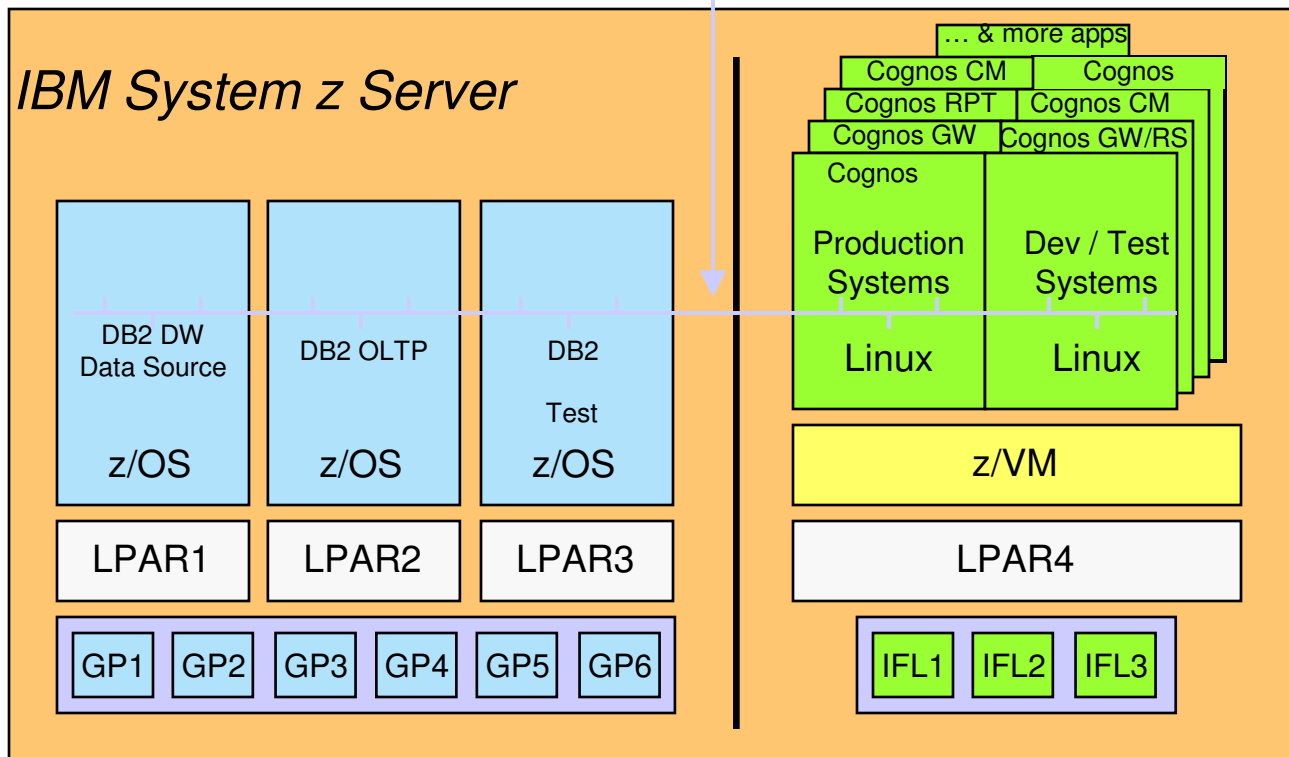


# The Power and Flexibility of System z Virtualization

- 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
  - 1<sup>st</sup> 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

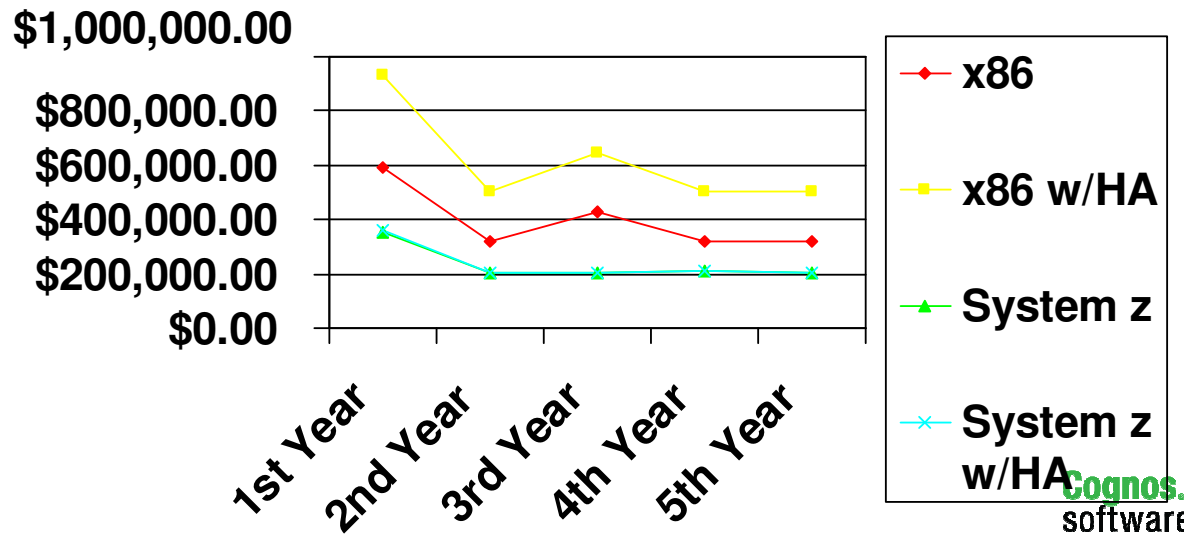
|   |  |
|---|--|
| <b>Total Cost over 5 Years</b><br>(High Availability w/ Tech Refresh) |  |
| x86 Approx \$3 Million  |  |
| System z Approx \$1.1 Million   |  |

| TCO Savings with System z |              |
|---------------------------|--------------|
| Core                      | 48.8%        |
| High Availability         | 67.2%        |
| Tech Refresh              | 40.6%        |
| <b>Tech Refresh w/ HA</b> | <b>61.6%</b> |
| 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)

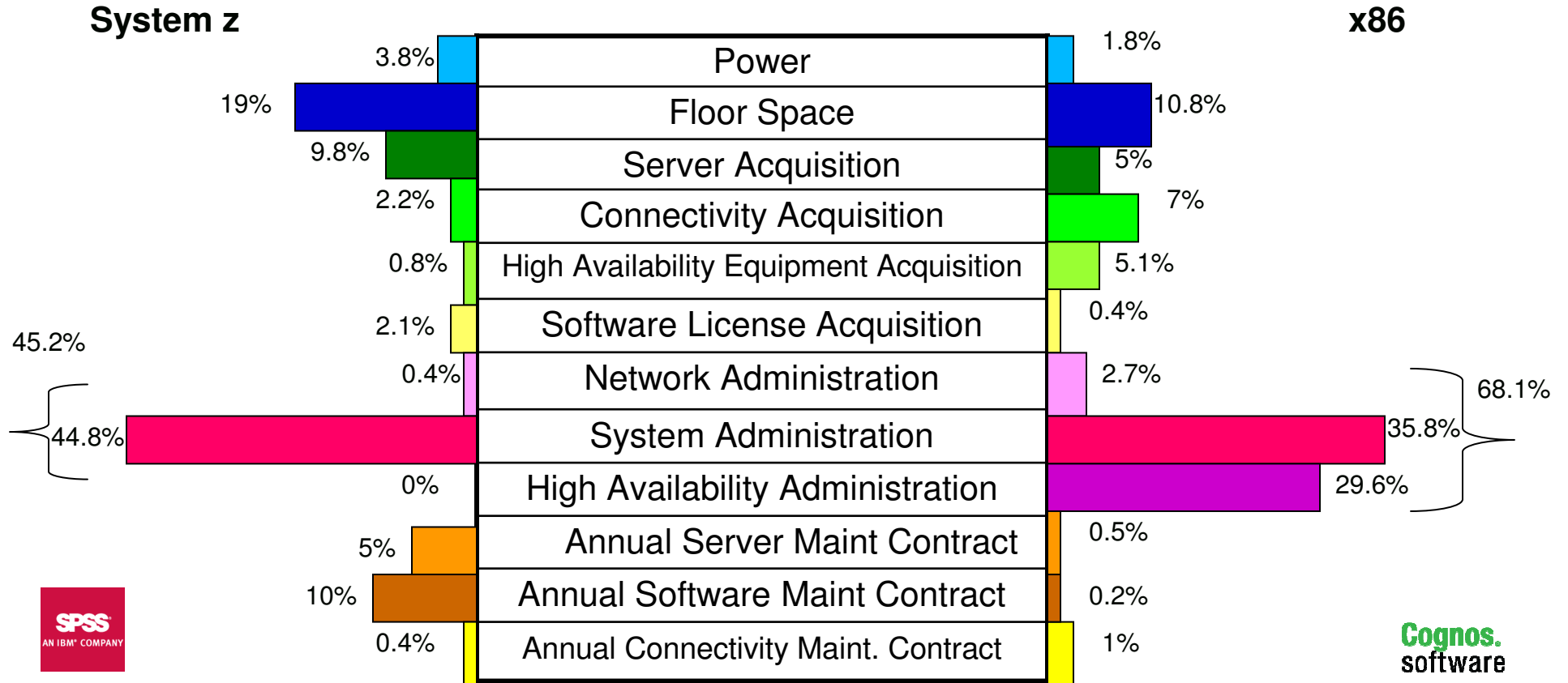


# 100 Named IBM Cognos 8 BI Users

% Breakdown of Total Infrastructure Cost Over 5 Years

|                                |
|--------------------------------|
| <b>Total Cost over 5 Years</b> |
| 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

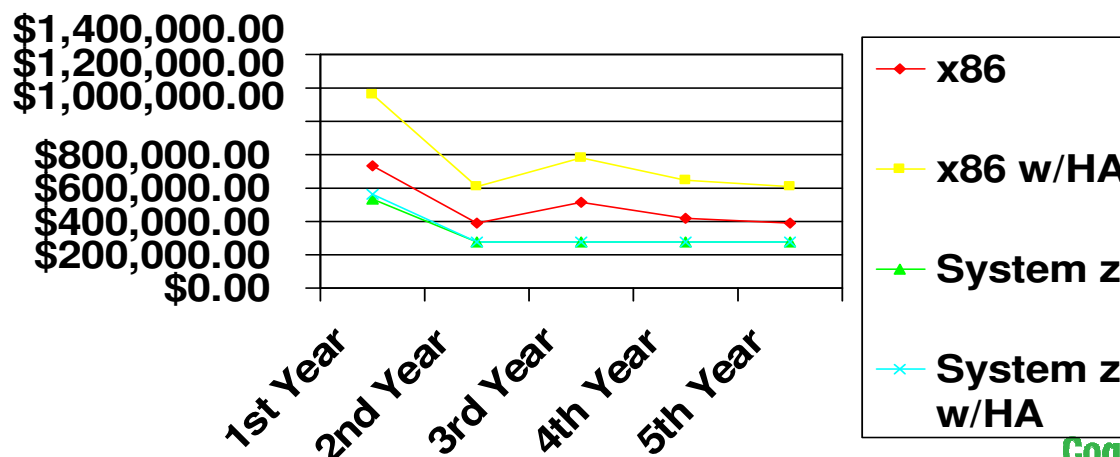
|   |
|---|
| <b>Total Cost over 5 Years</b><br>(High Availability w/ Tech Refresh) |
| <b>x86</b> Approx \$3.8 Million                                       |
| <b>System z</b> Approx \$1.6 Million                                  |

| TCO Savings with System z |              |
|---------------------------|--------------|
| Core                      | 28.3%        |
| High Availability         | 53.6%        |
| Tech Refresh              | 32.7%        |
| <b>Tech Refresh w/ HA</b> | <b>55.9%</b> |
| 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 |

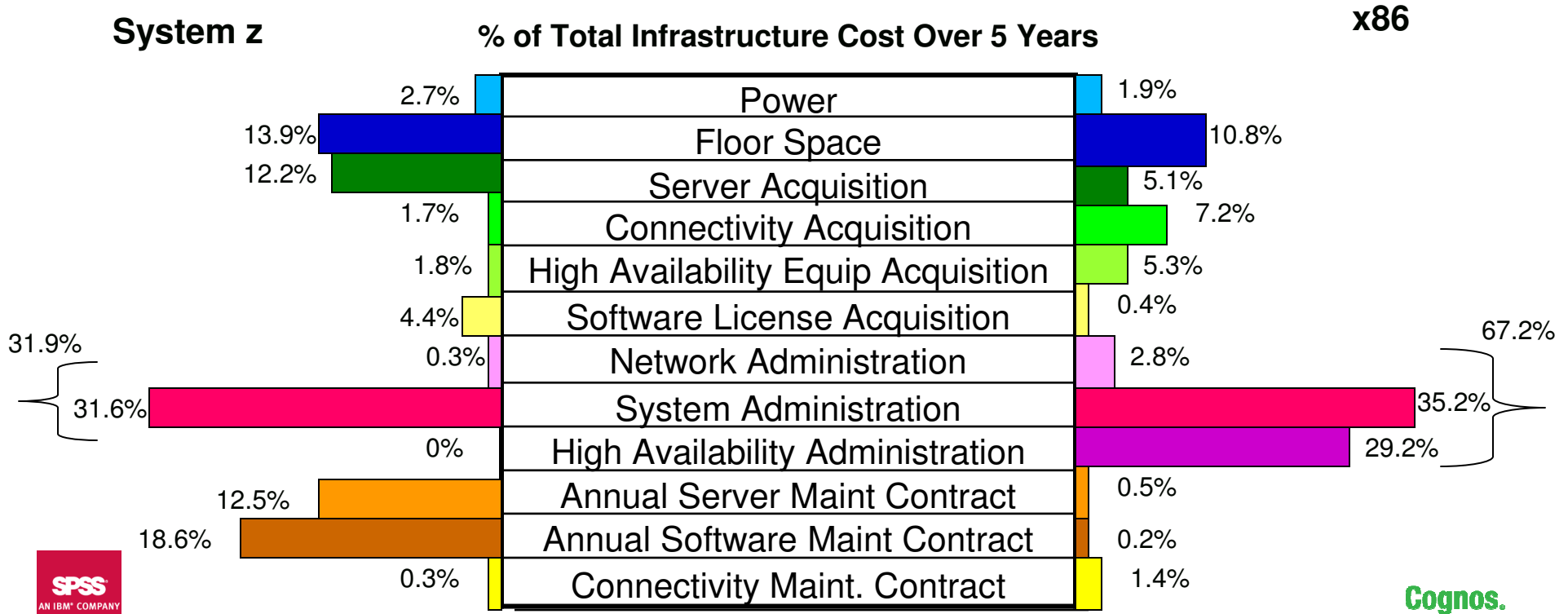
## Year over Year Infrastructure Costs (High Availability w/ Tech Refresh)



# 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

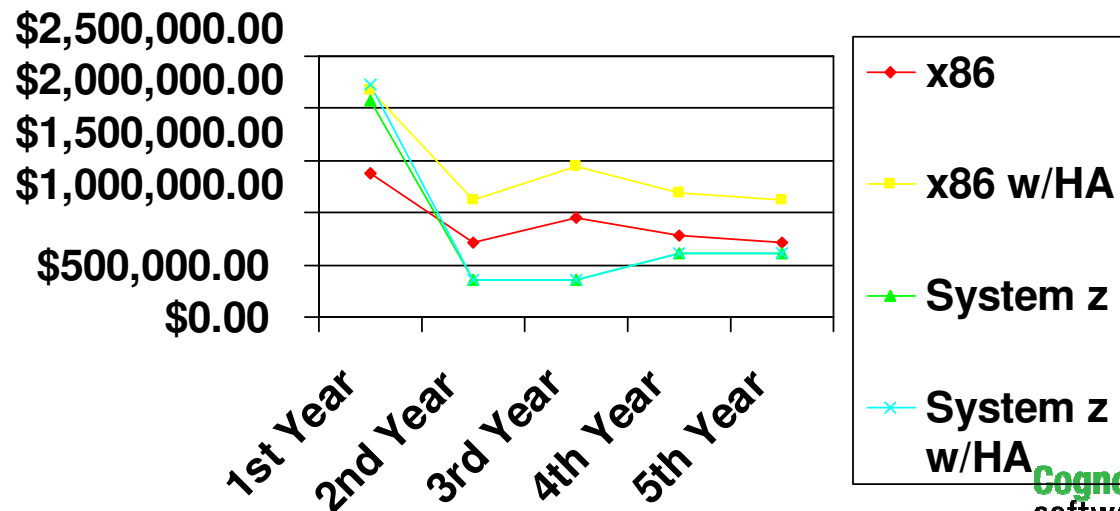
| Total Cost over 5 Years<br>(High Availability w/ Tech Refresh) |  |
|--|--|
| X86 Approx \$7 Million   |  |
| System z Approx \$4.1 Million                                  |  |

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

## Year over Year Infrastructure Costs

(High Availability w/ Tech Refresh)

| Server Savings<br>System z vs x86 |         | CPU's Savings<br>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 |



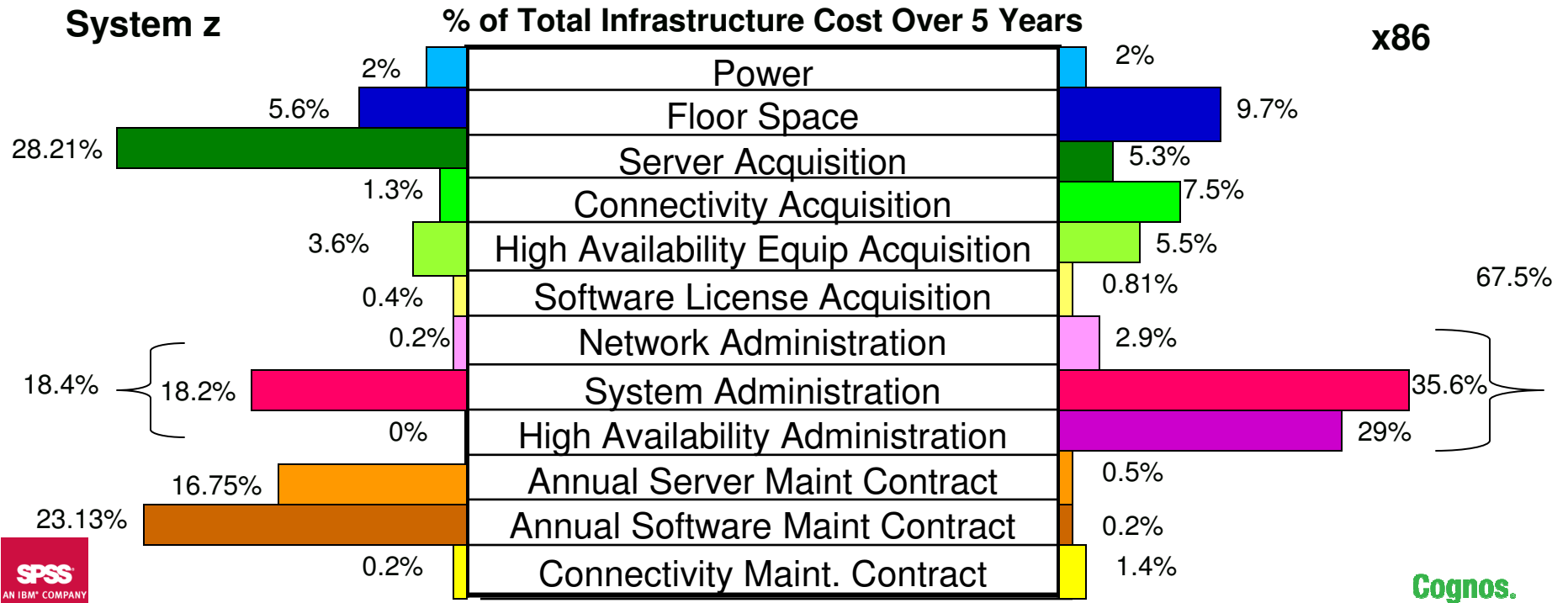
Cognos.  
software



# 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

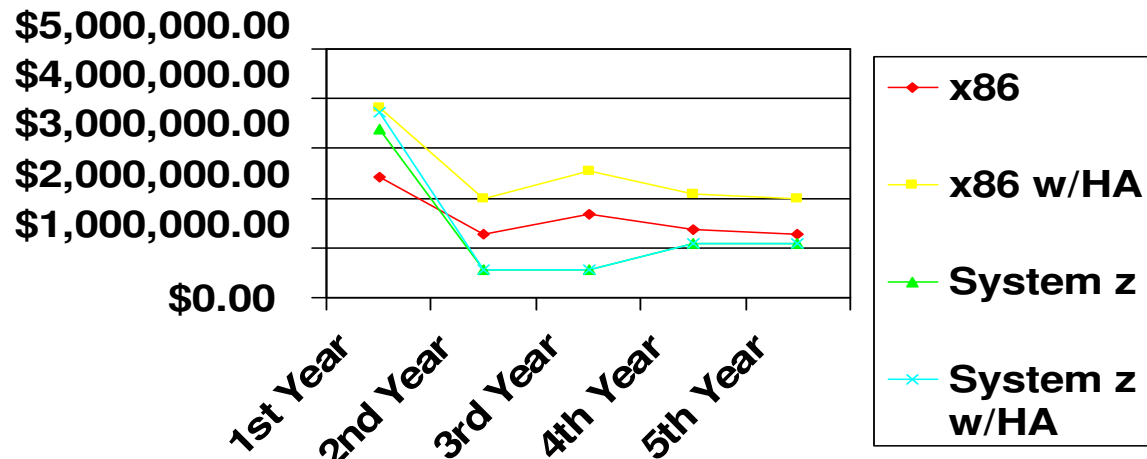
| Total Costs over 5 Years<br>(High Availability w/ Tech Refresh) |  |
|---|--|
| X86 Approx \$12.4 Million                                       |  |
| System z Approx \$7 Million                                     |  |

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

| Server Savings<br>System z vs x86 |         |
|-----------------------------------|---------|
| No HA                             | 1 vs 47 |
| With HA                           | 1 vs 74 |

| CPU's Savings<br>IFL's vs Cores |             |
|---------------------------------|-------------|
| No HA                           | 48.3 vs 188 |
| With HA                         | 48.3 vs 295 |

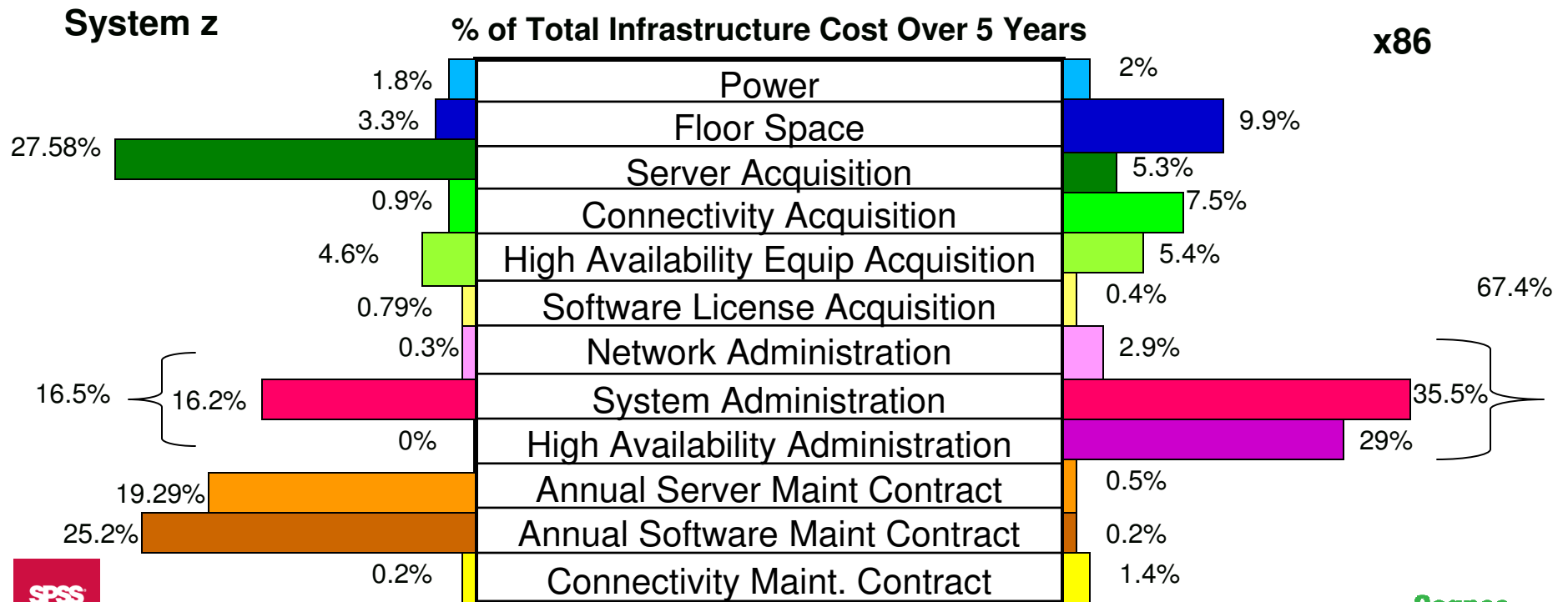
### Year over Year Infrastructure Costs (High Availability w/ Tech Refresh)



# 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

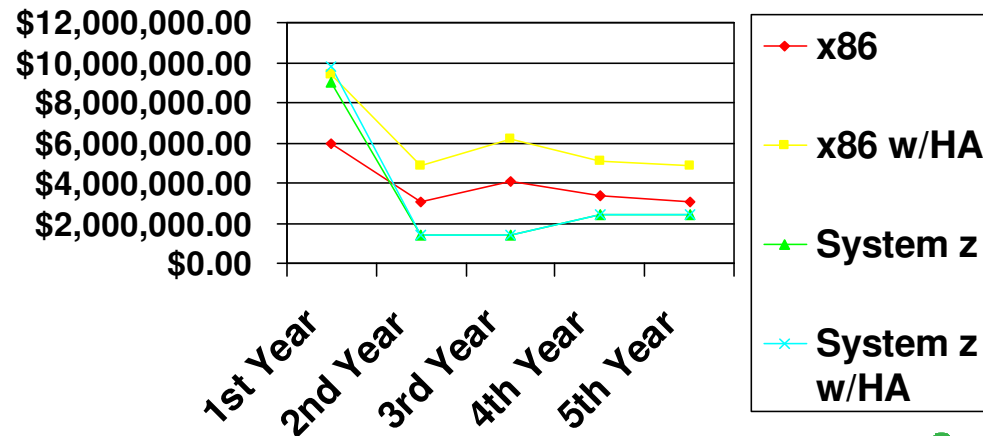
| Total Cost over 5 years<br>(High Availability w/ Tech Refresh) |  |
|--|--|
| x86 Approx. \$30.5 Million                                     |  |
| System z Approx \$17.5 Million                                 |  |

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

| Server Savings<br>System z vs x86 |          |
|-----------------------------------|----------|
| No HA                             | 3 vs 117 |
| With HA                           | 3 vs 184 |

| CPU's Savings<br>IFL's vs Cores |              |
|---------------------------------|--------------|
| No HA                           | 121.7 vs 468 |
| With HA                         | 121.7 vs 735 |

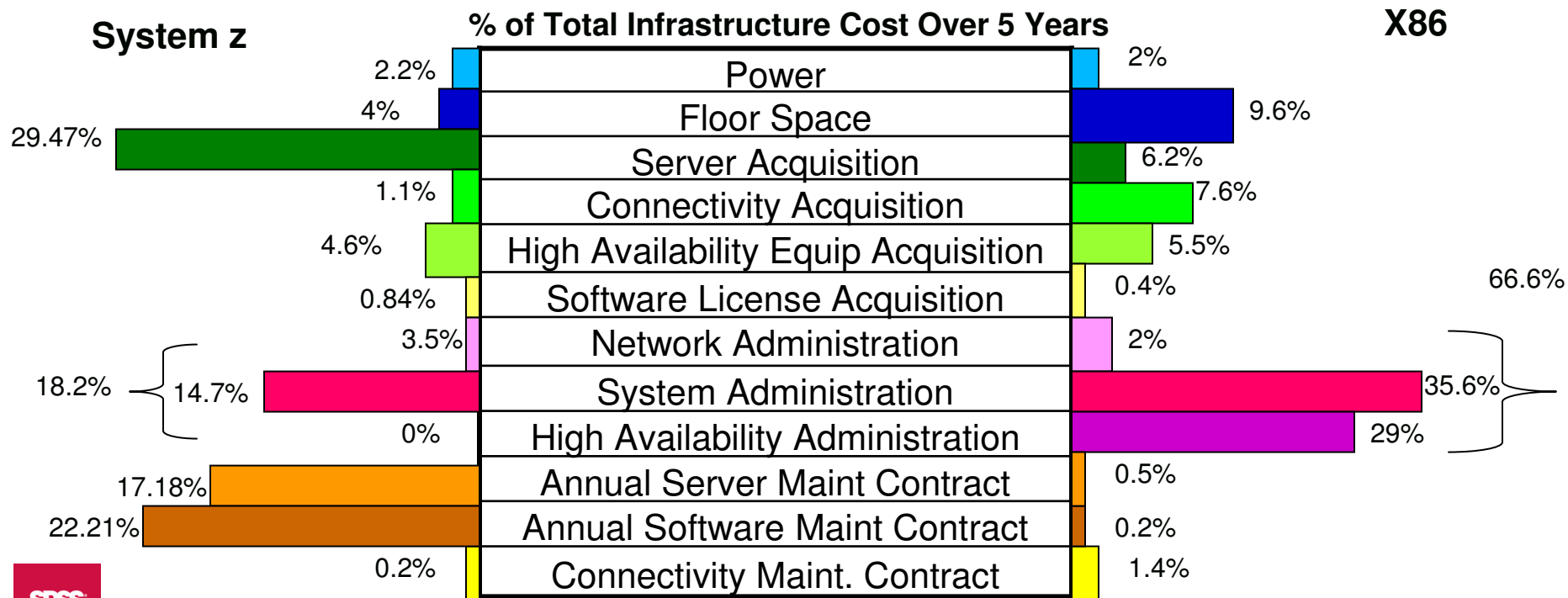
## Year over Year Infrastructure Costs (High Availability w/Tech Refresh)



# 50,000 Named IBM Cognos 8 BI Users

% Breakdown of Total Infrastructure Cost Over 5 Years

|                                |
|--------------------------------|
| <b>Total Cost over 5 years</b> |
| x86 Approx. \$30.5 Million     |
| System z Approx \$17.5 Million |



# Cognos 8 BI for Linux on System z ....Performance Testing

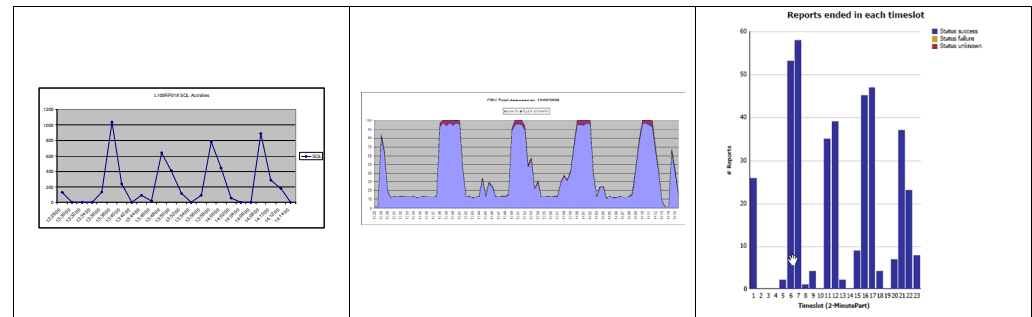
- **Customer provided the need:**
  - Processes operational and financial data for 10.000 other companies and exchanges info with 250 B2B partners.
  - Faced with performance & stability issues and could not expand it's BI any further.
- **IBM Provided the Test Infrastructure:**
  - Cognos 8 BI v3 and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



## 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 three main elements:

- Harrah's Sign:** A large, illuminated sign for Harrah's is shown. An orange starburst graphic is overlaid on the sign, containing the text "\$78.5M".
- United States Coast Guard Website:** A screenshot of the United States Coast Guard website is displayed. The website header includes the text "United States Coast Guard" and "U.S. Department of Homeland Security". A navigation menu lists "Home", "Careers", "Units", "Missions", "Doing Business", and "About Us". A search bar is visible. A featured photo section shows a Coast Guard cutter. An orange starburst graphic is overlaid on the website screenshot, containing the text "\$28M".
- SPSS Logo:** The SPSS logo, with the tagline "AN IBM COMPANY", is located in the bottom left corner of the collage.



# IBM Business Analytics on System z

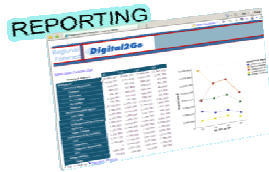
Meeting the needs of the Business and IT

**How are we doing?**

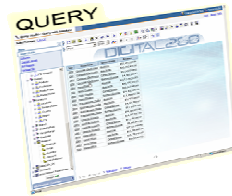


*Real-time or historical; operational or strategic*

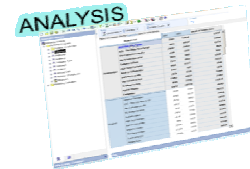
**Why are we on/off track?**



*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**

## 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](mailto: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

