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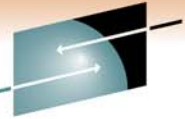
IBM Business Intelligence (BI) and Analytics Update

Mike Biere
Sr. Technical Marketing Manager - IBM
mbiere@us.ibm.com

August 9th, 2011 3pm – 4pm



Analysts forecast next generation analytics systems



By 2013, 33% of business intelligence functionality will be consumed via **handheld devices**.

By 2013, 15% of BI deployments will **combine BI, collaboration and social software** into decision-making environments.

Source : Gartner, Predicts 2011: New Relationships Will Change BI and Analytics, November 2010 , Bill Gassman, Rita L. Sallam, Andreas Bitterer, John Hagerty, Neil Chandler



- **By 2014, externalizing BI will increasingly become an expected aspect of most companies' relationships with customers and partners.**
- Externally focused BI programs will frequently go beyond information dissemination by facilitating a collaborative decision-making process that breaks through the firewall to involve stakeholders from organizations in a broad ecosystem.

Source : Gartner, Prepare for Customer-Facing Business Intelligence, Kurt Schlegel ,October 2010

By 2012, BI Platform capabilities will be embedded as a service within **75% of new business applications**

By 2012, emerging technologies will significantly drive adoption of **BI to 50% of business users** (e.g. interactive visualization, in-memory analytics, search, SaaS and SOA)

Source : Gartner BI Summit 2008, 4/2008

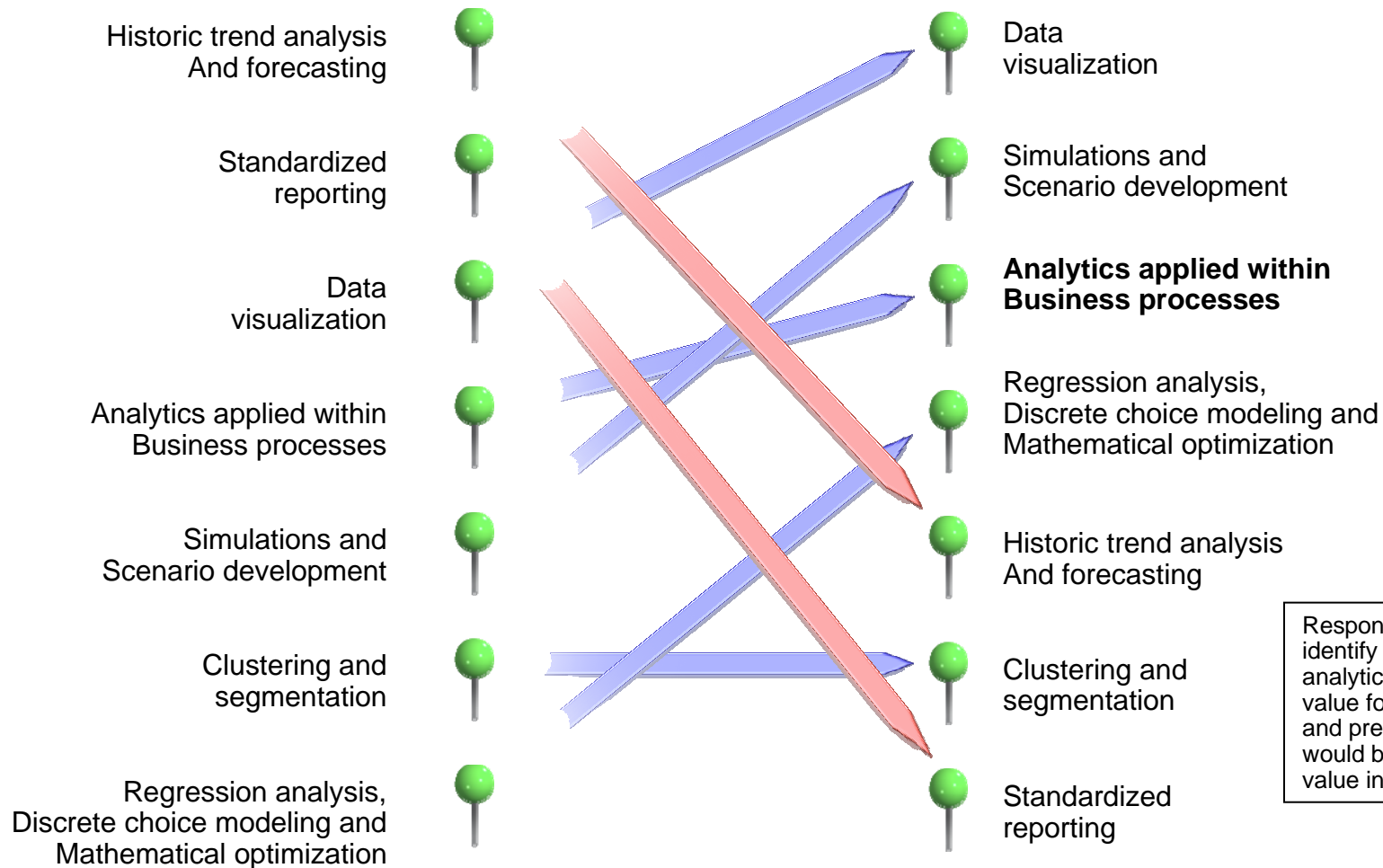


Embedded Analytics

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What Matters ... is changing

New Intelligence Enterprise Survey of 3,000 executives



Respondents were asked to identify the top three analytic techniques creating value for the organization and predict which three would be creating the most value in 24 months.

Source: MIT Sloan Management Review, 10 Data Points: Information and Analytics at Work, N Kruschwitz and R Shockley, Fall 2010

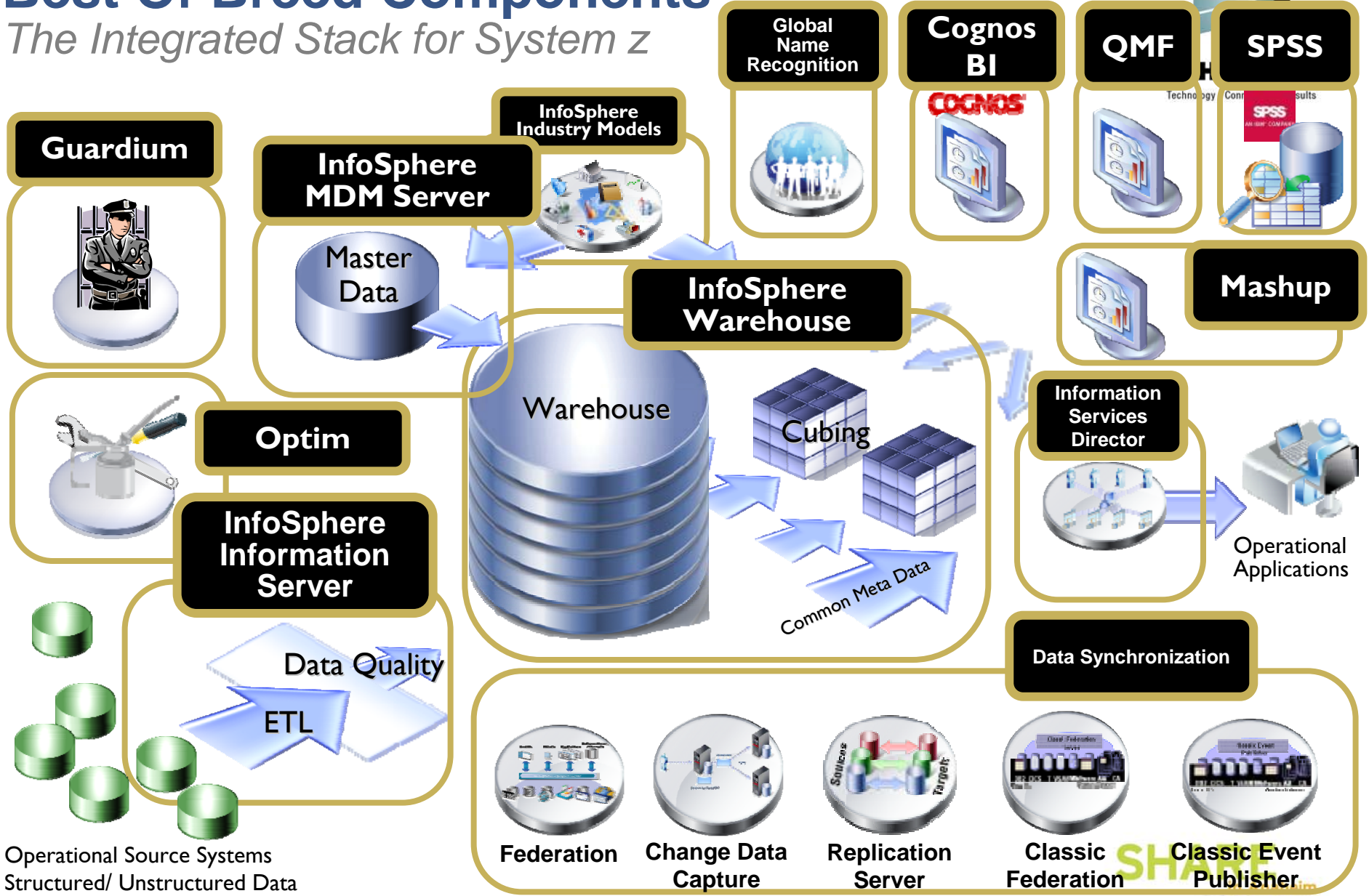
Market pressures have provided a wake up call

- ***Business Intelligence and Business Analytics***

- ✓ Data Warehouse solutions
- ✓ Cognos 10 for Linux on System z
- ✓ QMF 10 Enterprise Edition for DB2 z/OS
- ✓ SPSS for Linux on System z
- ✓ DB2 10 – temporal data and more
- ✓ IBM Smart Analytics Optimizer
- ✓ IBM Smart Analytics Cloud (a result of IBM's Blue Insight Project)

Best Of Breed Components

The Integrated Stack for System z



DB2 V10 for z/OS What's exciting?



Efficiency	<ul style="list-style-type: none">• CPU reduced: transactions & queries• Ten to twenty times more concurrent users
Resiliency	<ul style="list-style-type: none">• More online schema changes• Concurrency for catalog & utilities• Improved security controls and audit
Applications	<ul style="list-style-type: none">• Versioned data or temporal queries• pureXML and SQL enhancements

→ Productivity improved for DBAs, application programmers, & systems – ability to **'leap' from V8 → V10**

IBM Smart Analytics Optimizer

Technology Preview for System z



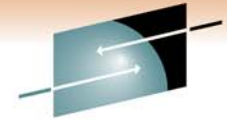
What is it?

- ✓ A high performance extension that is **integrated with IBM DB2 for z/OS** delivering predictable, order-of-magnitude faster, analytic query response times, while lowering



How is it different

- ✓ Deep integration with IBM data management systems
- ✓ High performance query software, based on advanced data in-memory technologies
- ✓ Leveraging existing data system investment and values **without any changes to applications**
- ✓ For System z, extends gold-standard manageability, security, and availability to high-performance analytic applications



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Orders of Magnitude Faster for Queries

Beta Customer Results

For customers who have struggled with gaining the required performance out their complex queries of full table scans, multiple compares, and complex logic – *the results are astounding!*



... and its acceleration factor ::

Runtime of queries w/o ISAO

163 s

2311 s

25 s

1593 s

35 s

5435 s

Factor

48

511

12

206

4

1424

with ISAO

3s

5s

2s

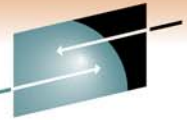
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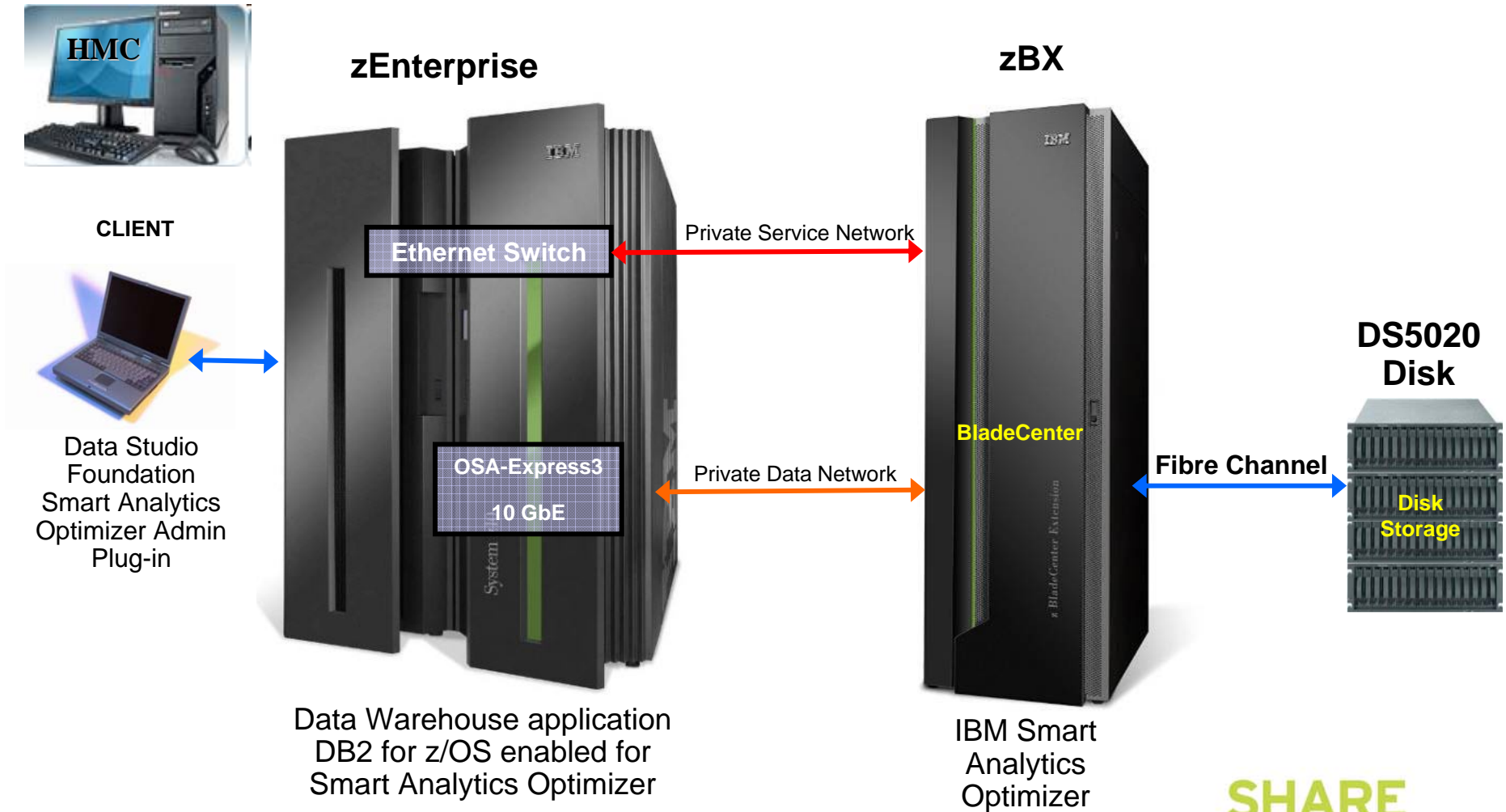
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IBM Smart Analytics Optimizer Product Components



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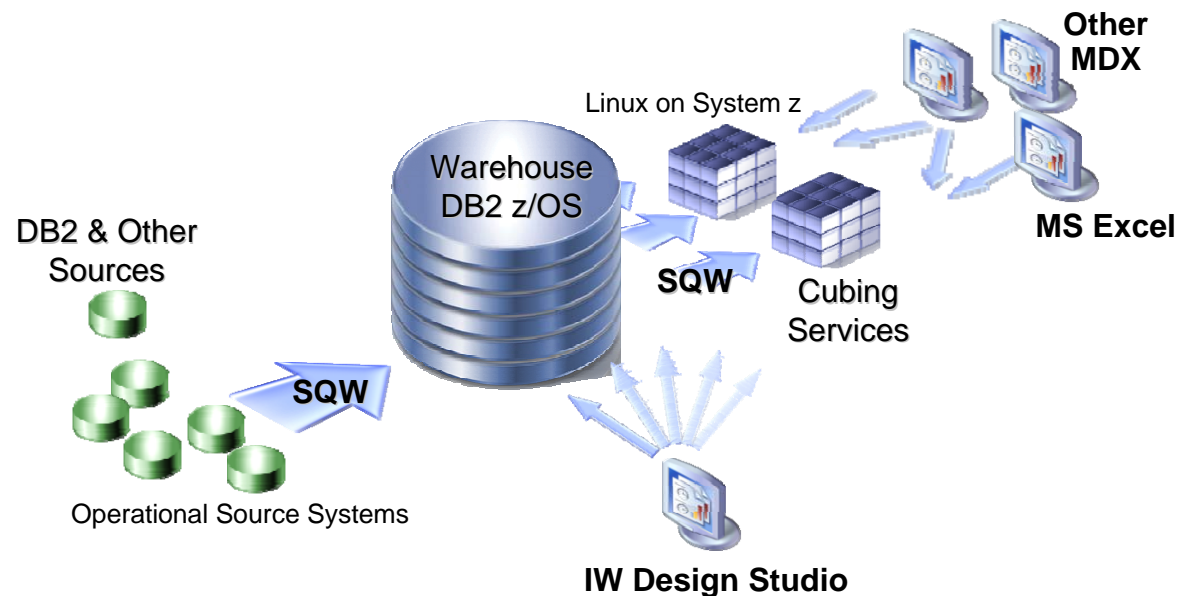


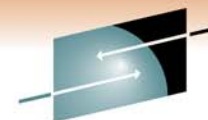
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InfoSphere Warehouse on System z

Delivers Data Warehouse Suite on System z -

- *Advanced physical database modeling and design – Design Studio*
- *In-database data movement and manipulation capabilities of **SQL Warehouse Tool (SQW)***
- *Optimize multidimensional reporting and analysis of data with **Cubing Services***





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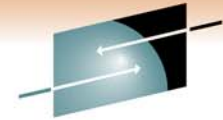
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INTELLIGENCE UNLEASHED

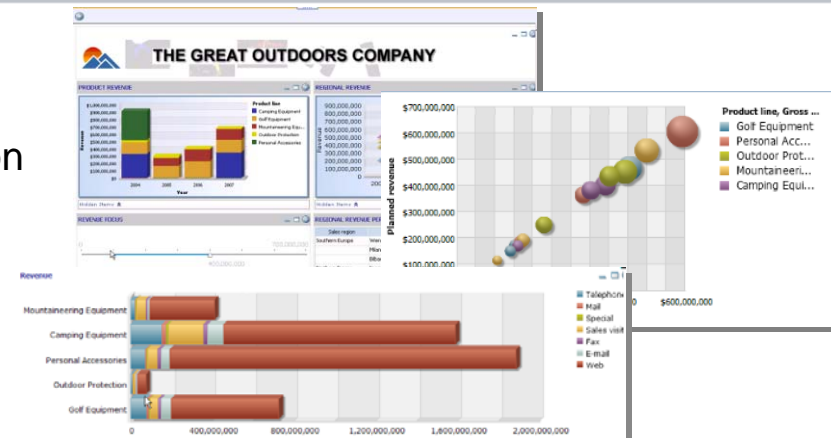
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Measure and Monitor to See “How” You’re Doing



Dashboards

- Provide at-a-glance, high impact views of complex information
- Help quick focus on issues that need attention and action
- Combine information across disparate sources
- Benefit from range of highly visual personalized, managed, or self-assembled dashboards
- Gain personalized views of operations with continuous monitoring

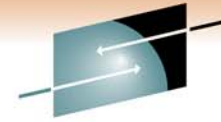


Real-time Monitor Business Operations



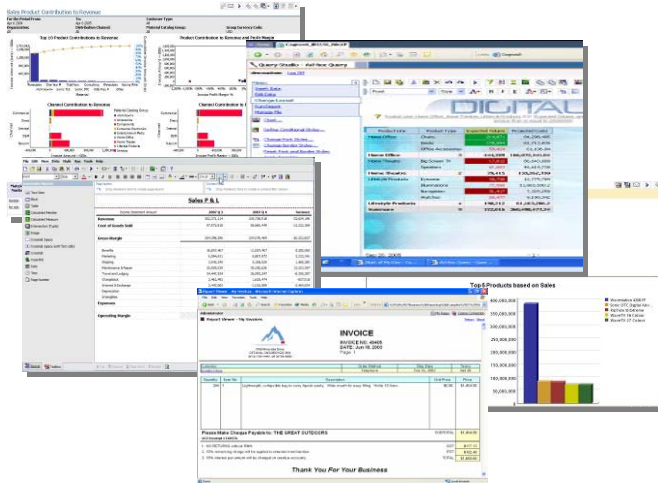
- Continuously monitor and alert when exceptions occur to take immediate action
- Detect events, anomalies and trends in data streams flowing through transactional and messaging systems
- Aggregate data streams across multiple transactional systems and data sources
- Enable self-service with user-defined dashboards, operational KPIs, and alerts
- Address full operational decision cycle from detection to action

Understand the “Why” Behind Business Performance



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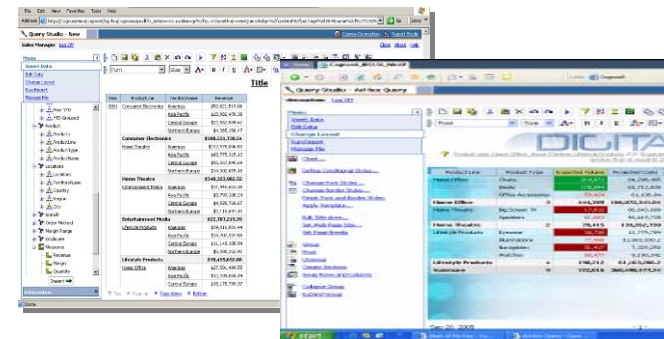
Reporting



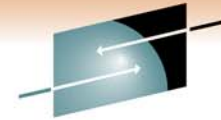
- Address full breadth of report needs (personalized, transactional, management, statutory, production...)
- Deliver consistent information across all types of output
- Personalize and target to each department/individual without having to re-author
- Re-use queries, analyses, express author reports in business and collaborate on design with IT
- Easy access to data lineage, definitions of terms, and annotations

Ad-hoc Query

- Intuitive, self-service reporting
- Access to all data; drag and drop query creation
- Easy sorting and filtering
- Corporate templates for consistency
- Share ad-hoc or promote for professional distribution



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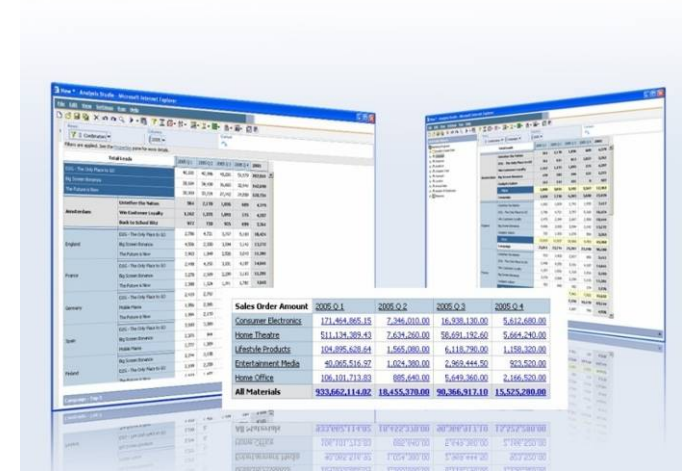


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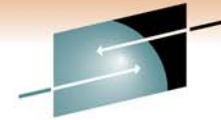
Dig Deeper - Investigate Possible Better Outcomes

Analysis

- Compare and contrast to reveal symptoms and causes behind trends
- Gain same analysis experience on Web or in Excel interfaces
- Perform personal exploration across multiple dimensions of information
- Move from summary level to detail effortlessly



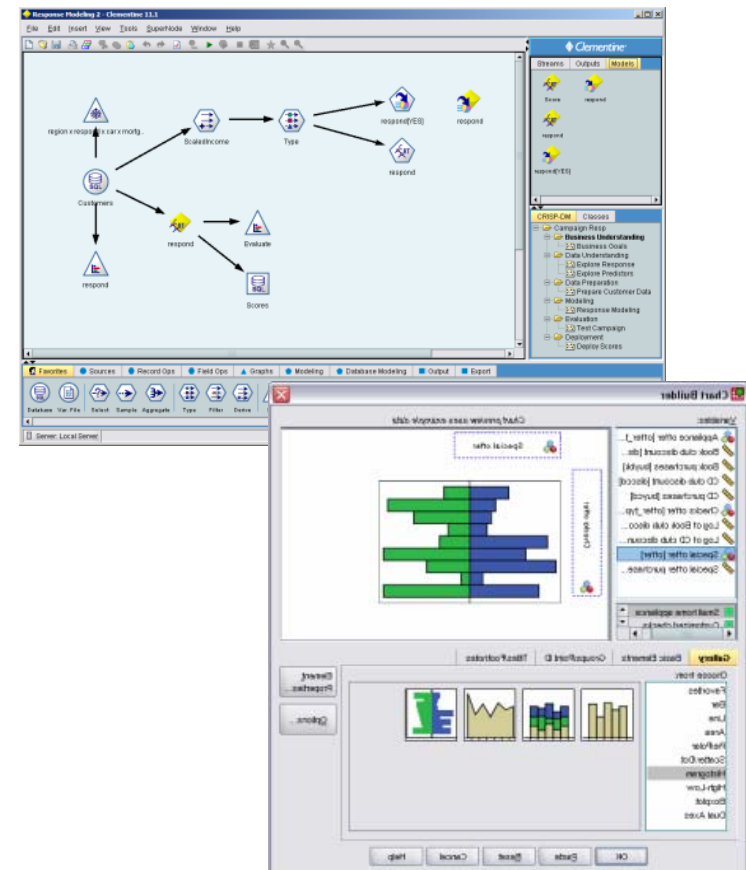
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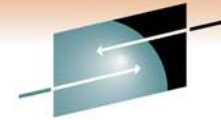
Enhance decisions with Statistics and Predictors of “What Might Happen”

Predictive Analytics

- High-performance data mining and text analytics workbench
- **Quickly delivers positive ROI by creating the predictive intelligence**
- **Set of mining algorithms that provide insight and prediction**
- **Enables the discovery of key insights, patterns and trends in data that can be used to optimize business decisions**
- Advanced statistics and data management for analysts researching business problems
 - Analysis, interpretation, explanation and presentation of data
 - Provides insight into a sample of data and tools for prediction and forecasting based on the data
- Flexible enterprise foundation for managing and deploying analytics throughout the organization



Flexible Access Wherever and Whenever Needed



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BI Anywhere

- Receive in any format (PDF, HTML, Excel, XML...)
- Deliver in any language with robust Unicode support
- Access refreshable BI content in any location that best serves the individual (Excel, PowerPoint, Word, Enterprise Search, Portal)
- Search to find instant answers, related content and to author based on search terms
- Browse BI content on mobile devices including BlackBerry, Windows Mobile and Symbian devices
- Automate personal alerts, email bursting, scheduled report production
- Mashup within applications and in processes

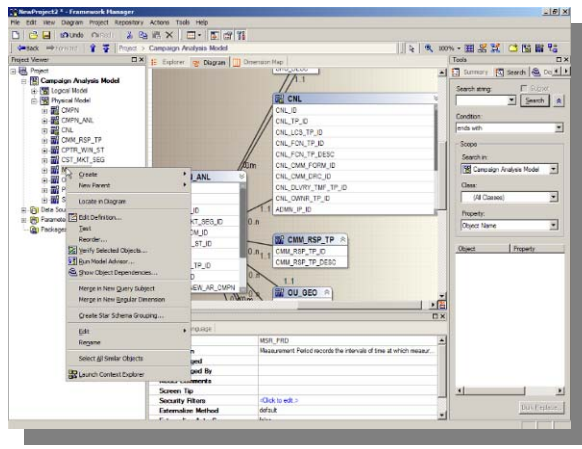


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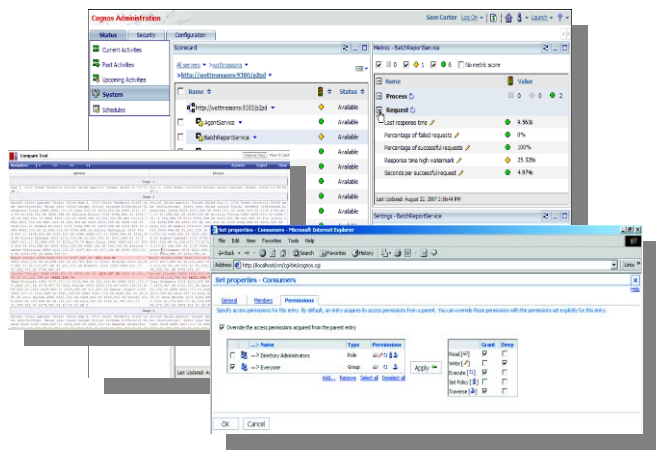
Deploy and Manage your BA environment

Model Information Services



- Deliver information in terms business understands
- Combine data into a single view across multiple disparate sources, including OLAP and relational
- Optimize models with built-in advisor, impact analysis, and integration with 3rd party metadata
- Easily manage multi-lingual, multi-tier models with reusable objects, versioning and retargeting
- Flexibly deploy model packages to deliver relevant views securely to different communities

Administer the Deployment



- Complete view of system activity
- Task-oriented system monitoring
- Integration with 3rd party EMS
- Proactive administration before business impact
- Comprehensive security down to data layer
- Visual upgrade with automated environment validation



The Top 10 of Cognos 10

1. **Unified workspace** with greater power, intuitive navigation and cleaner look
2. **Breadth of analytics** across historical, real-time and predictive information
3. **Collaborative BI** through built-in collaboration and social networking
4. **Easy data inclusion** by the business from one value, to entire data sets and external files
5. **Analytics on the go** for more devices and disconnected interaction
6. **Faster performance** with in-memory processing
7. **Seamless upgrade** and ease of ongoing management
8. **Trusted expertise** with built-in training videos, 'how-to' books and user communities
9. **Expanded deployment options** include Cloud, System z, and Power
10. **Cognos 10 Ready added value** of TM1, Planning, Analytic Applications and SPSS Modeler



Cognos working with CICS (in progress)



Re: CICS Events with Cognos Now! and Mashup Center

John Knutson to: Christopher Law, Mark Heid, Mike Biere

Cc: Klaus Roder, Mukul P Markande, Prakash Dewan, Sandeep K Tyagi

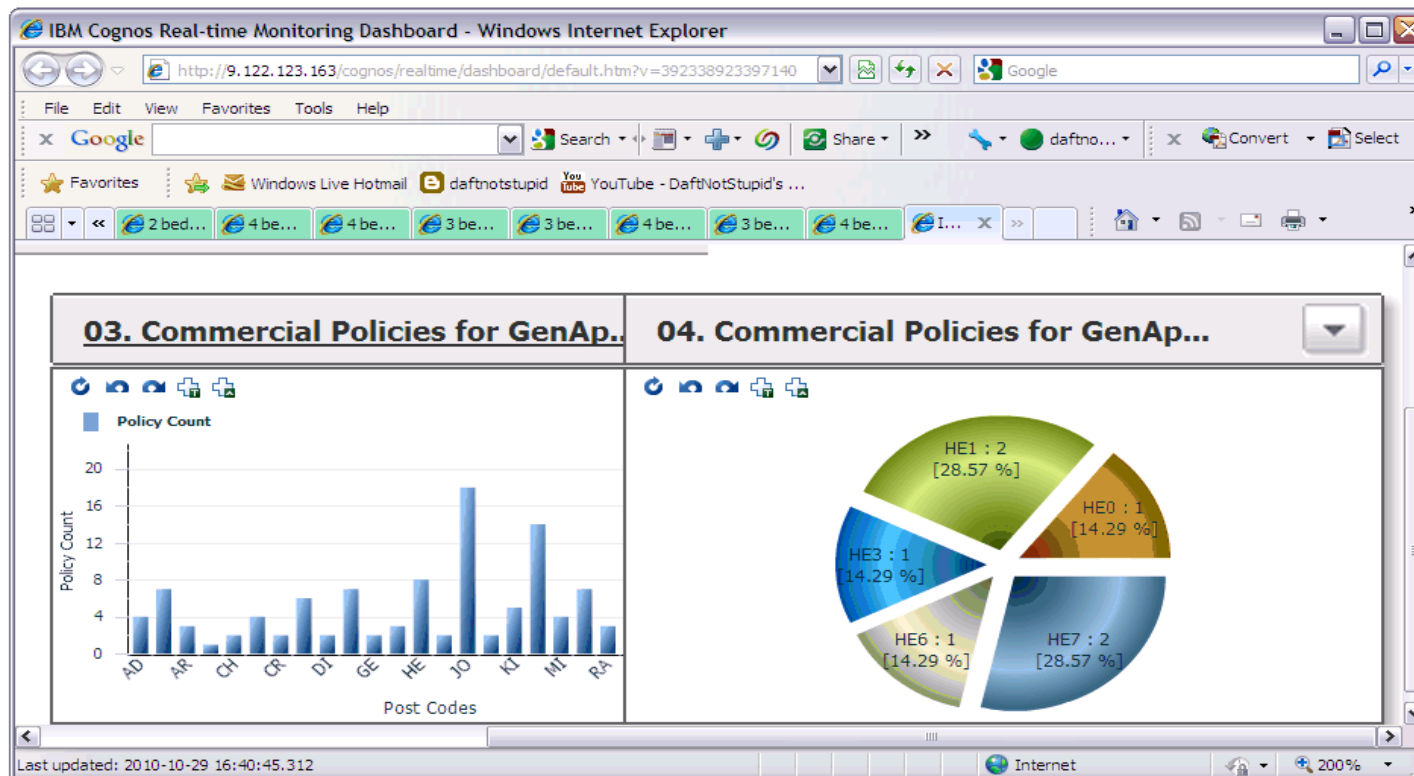
Default custom expiration date: 10/29/2011

10/29/2010

[Sho](#)

Me too. This looks very impressive.

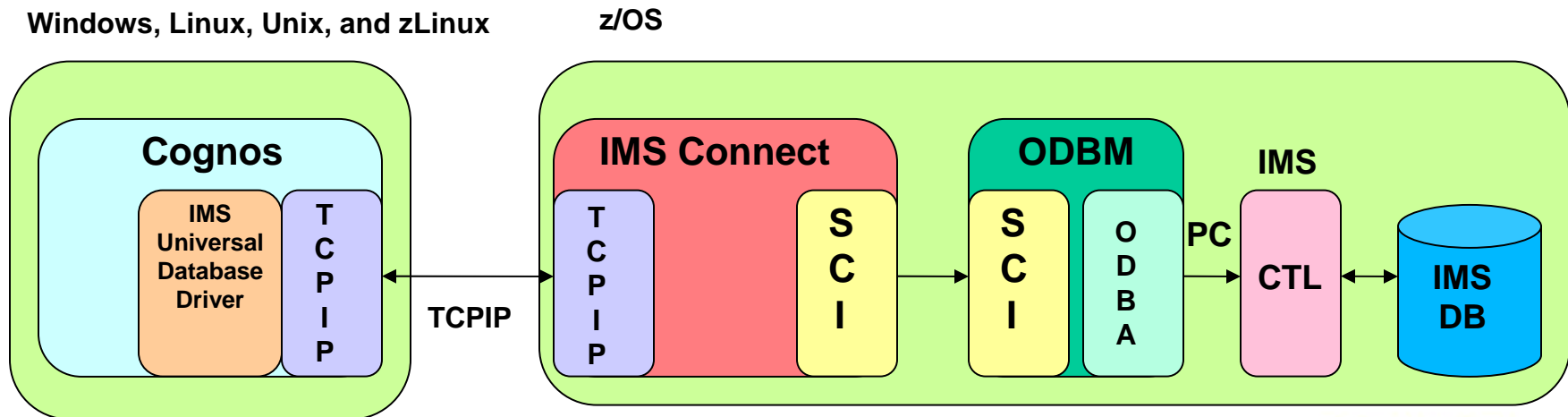
Mike, Mark. The team is making pretty good progress. We've got CICS events showing up in Cognos Now! views and cubes now, and hopefully next week Klaus will be able to integrate them in Mashup Center and round-trip back to CICS. I'm now pretty confident that we have a good story to tell and demo when we record the webcast next Friday.



IMS Integration with Cognos

IMS V11 Open Database:

- IMS V11 allows distributed access over TCP/IP using the IMS Universal Database Driver (JDBC)
- IMS Connect and Open Database Manager now work together as a DRDA server for IMS data
 - Shipped with IMS V11 – requires System Programmer for initial setup



Cognos 8 BI for Linux on System zPerformance Testing



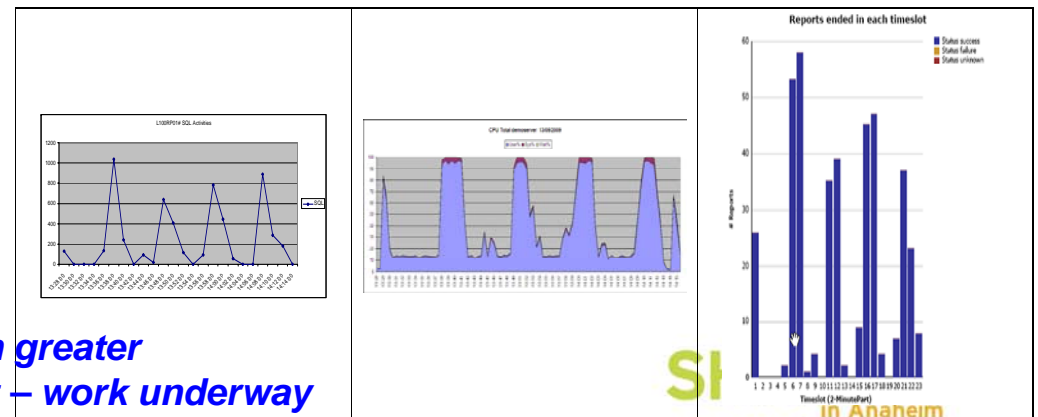
- Customer provided the need:
 - Processes operational and financial data for 10.000 other companies and exchanges info with 250 B2B partners.
 - Faced with performance & stability issues and could not expand it's BI any further.
- IBM Provided the Test Infrastructure:
 - Cognos 8 BI v3 and Websphere 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.
- **System z was 400x faster in this case!!!**

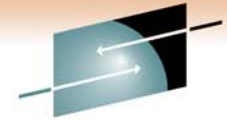
Cognos 10 is showing even greater improvements on System z – work underway



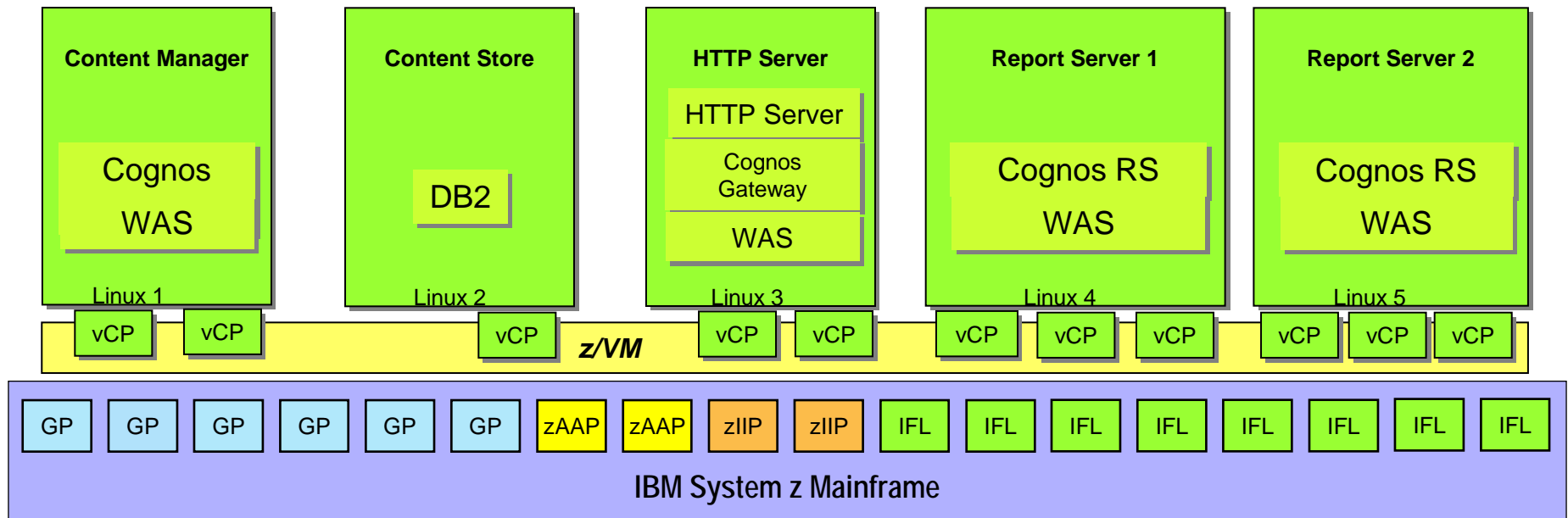
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IBM Cognos 8 BI within a z/VM environment

“Distributed” Deployment with Over-commit

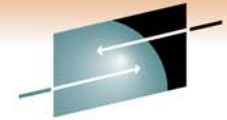


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- Total allocation of **real IFLs** to z/VM remains the same = **8**
- Number of virtual Cognos instances similar to other platforms' physical servers or partitions
- Individual Cognos components distributed on individual Linux “guest” servers
- Number of virtual CPs /Cognos = **11** : instance increased on high CPU instances to enable use of excess capacity from low CPU instances
- Number of virtual CPs/Cognos instance should be less than or equal to number of GPs/IFLs assigned to z/VM LPAR
- Over-commit ratio (sum of virtual resource type/real resource type assigned to z/VM LPAR) varies from 1.5/1 to 20/1 or more – highly dependent upon how active the guest server is

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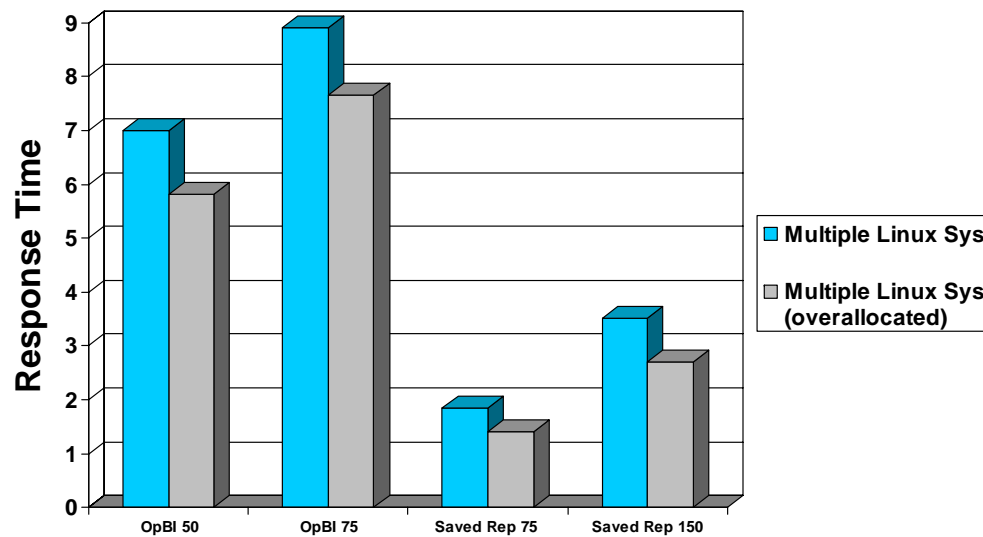


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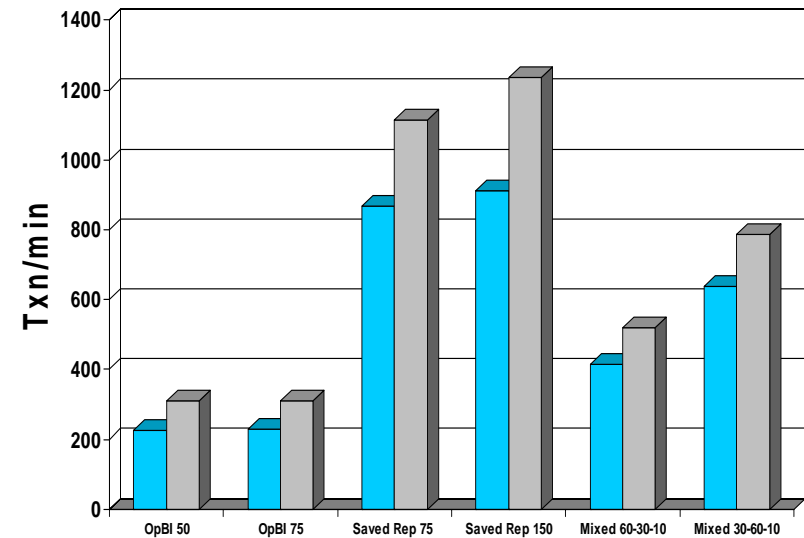
Multiple Linux systems

– virtualization with CPU over-allocation

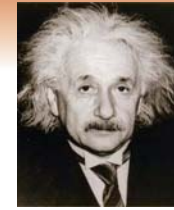
Avg. txn duration (lower is better)



Throughput (txn/min) (higher is better)



- With additional virtual CPU capacity available to the Report Server and HTTP Server, response times were lowered, and more transactions could be processed.



The New QMF 10 – what you need to know

Enhanced to meet the challenges of today's Business Analytics requirements

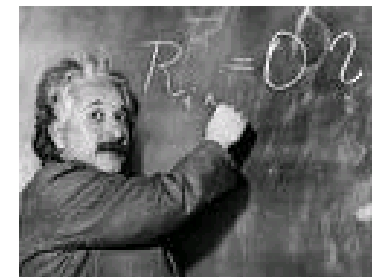
- Business Analytics functionality added to QMF for Workstation and QMF for WebSphere
 - 150 BI and analytic functions
 - Executive dashboards & significantly enhanced visual reports
 - Enhanced metadata layer presents concise and user-friendly data structures to end users
 - New Entity Relationship Diagrams (ERDs) simplify query development
 - Introduction of data source environments allows the same QMF objects to be used across distinct user groups (such as differing regions or business areas)
 - Ability to embed QMF content into 3rd party or in-house developed BI solutions
- Key benefits:
 - Rapid development and deployment of Business Intelligence solutions, enterprise-wide
 - Lightweight installation and administration: ~80MB server-side footprint vs. >1GB for most BI platforms
 - Minimal learning curve - zero coding, drag-drop authoring model
 - New QMF content remains fully compatible with existing QMF objects
 - Embeddable BI – can be integrated into web and Java apps
 - Database-based licensing model – not user or application server-based

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QMF – Business Value and Benefits



- The business value of QMF 10 for DB2 for z/OS
 - Business value is typically measured by a tool's capability to deliver required functions in contrast with its associated cost.
 - QMF 10 provides an enterprise license model with no per-user cost.
 - **Can be deployed throughout the enterprise with no additional set charges while providing rich, powerful analytic functions with a wide variety of uses and users.**
 - **It can be embedded within an application** and can now be called from nearly any other BI tool such as Excel and more. Thus assets created in QMF 10 can be used repetitively by many.
- The benefits of QMF 10 for DB2 for z/OS
 - Business Analytics is a key area of interest to any enterprise. Query and reporting solutions now have to offer much more such as:
 - Dashboards and Key Performance Indicators (KPIs)
 - Advanced analytic functions and analysis
 - Multi-dimensional analysis
 - Operational Business Intelligence
 - Heterogeneous database access
- QMF 10 provides a more sophisticated and advanced set of analytic functions while offering advances in performance and ease of use.



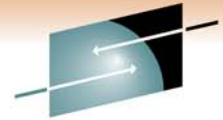
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The QMF/EE (Enterprise Edition) Solution Suite

- The QMF product family comprises the following components:
 - **QMF for TSO/CICS:** Supports end-users who work entirely from traditional mainframe monitors to access databases in the IBM DB2 family.
 - **QMF HPO:** ‘High Performance Option’ for QMF for TSO/CICS is a multifaceted tool that helps database administrators manage QMF objects and performance in the TSO and CICS environments.
 - **QMF for Workstation:** Replicates the key functionality of QMF for TSO/CICS on distributed platforms via a rich desktop development environment. Runs on Windows, Linux, and the Mac.
 - **QMF for WebSphere:** Provides a feature set similar to that of QMF for Workstation, using a thin-client, browser-based solution. Runs on Windows, Linux, Solaris, AIX, HP-UX, iSeries, z/Linux, and z/OS.

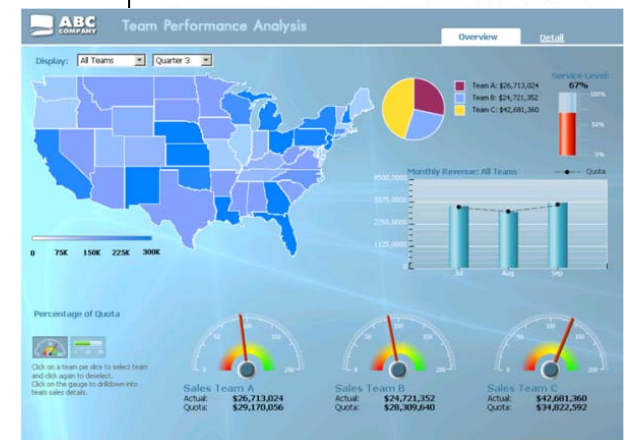
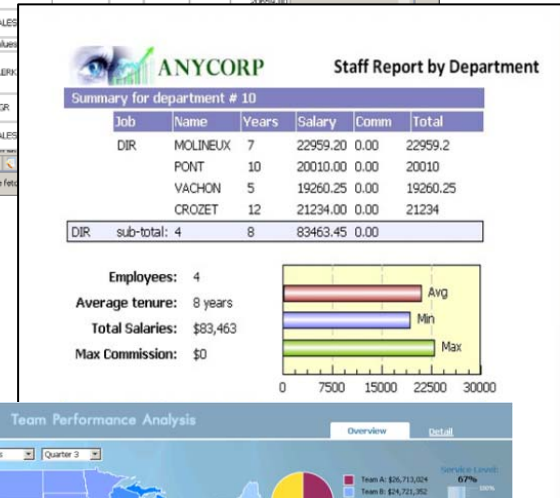
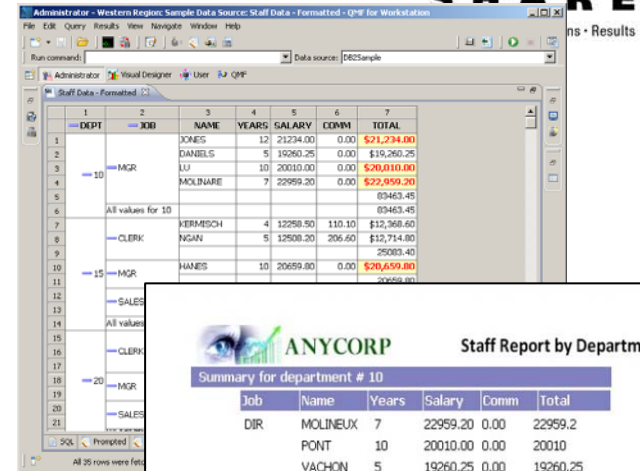
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QMF V10 – Three forms of content

- Ad-hoc & prepared queries
 - Create/edit/re-use QMF queries
 - Apply groupings, aggregations and conditional formats
 - One-click export to Excel, data files or DB
 - One-click generation of reports from the data
- Tabular and graphical reports
 - Generate QMF tabular reports or graphical *visual reports*
 - Highly customizable page-based layouts
 - Draw data from any number of data sources
- QMF Dashboards
 - Customized interactive dashboard solutions
 - Rapid authoring model



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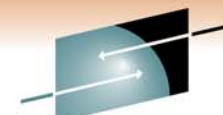


Take it to the Web

- Disseminate QMF-powered queries, reports and dashboards to users across the enterprise using QMF for WebSphere
 - Create, run and share queries on the Web
 - Run and share reports on the Web
 - Deploy your dashboards to business end users as stand-alone solutions or embedded within web pages and web applications
- Display as
 - Pure HTML & JavaScript*
 - Adobe Flash Player
 - PDF



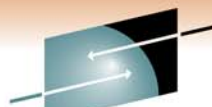
* Suitable for all browsers and platforms



QMF V10 Dashboards

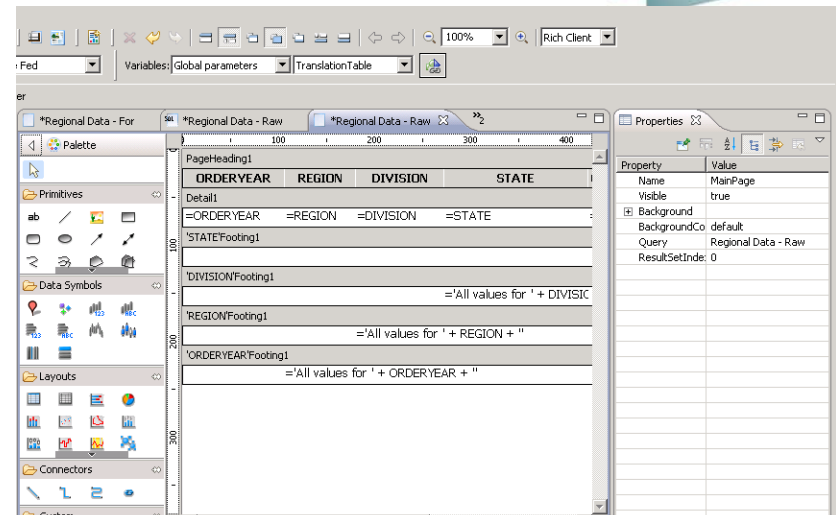
- Provide end users with direct access to enterprise data
- Highly customizable – perfectly meet the needs of the end users
- Ability to aggregate data concurrently drawn from heterogeneous relational and OLAP sources
- Interactive, ad-hoc visualizations and optional data write-back
- Publish via the web or workstation





QMF V10 Visual Reports

- Generates HTML or PDF graphical reports, drawing data from one or more data sources
- Support for optional cover sheets, summary pages and report annexes
- Reports generated at designated intervals and made available to end users via the workstation, web or email
- Ability to directly embed reports within portals, custom web sites or web applications



>> Legal Exchange Invoice From Law Firm: Alver & Johnson

Invoice Number	10390895
Invoice Date	22/11/2003
Matter Number	377562
Matter Name	Jacob Muller vs Mathew Evans
Client Personnel	James Walker
Customer Pay	Y

> FEES:

Date	TK Name	Code	Hours	Rate	Org. Amt	Curr. Amt	Description
21/11/2003	Stephen Hall	L310	40.9	\$153.90	\$6,294.51	\$6,294.51	-
21/11/2003	William Harris	L310	61.3	\$184.70	\$11,322.11	\$11,322.11	-
Total Fees:						\$17,616.62	\$17,616.62

> EXPENSES:

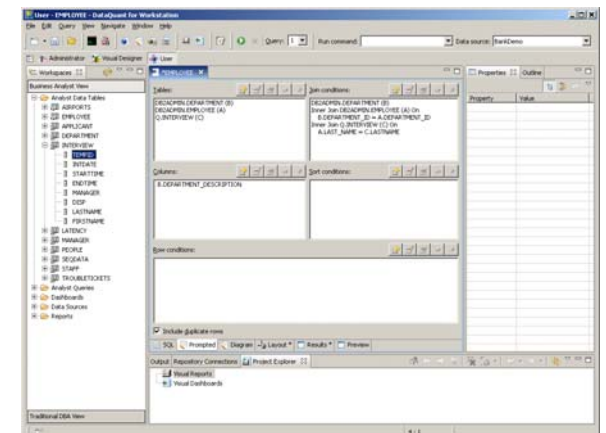
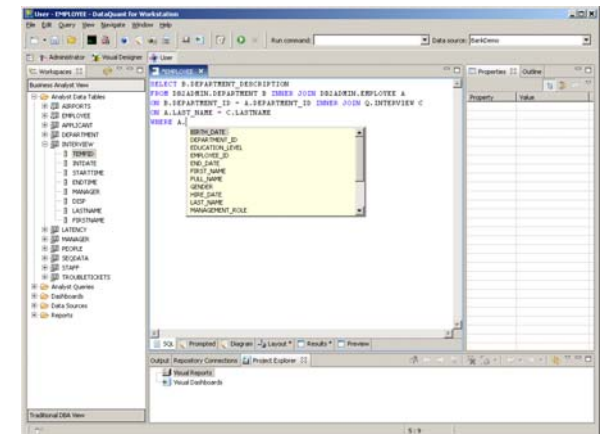
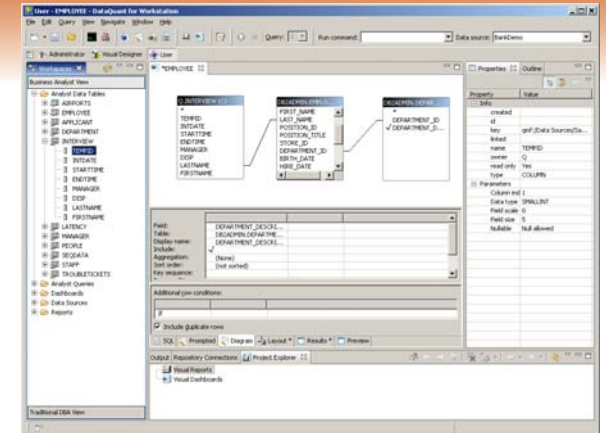
Date	TK Name	Code	Units	Cost	Org. Amt	Curr. Amt	Description
21/11/2003	Harold Wilson	E120	1	\$958.70	\$958.70	\$958.70	-
Total Expenses:						\$958.70	\$958.70

> BILLING SUMMARY:

	Original Amount	Current Amount
Fees:	\$17,616.62	\$17,616.62
Expenses:	\$958.70	\$958.70
Totals:	\$18,575.32	\$18,575.32

Query development facilities

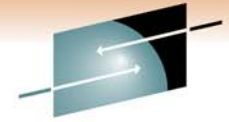
- Graphical development via 'query diagram' designer
- Step-by-step development via 'prompted query builder'
- SQL development via colorized editor with code assist, code completion and dynamic parameter hints
- Support for both relational queries (SQL) and OLAP queries using multi-dimensional expressions (MDX) query language
- Available in both the workstation and web-based environments





Metadata layer simplifies ad-hoc analysis

- Create custom views of tables or sets of tables
- Alter table names, column names, add calculated columns, pre-joined views etc. without altering the physical structure of the underlying databases –creates a virtual view of your databases
- End users code against the virtual tables – QMF translates their SQL to that which matches the underlying table schema
- Shields users from the underlying complexity of your table schemas. Also permits DB schema changes that do not impact reports/dashboard/queries (since metadata layer can remain unaltered)

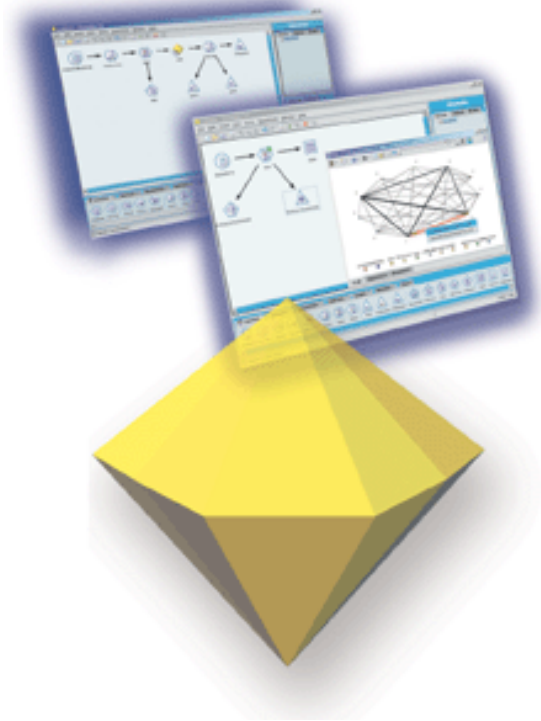


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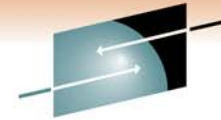
SPSS Solutions - Modeler

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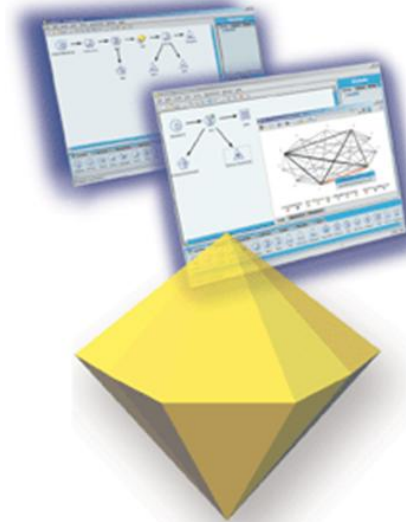
Predictive Analytics with Modeler



- Data mining uses existing data to:
 - Predict
 - Category membership
 - Numeric Value
 - Group / Find Outliers
 - Cluster (group) things together based on their characteristics/attributes
 - Associate
 - Find events that occur together
 - Sequence
 - Forecasting/ Time-dependent events



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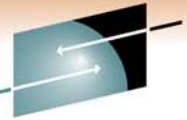
Modeler Key Features

- Ease of use
- Openness
- Productivity
- Automatic Model Selection
- Powerful Data Manipulation/Transformation Functionality
- Multiple Levels of Model Deployment
- Very Scalable*
- Leverages existing database functionality*
 - SQL Pushback
 - *In-Database* Mining

*Server

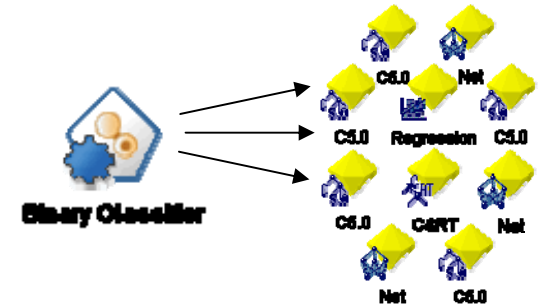
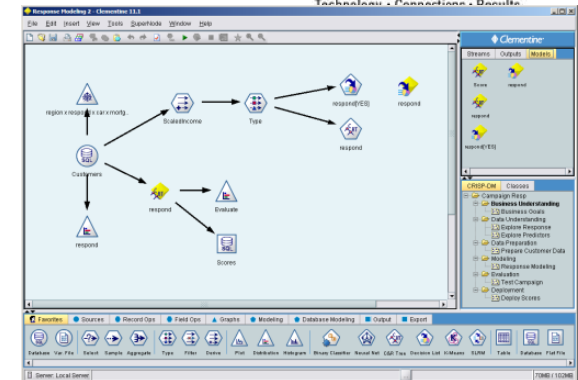
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Customers use Modeler when they want to...



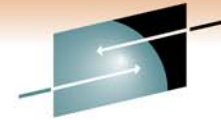
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- Integrate and analyze data from a range of data sources
- Apply complex pre-/post-processing steps
- **Build and evaluate predictive models**
- **Perform advanced “predictive” analysis for deep insight e.g. segmentations, sequence detection, anomaly detection**
- Score cases in an ad hoc or straightforward batch manner
- Create predictive models and results for deployment through other products
- Enable all of the above in a way that is:
 - intuitive
 - accessible to users without “expert” credentials
 - supports the most demanding requirements of advanced users
 - minimizes time taken to deliver a best-fit solution



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IBM's Blue Insight



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Technology • Connections • Results

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 **+\$25M savings over 5 years.***

-IBM CIO Office

IBM's Pains:

- Segmented investments in BI tooling and infrastructure
- Silo'd development, redundant and possibly competing
- Lack of tooling standardization
- Limited visibility to the total cost of business intelligence costs for the enterprise
- Organizational reluctance to a centralized service

IBM's Strategy:

- Common BI "appliance like" service for delivering BI to IBM
- Common service definition and boarding process
- Business intelligence experts to assist adopters
- Start with BI, grow to:
 - Predictive Analytics
 - Data Warehouse

IBM's Results:

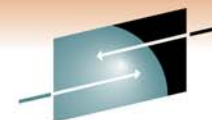
- Consolidating 115 multi-product, departmental BI deployments to 1 Cognos 8 BI on System z
- Support for our global workforce
 - 2009 – 72K
 - 2010 – 130K
 - 2011 – 200K
- Realizing value from +60 data sources across IBM
- Projected \$25M in savings
 - 60% Consolidation
 - 35% Standardization
 - 5% Automation

Learn more: ibm.com/software/systemz/telecon/1jun

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What Exactly is Blue Insight?

Transformational technology delivery matched with process and solution delivery model changes



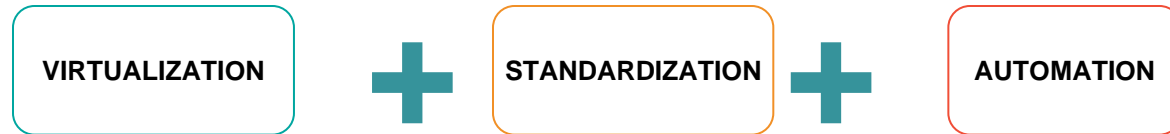
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- **Common BI “appliance like” service for delivering Business Intelligence to IBM**
 - Common extensible infrastructure (HW & SW)
 - Common operational support
 - Common management of Cognos 8 BI *licensing* and Level 3 *support*
- **Common service definition and boarding process**
 - Defined BI tooling service scope (Reports, Adhoc, cubing, pervasive, etc)
 - Defined standard security and LDAP management
 - Common operational processes
- **Business intelligence experts to assist adopters**
 - BICC - (Business Intelligence Center of Competence)
 - Consultants available to assist in solution definition and consumption of service
- **Blue Insight is **NOT** an enterprise data strategy or a portal strategy**
 - Assumes data consumed by reports is a trusted part of the enterprise data strategy
 - Initial scope of Blue Insight was to use the standard Cognos portal delivery

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Initial Business case

> \$25M Savings over 5 years...



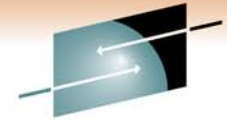
- Business case categorization
 - Infrastructure
 - Operations
 - Skill efficiency

Z10 Infrastructure	Common service definition	Web 2.0 Boarding application
Shared peripheral infrastructure	Common security	Automated choreography & administration
Shared middleware	Common promotion process	Predictive planning
Shared Cognos V8	Common operations process	Automated provisioning
60% <ul style="list-style-type: none"> • HW Consolidations • SW Costs • 3rd Party vendor savings 	35% <ul style="list-style-type: none"> • Operations efficiency • Development efficiency • Improved time to value 	5% <ul style="list-style-type: none"> • Adopter administration <p>* - Future focus</p>



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The Smart Analytics Cloud solution offering



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Creates ...

That delivers ...

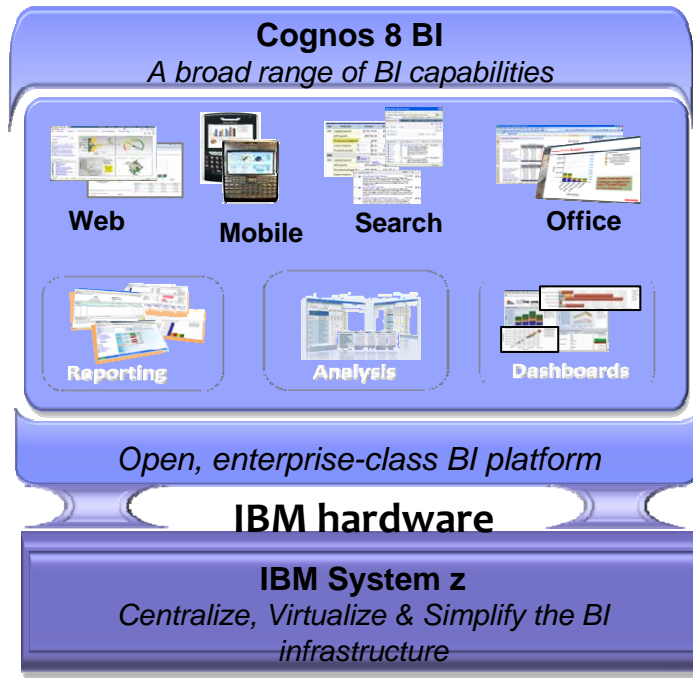
Smart
Analytics
Cloud

A private cloud within
the enterprise

A solution for delivering business
intelligence to the entire organization

The solution components ...

IBM software



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



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Summary

- IBM has heard you and responded
 - Data Warehousing
 - Cognos 10 for Linux on System z
 - QMF 10
 - IBM Smart Analytics Optimizer
 - Smart Analytics Cloud
 - SPSS
- We have invested billions in new technologies and building a new information-led infrastructure
- BI has evolved from a static, report-centric environment to a more real-time and embedded analytics model – **Business Analytics**
- Data Warehousing has evolved to a more global, federated, real-time environment
- We are using our own technology to change our business
- You can use it to change yours



External Websites



Business Analytics pages for Cognos and SPSS

http://www-01.ibm.com/software/analytics/?pgel=ibmhzn&cm_re=masthead-_-products-_-sw-bizanalytics

QMF 10

<http://g01zcdwas002.ahe.pok.ibm.com/software/data/qmf/>

IBM Smart Analytics Optimizer Webpage:

<http://www.ibm.com/software/data/infosphere/smart-analytics-optimizer-z/>

Data Warehousing and Analytics

<http://www.ibm.com/software/data/infosphere/data-warehousing/>

Terabyte Club for System z BI customers

<http://www.ibm.com/software/data/businessintelligence/systemz/terabyte-club.html>