



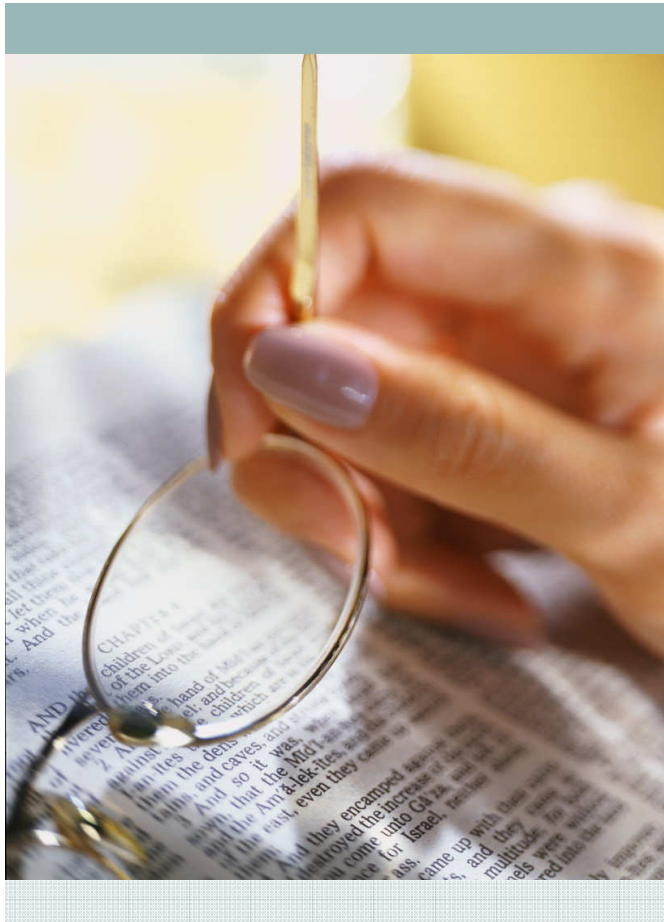
# *IBM InfoSphere Warehouse V9.5*

27 maj 2008



Mats Mohlin IBM SW Sverige  
med tack till Sarah Brader & Simon Woodcock UK

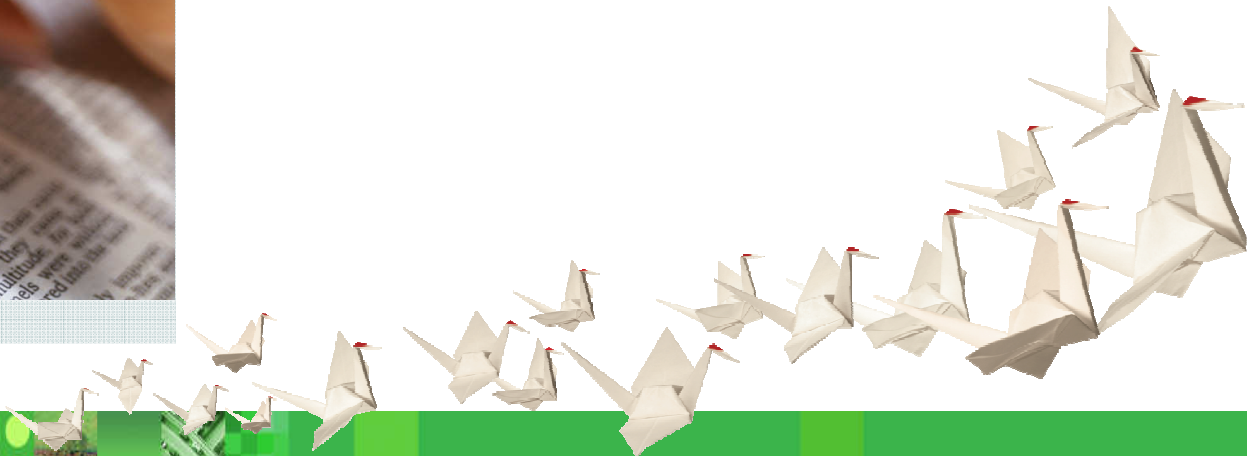
## ***An analytic environment for better driving your business—in right time***



**Ensures** users always have the most complete and up-to-date information possible

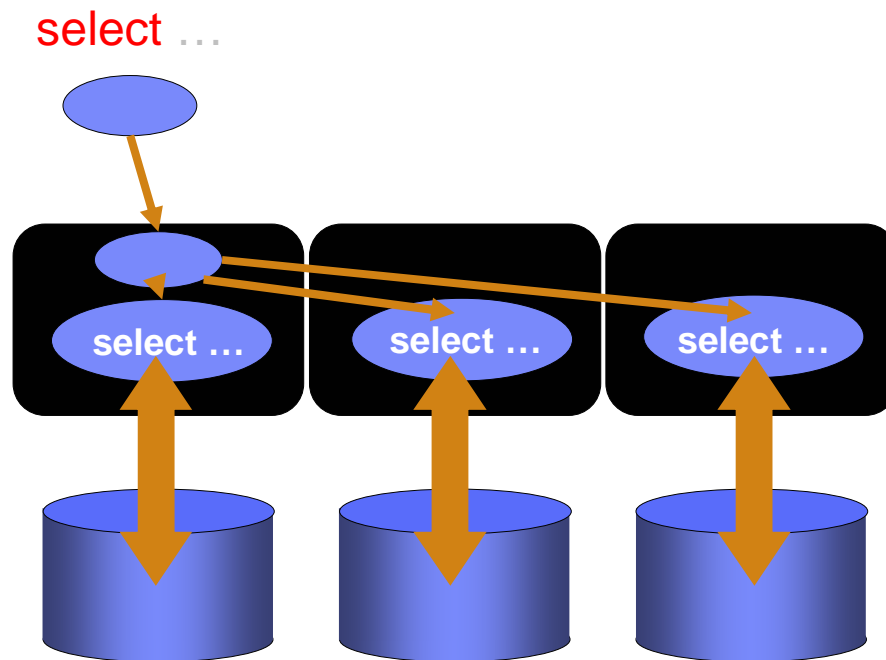
**Enables** access to analytic tools from commonly used applications, such as a Web browsers or spreadsheets

**Eliminates** the need to copy data out of the warehouse to analyze it



## Shared Nothing Architecture for Data Warehouse

- Hash Partitioning of large amounts of data provides the best parallelism
  - Large scans automatically run in parallel
  - All partitions work together
  - Key lookups directed to one database partition for fast access

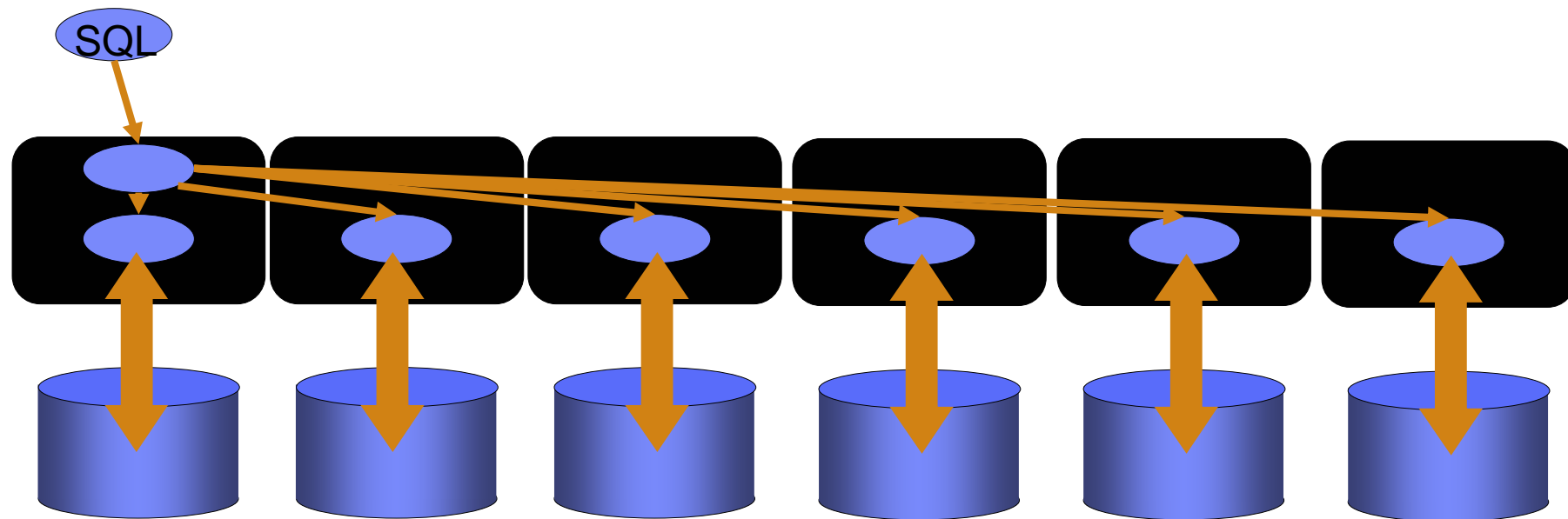


If you have 1TB of data – would result in approx 333GB per partition.

Therefore queries finish in 1/3<sup>rd</sup> the time on a 3 partition system

## Shared Nothing Architecture for Data Warehouse

- If instead of 3 partitions, we had 6
  - Now we would expect to finish in  $1/6^{\text{th}}$  of the time of a single server
- If we had 20 partitions, then it should finish in  $1/20^{\text{th}}$  of the time



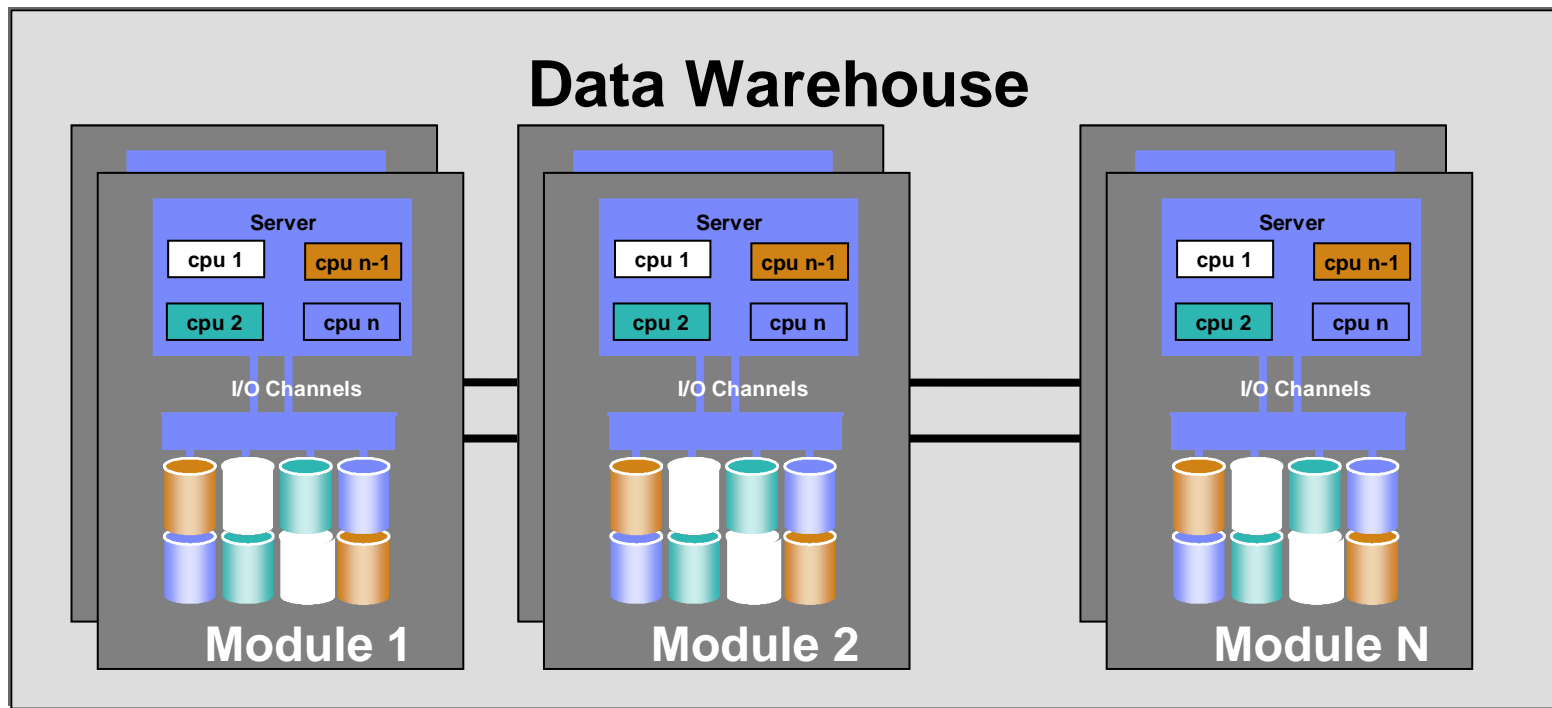
## ***Growing Your Warehouse***

- All warehouses grow, they rarely shrink
- Over time you will need to add capacity
- The recipe for a good BI system contains:
  - CPUs
  - I/O
  - Interconnect
  - The right DBMS
- The IBM InfoSphere Balanced Warehouse is the prescribed recipe for building a balanced high performance data warehouse on DB2



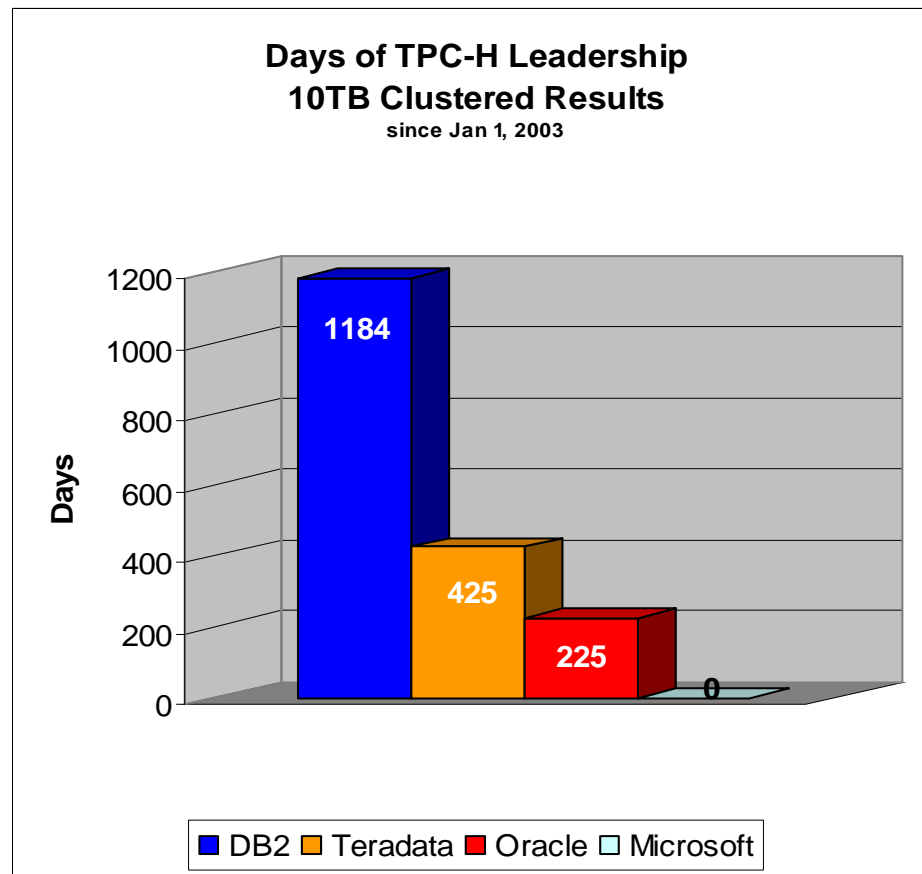
## The *Balanced Warehouse*

- Minimum replicable HW/SW stack necessary to start or expand your data warehouse
  - A scalable ratio of **disks** to **I/O** to **memory** to **CPUs**



## Longevity in Data Warehouse Performance

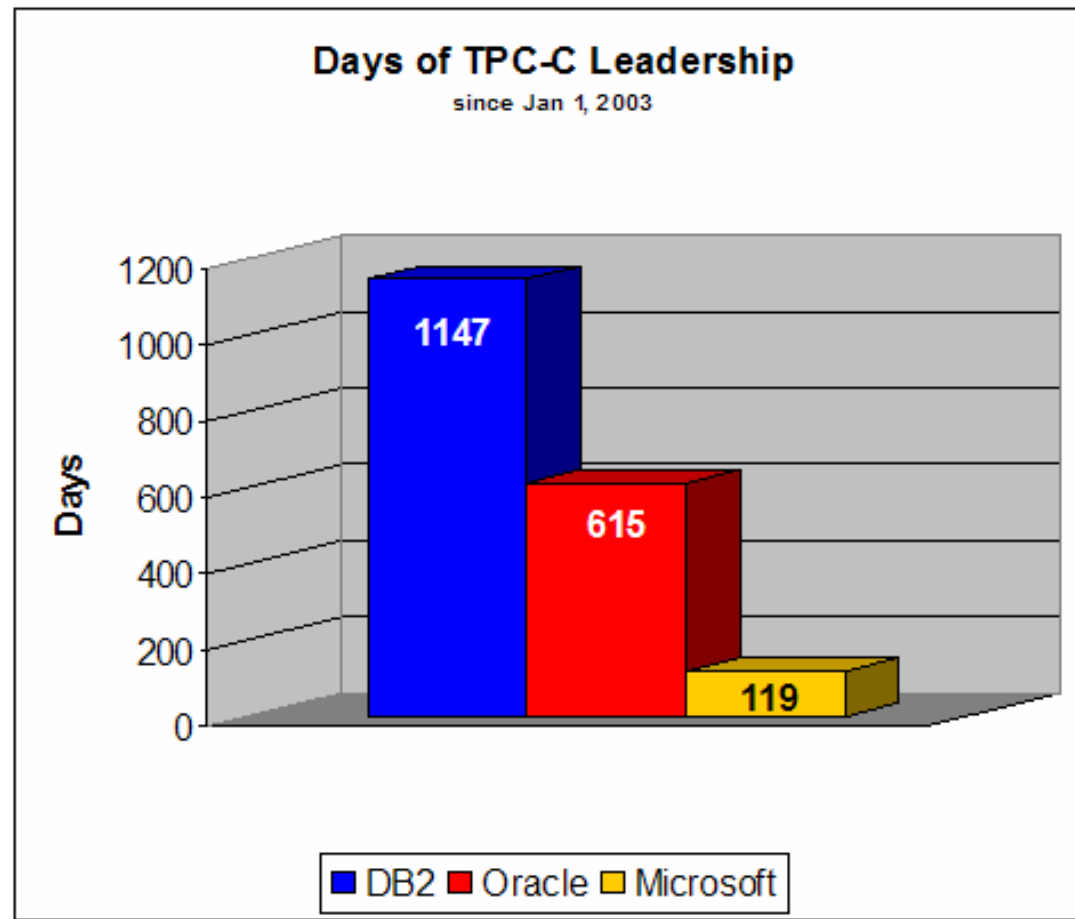
- DB2 has led in data warehousing performance longer than all other vendors combined



Results as of Jan 8, 2008

## Longevity in Transaction Processing Performance

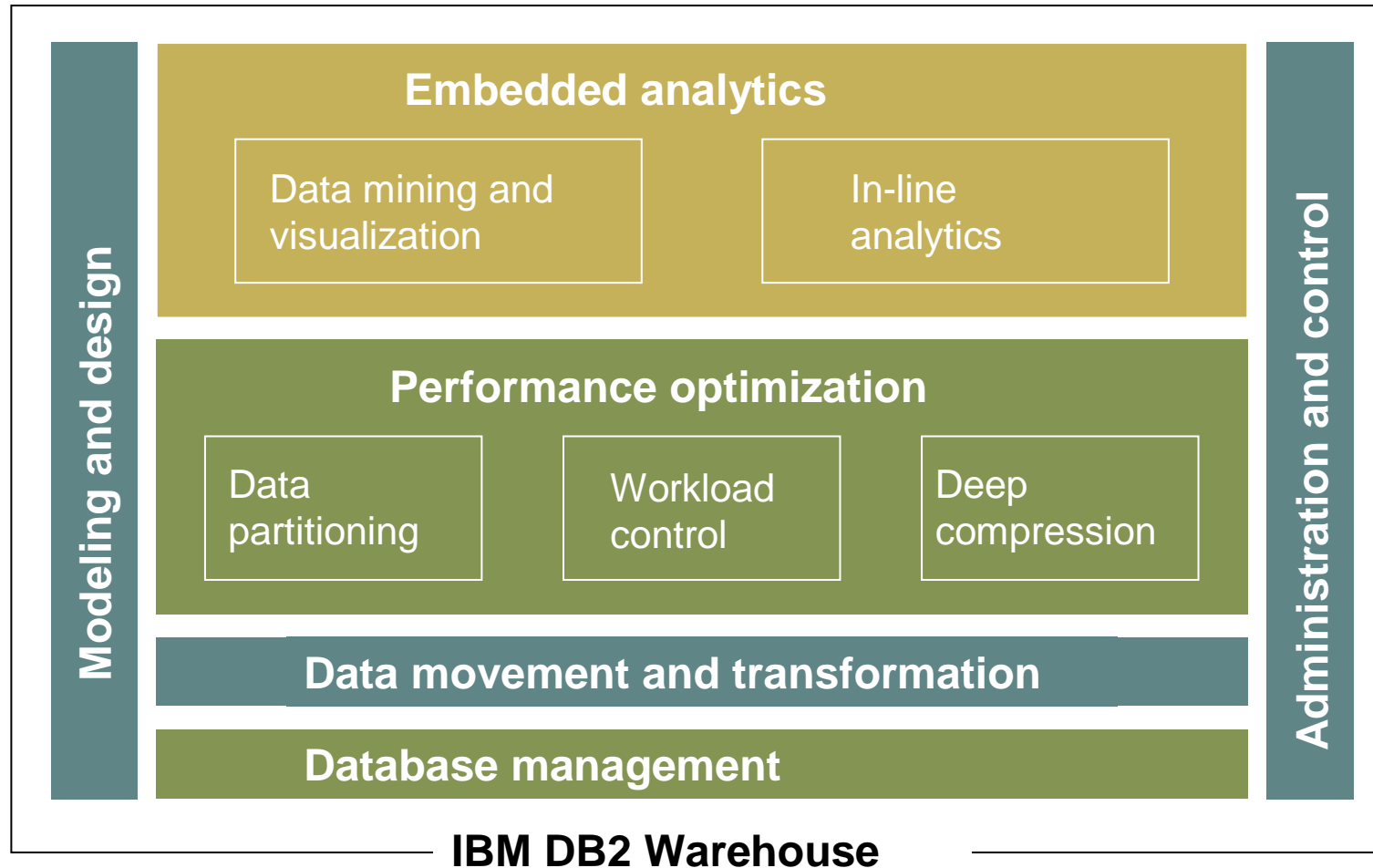
- Benchmarks are often a game of leapfrog
- However, DB2 has demonstrated sustained superiority over competitors





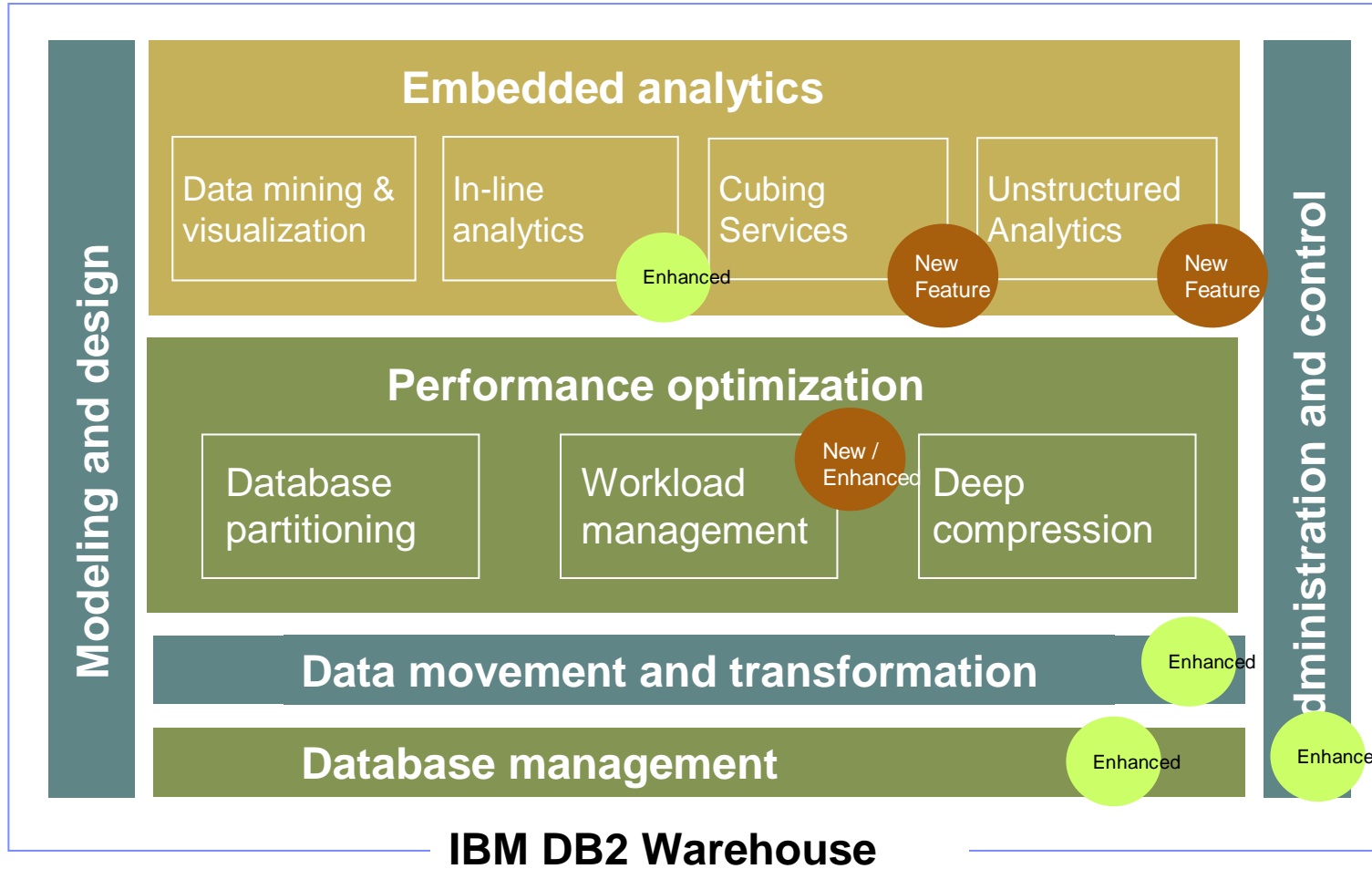
# **IBM DB2 Warehouse V9.1.2**

*A complete, integrated platform*



# IBM DB2 Warehouse 9.5

## New and Enhanced Capabilities



# IBM DB2 Warehouse 9.5 Offerings

## Flexibility to Meet Customer Specific Needs

### Starter Edition

Small and medium businesses with requirements for 50GB to 350GB of user data and 10 users to 60 users -- first-time data warehouse customers

- Limited to 2 proc. Linux & Windows
- Administration & Control Tools
- Modeling & Design Tools
- Data Movement & Transformation
- Database Partitioning
- Cubing Services

### Intermediate Edition

Larger small and medium businesses and departmental customers with data warehouses that scale from 50 to 200 Users and 500GB to 1TB data

- Limited to 4 proc. Linux & Windows
- Administration & Control Tools
- Modeling & Design Tools
- Data Movement & Transformation
- Database Partitioning
- Cubing Services

### Base Edition

Departmental Data Marts, Basic Reporting Data Warehouses and Business Warehouses

- Unlimited Warehouse Size
- Administration & Control Tools
- Modeling & Design Tools
- Data Movement & Transformation
- Database Partitioning
- Cubing Services

### Enterprise Edition

Enterprise Warehousing Solutions Requiring Advanced Business Insight and Optimization through Analytics

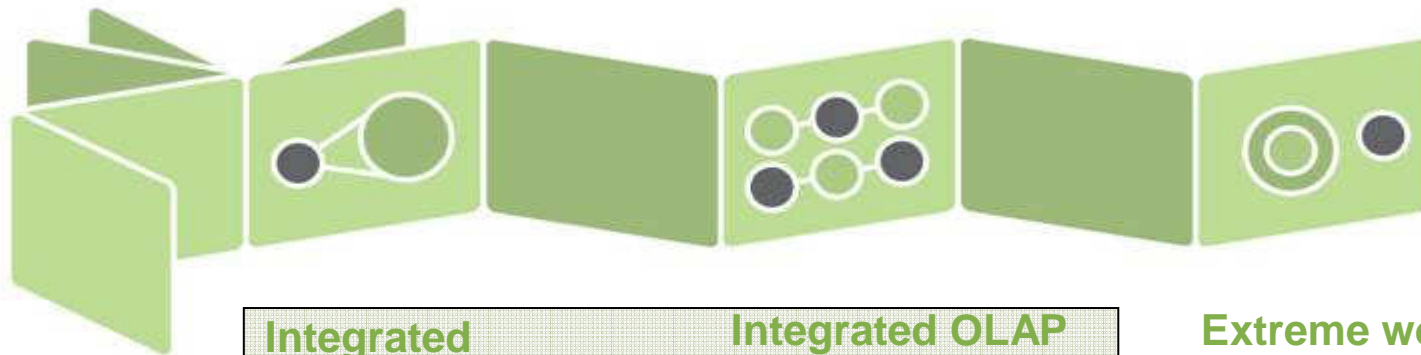
- Unlimited Warehouse Size
- Administration & Control Tools
- Modeling & Design Tools
- Data Movement & Transformation
- Database Partitioning
- Cubing Services
- Workflow Management
- Deep Compression
- Data Mining & Visualization
- Unstructured Text Data Analysis
- In-line Analytics

Now Available on Windows

Now includes Performance Optimization Feature



## ***Reach farther. Look deeper. Act faster.***



### **Integrated unstructured analytics**

Leverage previously untapped information to better understand customer and product issues

### **Integrated OLAP cubing services**

Enable deeper analysis of multiple business variables and dimensions to generate insight, while reducing cost

### **Extreme workload management**

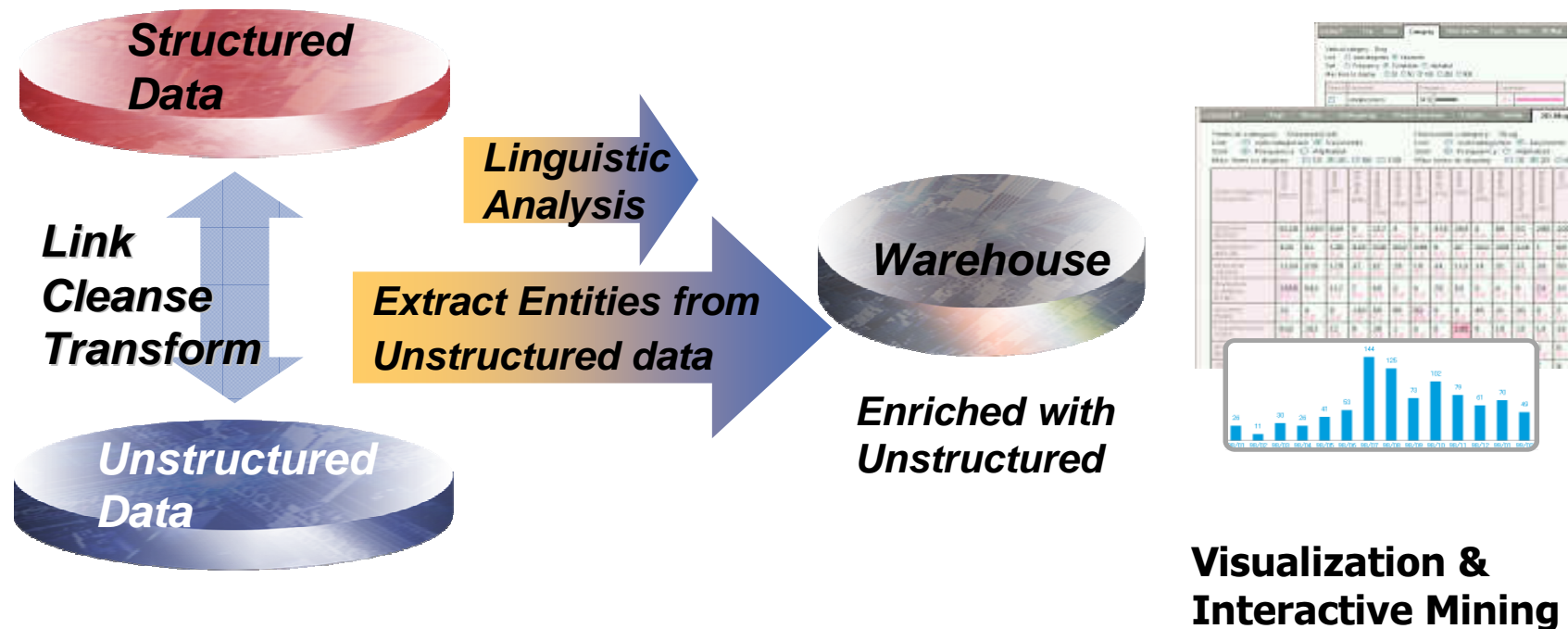
Deliver real-time insight to more users and reduce costs, without compromising performance

***No Copy Analytics***



# Unstructured Text Data Analysis

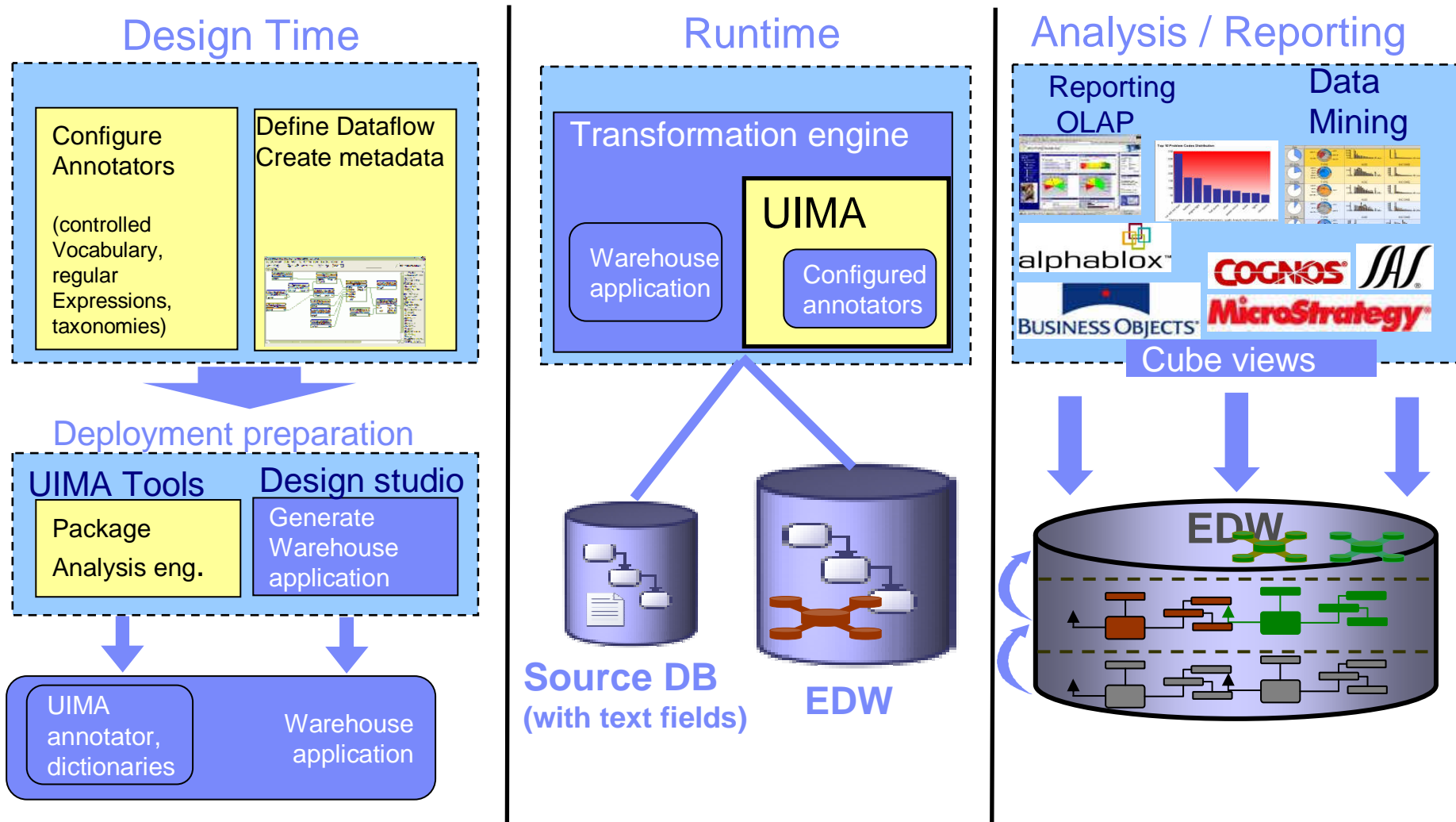
*Augments Dynamic Warehouse with the ability to correlate Unstructured Text Data with Structured Data enabling the structured analytic toolset*



**Visualization & Interactive Mining**



# Text Analysis in DB2 Warehouse



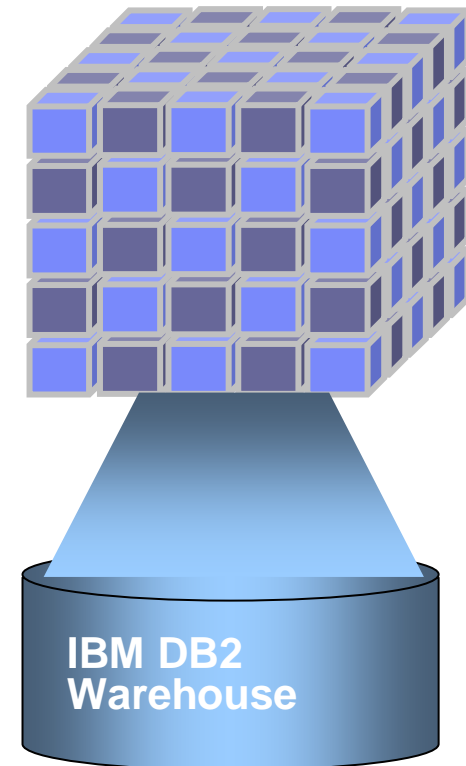
## ***Cubing Services (OLAP)***

### ***Look Deeper***

Cubing Services is a multidimensional analysis server that enables OLAP applications via industry standard OLAP connectivity

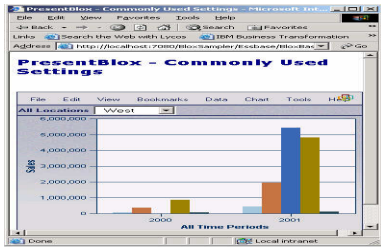
#### **Benefits**

- Uses industry standards OLAP Interfaces for access by a wide variety of tools for presentation and reporting
- Speed of thought access to OLAP data managed in a DB2 Data Warehouse. Thus for your DB2 Warehouse OLAP data there is:
  - OLAP and SQL shared access to the same information
  - Single point of Management
  - Single point of Maintenance
  - Single point of Performance Tuning
- **Enables Access to up to 1 TB of base OLAP Data**



# Cubing Services

Reporting Tool

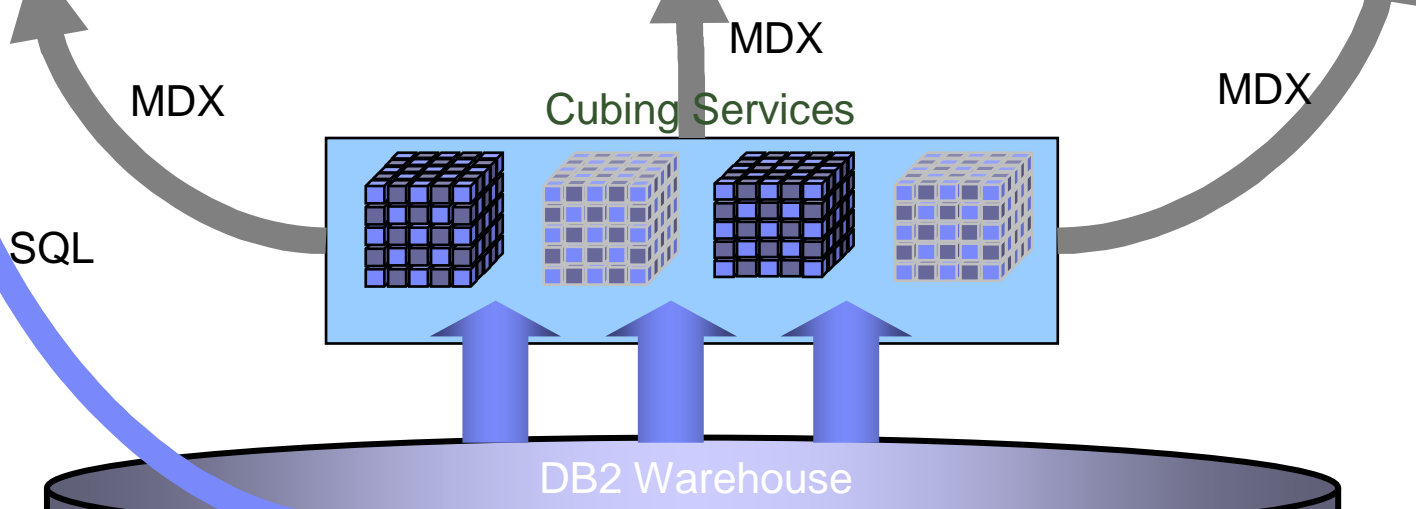


Alphablox



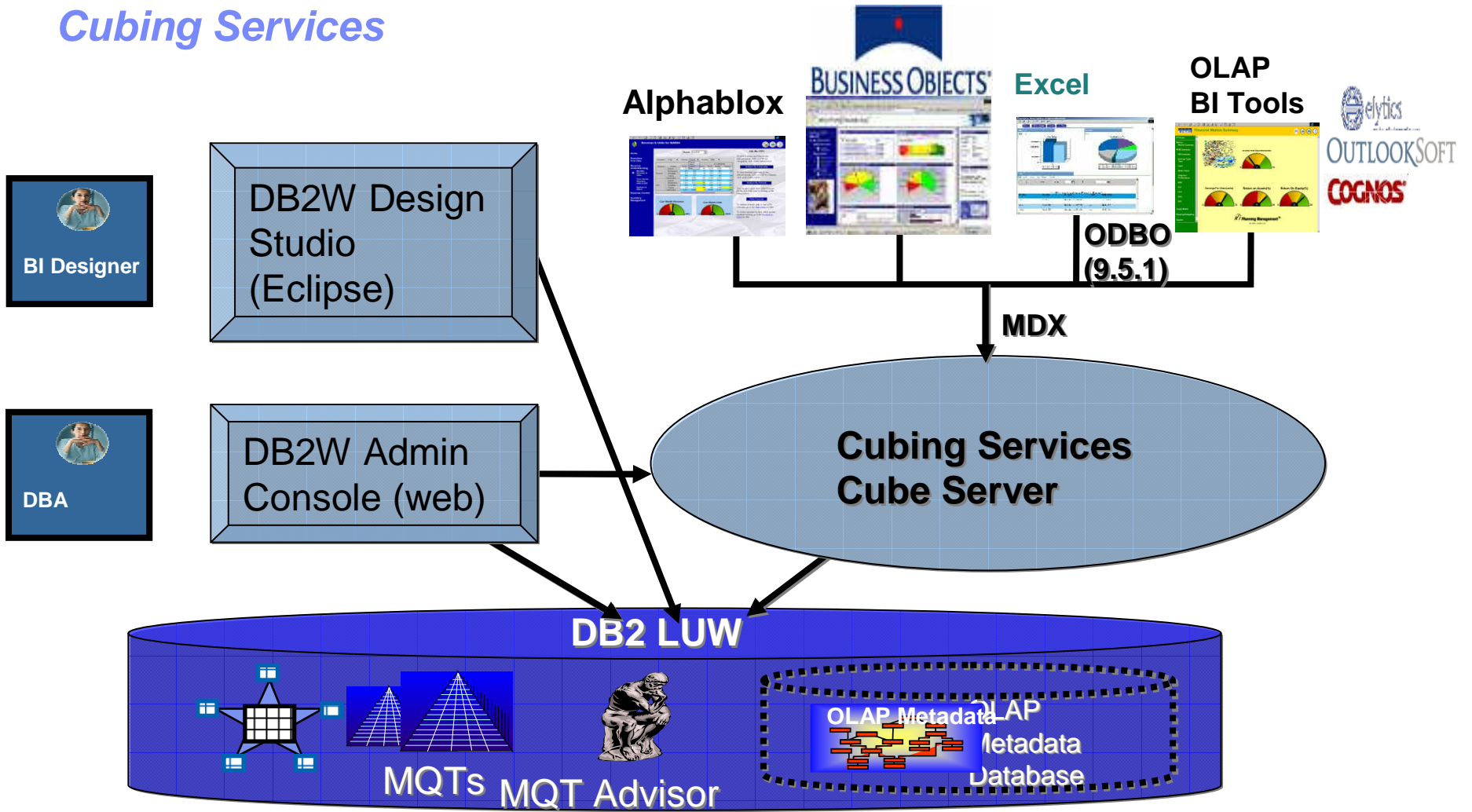
Excel

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# DB2 Warehouse Cubing Services



# ***Workload Management***

## **1. Resource sharing**

- One department or user swamps the system
- Report type workloads coexist with operational ones

## **2. Controlling individual DB activities**

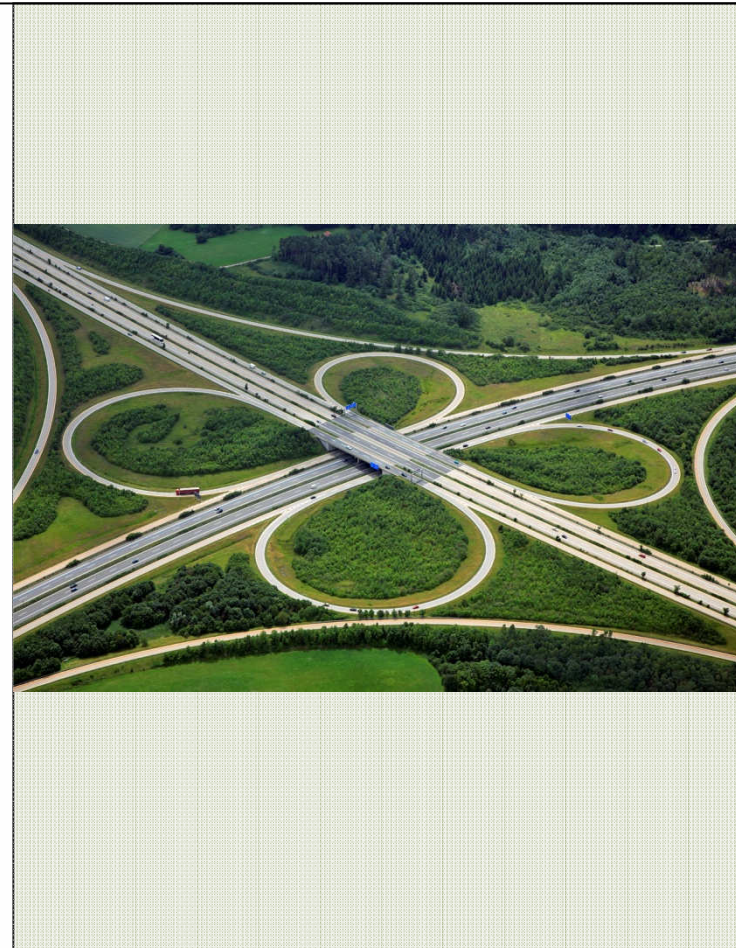
- Poorly written queries consume resources

## **3. Controlling concurrency of DB activities**

- Example: allow only one load in progress at any time
- Throughput can be improved by queuing

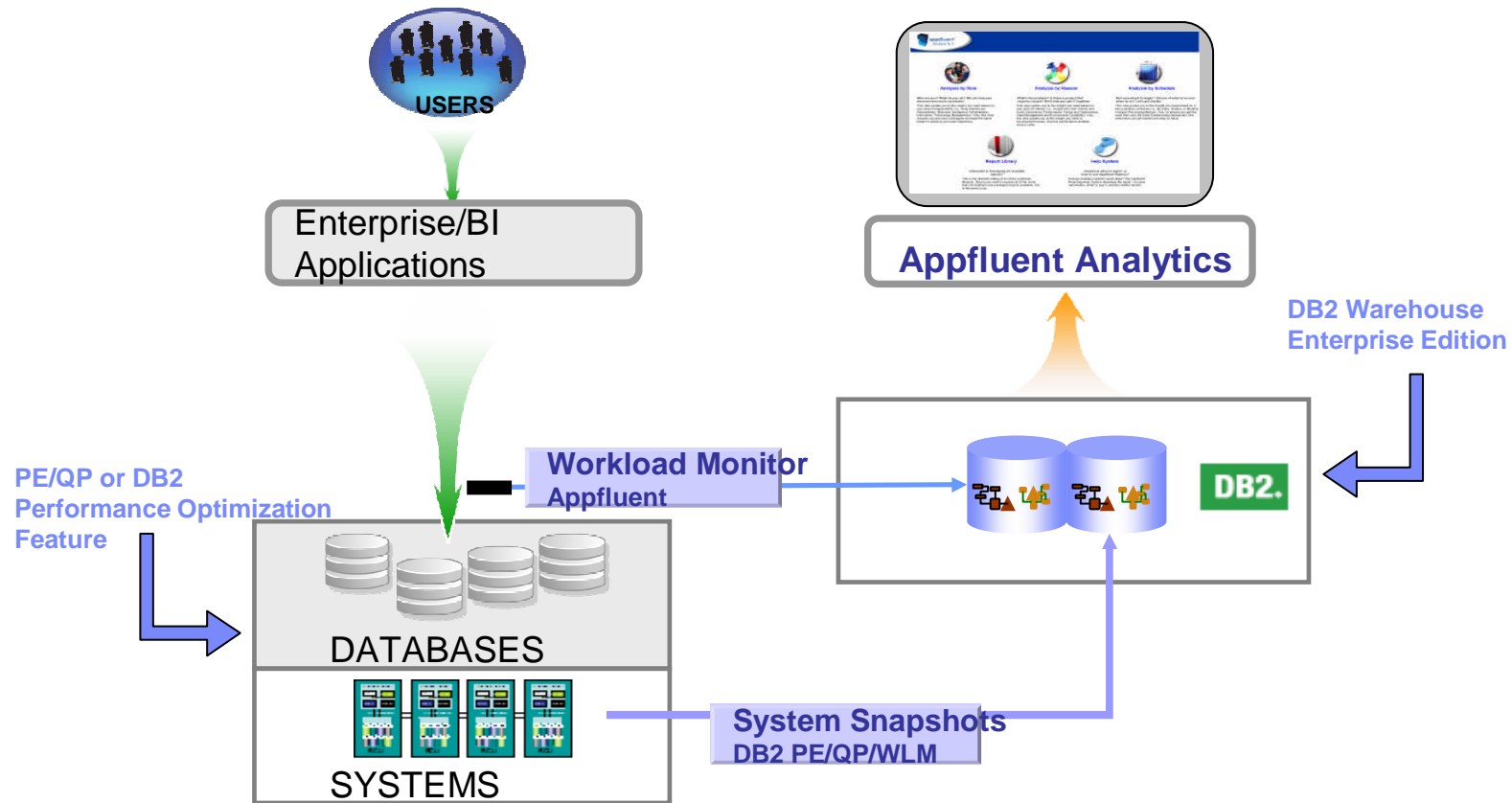
## **4. Fine grained, light weight monitoring of DB activities**

- Selective monitoring reduces volume produced
- Light weight monitoring reduces overhead

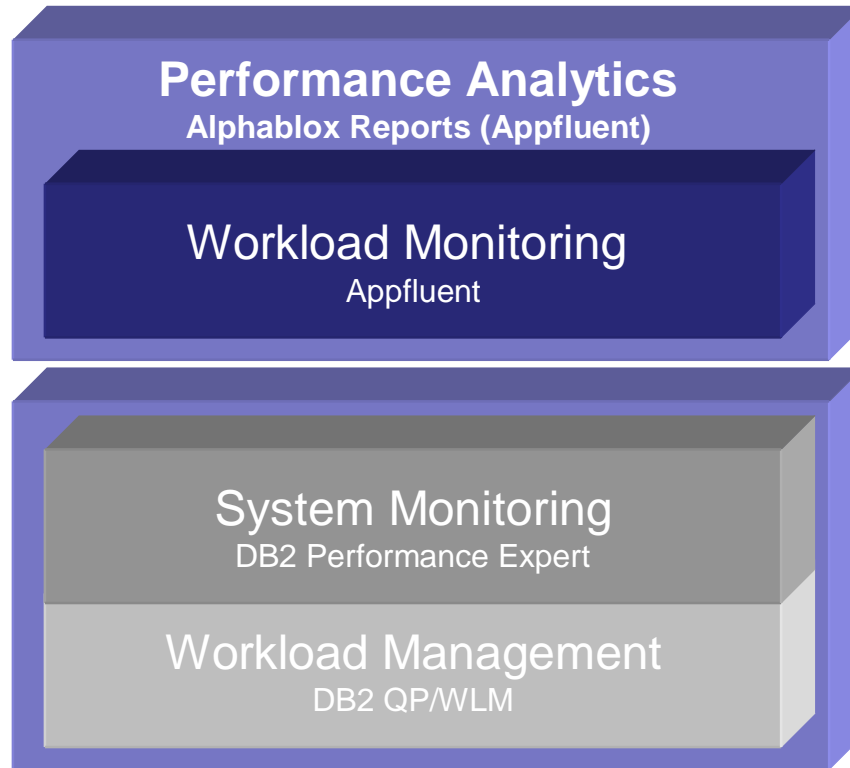


# DB2 Warehouse Performance Management Suite

## Performance Analytics



## DB2 Warehouse Performance Management Suite



### ***DB2 Warehouse Performance Monitoring Feature***

*Query workload analysis that correlates user activity, data usage and query performance metrics - without disrupting or adding overhead to production systems.*

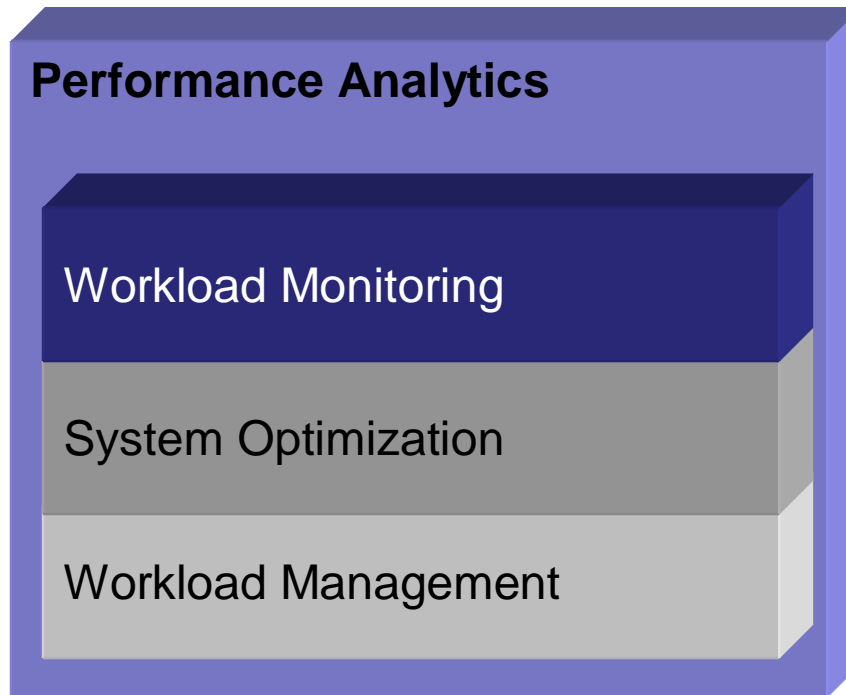
### ***DB2 Warehouse Performance Optimization Feature***

*Database and operating system level analysis for system-level optimization and regulation/control of resource consumption.*



## ***DB2 Warehouse Performance Management Suite Instrumenting Your Warehouse***

A complete solution for optimizing your warehouse



Reach Farther, Look Deeper, Act Faster

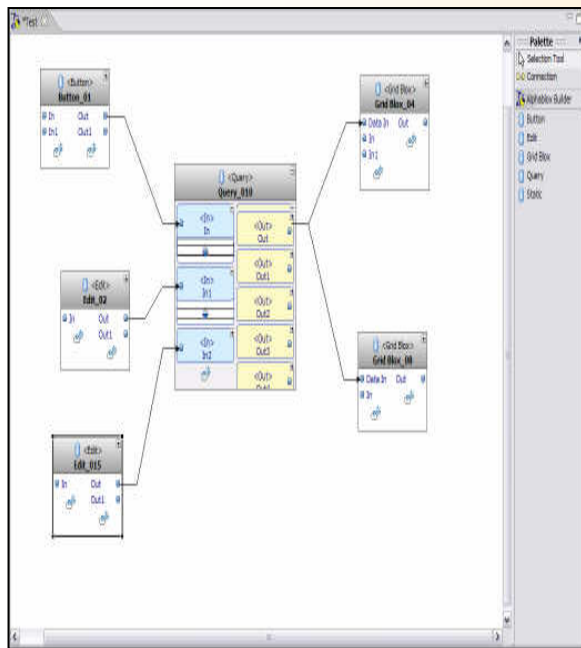
### Key Advantages

- *Non-disruptive Monitoring – via packet sniffing.*
- *Transparent Deployment – no interference, changes with production traffic.*
- *Low learning curve and support – leverages existing BI infrastructure (Business Objects, Cognos, IBM Alphablox).*
- *Ease of extensibility – extend metadata and analytics.*
- *Massively scalable – modular architecture designed for large and distributed systems.*

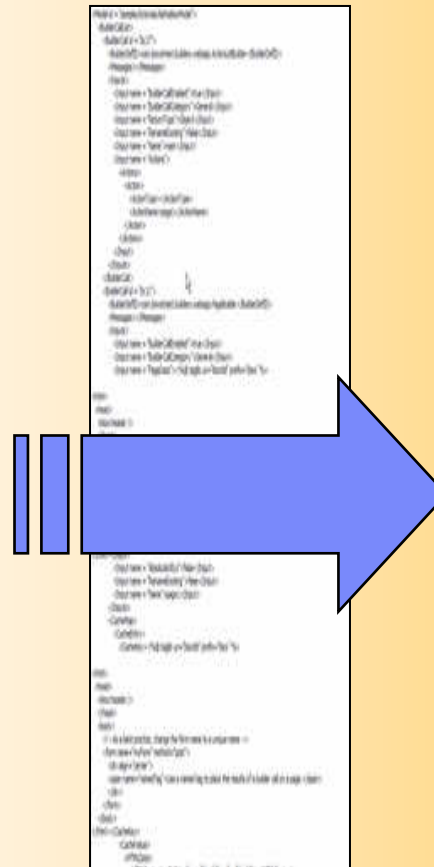


# Alphablox BloxBuilder

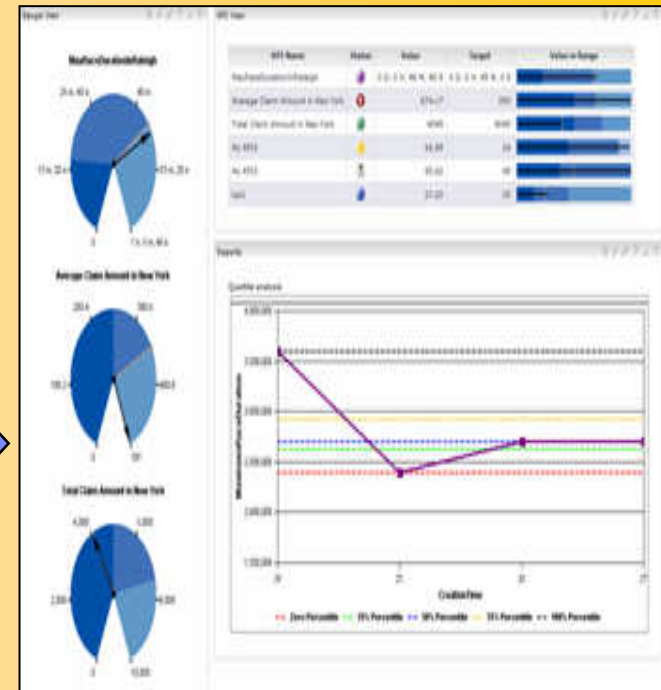
## Making Inline Analytics Easier



Model / Layout



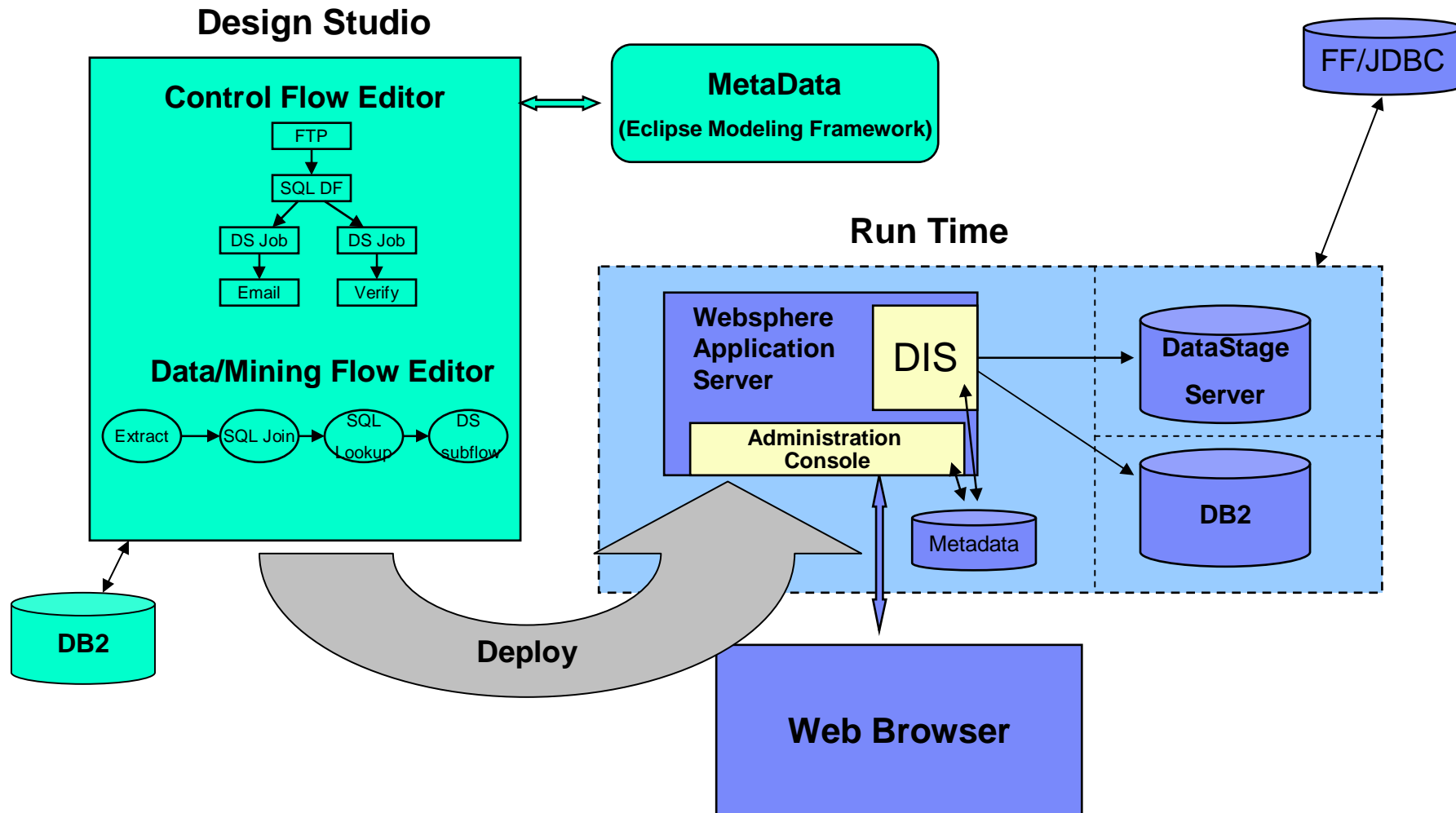
Generate



Deploy



# DB2 Warehouse 9 SQW component architecture

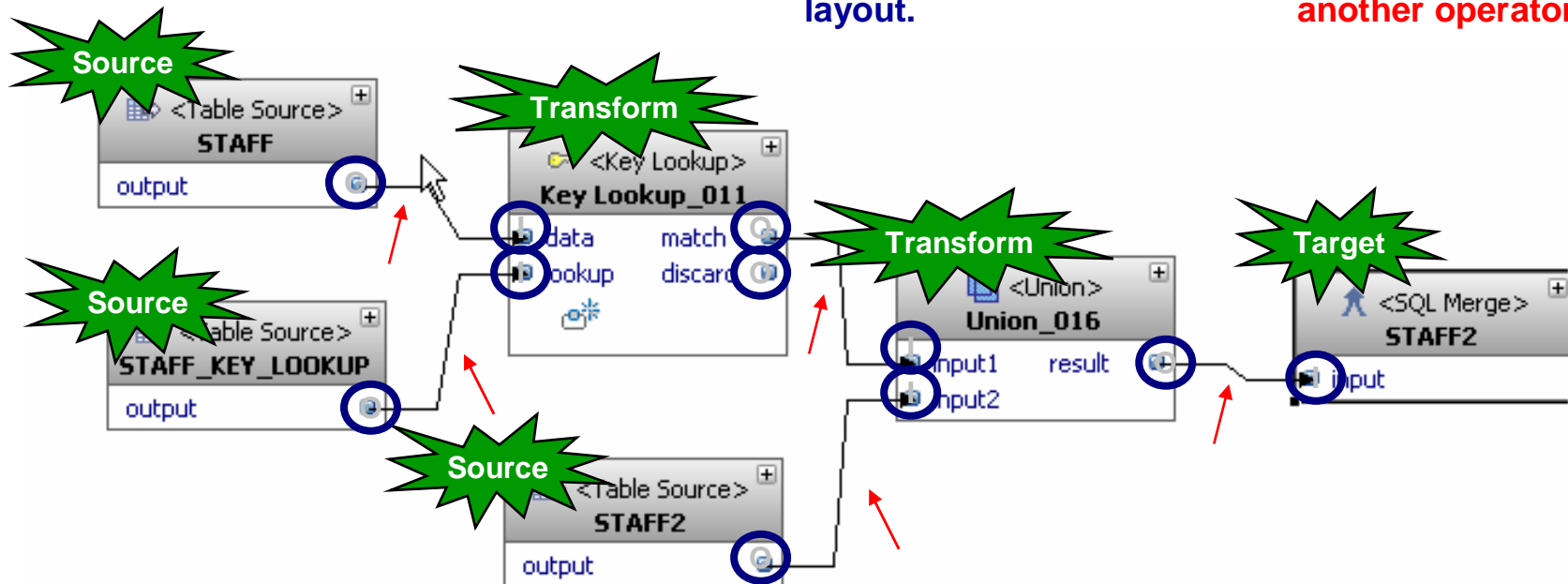


# Anatomy of a SQW data flow

**Operators**  
 Source  
 Target  
 Transformations

**Ports**  
 Defines the points of data input or output for an operator. Also define the data layout.

**Connectors**  
 Directs flow of data from an output port of one operator to the input port of another operator





## ***Additional New Features in Warehouse V9.5***

- Performance Management Suite
  - Instrumenting your data warehouse
- Alphablox BloxBUILDER
  - Building Applications quicker and easier
- SQW Enhancements
  - Extending the tooling with more functionality
- DB2 V9.5 (Viper II) Enhancements
  - Tuning the database for better performance and administration



## Viper II DB2 9.5 Enhancements

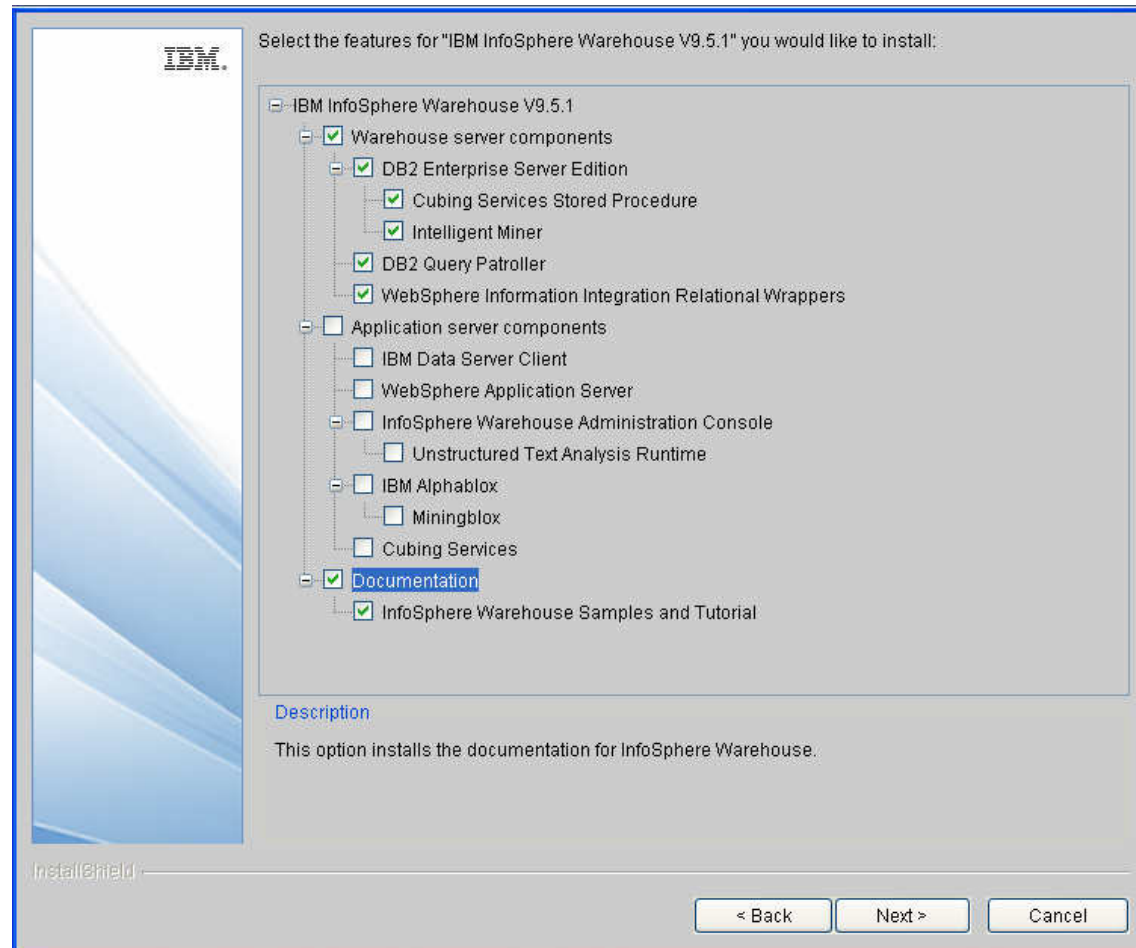
*DB2 9.5 is the engine at the heart of the DB2 Warehouse. DB2 9.5 brings features that will reduce the cost of ownership of your warehouse environment and provide improved availability, performance and regulatory compliance capabilities.*

### **Benefits**

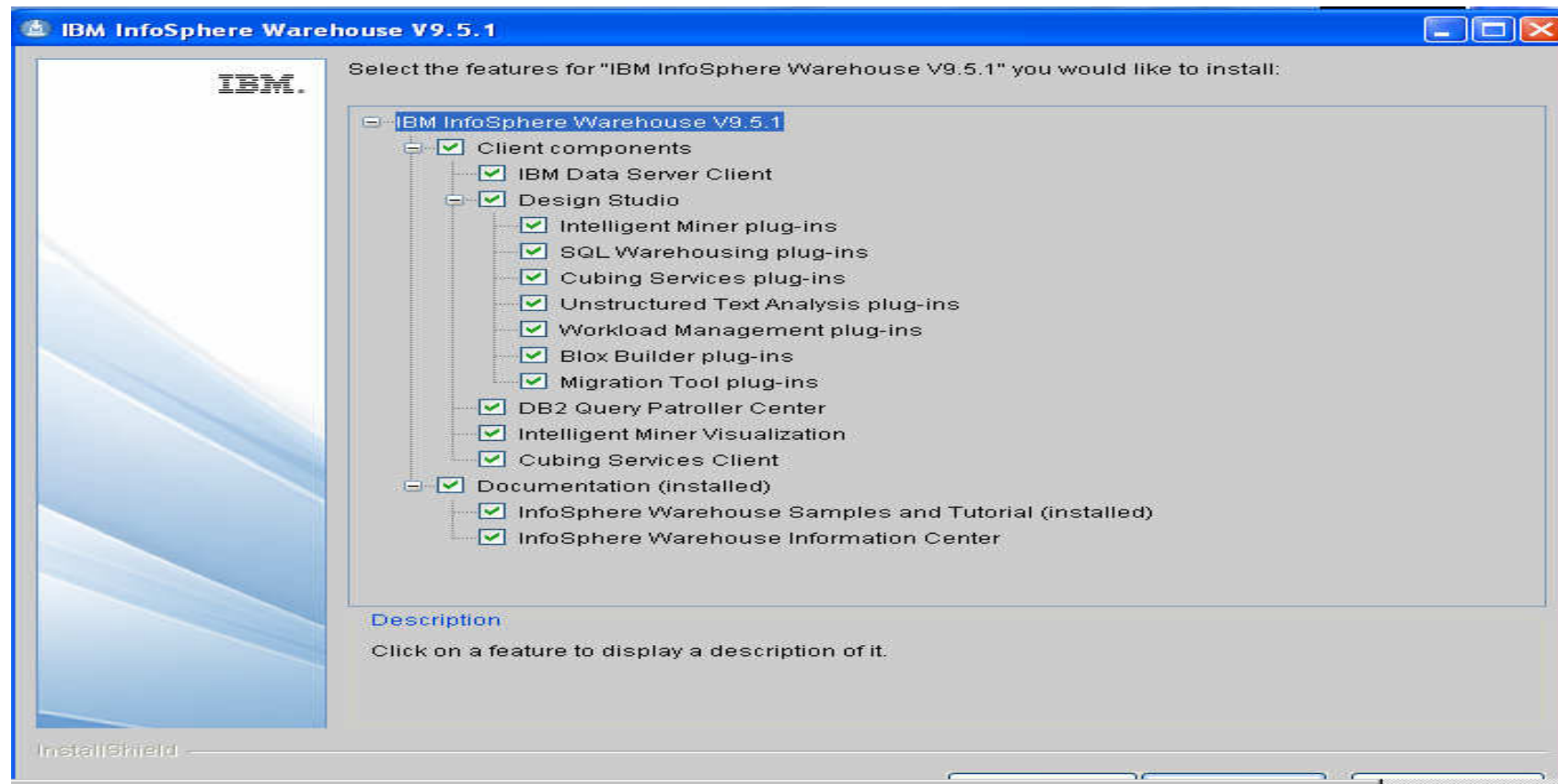
- *Lower Cost of Database Administration*
  - *Enhanced Backup facilities*
  - *Simplified & Automated Tuning capabilities*
  - *Faster data redistribution*
  - *Automated upgrades*
- *Better Performance*
  - *Enhanced Row compression*
  - *Enhanced Query optimization*
- *Compliance*
  - *Enhanced Security*
  - *Enhanced Audit logging and monitoring*



# InfoSphere Warehouse V9.5.1 installation



# InfoSphere Warehouse V9.5.1 installation

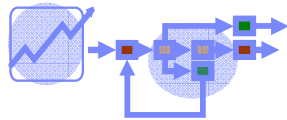


# **IBM provides more than just a warehouse**

## *DB2 Warehouse provides extended capabilities and value*

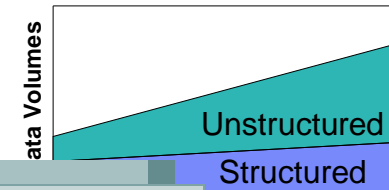
### **Embeddable analytics (Inline and as a Service)**

Multidimensional analysis  
Data mining and visualization



### **Beyond traditional structured data**

Generate and leverage  
knowledge from  
unstructured information



### **Benefits of a data server for**

Information is power! The sooner decision makers have knowledge, the more powerful and competitive they are.

Optimized for real-time access,  
High availability and reliability  
Scalable, secure and auditable

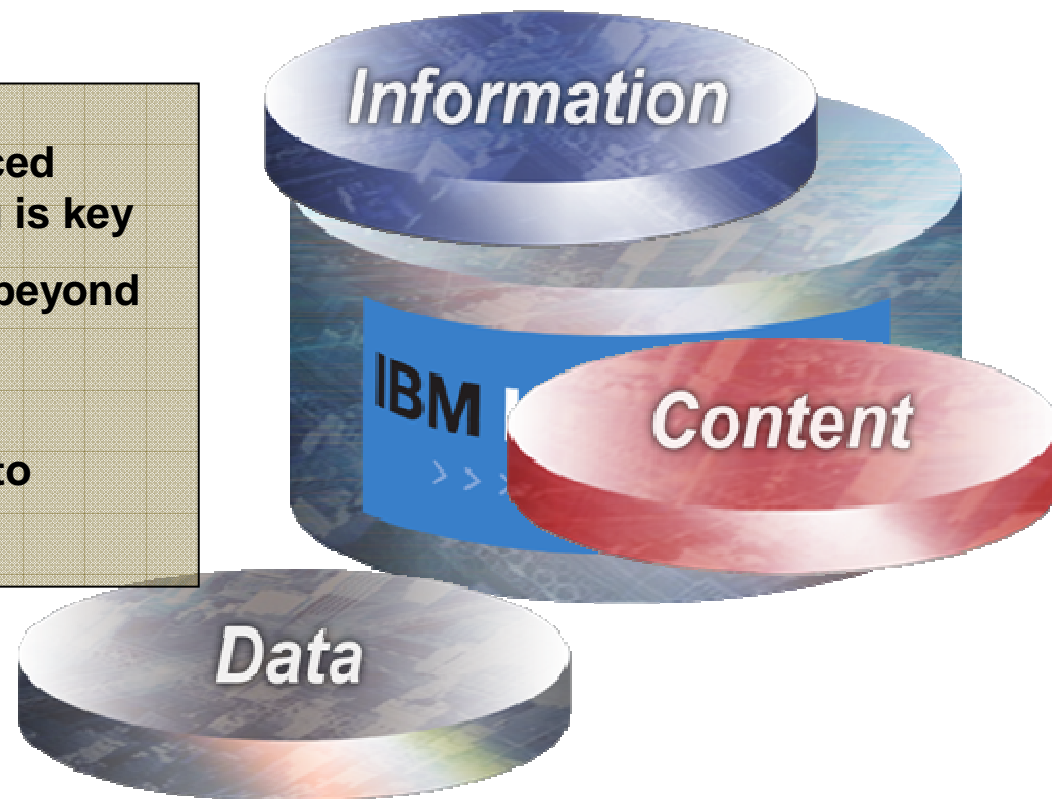
Reduced storage costs  
Better disk utilization  
Query speed improvement

Shared-nothing architecture  
Advanced data partitioning  
Workload management



## ***IBM enables dynamic warehousing*** ***Delivering greater value from information***

- **More dynamic and balanced approach to warehousing is key**
- **Broad set of capabilities beyond the warehouse required**
- **IBM provides the most comprehensive platform to address these needs**



## ***IBM Information On Demand Conference in Haag***



**IBM Information**  
>>> **On Demand**  
June 3 - 6, 2008 The Hague, Netherlands  
EUROPE, MIDDLE EAST & AFRICA IOD CONFERENCE

**2008**

<http://www-306.ibm.com/software/uk/data/conf/>



# *Don't Miss!*

## **Want to Get Your Hands Dirty?...See you at the Labs**

- ❖ Be sure to register for the Hands-on-Labs so you can experience the latest Warehousing features for yourselves. These are filling up fast, so we encourage you to sign up while you still can!

## **Find Us on the Floor!**

- ❖ Be sure to visit the Dynamic Warehousing Zone. Talk with an expert about our new Dynamic Warehousing capabilities including workload management, unstructured content analysis, enhanced analytics, cubing services and more.
- ❖ Hear how IBM can help you extend the value of your warehouse with integration with other Information Management products including Information Server, OmniFind Analytics Edition and IBM Industry Models.
- ❖ **Over 30 Data Server Peds in All**





# IBM is the Leading Provider of Warehousing

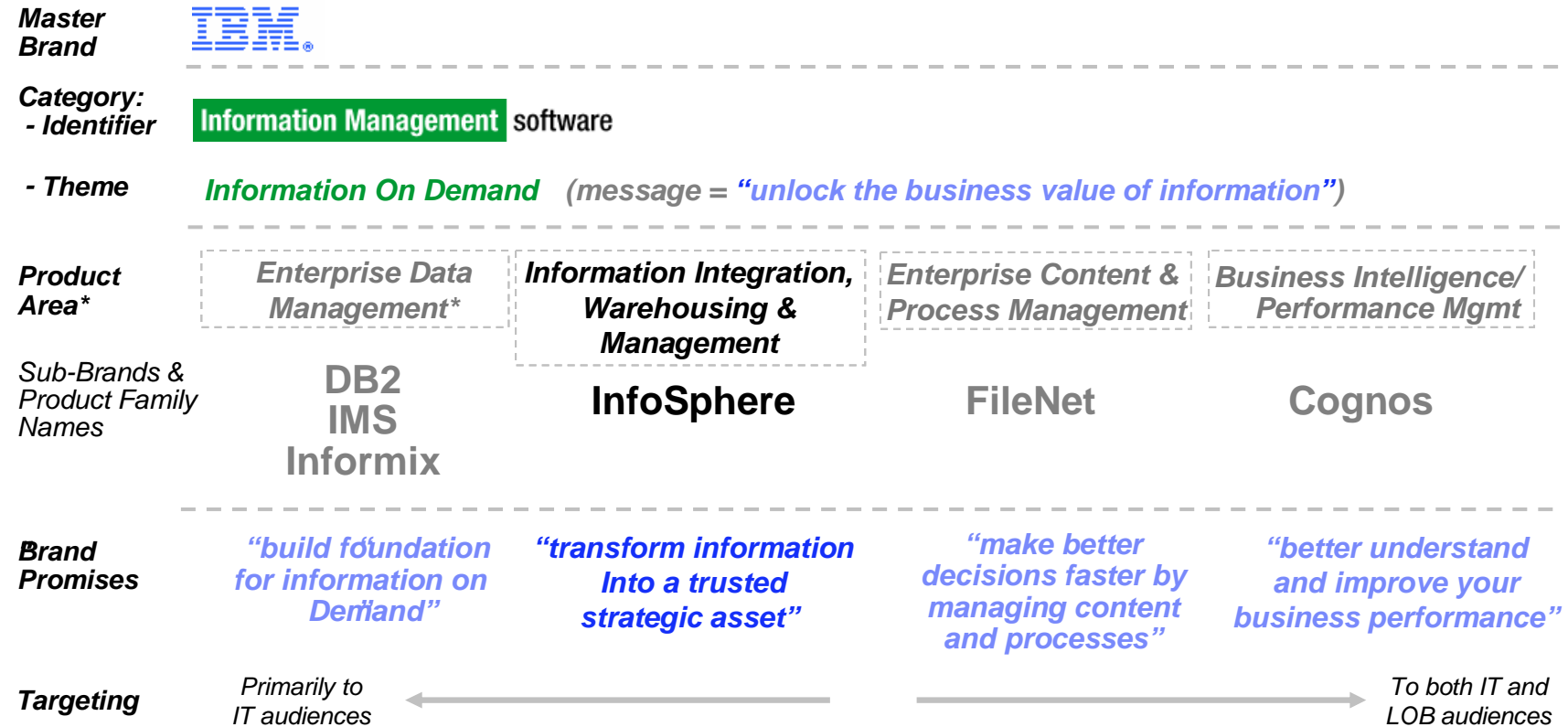
## The Industry Leaders Use DB2 for Warehousing



11 of the top 12 banks  
7 of the top 8 auto manufacturers  
5 of the top 6 insurance companies  
4 of the top 6 general merchandisers  
4 of the top 5 specialty retailers  
3 of the top 4 food & drug stores

# InfoSphere™?

## IBM IM Brand Architecture summary: 2008



\* Product Areas are primarily internal-to-IBM terms. They change over time to meet IBM needs or to align with Industry or Analyst category terminology. For instance, “Enterprise Data Management” is what the Data Servers team is expected to launch as their new descriptor in 2008.

## ***So what have we now announced***

### ***The Next Step in the Dynamic Warehousing Roadmap***

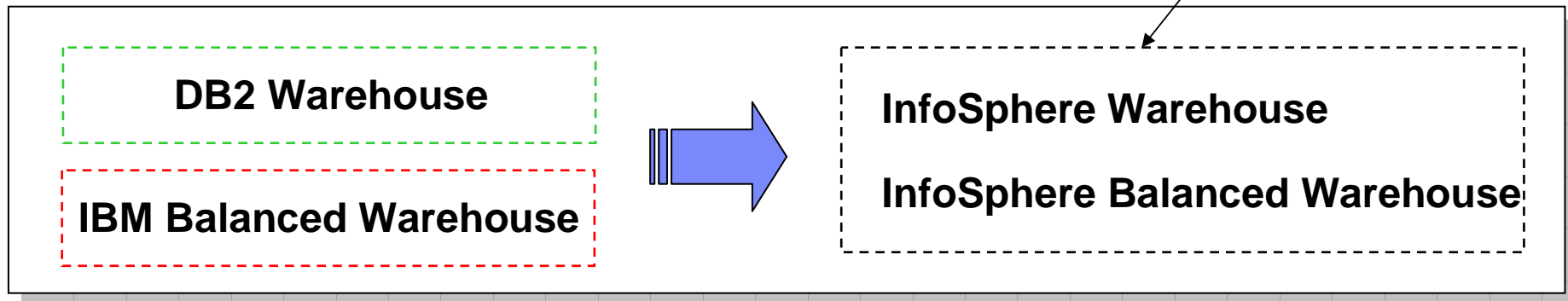
- Introduction of the IBM InfoSphere™ Warehouse
  
- Cognos Integration
  - ▶ Cognos 8 BI Starter Edition
  - ▶ C4000
  
- IBM InfoSphere Warehouse with Optim Data Retention
  - ▶ Now available



# Introducing IBM InfoSphere™ Warehouse

*Discover your opportunity now*

*Aligning our solutions under the same family*



## ■ Renaming of DB2 Warehouse:

- ▶ DB2 Warehouse 9.5 → IBM InfoSphere Warehouse 9.5
  - All future releases will be under the IBM InfoSphere Warehouse family naming structure
  - All DB2 Warehouse versions prior to 9.5 will remain under the DB2 Warehouse name.

## ■ Renaming of IBM Balanced Warehouse:

- ▶ IBM Balanced Warehouse → IBM InfoSphere Balanced Warehouse
  - All current and future Balanced Warehouse portfolio and solutions will be come a part of the InfoSphere family

## ***New Pre-Integrated Software Offering***



### ***Data Warehousing***

- Business Intelligence pre-integrated with the data warehouse
  - for easier deployment, reduced TCO and faster query times
- Cognos 8 BI Starter Kit included with Warehouse
  - 5 user licenses for reporting & dashboarding
- InfoSphere Warehouse included with Cognos 8 BI
  - Non-production license



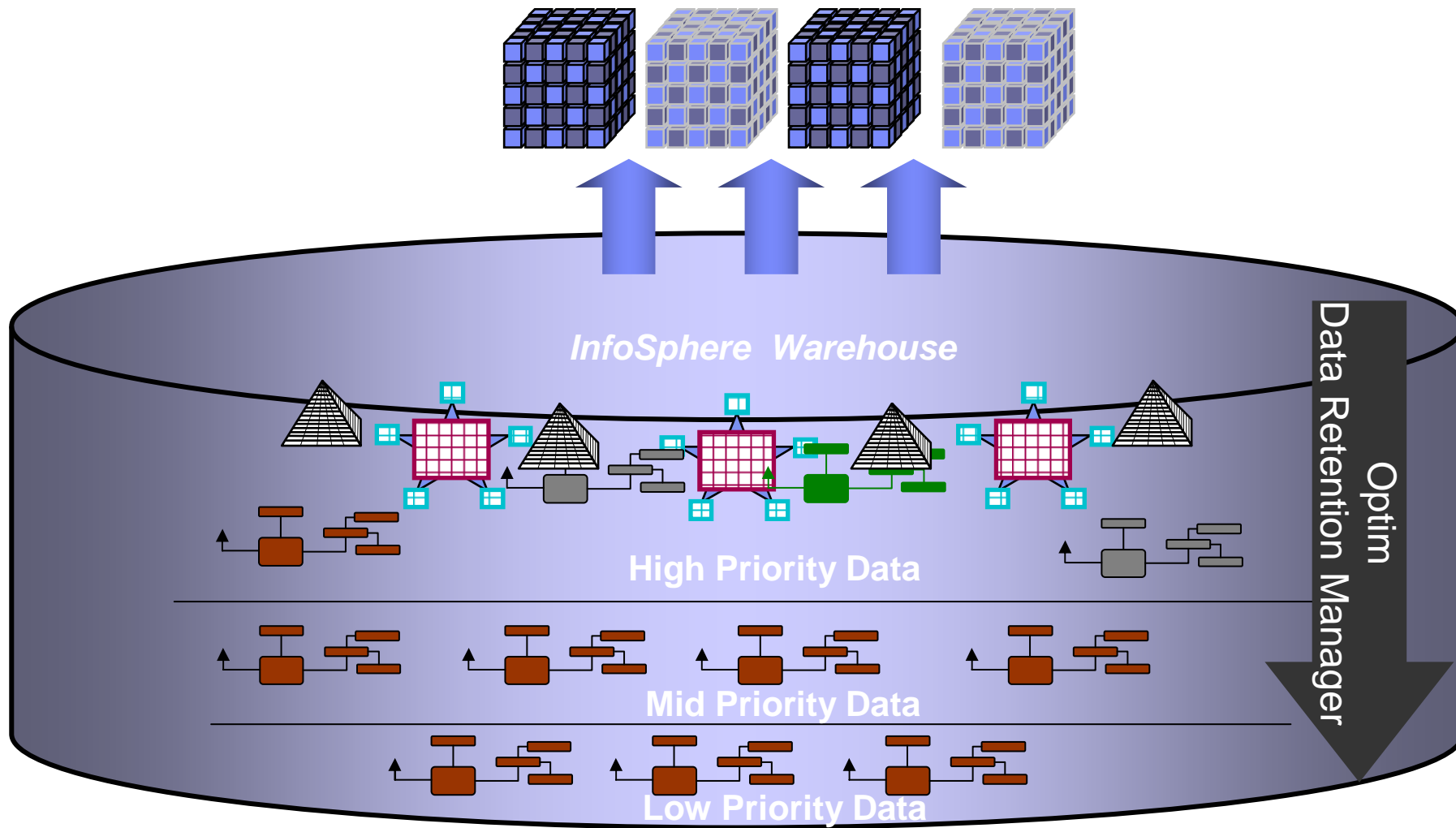
*End-to-end Capabilities  
Easier Deployment  
Lower TCO*

## ***Introducing IBM Cognos 8 BI Starter Edition***

### **What is it ?**

- Restricted version of Cognos BI:
  - Report Studio (professional reporting environment)
  - Query Studio (ad-hoc reporting environment)
  - Framework Manager (modeling environment).
- Limited to 5 user license (1admin, 4 consumers)
- Special installation – hard-coded to DB2 data source
- Support limited to web support only

# InfoSphere Warehouse



## Completing the Puzzle

- **Storage Optimization**
  - Increase warehouse capacity
- **Workload Management**
  - Optimizes workloads and priorities
- **Performance Management**
  - Identifies usage patterns and trends
- **Data Retention-**
  - Implements data retention policies based on usage patterns and data governance





## ***Find Out More***

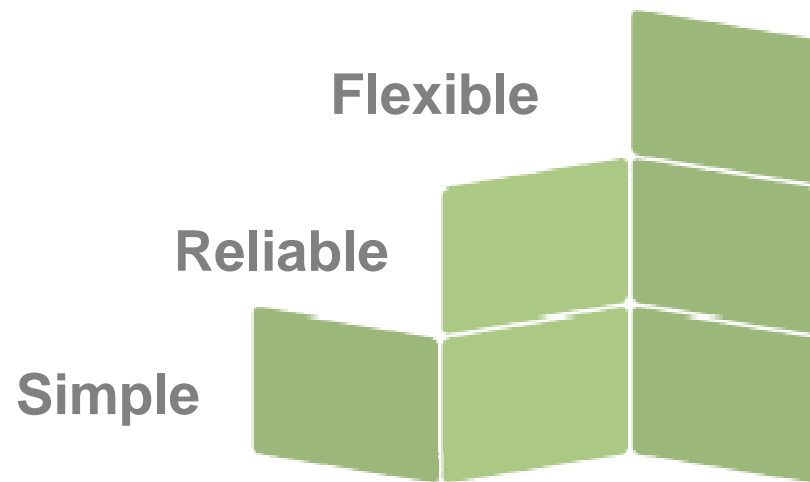
*Where to go for more information*

- **Knowledge Base for Cognos 8 BI Starter Edition:**

- <http://publib.boulder.ibm.com/infocenter/cognosbi/8/index.jsp>

- **Cognos 8 BI General Page:**

- <http://www-306.ibm.com/software/data/cognos/business-intelligence/>



**InfoSphere**

**Balanced Warehouse**

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## ***Agenda***

- InfoSphere Balanced Warehouse
- Preset configurations (C, D and E)
- How it is built
- Balanced Warehouse support

## The InfoSphere Balanced Warehouse™

*Real time, ready to go data warehousing solutions*

*The **InfoSphere Balanced Warehouse** is the complete data warehousing solution comprised of **pre-tested, scalable** and fully-integrated system components of **DB2 Warehouse, Server and Storage**.*



  
Balanced Warehouse

IBM Balanced Warehouses include **everything** required to serve as a foundation for your business intelligence solutions.

Some of the included highlights are:

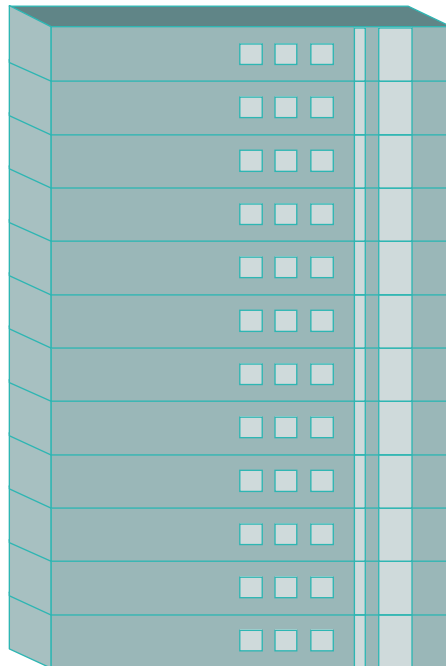
- Robust DB2 Warehouse software
- The latest in IBM Server technology
- High performance IBM storage
- Comprehensive total solution support

# ***InfoSphere Balanced Warehouse***

## ***Better than an appliance***



### Balanced Warehouse



#### **Simplicity**

- Predefined configurations for reduced complexity
- One number to contact for complete solution support

#### **Flexibility for growth**

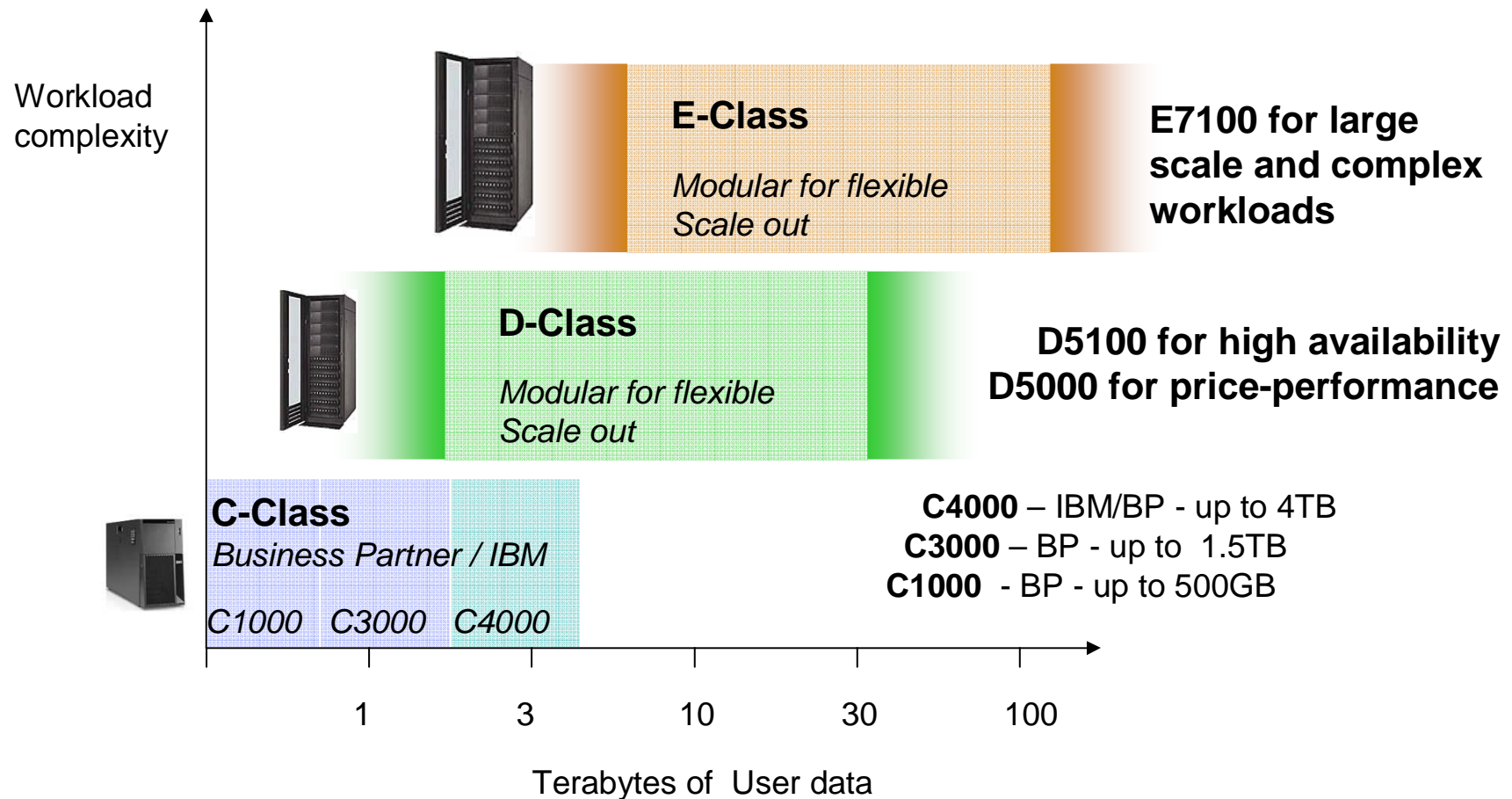
- Add modules to address increasing demands
- Multiple on-ramps for different needs
- Reliable, nonproprietary hardware for reusability

#### **Optimized performance**

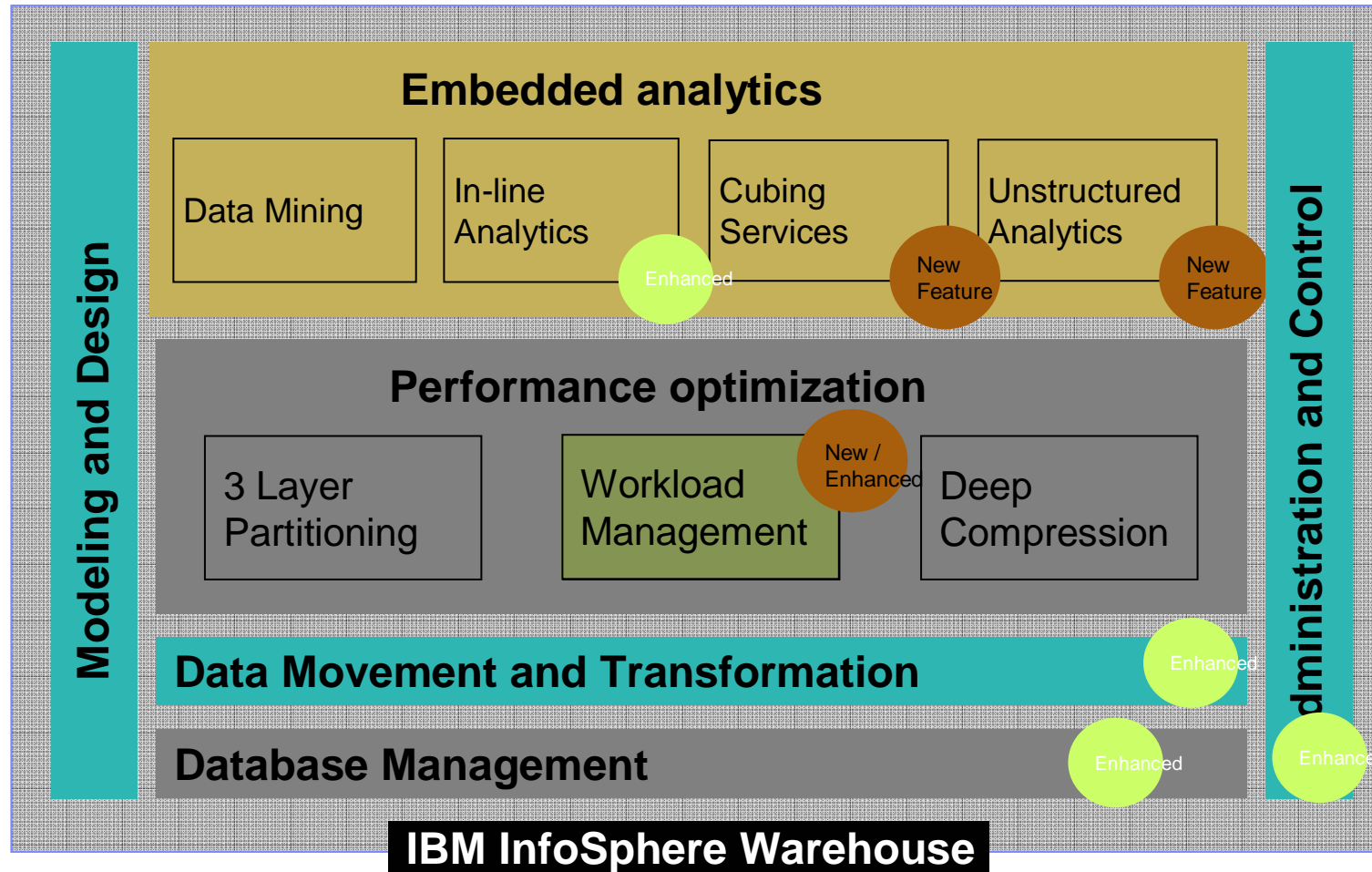
- Preconfigured and certified for guaranteed performance
- Based on best practices for reduced risk

# InfoSphere Balanced Warehouse™ – Solution Classes

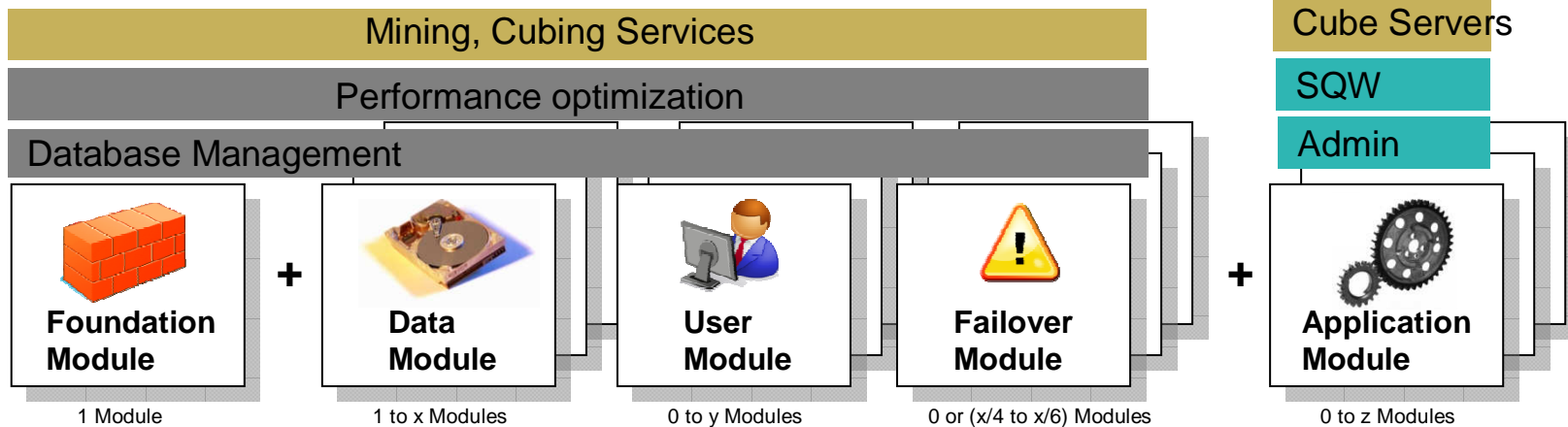
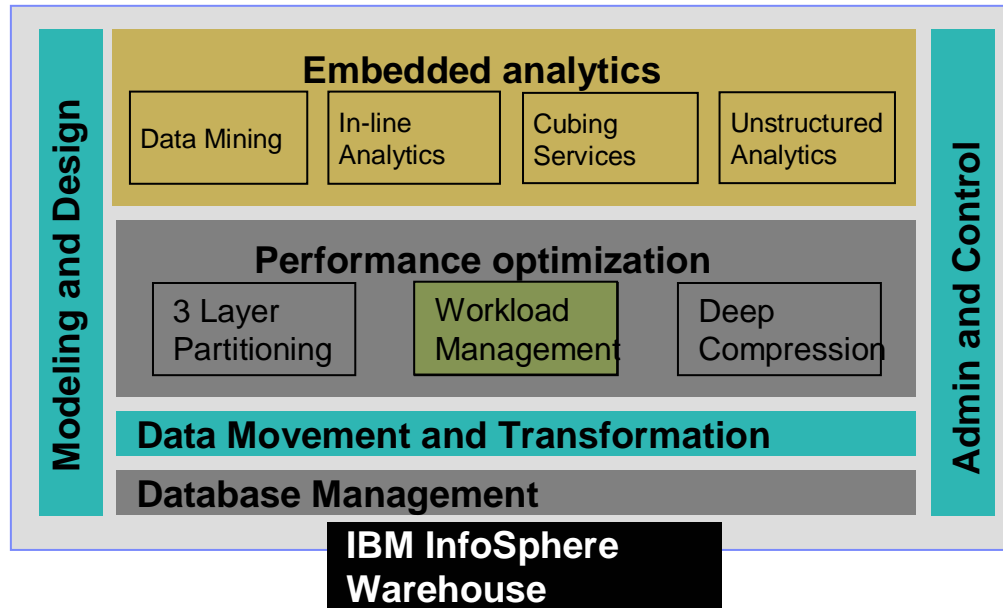
The Balanced Warehouse can be broken down into 3 different solution classes that each target and serve a distinct warehousing market segment.



# IBM InfoSphere Warehouse 9.5 New and Enhanced Capabilities



# How InfoSphere Warehouse is implemented on a Balanced Warehouse







## ***Balanced Warehouse***

*Preset configurations*

Sarah Brader

## C1000 offerings

User data/total space sizes

- user data = data, index, aggregates (approx = backup size)
- total usable = data, temp, logs, InfoSphere Warehouse, O/S

<b>C1000</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>	<b>Extra Large</b>
<b>Tower x3500</b>	150/300GB	300/600 GB	450/900 GB	1TB/1.6TB**
<b>Blade HS21</b>	150/300GB	300/600 GB	450/900 GB	750/1.5TB
<b>Cores</b>	1 x Quad	1 x Quad	1 x Quad	1 x Quad

\*\* Rack mounted not Tower

## C3000 offerings

User data/total space sizes

- user data = data, index, aggregates (approx = backup size)
- total usable = data, temp, logs, InfoSphere Warehouse, O/S

C3000	Small	Medium	Large
<b>Rack x3650</b>	1.5/3.1 TB	2.2/4.6 TB	3.0/6.1 TB
<b>Blade HS21</b>	1.5/3.0 TB		
<b>Cores</b>	1 x Quad	2 x Quad	2 x Quad

## C4000 offerings

User data/total space sizes

- user data = data, index, aggregates (approx = backup size)
- total useable = data, temp, logs, InfoSphere Warehouse, O/S

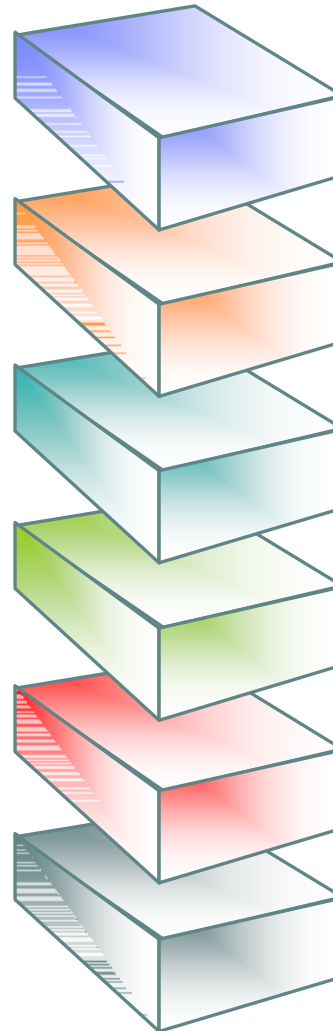
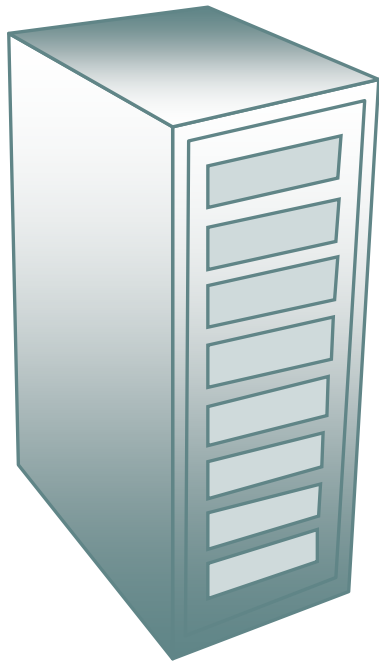
<b>C4000</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>
<b>Rack X3950 M2</b>	3.0/6.4 TB	6.0/12.4 TB	12.0/24.4 TB
<b>Cores</b>	2 x Quad	4 x Quad	4 x Quad

List Prices shown for hardware / software = Base Edition PVU only  
Build and Support not included

# Balanced warehouse: what is it made up of?



InfoSphere Balanced Warehouse



All are mandatory for D and E class:

## InfoSphere Warehouse

- Base or Enterprise

## Hardware

- Servers – data, Foundation, f/over
- Storage – data foundation
- RSM (storage call-home)

## Hardware Maintenance

- 24 x 7 uplift
- Storage Supportline

## Operating system, CSM

- AIX or Linux
- Annual maint or linux supportline

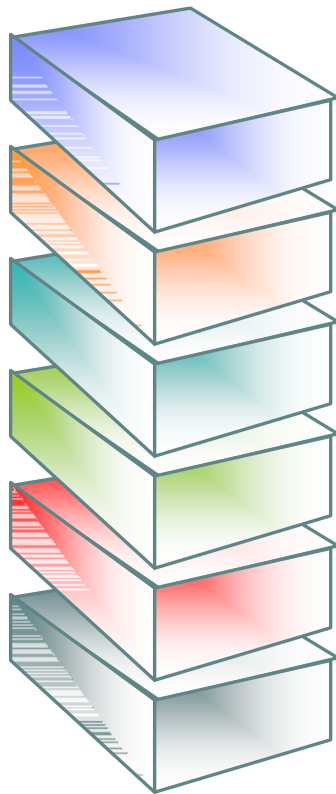
## Build and deploy

- CSC, lab services

## Post sales Support

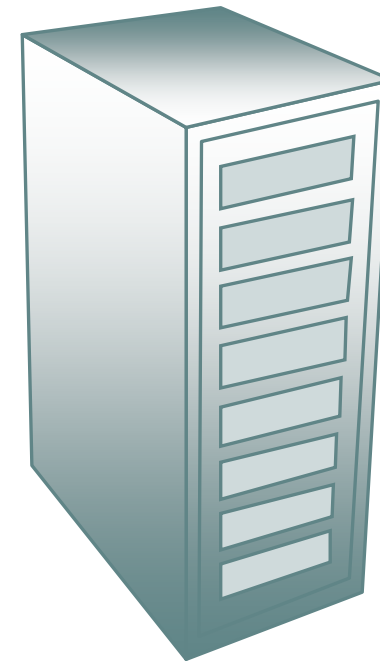
- Integrated support
- Premium

## ***Balanced warehouse: D & E Class components***

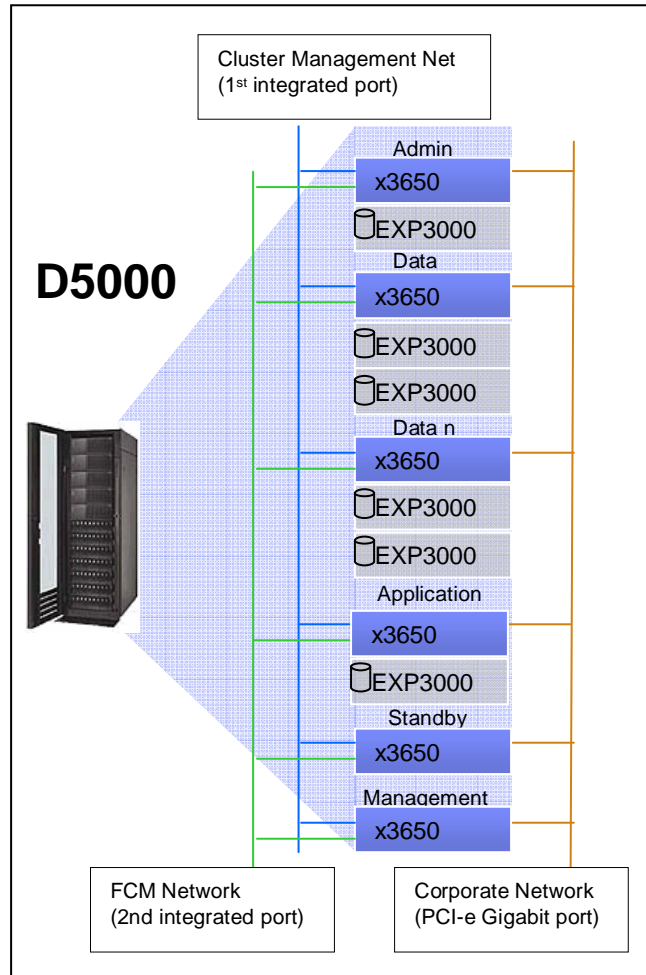


***Even shorter time  
to value in Preset  
Configs***

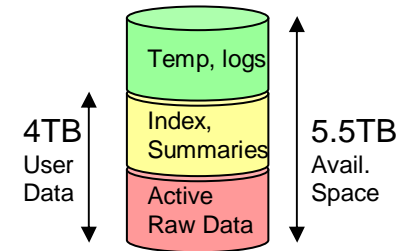
*All components  
available in proposal  
packages*



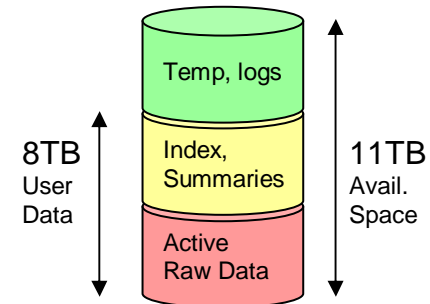
# D5000 Preset – the hardware



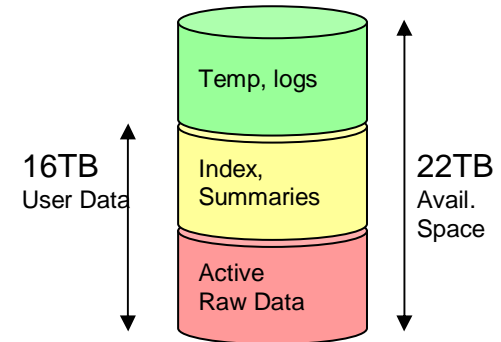
2 Data



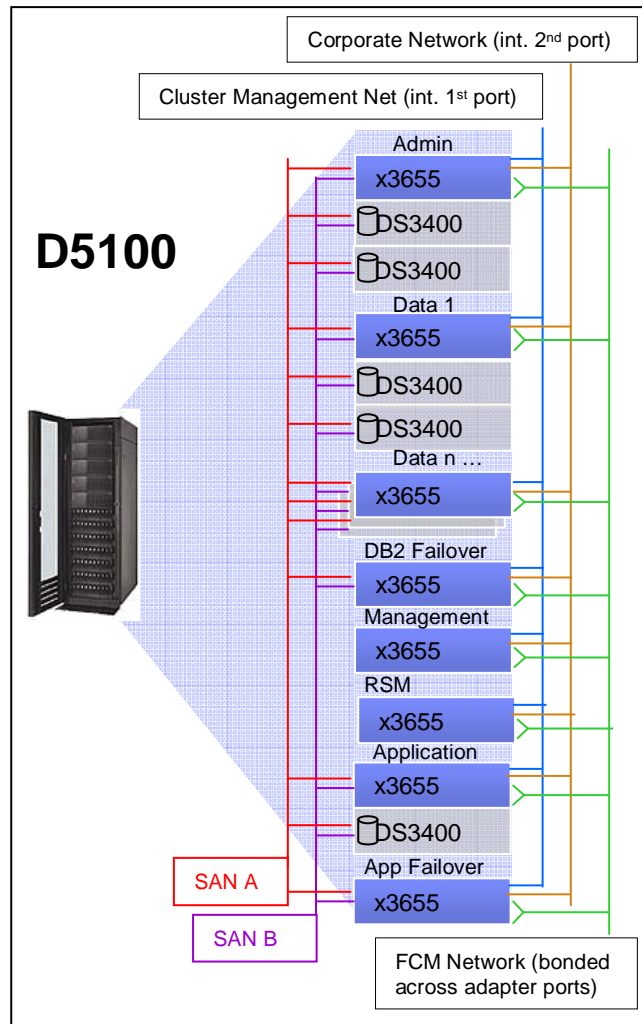
4 Data



8 Data

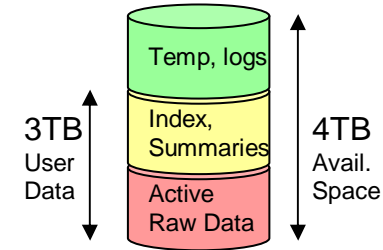


# D5100 Preset Configurations – all are HA

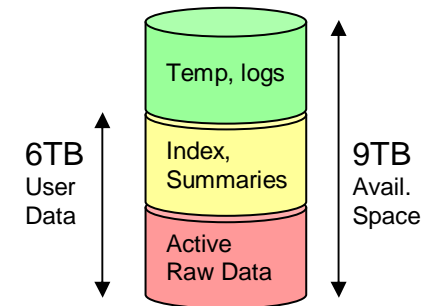


See notes for more details

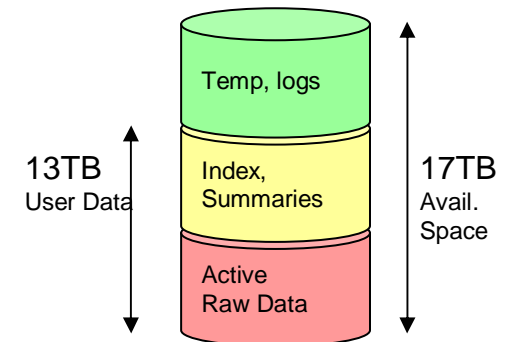
## 2 Data



## 4 Data

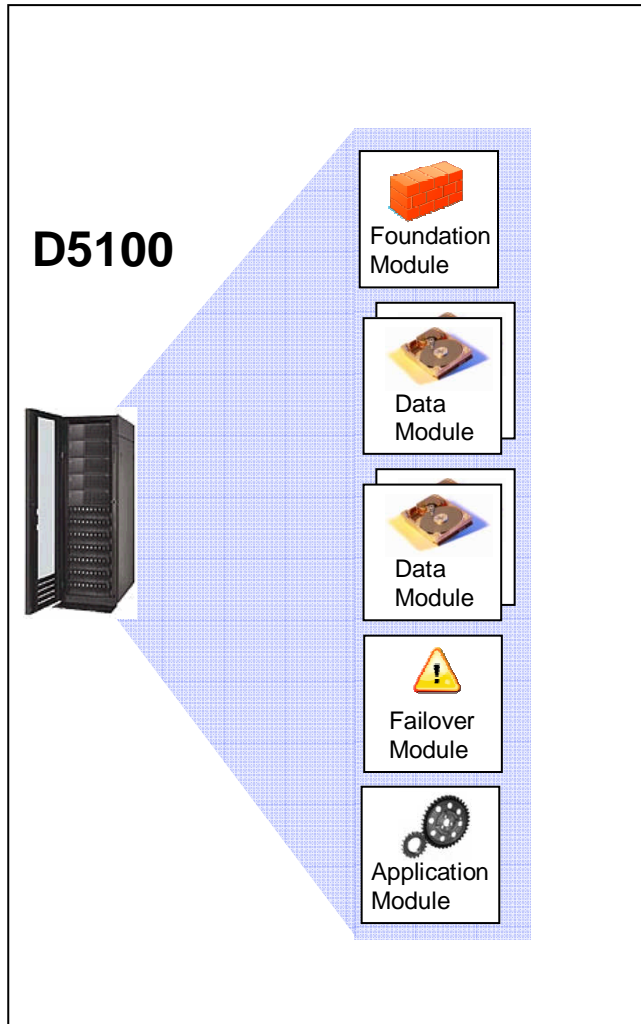


## 8 Data

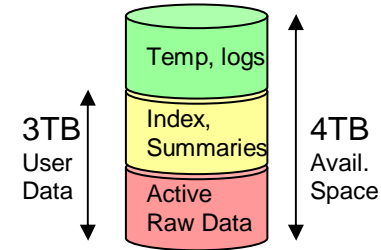




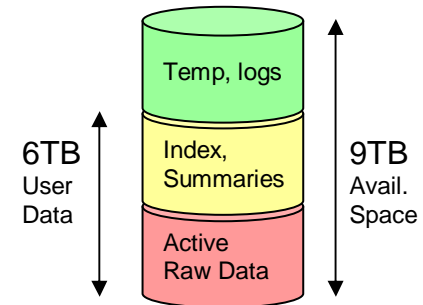
# D5100 Preset Configurations – all are HA



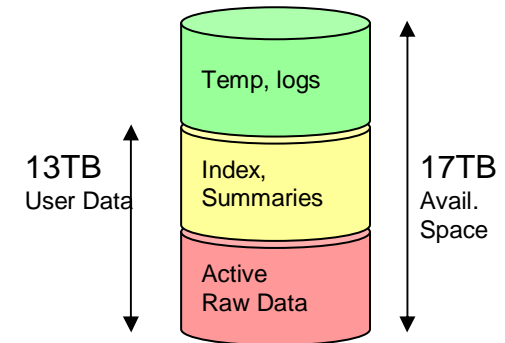
2 Data



4 Data



8 Data

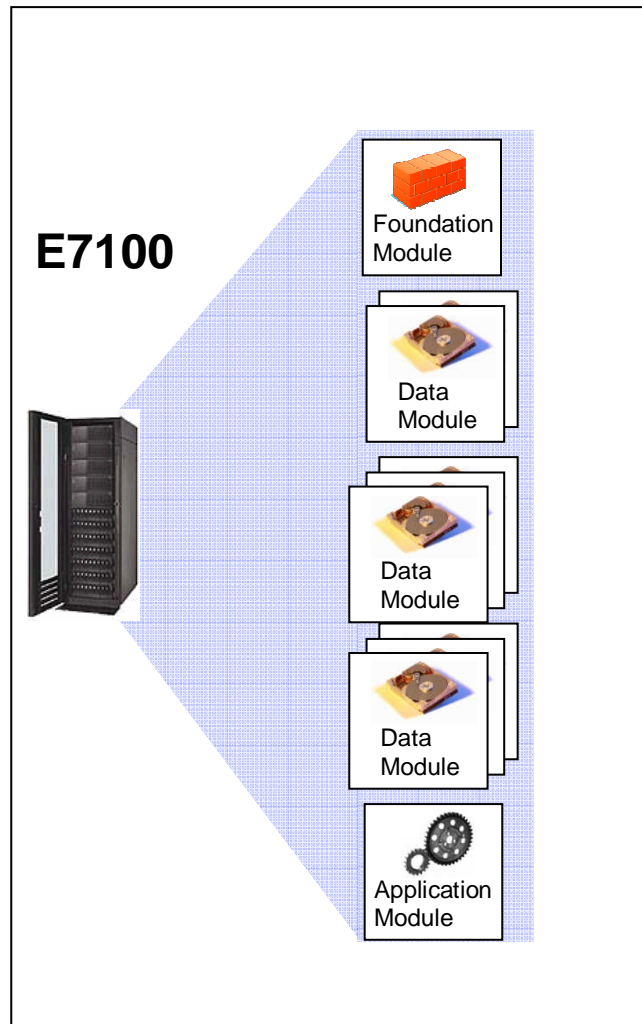


## Balanced Warehouse Pre-set Cfgs – German Budget & Planning List Pricing

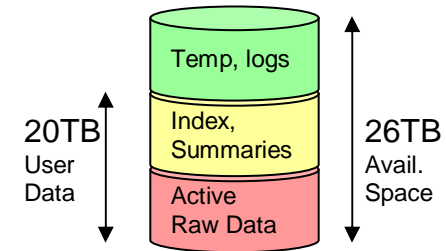
T-Shirt Size	D5000 InfoSphere Balanced Warehouse	T-Shirt Size	D5100 Highly Available InfoSphere Balanced Warehouse
 4TB database	Infosphere Warehouse = €532,200 Hardware, maint and build = €240,337 <b>Total = €772,537</b> Annual maint for yrs 2 & 3 = €151,662	 3.2TB database	Infosphere Warehouse = €532,200 Hardware, maint and build = €406,561 <b>Total = € 938,761</b> Annual maint for yrs 2 & 3 = €157,731
 8TB database	Infosphere Warehouse = €887,000 Hardware, maint and build = €304,525 <b>Total Cost = €1,191,525</b> Annual maint for yrs 2 & 3 = €228,546	 6.4TB database	Infosphere Warehouse = €887,000 Hardware, maint and build = €545,373 <b>Total Cost = € 1,432,373</b> Annual maint for yrs 2 & 3 = €228,592
 16TB database	Infosphere Warehouse = €1,596,600 Hardware, maint and build = €442,199 <b>Total Cost = €2,038,799</b> Annual maint for yrs 2 & 3 = €370,268	 12.8TB database	Infosphere Warehouse = €1,596,600 Hardware, maint and build = €856,738 <b>Total Cost = € 2,453,338</b> Annual maint for yrs 2 & 3 = €370,313

- Configurations valid as of March 2008 and subject to change
- Accurate DW sizing/pricing contact taskid: **NE IOT Balanced Warehouse/UK/IBM**
- TB = user space: for data, index, aggregates, no compression assumed
- Infosphere Warehouse Enterprise assumed

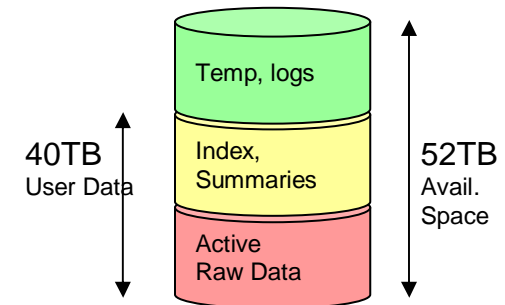
# E7100 "Preset" Configurations – mutual failover



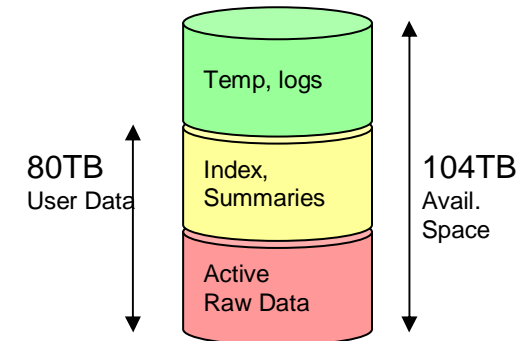
2 Data






4 Data



8 Data



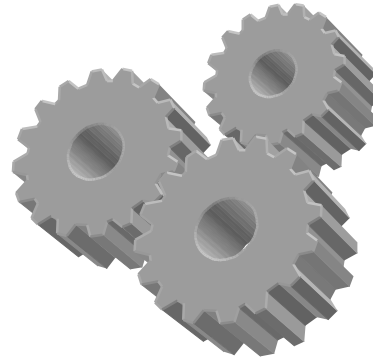
# Balanced Warehouse Pre-set Cfgs – German Budget & Planning List Pricing

T-Shirt Size	E7100 InfoSphere Balanced Warehouse
 20TB database	Infosphere Warehouse = € 1,206,320 Hardware, maint and build = € 1,918,154 <b>Total = € 3,124,474</b> Annual maint for yrs 2 & 3 = € 369,109
 40TB database	Infosphere Warehouse = € 2,057,840 Hardware, maint and build = € 2,922,772 <b>Total Cost = € 4,980,612</b> Annual maint for yrs 2 & 3 = € 585,253
 80TB database	Infosphere Warehouse = € 3,760,880 Hardware, maint and build = € 5,368,414 <b>Total Cost = € 9,129,294</b> Annual maint for yrs 2 & 3 = € 1,041,567

- Configurations valid as of March 2008 and subject to change
- Accurate DW sizing/pricing contact taskid: **NE IOT Balanced Warehouse/UK/IBM**
- TB = user space: for data, index, aggregates, no compression assumed
- Infosphere Warehouse Enterprise assumed

## ***Balanced Warehouse – pre-built and tested***

- The Balanced Warehouse is built as a cluster in IBM's manufacturing plants



- The management and database software is then loaded, configured and tested

- When tests are successfully completed it is shipped to the client's machine room, installed and re-tested
- Once verification tests are complete, it is handed over



## ***Balanced Warehouse Support Overview***

- ***Balanced Warehouse is a solution that that receives homogeneous support from IBM both reactively and proactively.***
  
- **The reactive component** builds on IBM's existing support infrastructure
  - Also called Balanced Warehouse Integrated Stack Support
  - Applies to all Certified D and E Class Balanced Warehouses
  - Provides 24 x 7 cover for all critical (“Severity 1”) problems
  - Uses no-charge software part numbers
  
- **The proactive component** is based on IBM's Premium support
  - Provides an IBM focal point for support and how-to queries
  - Alerts client to Balance Warehouse updates and best practices
  - Available either remotely (9am-5pm, Mon-Fri) or onsite one day/month (or both)

# The end



Questions