Diminish infrastructure sprawl by bringing analytic processes to where the data originates

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Analytics on zEnterprise*

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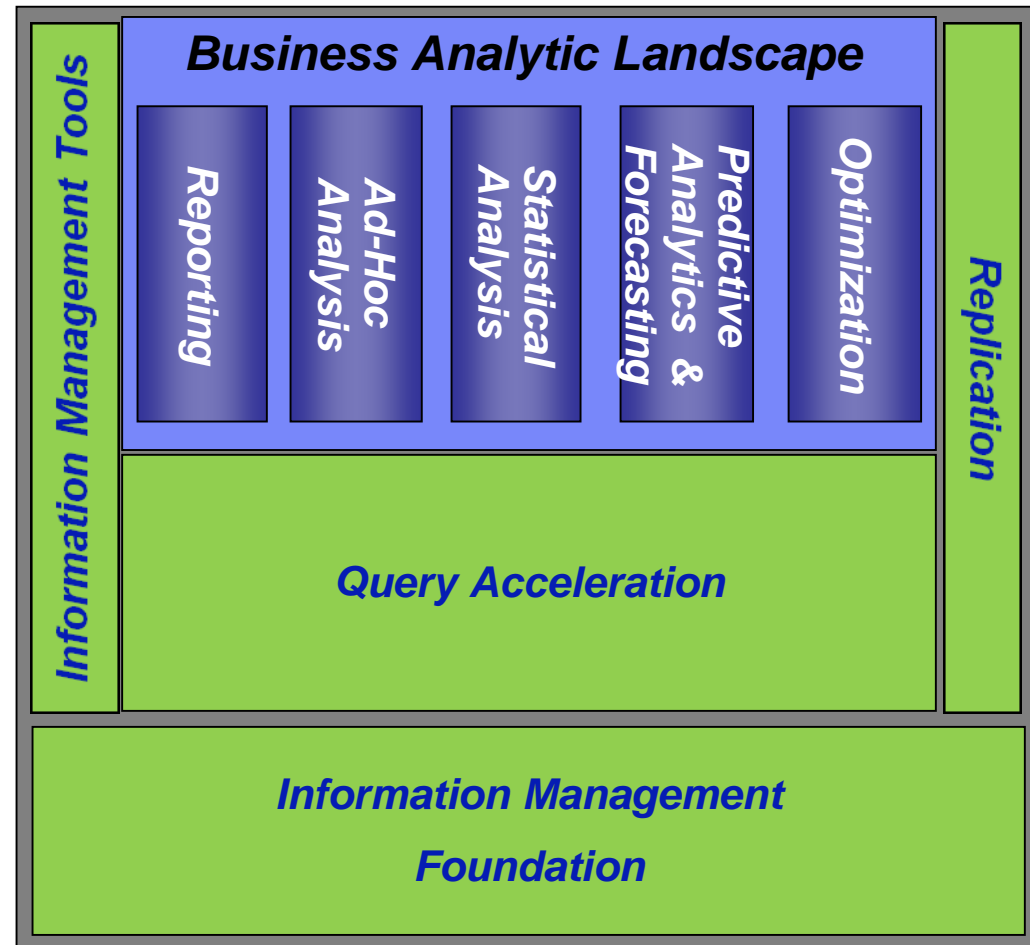*Senior Manager, IBM Business Analytics
Centre of Competency*

Agenda

- **Analytics & business critical analytics**

- **Infrastructure sprawl & its impact on analytics**

- **Approaches to deliver business critical analytics**

- **Customers innovating with zEnterprise Analytics**

- **IBM's own analytics implementation on zEnterprise**

What is Analytics?

- *Analytics derive insight from data*

- *Organizations use analytics to help optimize business performance*

- *Analytics are only as good as the underlying data foundation*

Information Management Tools

Business Analytic Landscape

- Reporting
- Ad-Hoc Analysis
- Statistical Analysis
- Predictive Analytics & Forecasting
- Optimization

Query Acceleration

Replication

Information Management Foundation

What is Business Critical Analytics?

- Any analytic application critical to the optimal running of a business

- If this application fails for any length of time you can lose business

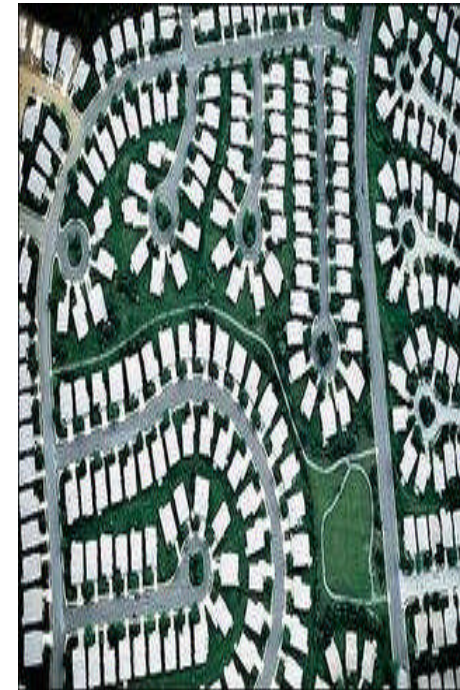*Preventing Credit Card Fraud*

Reducing Customer Churn

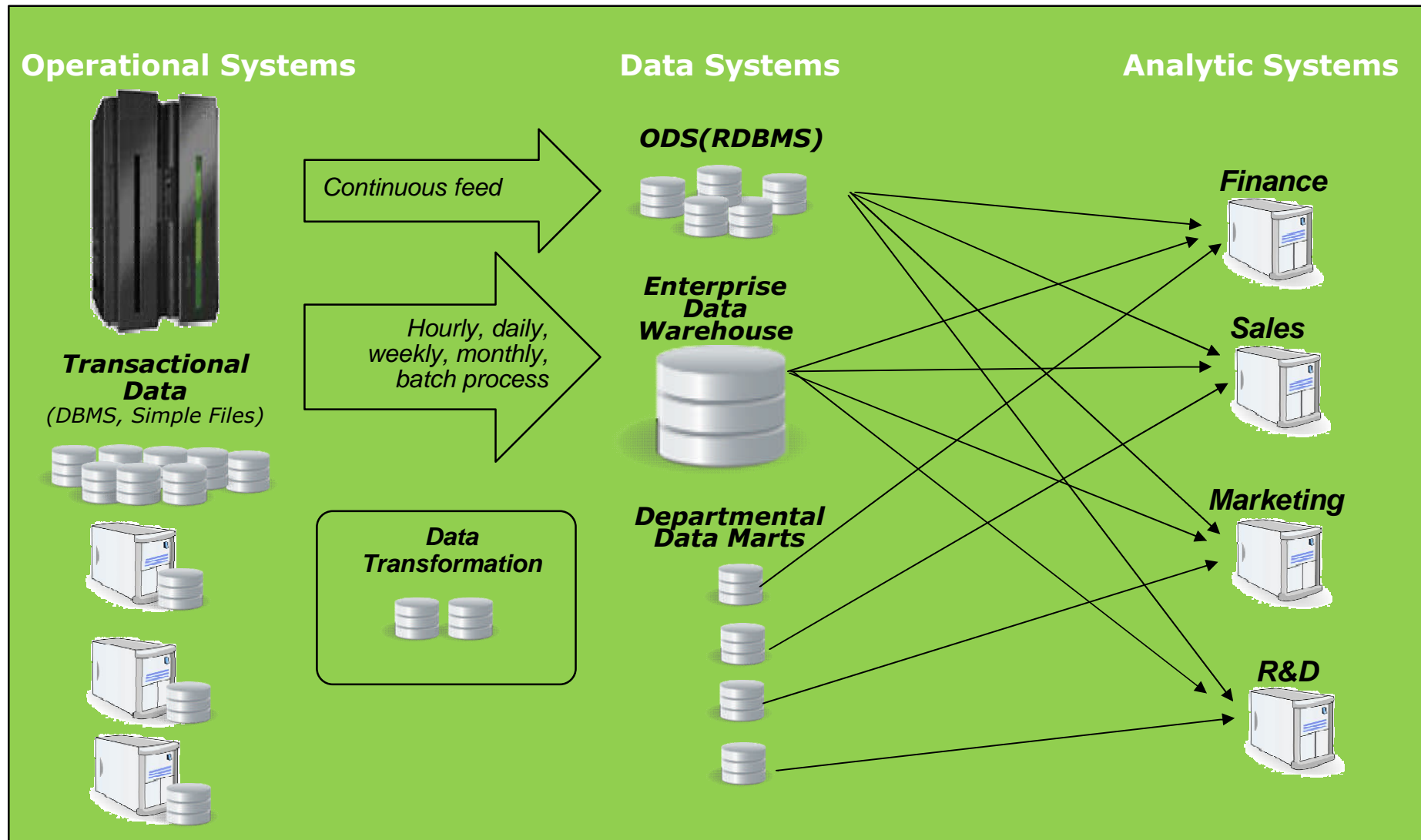*Cross-selling, up-selling customers*

What is infrastructure sprawl?

- Multiple, under-utilized servers that take up more space and consume more resources than can be justified by their workload

- Often a large number of inexpensive, low-end servers dedicated to single applications
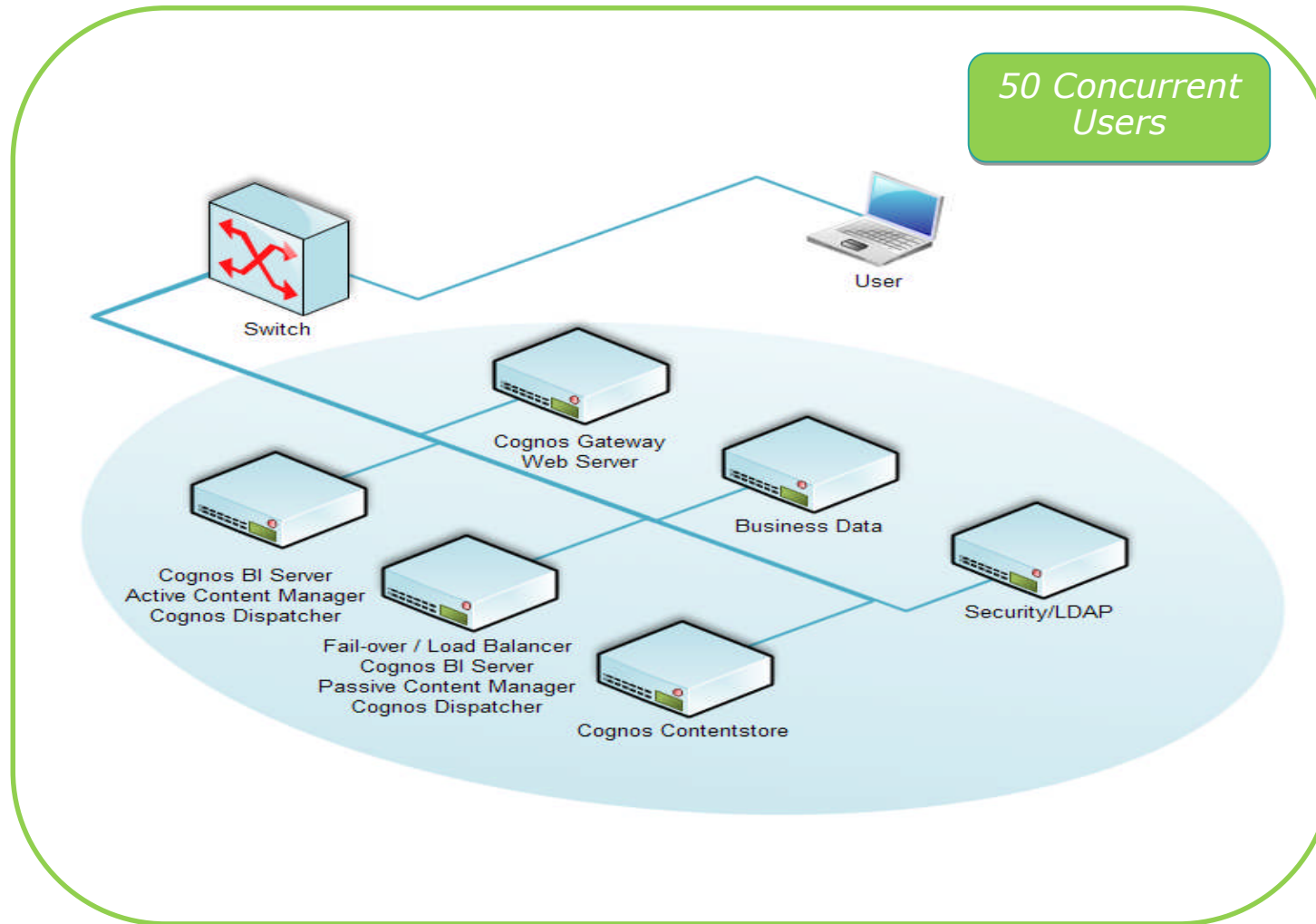
A top level view of analytic infrastructure sprawl

Operational Systems

Data Systems

Analytic Systems

ODS(RDBMS)

Continuous feed

Transactional Data
(DBMS, Simple Files)

Hourly, daily, weekly, monthly, batch process

Enterprise Data Warehouse

Data Transformation

Departmental Data Marts

Finance

Sales

Marketing

R&D

Break that down to the individual application level

50 Concurrent Users

Switch

Cognos Gateway
Web Server

User

Business Data

Cognos BI Server
Active Content Manager
Cognos Dispatcher

Fail-over / Load Balancer
Cognos BI Server
Passive Content Manager
Cognos Dispatcher

Cognos Contentstore

Security/LDAP

Multiply that across each environment

Development

Quality Assurance

Production

Disaster Recovery
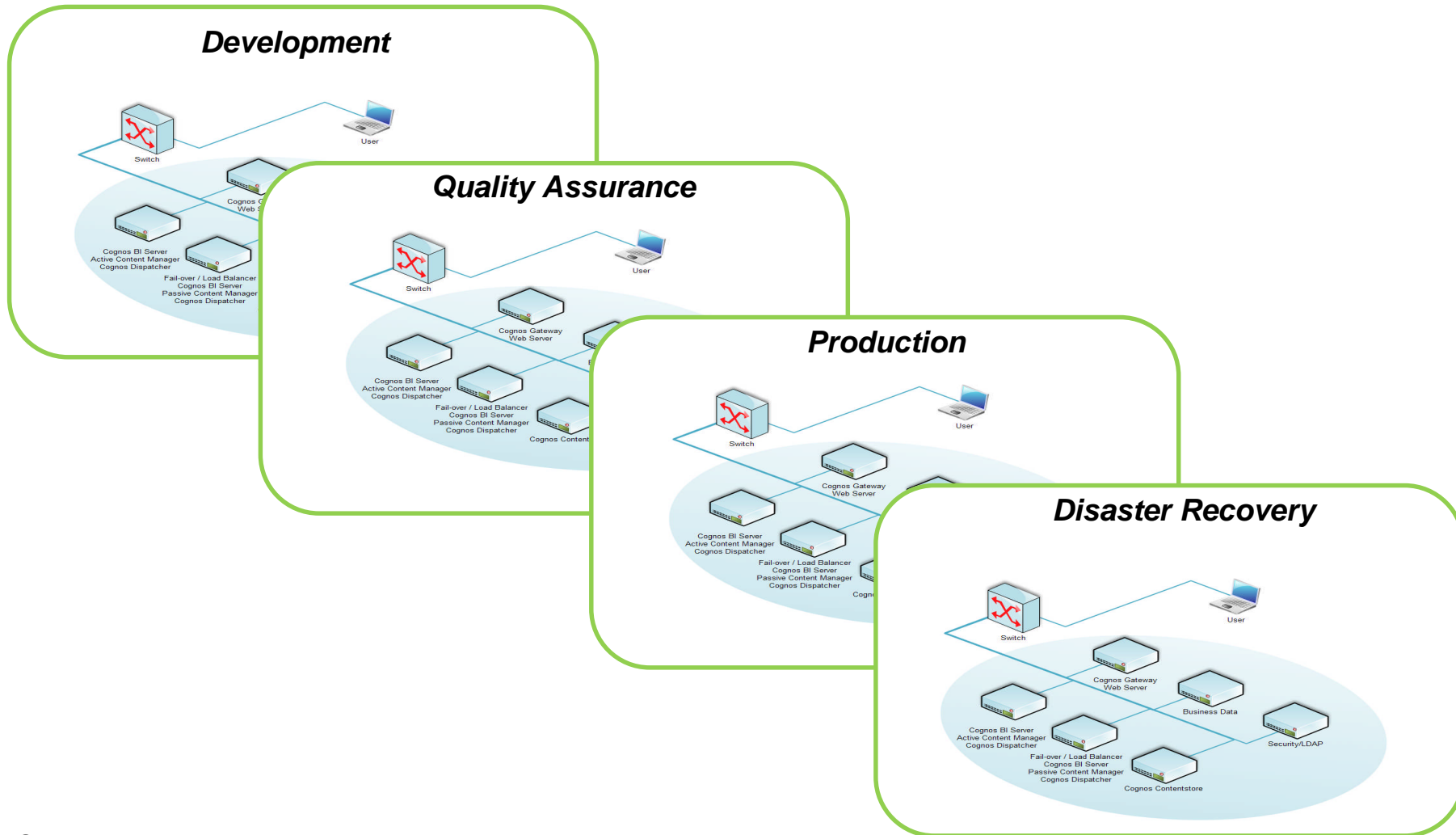
Multiply that across each department
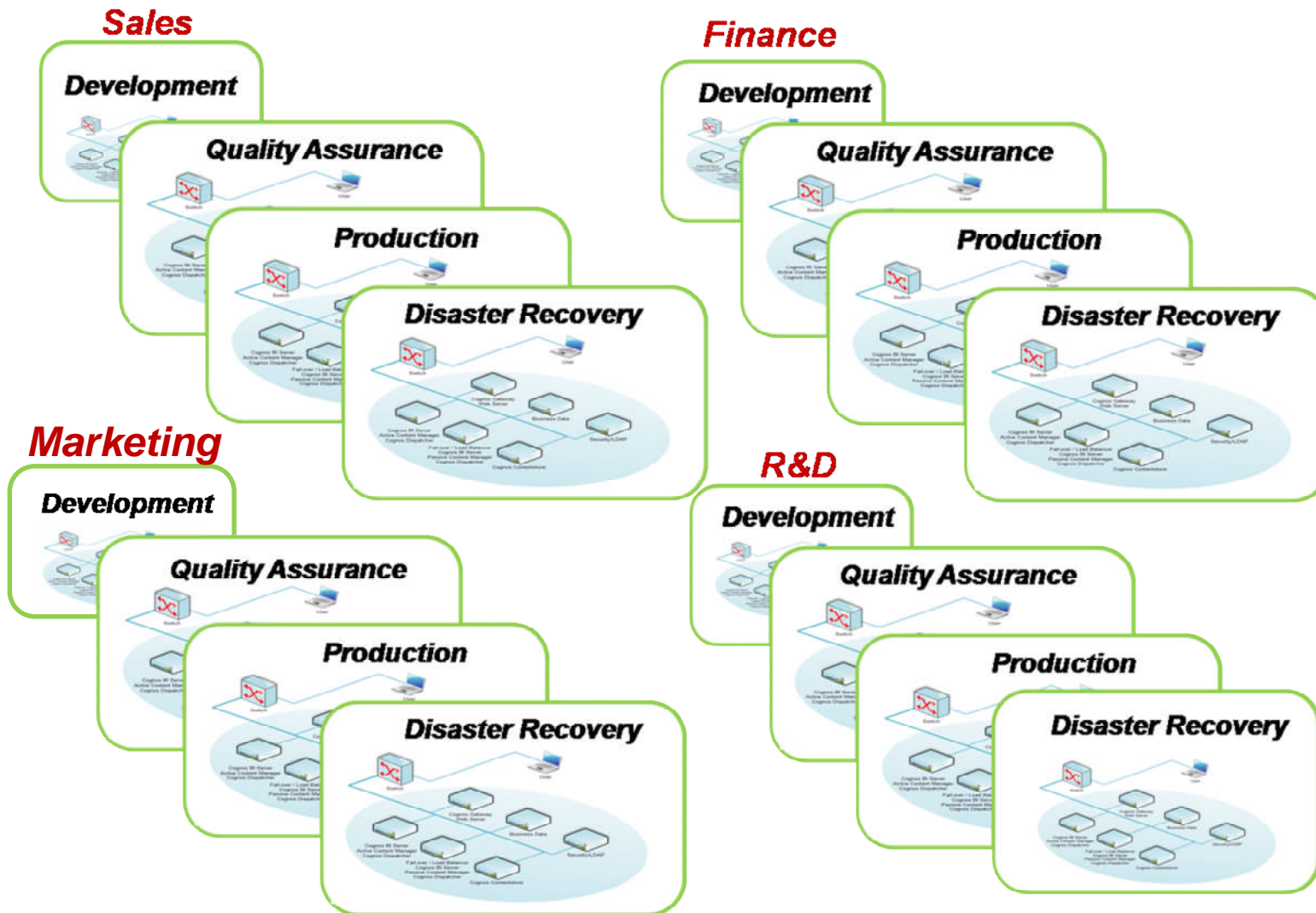
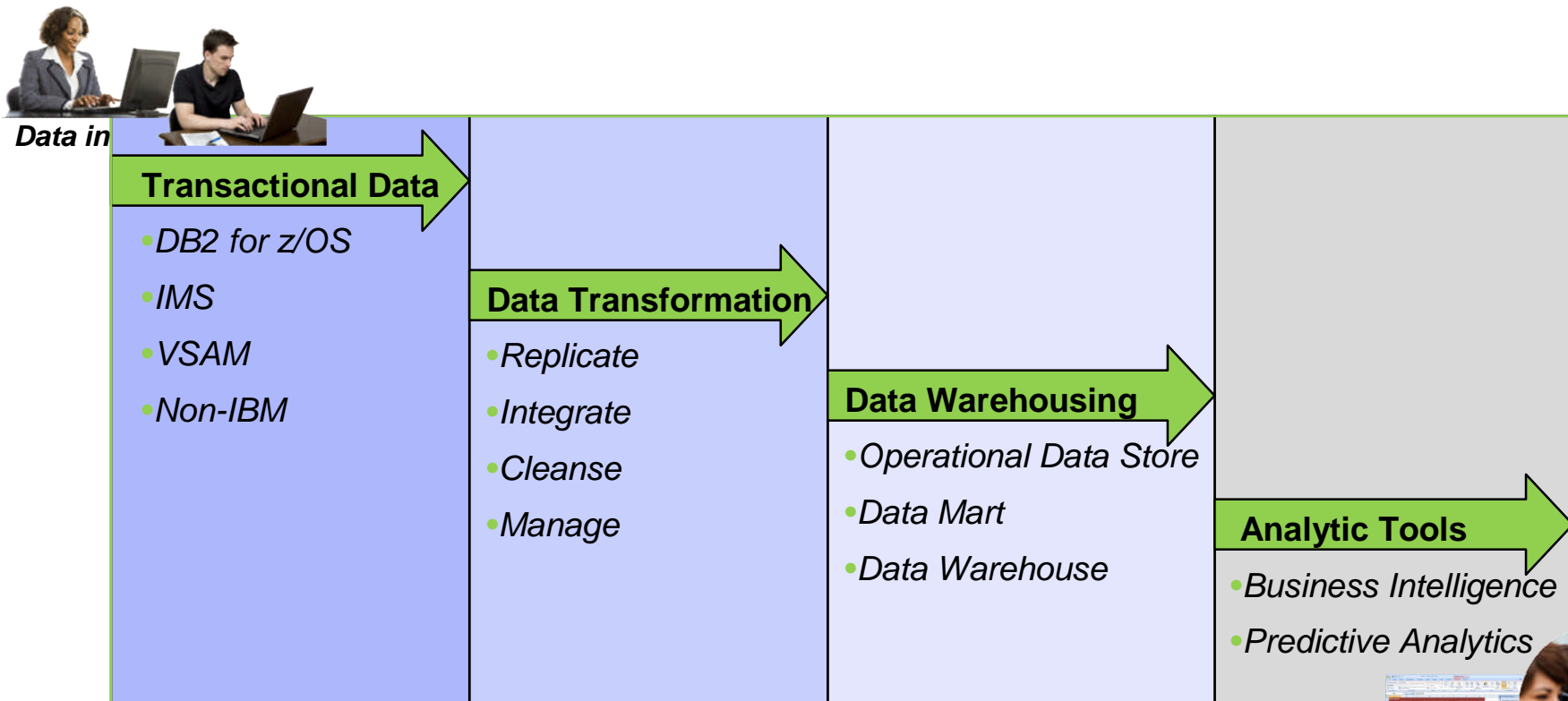# Infrastructure sprawl drives many hidden costs

- **People costs** have doubled as a % of total IT cost

- **Software costs** continue to grow linearly (as distributed servers grow)

- **Energy costs** are rising

- **Excessive heat and insufficient electricity** a concern in Data Centers

- **Global climate** and **environmental** issues top of mind

- **Increased technology density** raising energy requirements
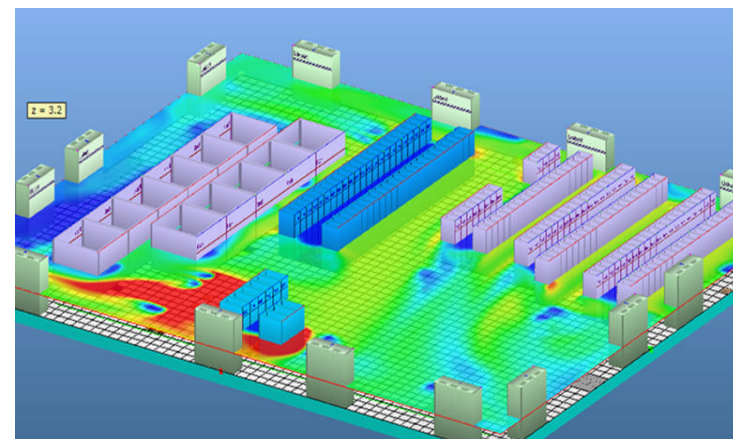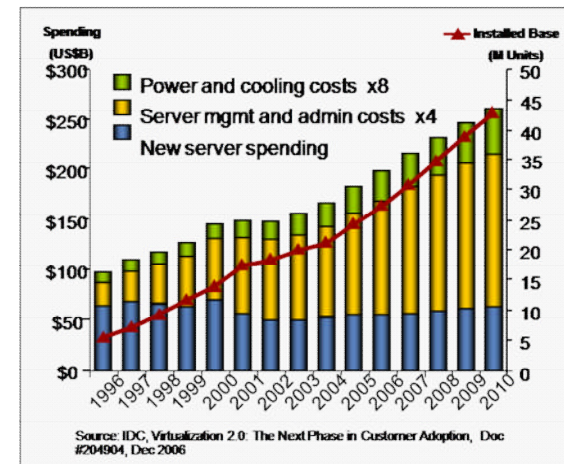
The result...

Spreading analytics across multiple platforms and departments can elevate cost and complexity plus increase data latency and governance risk

Data in

Transactional Data
- DB2 for z/OS
- IMS
- VSAM
- Non-IBM

Data Transformation
- Replicate
- Integrate
- Cleanse
- Manage

Data Warehousing
- Operational Data Store
- Data Mart
- Data Warehouse

Analytic Tools
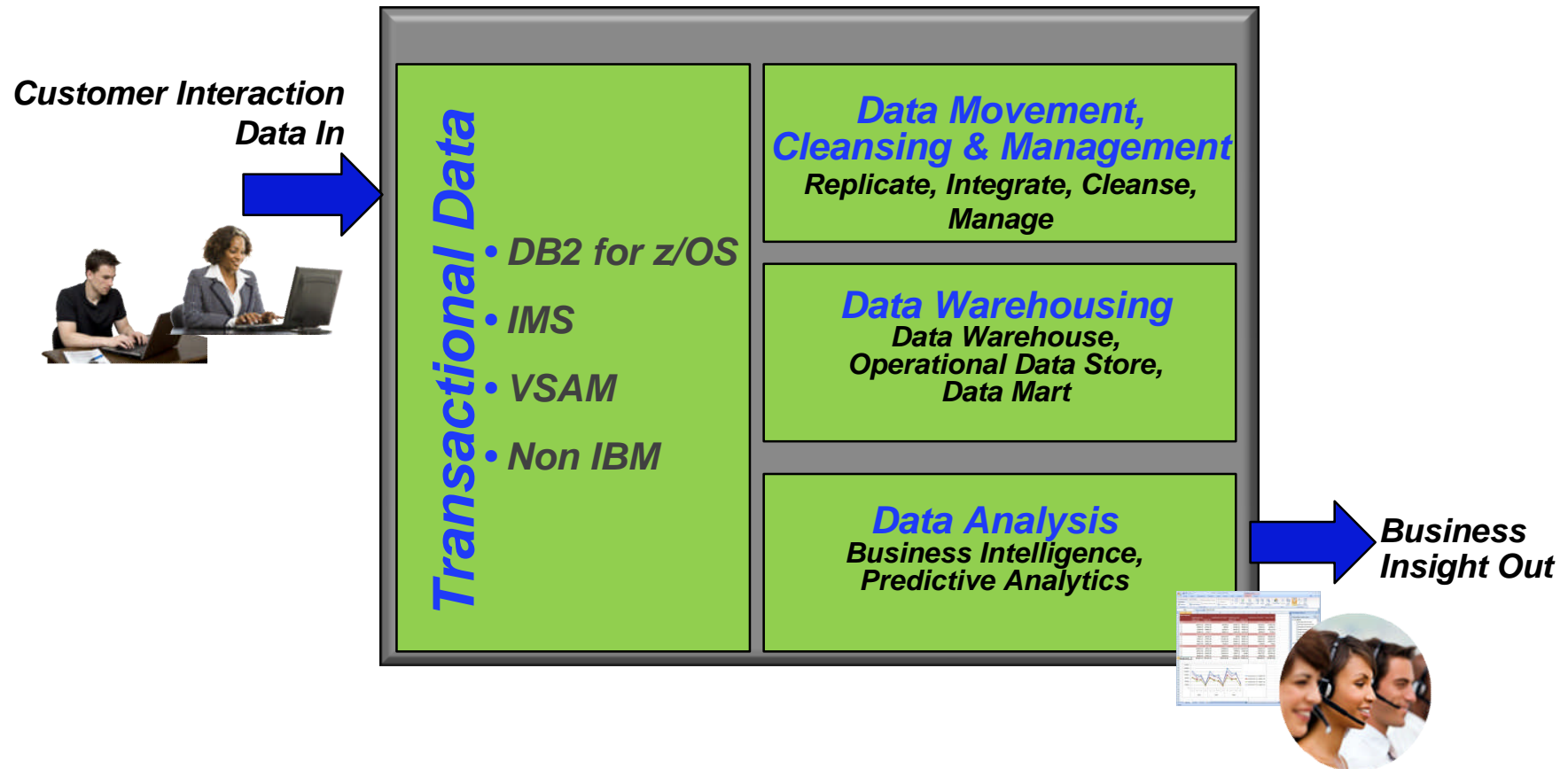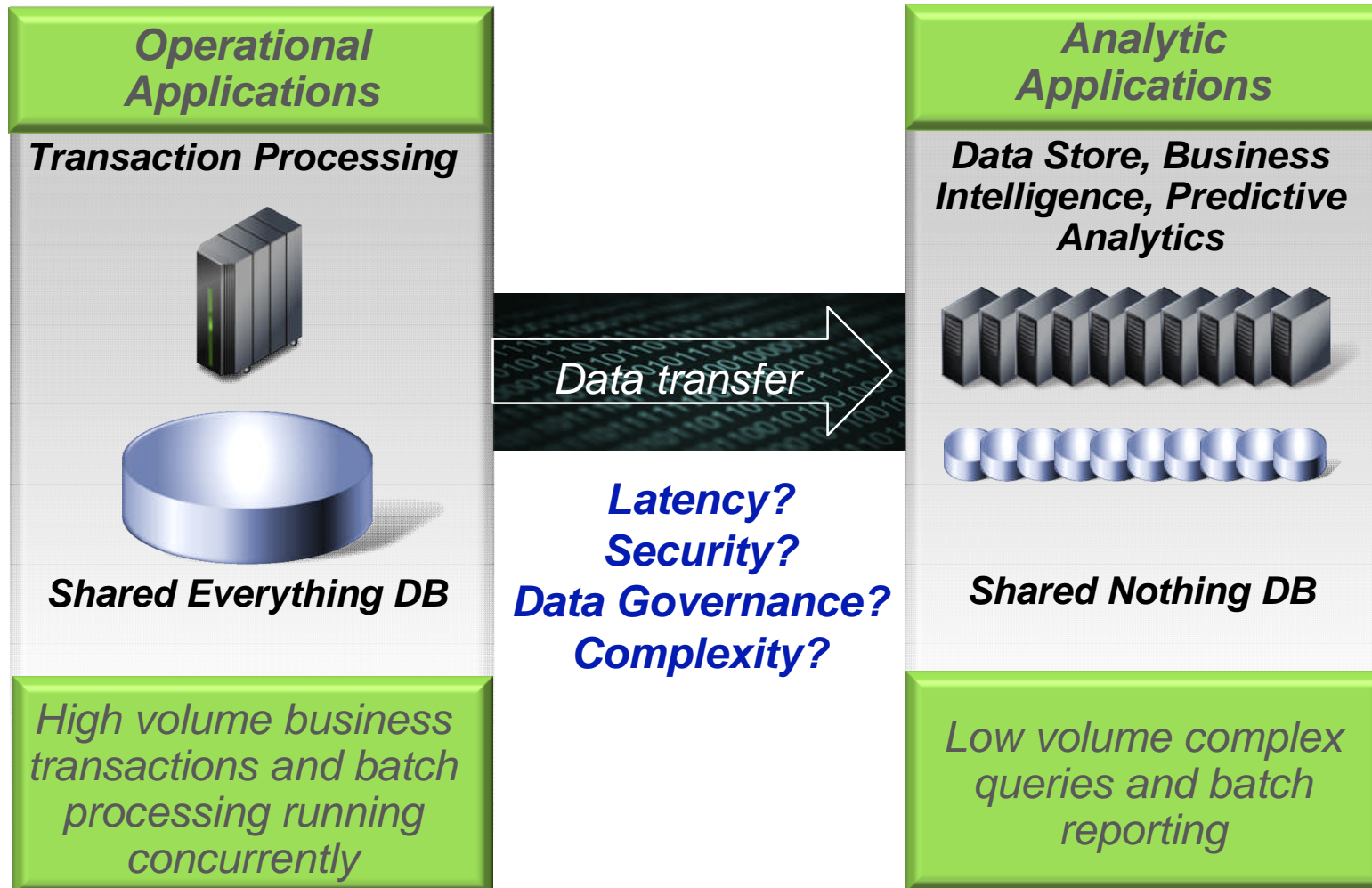- Business Intelligence
- Predictive Analytics

Insight out

The solution…

Bringing analytic components to where data originates minimizes cost, complexity and data latency while improving data governance

Customer Interaction Data In

Transactional Data
- **DB2 for z/OS**
- **IMS**
- **VSAM**
- **Non IBM**

Data Movement, Cleansing & Management
Replicate, Integrate, Cleanse, Manage

Data Warehousing
Data Warehouse, Operational Data Store, Data Mart

Data Analysis
Business Intelligence, Predictive Analytics

Business Insight Out

Traditional Approach to Analytic Systems

Operational Applications

Transaction Processing

Shared Everything DB

High volume business transactions and batch processing running concurrently

Data transfer

Latency?
Security?
Data Governance?
Complexity?

Analytic Applications

Data Store, Business Intelligence, Predictive Analytics

Shared Nothing DB

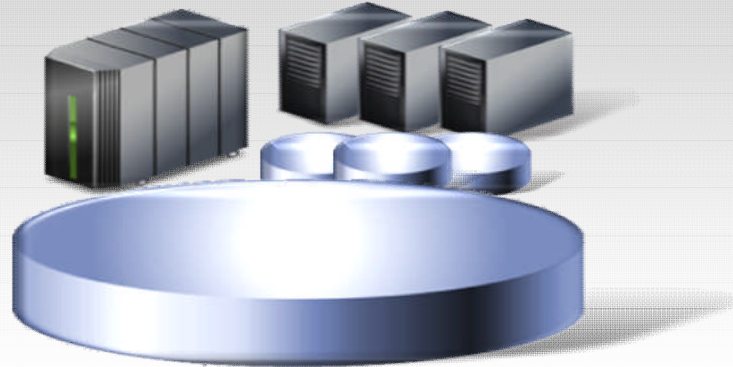*Low volume complex queries and batch reporting*

The Hybrid Vision

Delivering business critical analytics

Combined Workloads

Transactional Processing, Traditional Analytics & Business Critical Analytics

Hybrid DB

**Reduced Latency. Greater Security.
Improved Data Governance. Reduced Complexity.**

High volume business transactions and batch reporting running concurrently with complex queries

The Hybrid Vision with IBM zEnterprise

Minimize latency. Improve performance. Drive innovation.
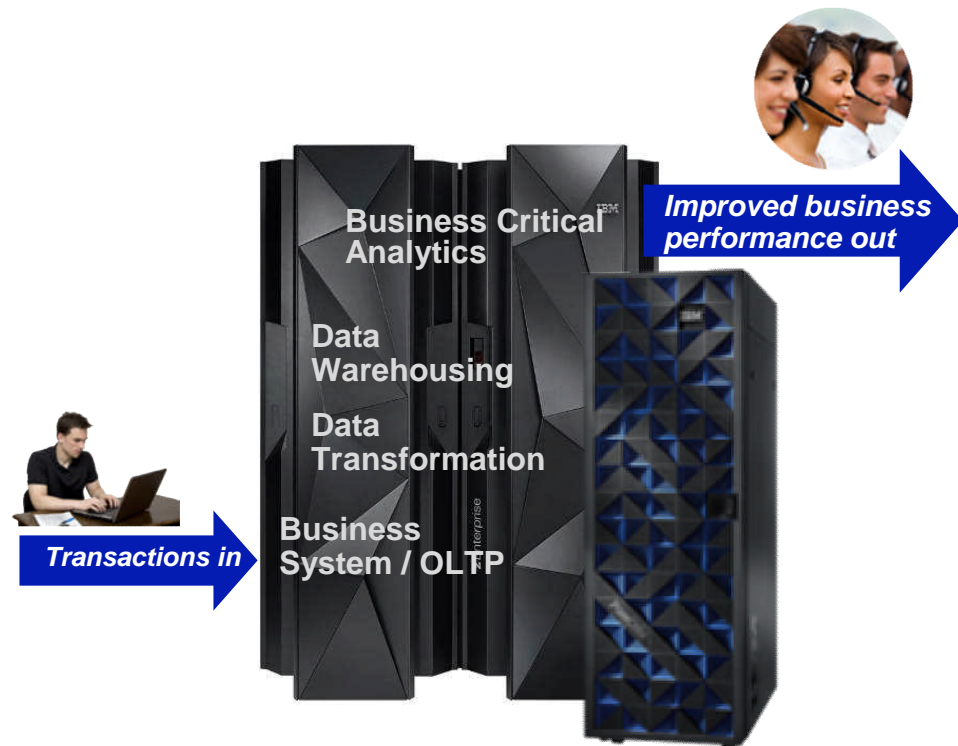
Bring analytics to the data
- Reduced latency
- Reduced complexity
- Reduced cost

Deliver business critical analytics
- Timely, accurate, secure data
- Availability, scalability, performance
- Rapid deployment & expansion

Evolve with the business
- Start with your top analytic requirement(s)
- Grow without changing your existing IT environment

Transactions in

Business Critical Analytics

Data Warehousing

Data Transformation

Business System / OLTP

Improved business performance out

zEnterprise helps diminish infrastructure sprawl

✓ **Eliminates the export of data** to multiple platforms

✓ Provides the **highest security level** (EAL5) and built in audit-ability

✓ **Accommodates growth** through the dynamic addition of processors, disk and memory – without taking the system down

✓ Supports **a single environment** that requires fewer servers, less floor space, less power and lower system administration costs

✓ Supports **viable test and development** environments that minimize the need to procure and support new hardware, software and staff

The benefits of consolidating analytics on IBM zEnterprise

- Faster, broader access to operational and strategic data

- Improved time to value

- Reduction of duplicate investments/shelf-ware

- Greater economies of scale

- Improved resource utilization

- Reduced complexity and cost

Business innovation with zEnterprise Analytics

Access to operational data to improve customer satisfaction

Banca Carige is **doing things they could never do before**, changing the way they service their customers.

*"DB2 Analytics Accelerator helps **over 1,000 business users to get fast access to vital insights** – informing the development of new products, services and strategies to grow the business."*

Daniele Cericola, CIO, Banca Carige

Business innovation with zEnterprise Analytics

Access to operational data to improve customer satisfaction

Swiss Mobiliar has achieved its objective of running its growing **transaction processing and analytics workloads side by side without increasing compute requirements**.

"Queries that used to take five hours to complete are now processed in just 20 seconds in the optimized mainframe environment—and we can run them any time, day or night, with no interruption to our production systems on the mainframe."

Thomas Baumann, IT Performance Architect at Swiss Mobiliar

Business innovation with zEnterprise Analytics

Run queries up to 2000x faster

Petrol, a strategic supplier of oil and other energy products is doing something they could never do before, **increasing retail sales nearly 5% through reduced analytic query response times (99.8 % faster)**

PETROL

"The store employee enters what the customer is purchasing, and with the DB2 Analytics Accelerator appliance, the Cognos BI and SPSS tools deliver information on complementary products in seconds."

--A Chief Information officer--

Business innovation with analytics on zEnterprise

Consolidate 100+ deployments to ONE analytics environment

IBM focuses on the business not technical constraints **delivering Business Analytics to 450,000+ users, drawing from over 660 data sources** and generating more than 55,000 reports daily.

IBM delivers BA as a service supporting 400+ projects including the small deals management team that increases sales revenue by 8% and making a major contribution to growth targets

The Historic Business Analytics Environment at IBM

- **Tower driven metric development**
  - Redundant and possibly competing

- **Lack of tooling standardization**
  - Multiple 3rd party vendors
  - Inflexible BI staffing

- **Unknown total enterprise cost**
  - Top down budget distribution

- **Segmented investments**
  - Budgets based on operational process
  - Investments based on affordability

- **Reluctance to centralized service**
  - Concern of Subject Matter Experts
  - Fear of loss of autonomy to react to local business drivers
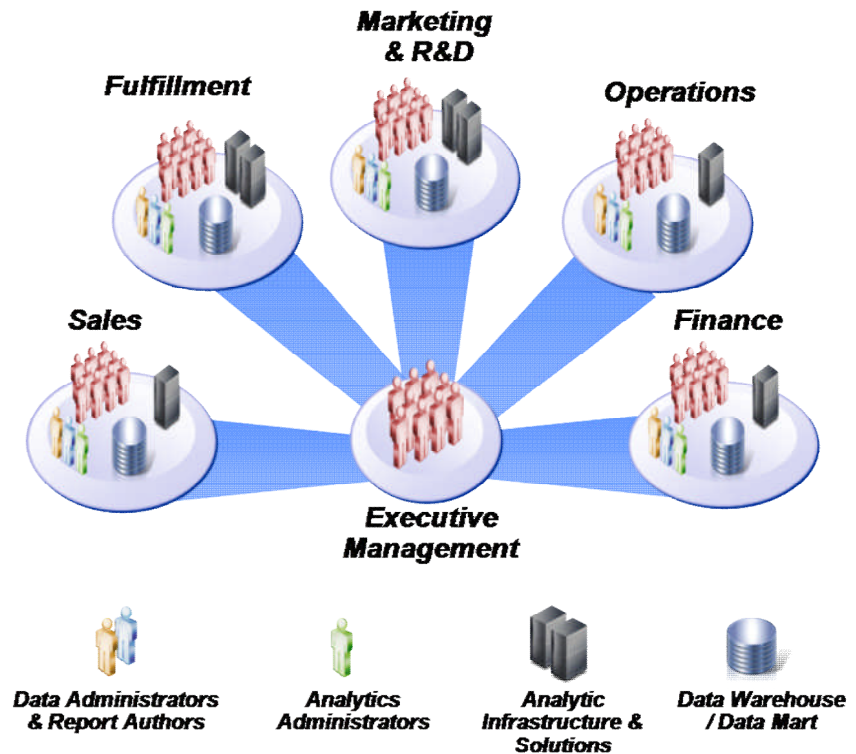
# The NEW Business Analytics Strategy at IBM

- **Common infrastructure**
  - Shared zSeries, WAS, DB2 and Cognos BI
  - Standardizes tooling strategy

- **Centralized analytics services**
  - Shared administration
  - Common boarding process

- **Known enterprise cost**
  - Investments based on strategic decisions

- **Maintain solution autonomy**
  - Focus is delivery of a service
  - Data and business knowledge remain de-centralized

Blue Insight enables greater efficiency across the enterprise

- **Consolidated 100+ deployments to ONE analytics environment**

  – Supports 450,000+ global users

  – Consolidates value from 660+ data warehouses

  – 500+ analytic applications across all business processes

  – Produces 5+ million dollars in yearly efficiency savings

  – Conservatively added 300+ million in business value this year

    • Sales channel optimization, supply chain optimization and early defect detection for HW and Services
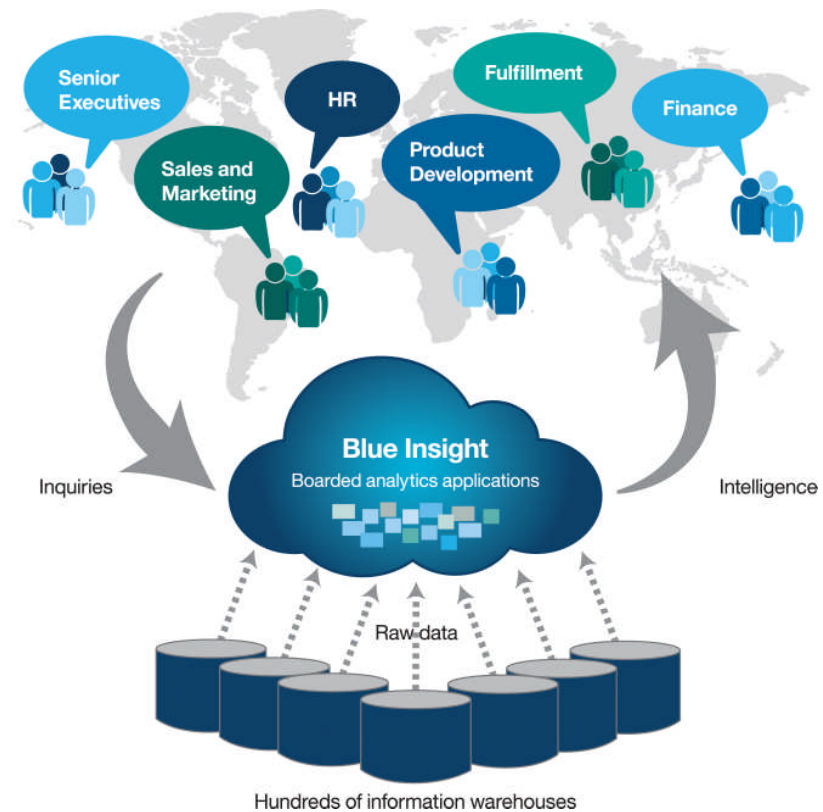
Provide common analytics services

| Requirements | Solution Design | Components | Solutions |

Business Domain Knowledge

Business Domain Knowledge

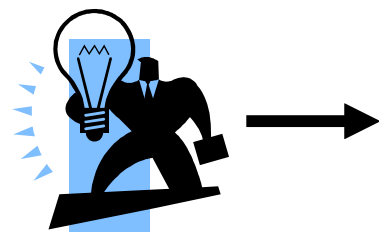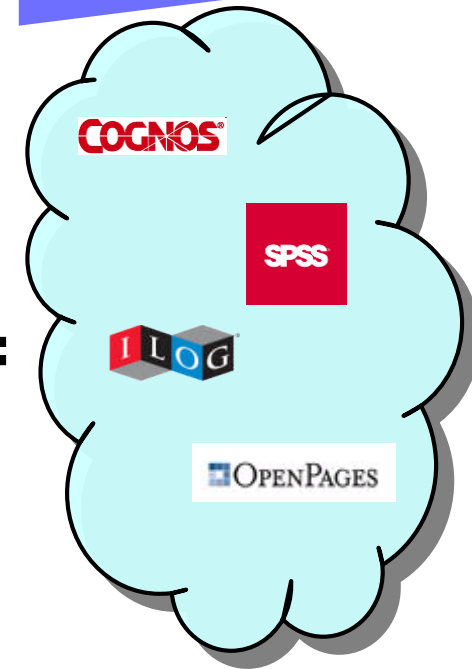**Transformation Executive (TE)**

- Project Management
- Data extract
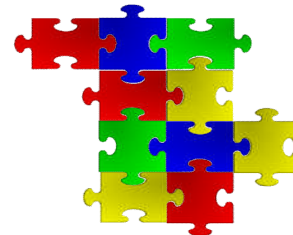- Data modeling
- Intelligent analytics

+

BA Competency Center

- Cloud Delivery
  - BI, PA, ETL
- Boarding services
- Architecture standards governance
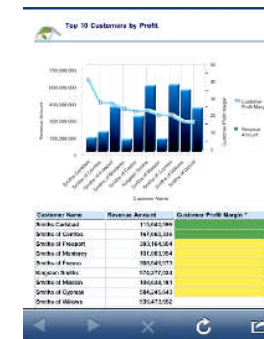- Solution & education consulting
- Support structure
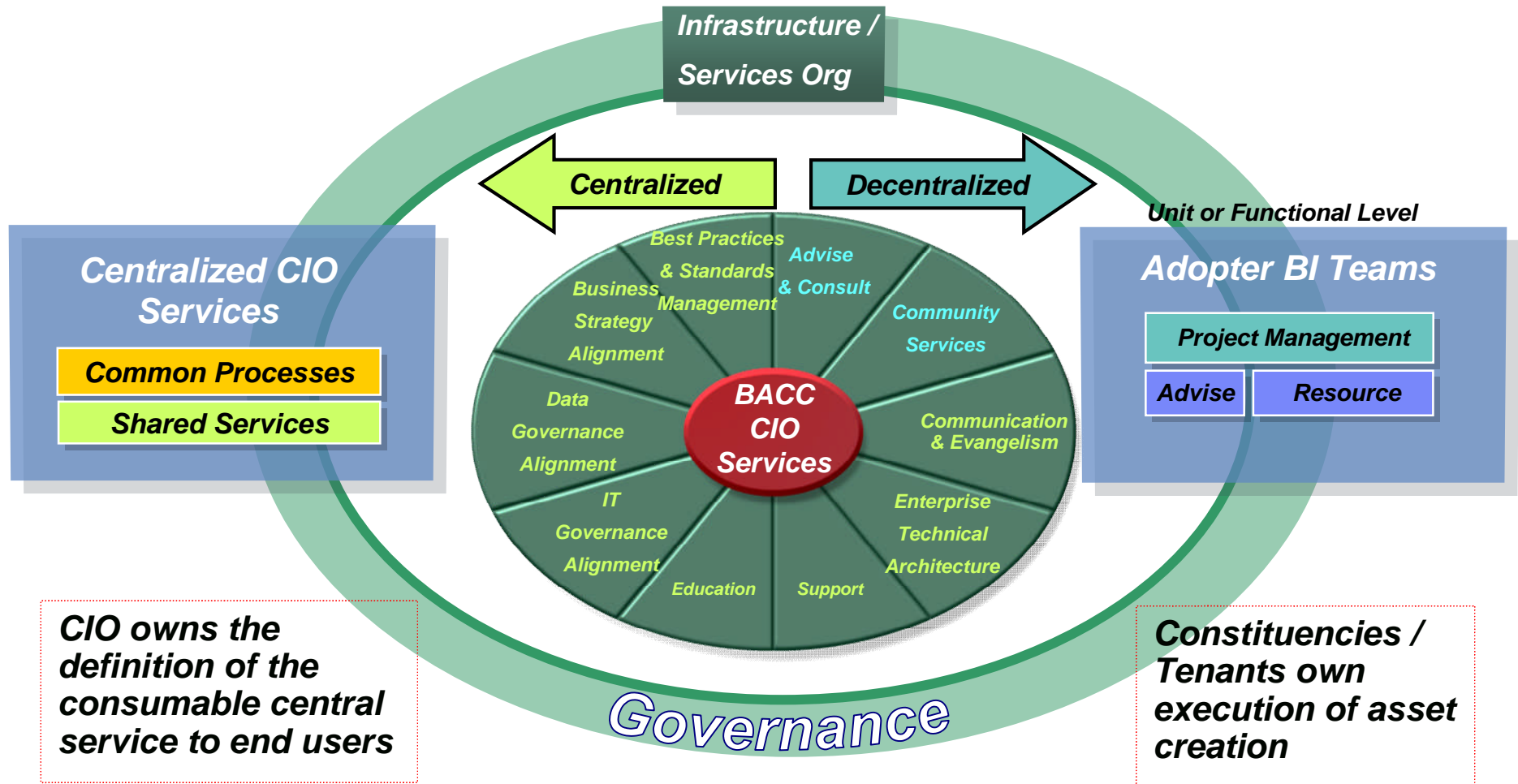
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COGNOS

SPSS

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OPENPAGES

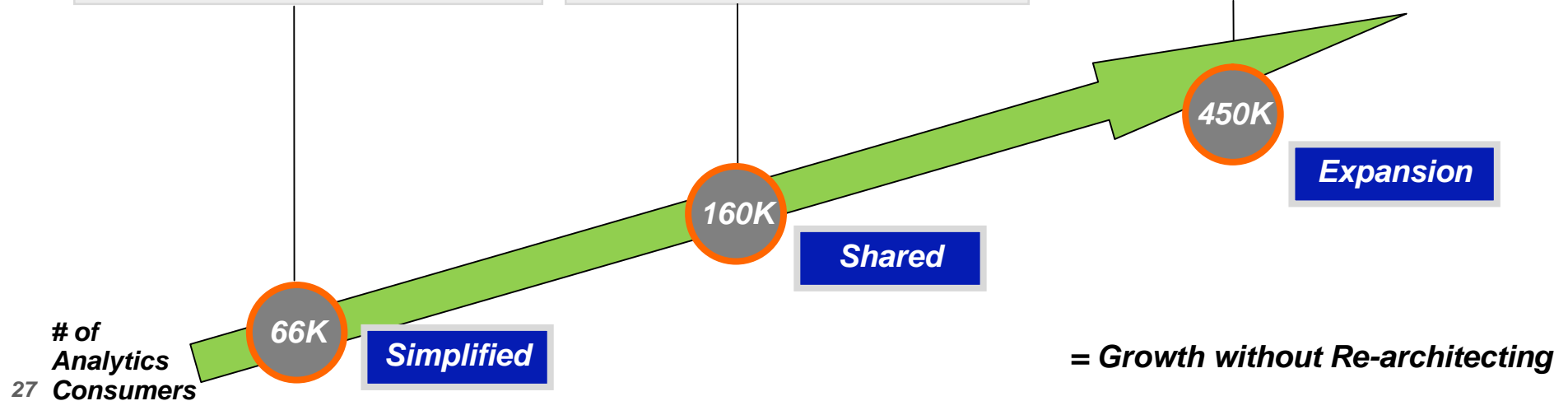# Business Analytics Center of Competency Model

*The **BACC** is composed of both **People** and **Processes**, that leverage a commonly provisioned **Technology** stack known as **Blue Insight***

Infrastructure / Services Org

← Centralized

Decentralized →

Unit or Functional Level

Centralized CIO Services

- Common Processes
- Shared Services

Adopter BI Teams

- Project Management
- Advise
- Resource

Best Practices & Standards Management

Advise & Consult

Business Strategy Alignment

Community Services

Data Governance Alignment

BACC CIO Services

Communication & Evangelism

IT Governance Alignment

Enterprise Technical Architecture

Education

Support

CIO owns the definition of the consumable central service to end users

Governance

Constituencies / Tenants own execution of asset creation

Continually expanding the service and processes

Consolidate (2009)	Virtualize (2010)	Broaden (2011 - Present)
Blue Insight foundation **Centralized BA infrastructure** **Leveraged trusted data sources** **Defined standard boarding processes & services**	**Extended Common Boarding Processes** **Completed Analytics Maturity Assessment** **Extend shared SaaS model for defined services** - Predictive Analytics (SPSS) - Extract/xform/Load (Infosphere server)	**Build upon core analytic offering standards** - Big Insights - Infosphere Streams - Cognos TM1 / Cognos Insight -Openpages **-DB2 Analytics Accelerator for z/OS** - High performance appliance integrating Pure Data w/ zEnterprise technology, to deliver dramatically faster business critical analytics

66K — *Simplified*

160K — *Shared*

450K — *Expansion*

of
Analytics
Consumers

= Growth without Re-architecting

User Segmentation of Analytics Services
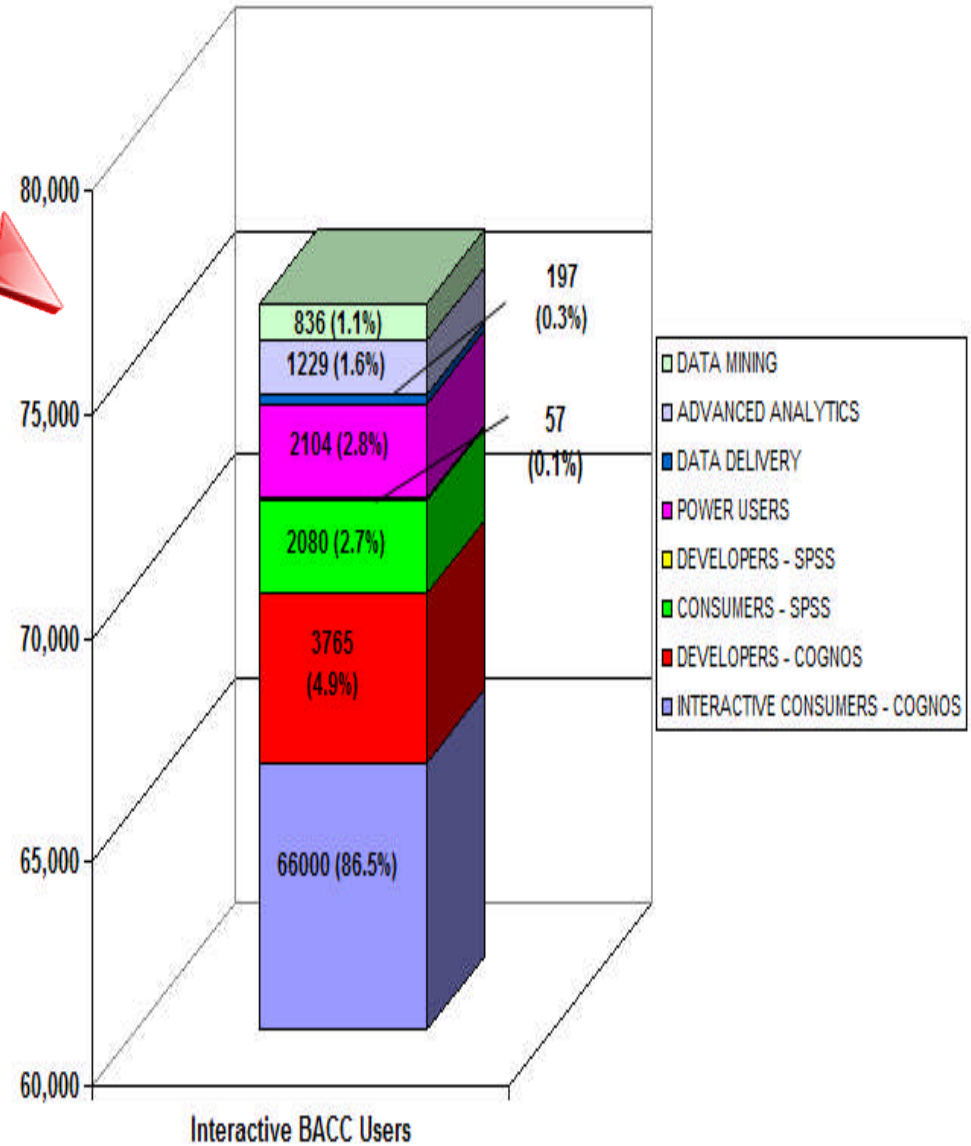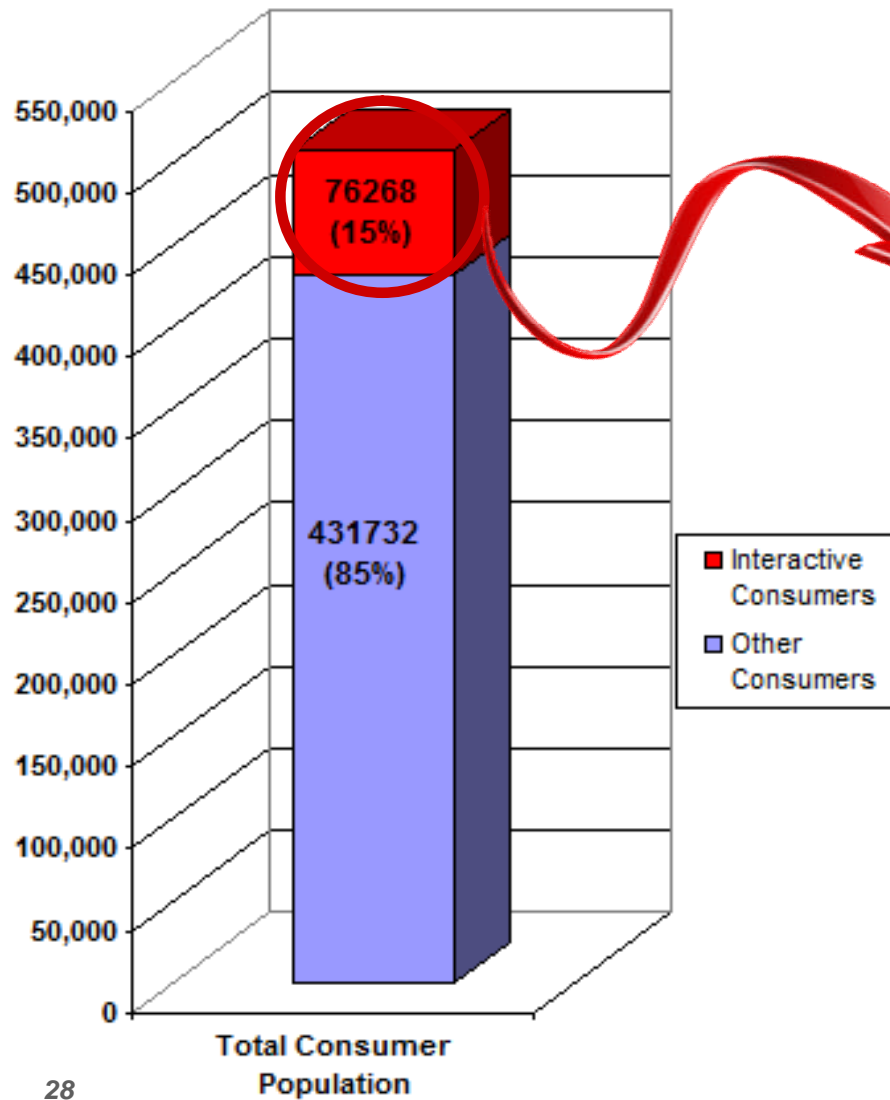
IBM Blue Insight Delivers 5yr 25M$ Savings
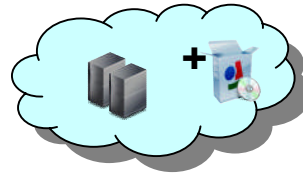
People - 30%

- **Administration**
  - Installations, updates, operations monitoring
- **Consistent Archit.**
  - Eliminate individual tool evaluations
  - Solution design times reduced
- **Shared analytic skills**
  - Promotes rotations
  - Improved analyst efficiency due to reuse of models and reports

Infrastructure – 50%
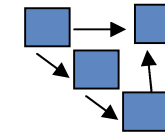
- **Hardware**
  - Shared infrastructure reduces waste
- **Facilities**
  - Electric, real estate, network, heating/cooling
- **Software license**
  - Fewer consistent licenses
  - Reduce purchases and SW maintenance costs

Processes – 20%

- **Boarding process**
  - Reduces adopter time to start creating value
- **Lifecycle processes**
  - Communications
  - Code promotions
  - System upgrades
- **Help Desk**
  - Problem Reporting
  - Root Cause Analysis

Why not more?

Measurability →

Hard savings
$25M over 5 years

Existing landscape
- Items Blue Insight replaced

Reductions
- People
- Infrastructure
- Process

Increased efficiencies
- Common skills
- Design re-use
- Processes

Soft savings
10's of $M already

Present
- Each new project now assumes efficiencies from Blue Insight

Cost avoidance
- Each new project solution requiring analytics is saving Estimated 250K in HW, SW and Ops savings for each new infrastructure

Analytics strategy
- Reduced solution setup in concept and design
- Improved resource availability

Value Generation
100's of $M already

Future
- Money previously used for environment and strategy now invested in new projects
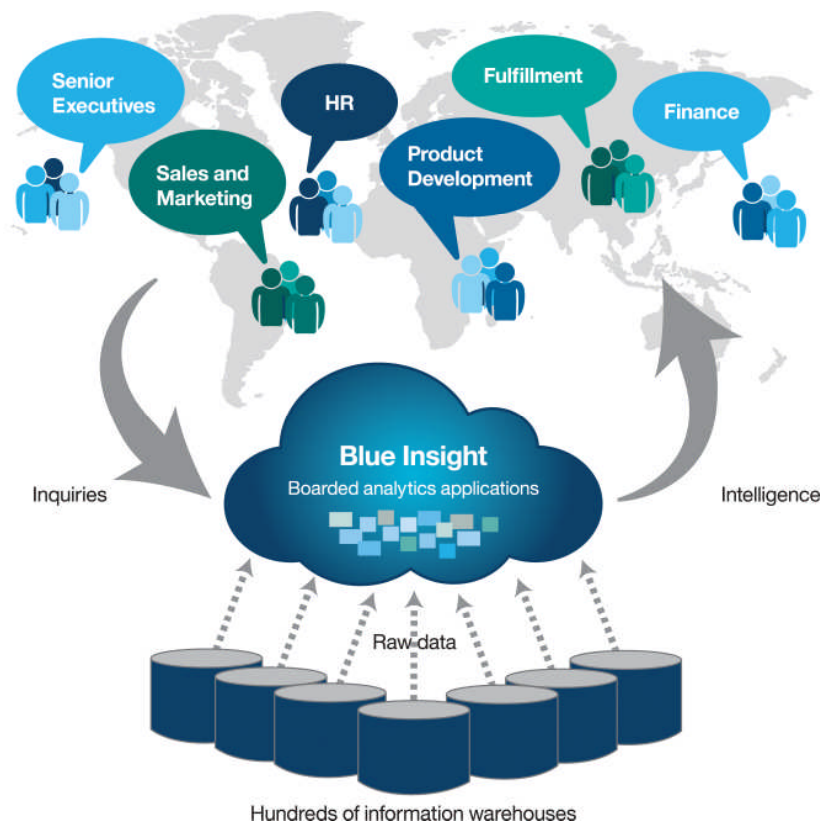
Example business value from our services
- Channel segmentation of sales opportunities
- WW Cash management
- Commodity purchase optimization

IBM is focused on the bigger prize - Delivering the proven capabilities of analytics to the creative minds of our workforce

IBM Treasury Transformation

Senior Executives · HR · Fulfillment · Finance · Sales and Marketing · Product Development

Inquiries

Blue Insight
Boarded analytics applications

Intelligence

Raw data

Hundreds of information warehouses

The Project

- Deploy new Treasury Workstation, a single gateway for all banking communication, and a Treasury Data Warehouse
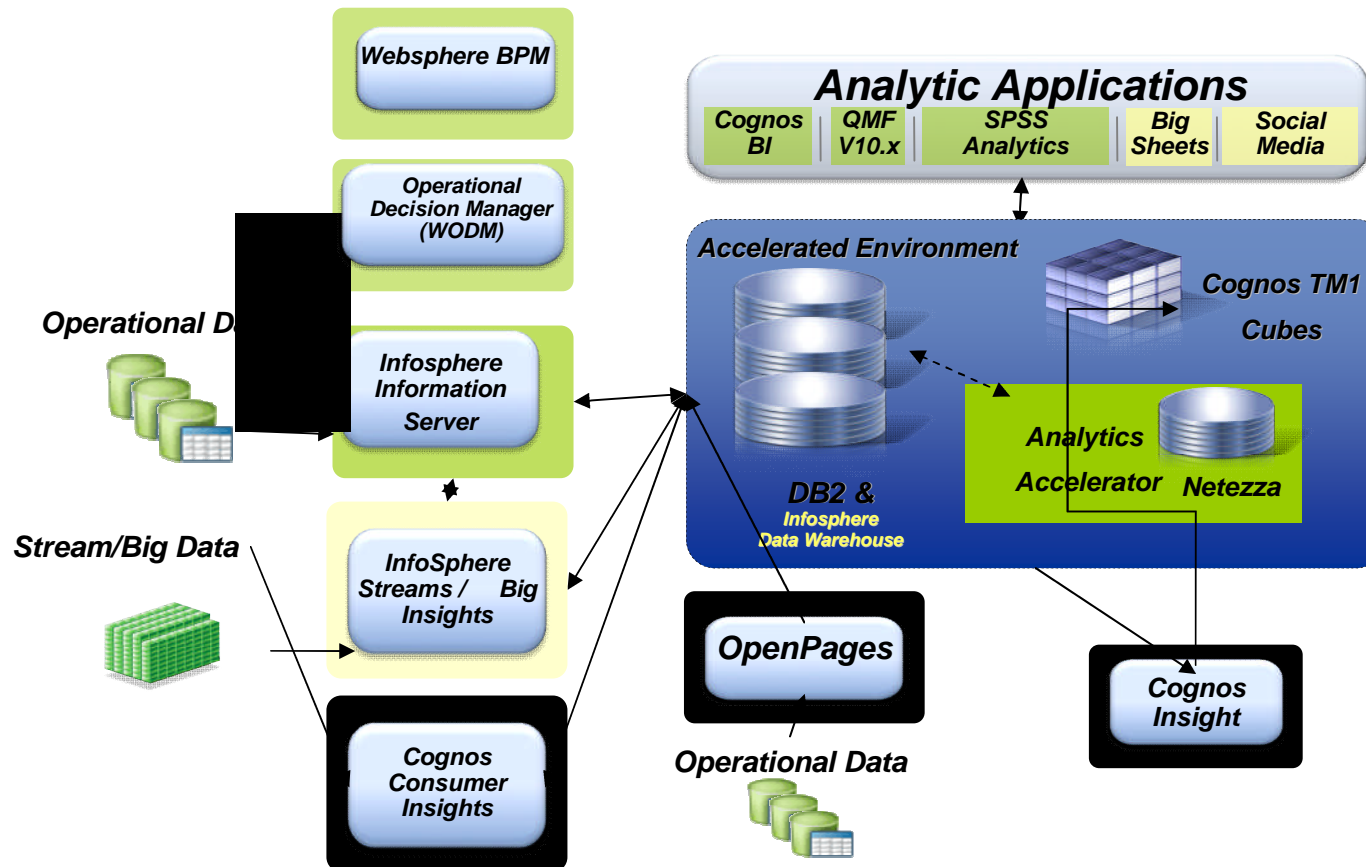
Before

- Treasury operations on multiple platforms
- No access to common global data
- Limited capabilities for ad hoc data inquiry
- Limited out of the box reporting

After Cognos / Blue Insight

- Standard reports for global data analysis
- Ad hoc data analysis capabilities
- Global visibility to cash and cash forecasting
- Global visibility to counterparty limits and exposures
- Global Treasury position analysis

Blue Insight analytic platform and strategy

Websphere BPM

Operational Decision Manager (WODM)

Operational D...

Infosphere Information Server

Stream/Big Data

InfoSphere Streams / Big Insights

Cognos Consumer Insights

Analytic Applications

| Cognos BI | QMF V10.x | SPSS Analytics | Big Sheets | Social Media |

Accelerated Environment

Cognos TM1 Cubes

Analytics Accelerator *Netezza*

DB2 & *Infosphere Data Warehouse*

OpenPages

Operational Data

Cognos Insight

Blue Insight Architecture:

- *Running Linux on System z, AIX on System p and Linux on x86*
- *Cognos 10.2x and SPSS Modeler 15 and Statistics 20*
- *Hosted in Private cloud*
- *Data warehouses prepared using Infosphere Server, Infosphere Streams & Big Insights*

How to create a successful centralized Analytics environment

- **Not all services need to be controlled by the solution organization**
  - Cloud approach provides the tenant with **central tools NOT central solutions**
  - Needs to be a "self service" model, with extended services available

- **Executive sponsorship**
  - Communication and support of Analytics strategy
  - Governance of licensing and infrastructure delivery of BI solutions

- **Know where BA investments are being made throughout the enterprise**
  - Control points in procurement and infrastructure delivery for new BI solutions
  - Inventory and review planned investments in BI enterprise wide

- **Positive business case**
  - Conservative projection of 20-30% savings (IBM achieved > 50%)

- **Extensible Architecture**
  - Ability to grow your architecture vertically without change
  - Ability to grow your architecture horizontally as a new instance to fit non functional / functional needs as an instance of your service

What's next for the IBM Analytics Center of Excellence?

- **Short of stating we are "done" with our services delivery environments; we are shifting our focus to deeper consulting and education of our tenants**

  – Build patterns for tenants that match the most requested solutions

  - Centralized deployments include the suite of tools to address common analytics solutions (ETL, accelerators, reporting, predictive)

- **Provide expert advice and council on Analytics and data solutions to solution architects**

  – The BACC / ACE still will avoid being a solution provider/owner for the business teams analytics needs
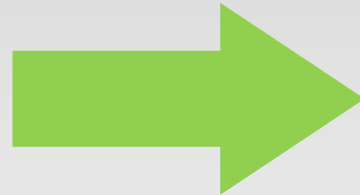
Transaction to Business Action - Single zPlatform
Delivering vital business insight better, faster and cost effectively

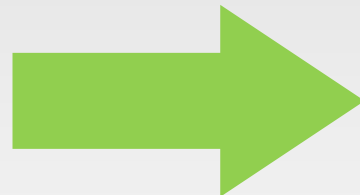- **OLTP and analytics on the same platform**

  ➡ **Reduce complexity and data latency, improve security and data governance, make near real-time business decisions**

- **Industry leading qualities of service and security**

  ➡ **Confidently deliver business critical analytics**

- **Leverage existing zEnterprise infrastructure, processes and people**

  ➡ **Reduce total cost of ownership**

- **Price competitive, easy deployment**

  ➡ **Deliver value quickly and cost effectively**

Learn More!

- **_Visit the zAnalytics Website_**

- **_Join the zAnalytics Networking Community_**

This presentation contains trade-marked IBM products and technologies. Refer to the following Web site:

http://www.ibm.com/legal/copytrade.shtml