



## Hybrid transaction and analytical processing: a z Systems sweet spot



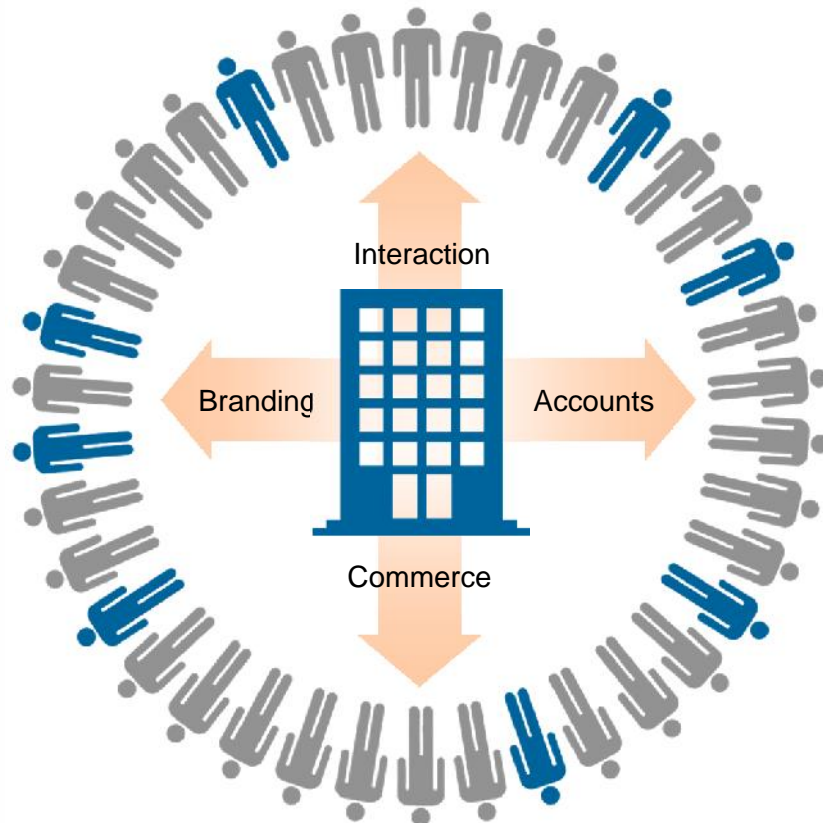
## Agenda

- The changing analytics landscape
- Why the convergence of transactional and analytics processing is great for z Systems
- z Systems as analytics data servers: what's new
- Not just data: analytics applications on z Systems

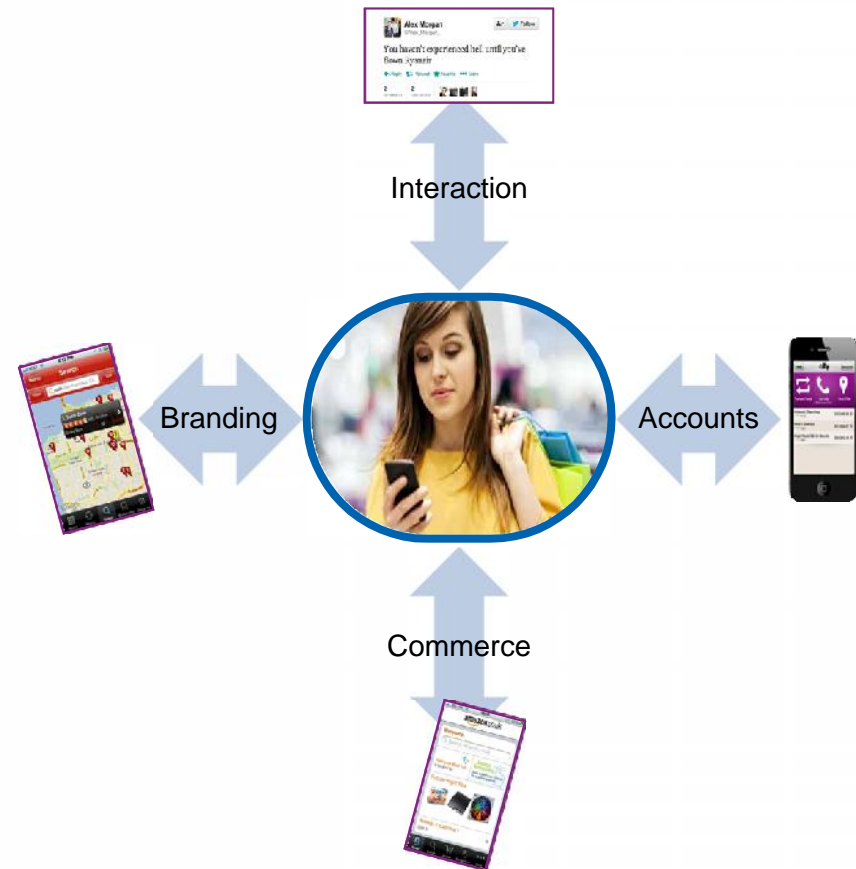
# The changing analytics landscape

## The business-customer relationship has changed

**Then:** “I have an offer – let me find a customer I can sell to”

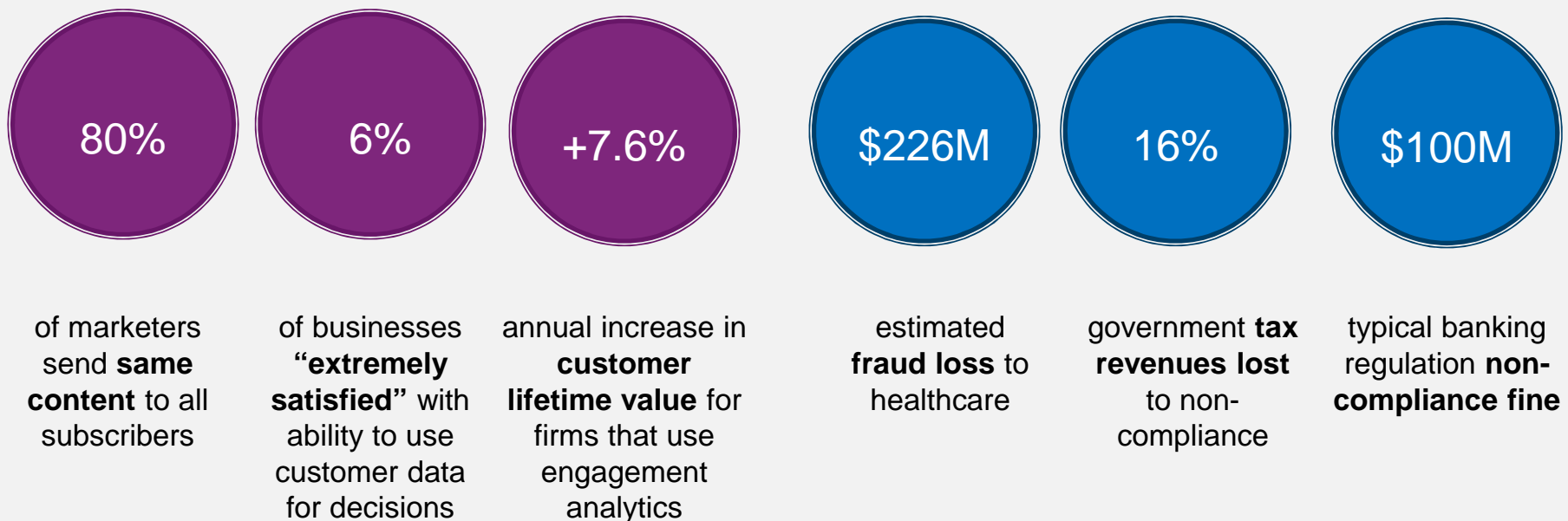


**Now:** “I have a customer – what do they need most?”



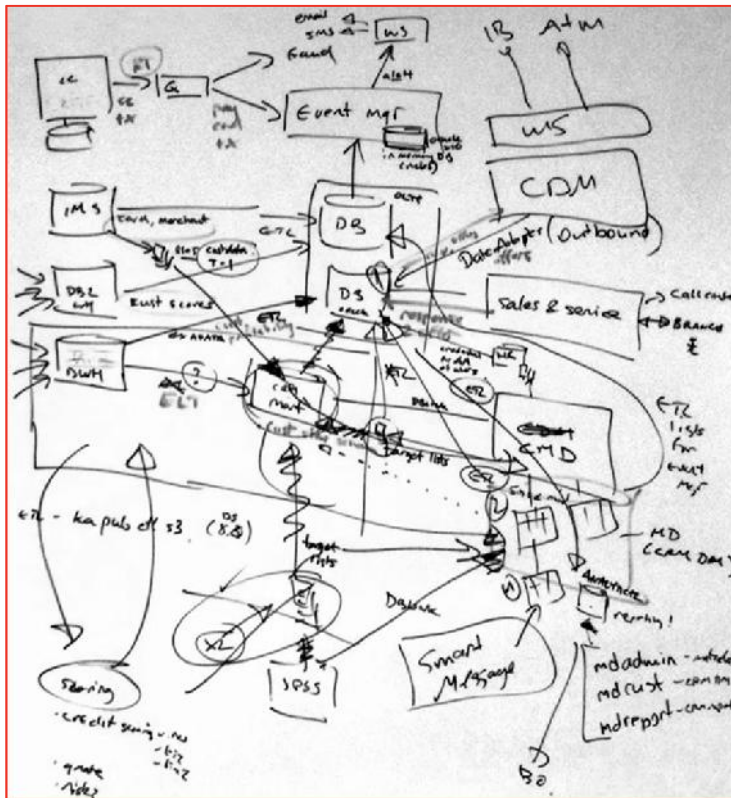
Customer experience is the competitive advantage for top-line growth

## Failure to leverage analytics has real and opportunity costs



*The remedy: make IT exploitation a business strategy*

## Challenges with traditional analytics processing



### Significant complexity

Data is move from operational databases to separated data warehouses/data marts to support analytics

### Analytics latency

Transactional data is not readily or easily available for analytics when created

### Lack of synchronization

Data is not easily aggregated and users are not assured they have access to “fresh” data

### Data duplication

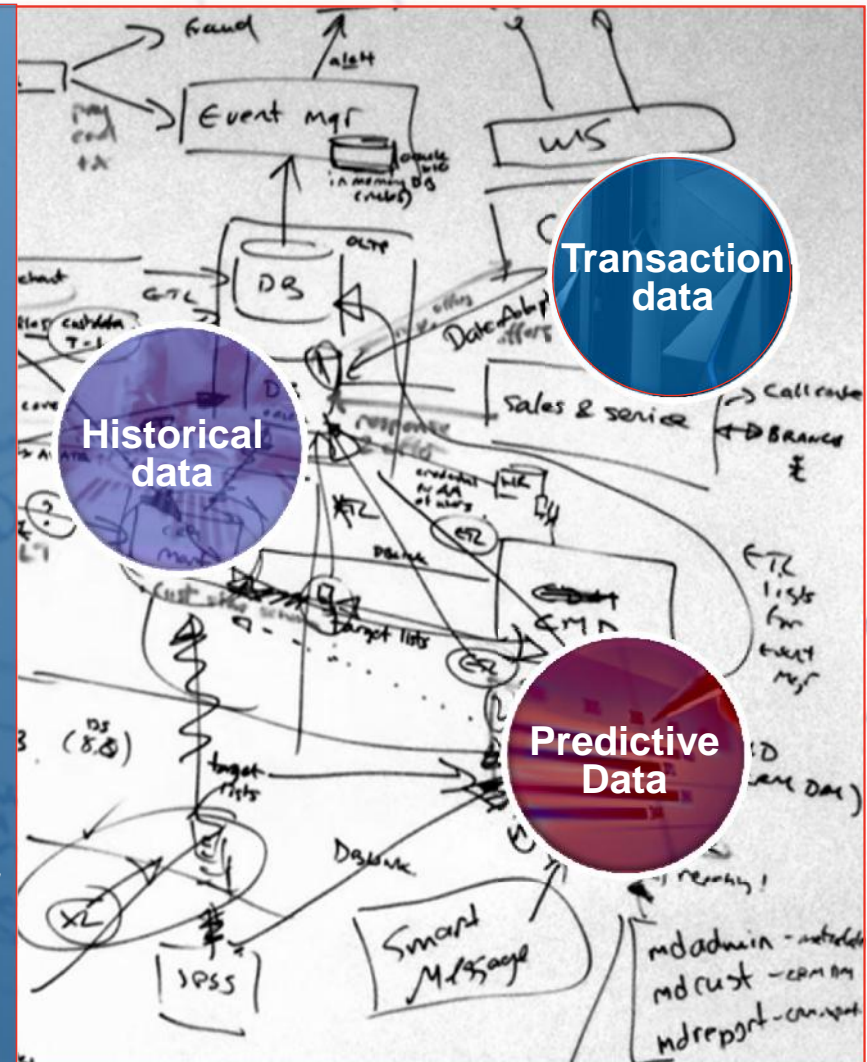
Multiple copies of the same data are proliferated throughout the organization

### Excessive costs

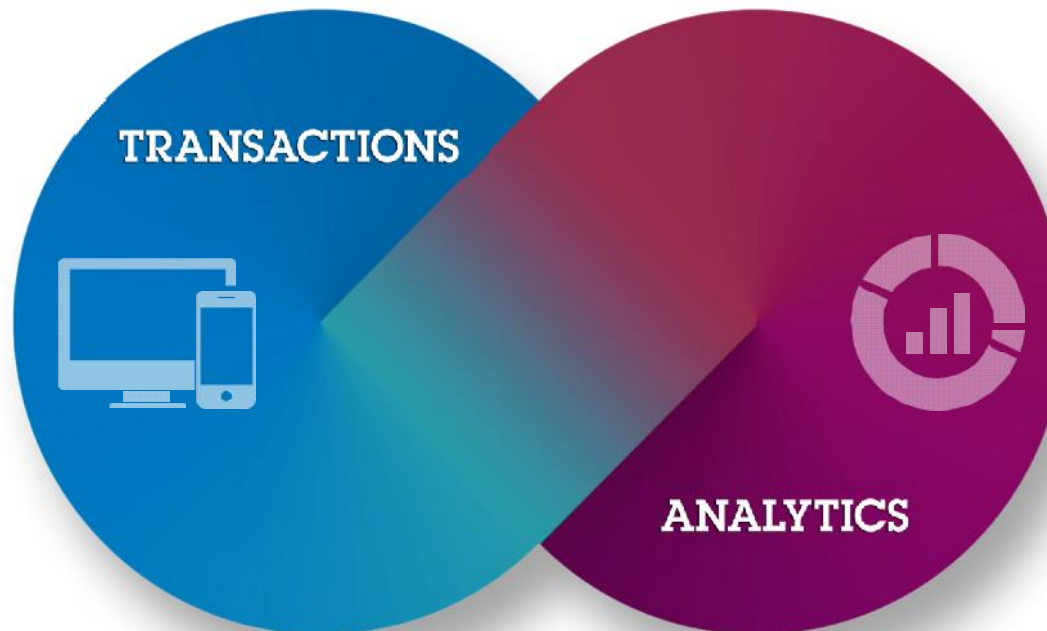
An IT infrastructure that was not designed for, nor capable of supporting, real-time analytics

Business has fundamentally changed, but IT remains aligned to the old way of doing business

A better way: instead of relying on different systems for operational and analytical processing, leverage a **single, integrated, end-to-end system** that enables intelligent business processes



## The way forward: hybrid transaction and analytical processing



- Purchase made
- Resources consumed
- Bill paid
- Claim submitted
- Information updated
- Call center contacted

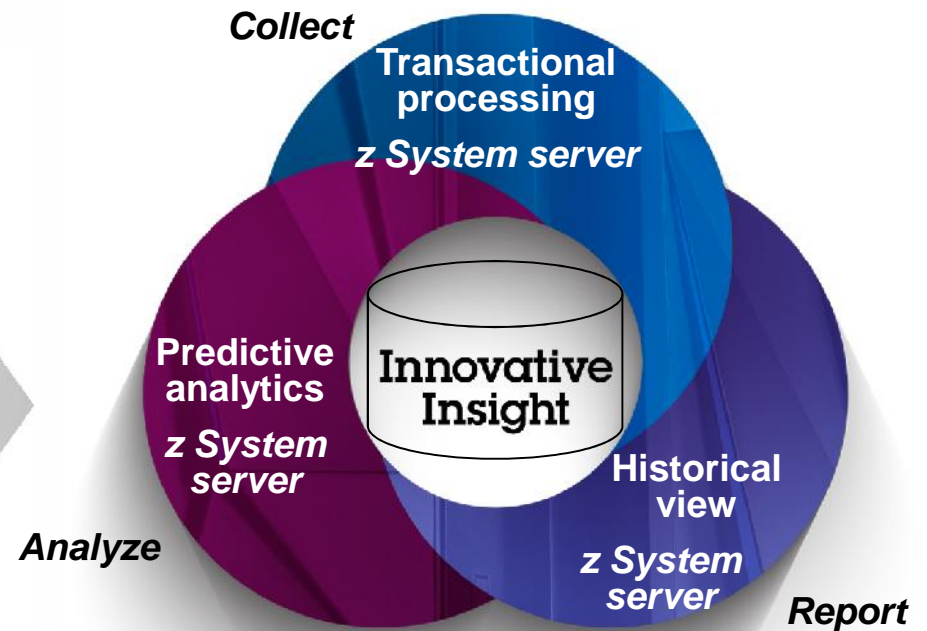
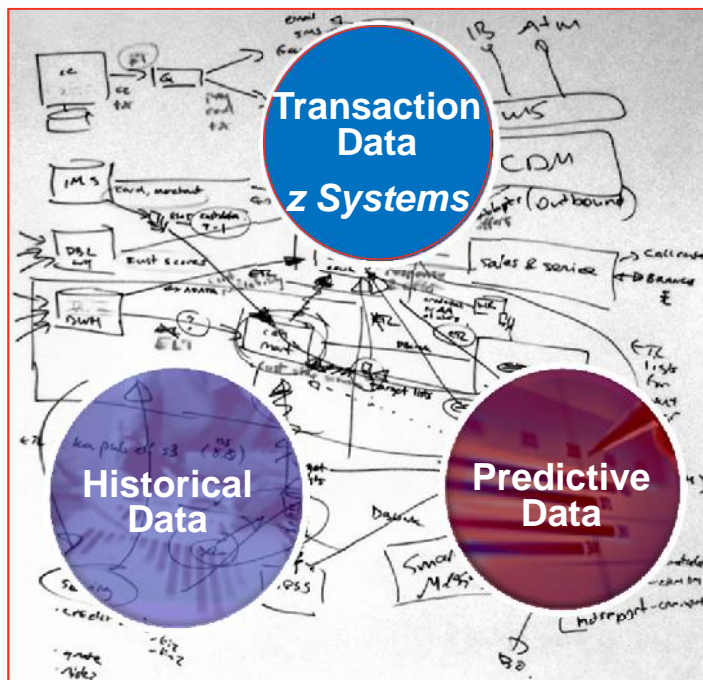
- What happened?
- How many, how often, where?
- What actions are needed?
- What will happen if?
- What will produce the best outcome?

***Analytics as part of the flow of business – insights on every transaction***



Why the convergence of transactional and analytics processing is great for z Systems

# If you're going to bring transaction and analytical processing together...



...IBM z Systems is the ideal platform  
**Secure – Scalable – Reliable – Manageable**

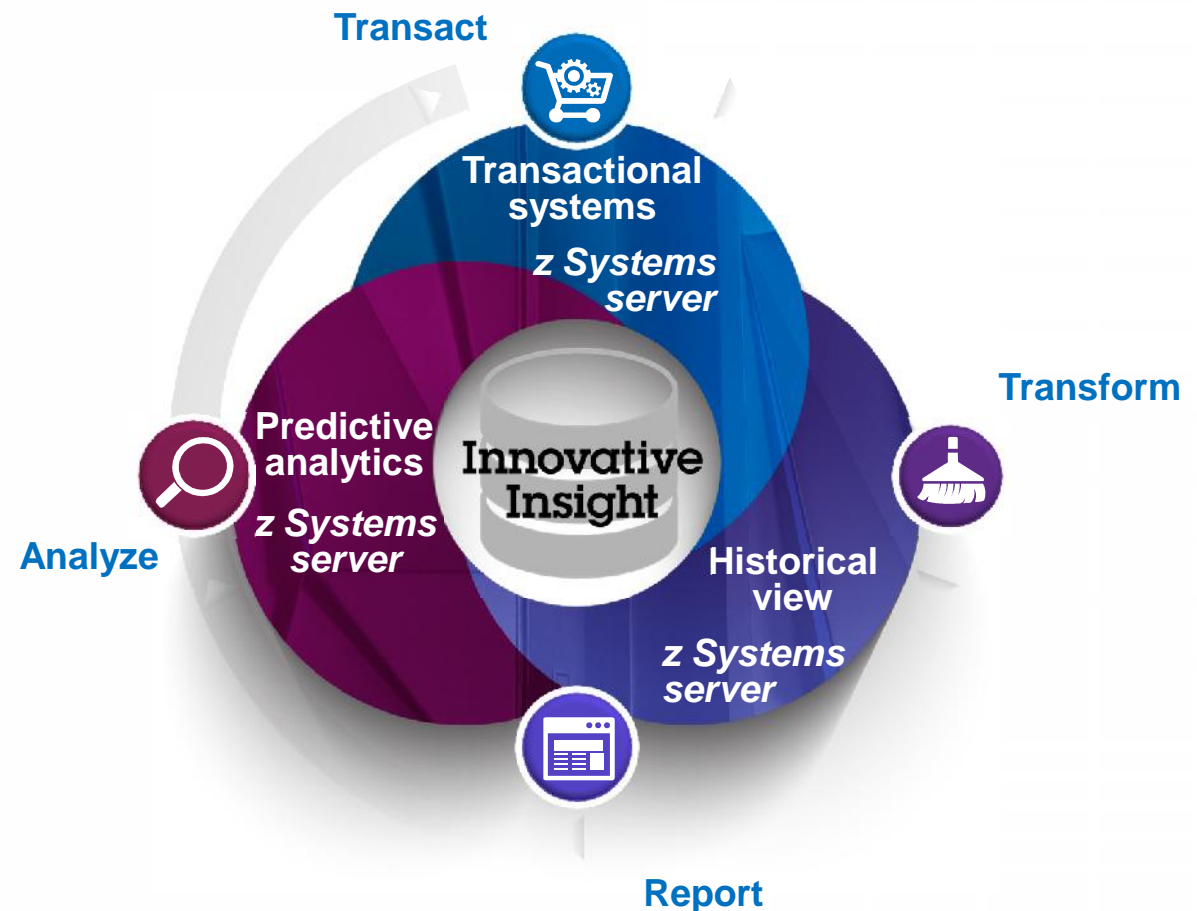
## 5 key points

- **Many organizations are trying to deliver instantaneous, on-demand customer service** with IT systems designed to provide after-the-fact intelligence
- **Achieving insight with every transaction demands** a holistic implementation of an integrated data lifecycle with business-critical systems
- **IBM z Systems has the vision, strategy and technology** to fuse transactions and analytics by eliminating the latency and complexity pitfalls that develop with a distributed approach
- **z Systems "operational analytics" builds advanced decision management support** on this integrated data platform, injecting intelligence into operations without sacrificing performance
- **Truly transformational business opportunities** require truly transformational infrastructure – and that infrastructure is IBM z Systems

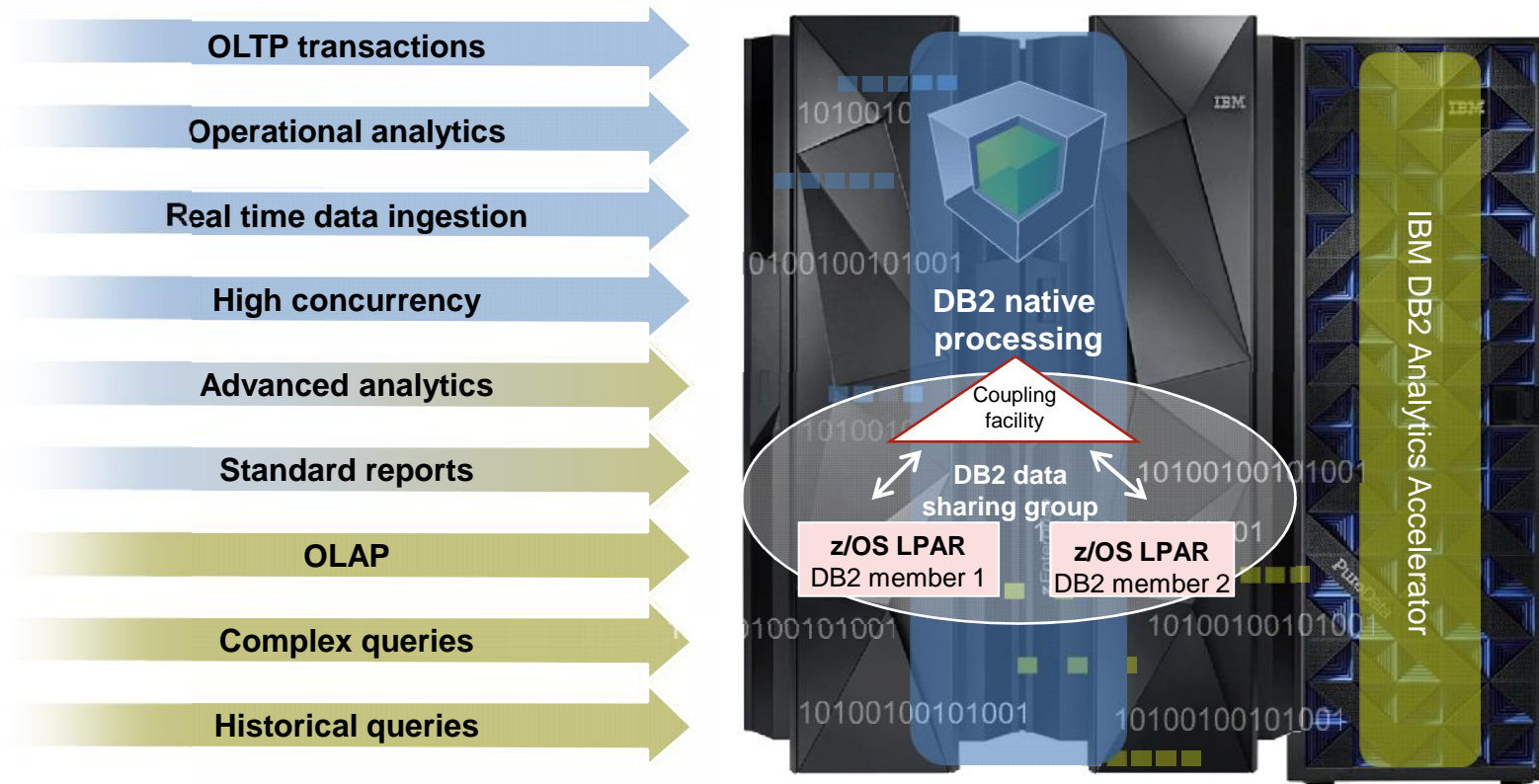
## The z Systems strategy

*Integrating operations and analytics in one streamlined, end-to-end data lifecycle*

- Better business response
- Reduced data movement, reduced complexity, reduced configuration resources
- More accurate, more secure, more available



## Operations and analytics coexistence: benchmark configuration



### Two main use cases:

#### Operational Priority

Keeping operational throughput constant, add analytics load to the system. Data used for analysis can be slightly out of sync with operations

#### Data Priority

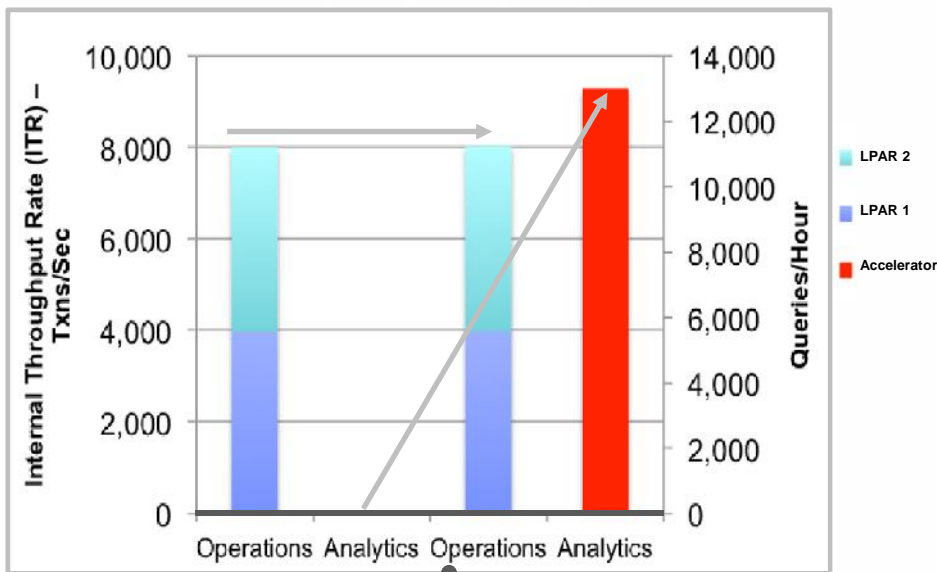
Data used for operations and analytics must be in complete synchronization. Slight degradation of operational throughput is acceptable

# Operations and analytics coexistence: results

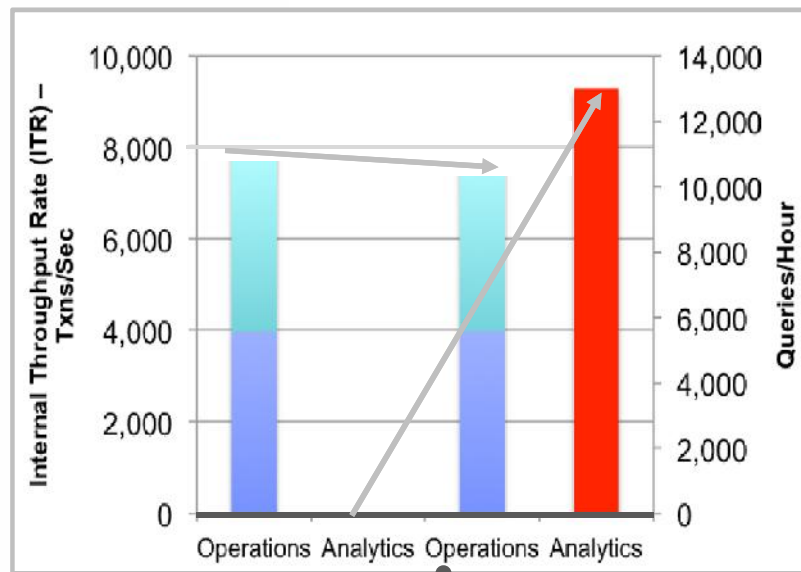
*Thousands of complex, analytical queries now integrated with operational workload*

First use case: periodic data synchronization – end-of-business day data access

Second use case: (near-) real time data access



Operational throughput maintained with no additional mainframe capacity



Data kept in sync real-time with minimal degradation in transaction ITR (3%)

## z Systems as analytics data servers: what's new

## DB2 Analytics Accelerator Version 4.1

*The turbocharger for z Systems analytics*



*A blending of PureData Systems for Analytics (powered by Netezza) and z Systems technology that dramatically speeds up complex business analysis - transparently to users*



Version 4.1 delivered:

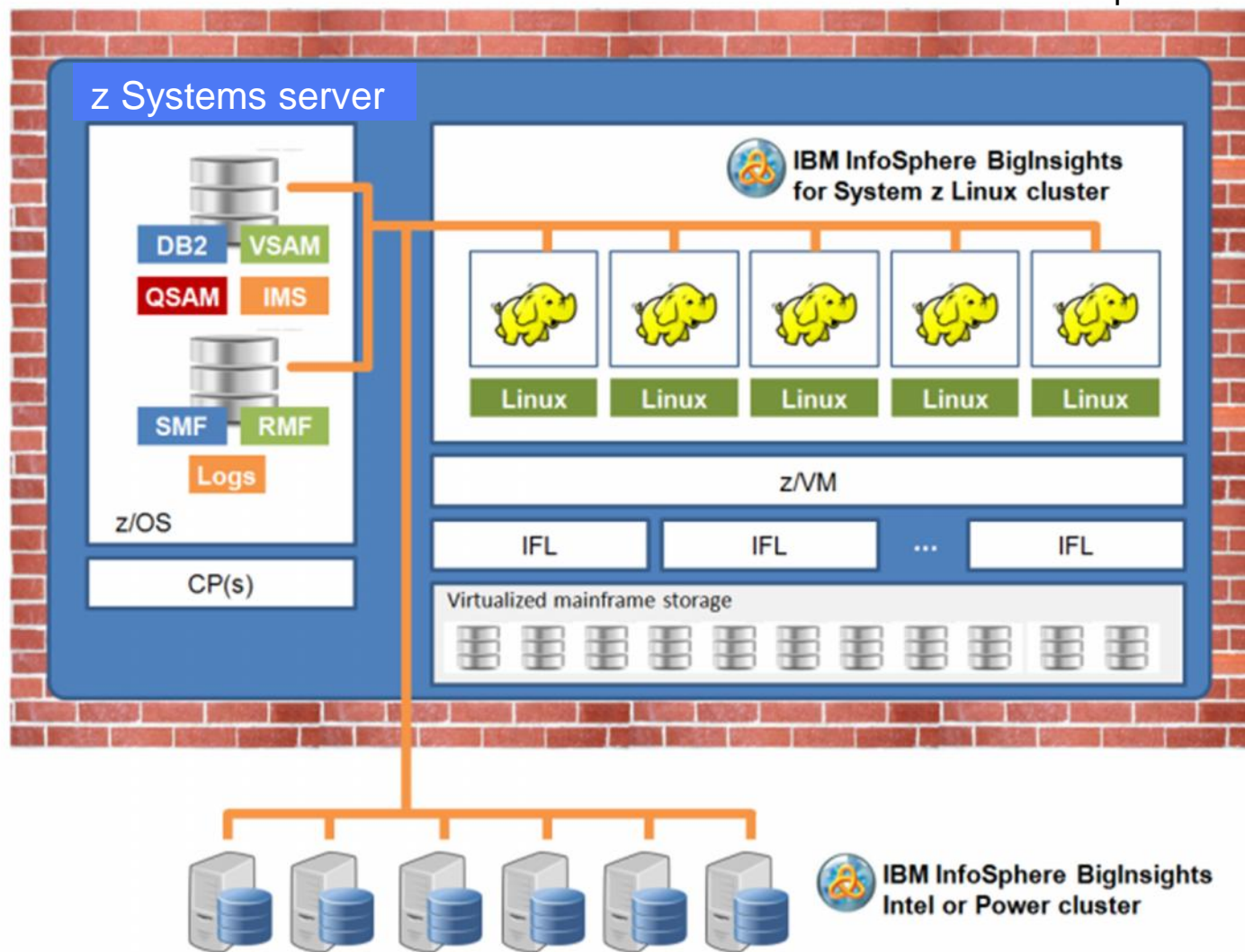
- Support for dynamic and static queries
- Improved “trickle-feed” performance (incremental update)
- Enhanced monitoring support, including projected CPU and elapsed time savings

\* Via the IBM DB2 Analytics Accelerator Loader



# IBM InfoSphere BigInsights for Linux on System z

Secure perimeter

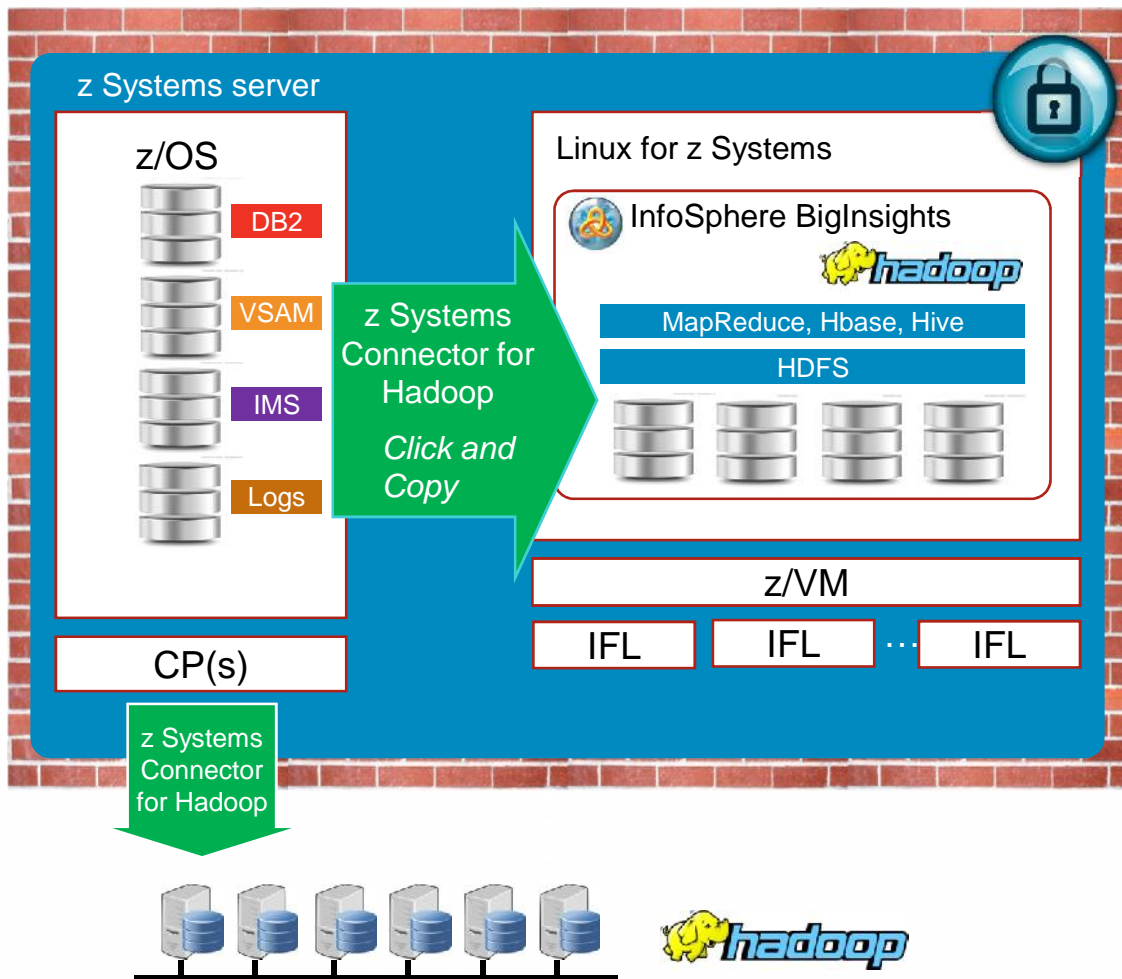


## InfoSphere BigInsights – IBM’s Hadoop platform

- Combines open-source Apache Hadoop with IBM innovations to deliver “enterprise grade Hadoop”
  - Simplified administration and management capabilities
  - Rich developer tools
    - Big SQL, and an Eclipse-based IDE
  - Powerful analytic functions
    - BigSheets and dashboards for visualization and exploration
  - Workload optimization, including an adaptive scheduler
  - Guardium integration for enhanced security

***BigInsights for Linux on z Systems – available since August 2014***

## IBM InfoSphere z Systems Connector for Hadoop



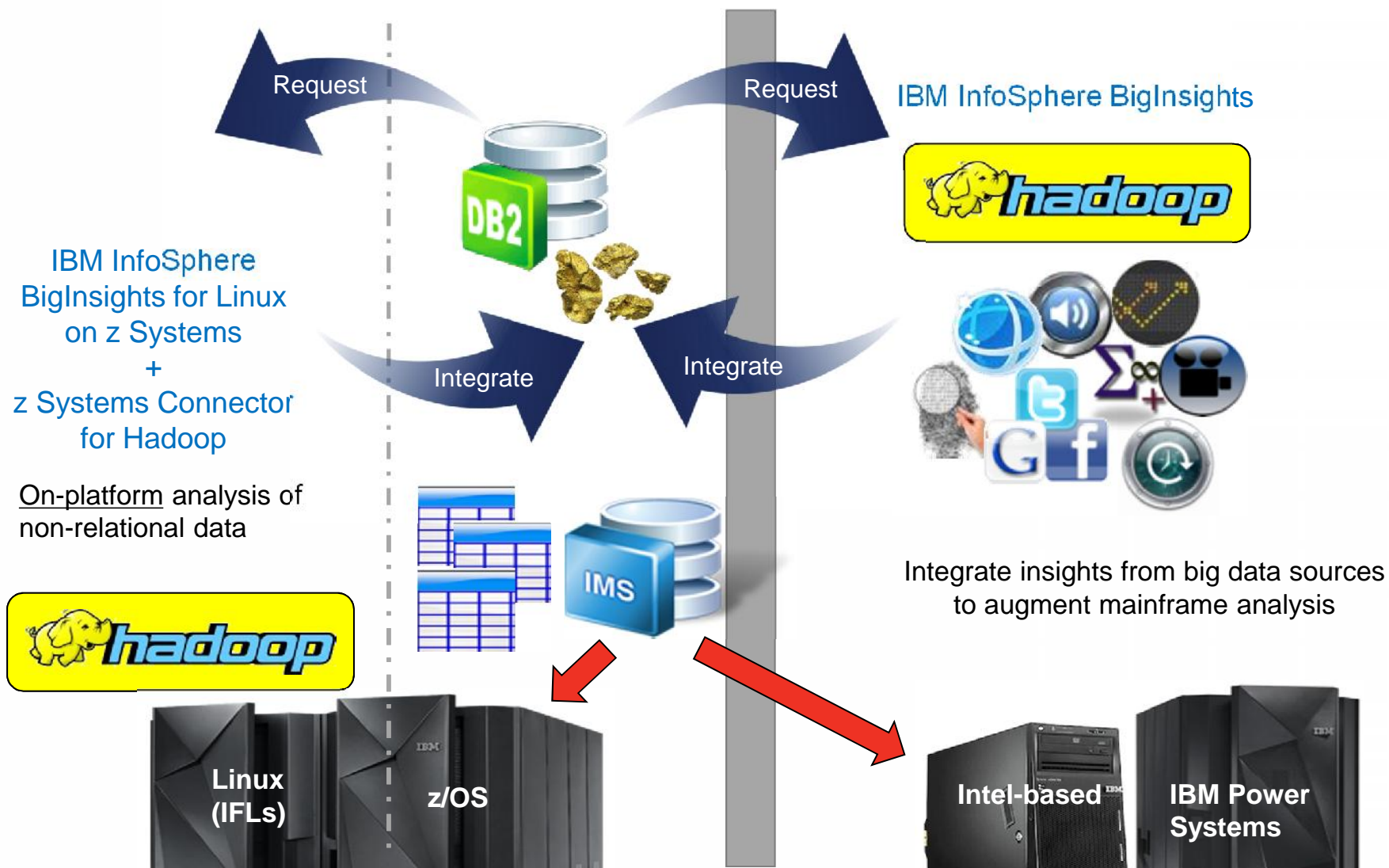
- Leverage z Systems data with Hadoop on your platform of choice
  - IBM z Systems
  - IBM Power Systems
  - Intel-based servers
- Point and click or batch self-service data access
- Lower cost processing and storage

## IBM InfoSphere z Systems Connector for Hadoop

*Ready for the enterprise*

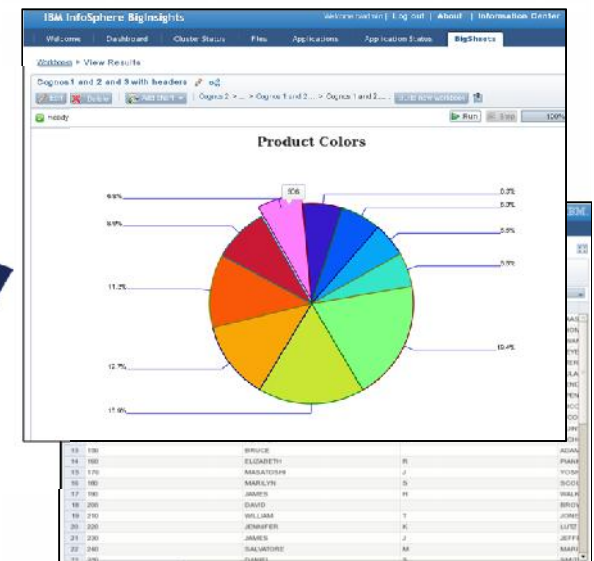
- **A secure pipe for data**
  - RACF integration – standard credentials
  - Data streamed over secure channel using hardware crypto
- **Rapid deployment**
  - Integrate z/OS data in a few hours
- **Easy to use ingestion engine**
  - Light-weight; no programming required
  - Native data collectors accessed via a graphical user interface
  - Wide variety of data sources supported
  - Conversions handled automatically
  - Streaming technology does not load z/OS engines, does not require disk space for staging

## Now there are two z Systems options for analytics using Hadoop



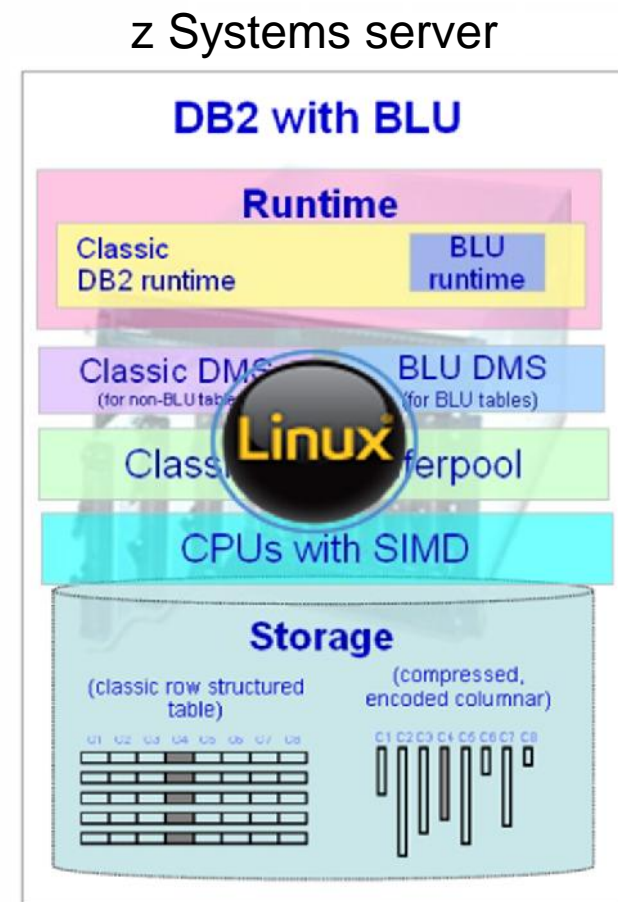
## Enhancing analytics on IBM z Systems: IMS and Big Data

- Much of the world's operational data resides on z/OS
- Unstructured data sources continue to grow
- There is a need to merge this data with trusted OLTP data from IBM z Systems data sources
- IMS provides the connectors and the database capability to allow BigInsights v2.1.2.0 to easily and efficiently access the IMS data source



## New: DB2 with BLU Acceleration for Linux on z Systems

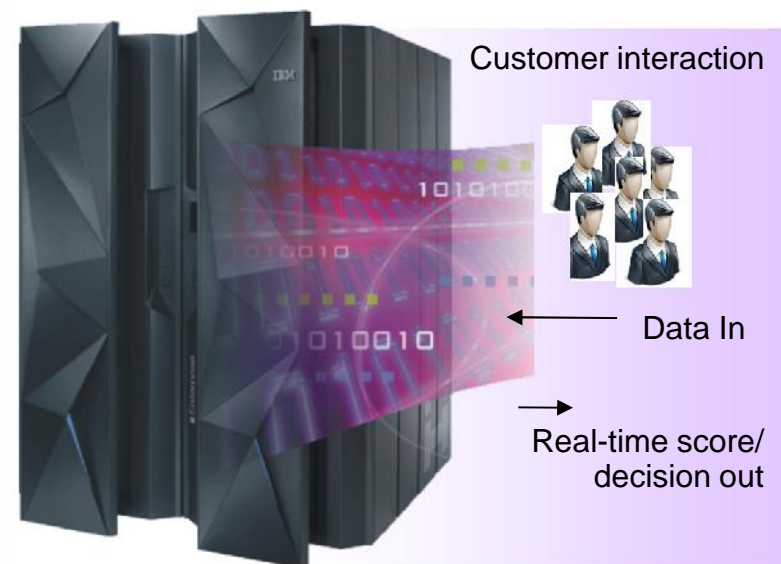
- Columnar, in-memory data store
- Fully integrated with DB2 10.5 for Linux on z Systems
- Quick and easy set-up
- Dramatically reduced execution time for analytics queries
- High degree of data compression
- Configuration recommendation for production system:
  - At least 8 IFLs
  - At least 8 GB of memory per IFL



## Real-time scoring for DB2 for z/OS-accessing transactions

### SPSS Modeler with Scoring Adapter for zEnterprise V16

- Delivers better, more profitable decisions, at the point of customer impact
  - Enables more informed customer interaction
  - Improves fraud identification and prevention
- With improved accuracy, speed and performance while reducing cost and complexity
  - Improves accuracy by scoring directly within transactional applications against the latest data
  - Delivers the performance needed to meet SLAs of transactional applications
- Deploy SPSS Modeler on Linux for z Systems
  - Single infrastructure for reduced complexity and redundancy of HW, SW and administration resources
  - Avoid data governance and security issues, save network bandwidth, data copying latency, disk storage
  - Easier to incorporate scoring into applications





## Not just data: analytics applications on z Systems

## Two perspectives on z Systems analytics

- Where do queries execute?
  - That's what the preceding section of this presentation covered (DB2 Analytics Accelerator for z/OS, BigInsights for Linux on z Systems, DB2 with BLU for Linux on z Systems, etc.)
- Where do queries originate?
  - This has to do with applications and tools that issue analytics queries
- Data-oriented z Systems people tend to focus on that first perspective, but the second one is important, too
  - The same strengths that make z Systems great analytics data servers make them great analytics application servers, as well

## The case for z Systems as a platform for analytics applications

- There are multiple advantages associated with getting your analytics applications closer to data managed on z Systems:
  - Better control
  - Better management
  - Enhanced security
  - Reduced server sprawl
  - Cost efficiencies through consolidation
  - The performance boost delivered by HiperSocket connections between apps in a Linux on z server and data in an adjacent z/OS LPAR
- That said, z Systems are great for analytics application consolidation *even when target data servers are on non-z platforms*



## IBM offers a wealth of analytics tools for z Systems servers...



Cognos BI	Query, reporting, dashboards	z/OS, Linux on z
QMF	Query, reporting, dashboards	z/OS, Linux on z
SPSS	Predictive analytics, data mining	Linux on z
ILOG CPLEX	Business optimization	z/OS, Linux on z
Cognos TM1	Financial forecasting and budgets	Linux on z

## ...but z Systems is a great platform for other vendors tools, too

*Other vendors' analytics tools can also gain the benefits of z Systems: availability, efficiency, security, manageability...*



- SAS
- BusinessObjects
- Oracle
- and more...

## The bottom line

*Hybrid transaction and analytical processing z Systems provides an opportunity to weave analytics into the fabric of business to drive better outcomes*



Thanks for your time!