Enterprise Big Data, Analytics and Mobile

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DB2 11: The Database for Enterprise OLTP and Analytics

Affordable for every workload with out-of-the-box savings

- Up to10% for complex OLTP
- Up to15% for update intensive batch
- Up to 40% for queries

Business critical analytics

- Expanded SQL, XML and analytics capabilities
- Big data integration
- In-transaction real-time scoring
- Advanced QMF analytic capabilities with mobile support

Enhanced Resiliency and Continuous Availability

- Fewer planned outages, fewer REORGs, faster recovery
- Cost effective archiving, access warm/cold data in single query

Simpler, faster upgrades for faster ROI

- 16x faster catalog migration
- No application changes required for DB2 upgrade
- Repeatable testing with real workloads and integrated cloning

DB2 11 for z/OS

Strong uptake continues

- Over 150 customers*
- Faster migration success
- **2x** faster adoption
- Day 1 DB2 Tools support drive sales

Out-of-the-box quality/stability

- **68% fewer PMRs**
- **35% fewer APARs**

DB2 10

- *Withdraw from Marketing: July 6, 2015*
- End of Service: Sept 30, 2017

COMMERZBANK

LRSN for critical prod system
Planned 6 months, completed in 2!

NAVY FEDERAL CREDIT UNION

Solid CPU savings
6-9% CICS class 2
7-8% DRDA class 2
18-20% CICS batch

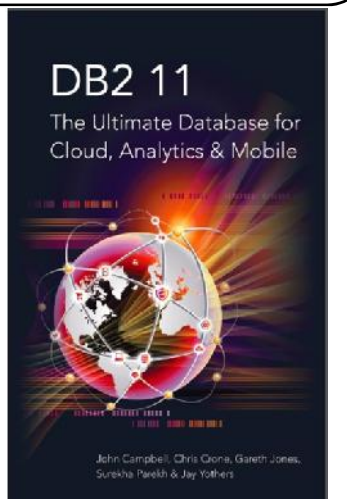
BALDOR

Standard Bank

First SAP migrations
DB2 11 NFM

GAD IT für Banken

Deployed DB2 11
2 months faster!
All systems at NFM



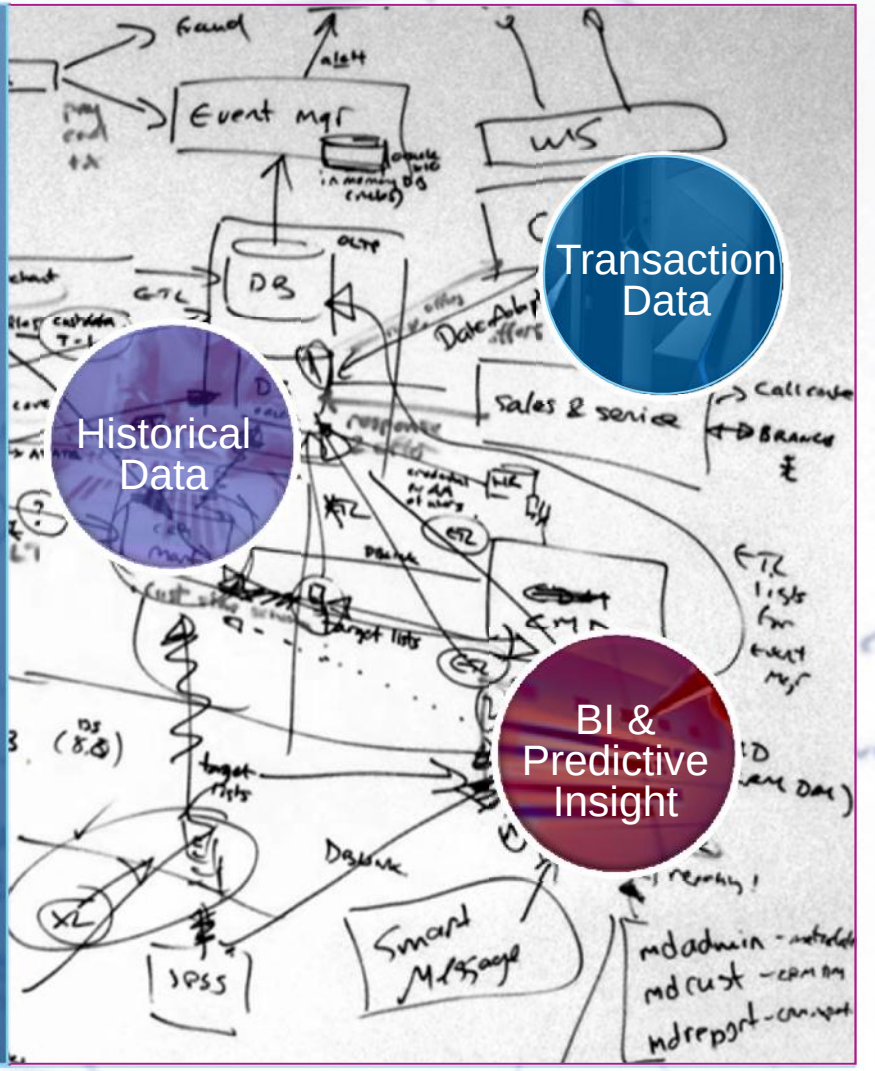
Latest product Information at World of DB2

* As of Dec 2014

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

Need a fully-integrated, end-to-end system that executes intelligent business processes

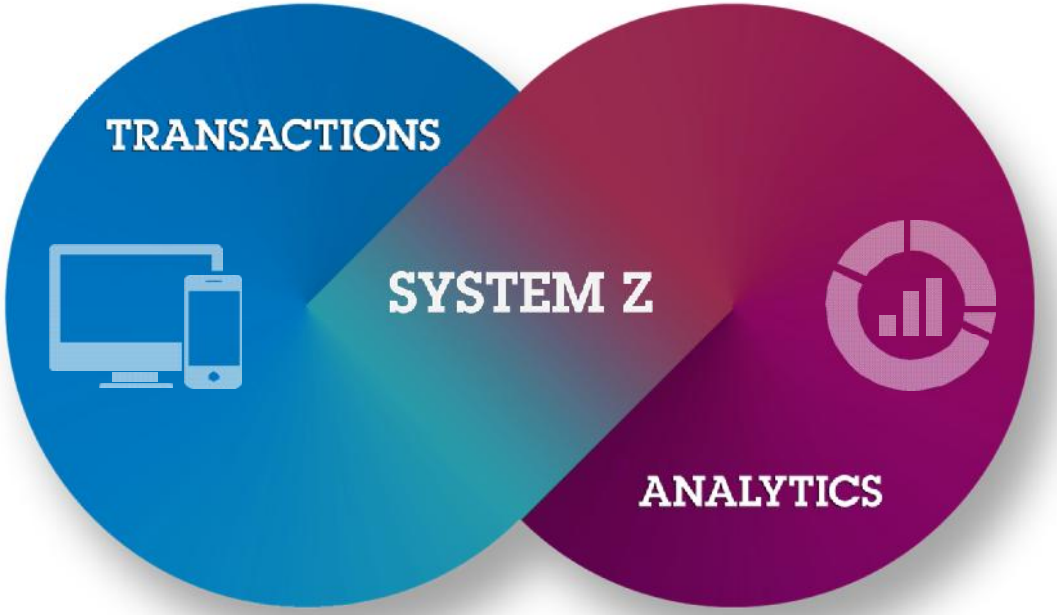
Need to bring Analytics to the transactional data to gain the greatest advantage



How can you help . . . ?

The IBM solution

Transactions & analytics processed together



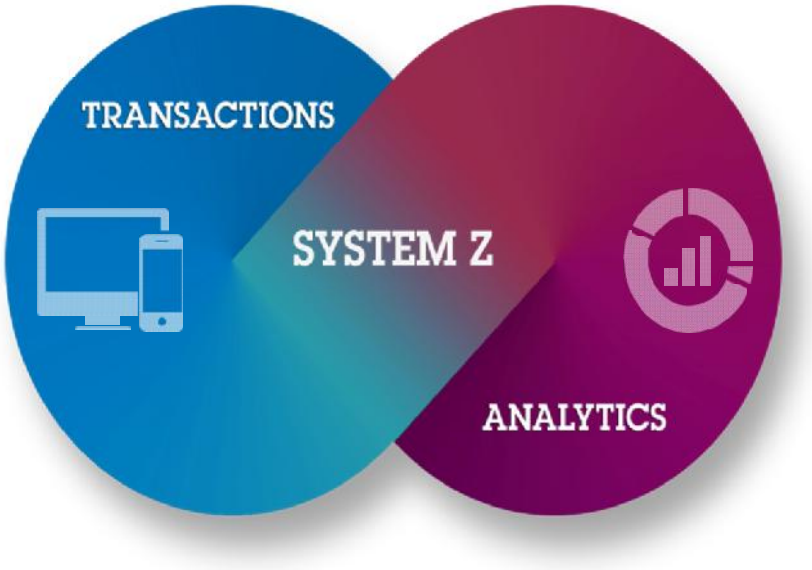
- Purchase made
- Resources consumed
- Bill paid
- Claim submitted
- Information updated
- Call center contacted

- 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

Big Data & Analytics Solution on z Systems

Start where you want & then grow and expand without re-architecting



- DB2 Analytics Accelerator
- Cognos Business Intelligence
- SPSS Predictive Analytics & Real-time Scoring
- Cognos TM1
- DB2 Query Management Facility (QMF)
- InfoSphere BigInsights & z Systems Connector for Hadoop
- InfoSphere Information Server
- . . .

IBM DB2 Analytics Accelerator

Breakthrough technology enabling the analytics-driven enterprise

What is it?

The IBM DB2 Analytics Accelerator is a workload optimized, appliance add-on to DB2 for z/OS, that enables the integration of analytic insights into operational processes to drive business critical analytics and exceptional business value

What does it do?

- Accelerates complex queries, up to 2000x faster
- Lowers the cost of storing, managing and processing historical data
- Minimizes latency
- Reduces z Systems capacity requirements
- Improves security and governance
- Reduces operational costs and risk
- Complements existing investments

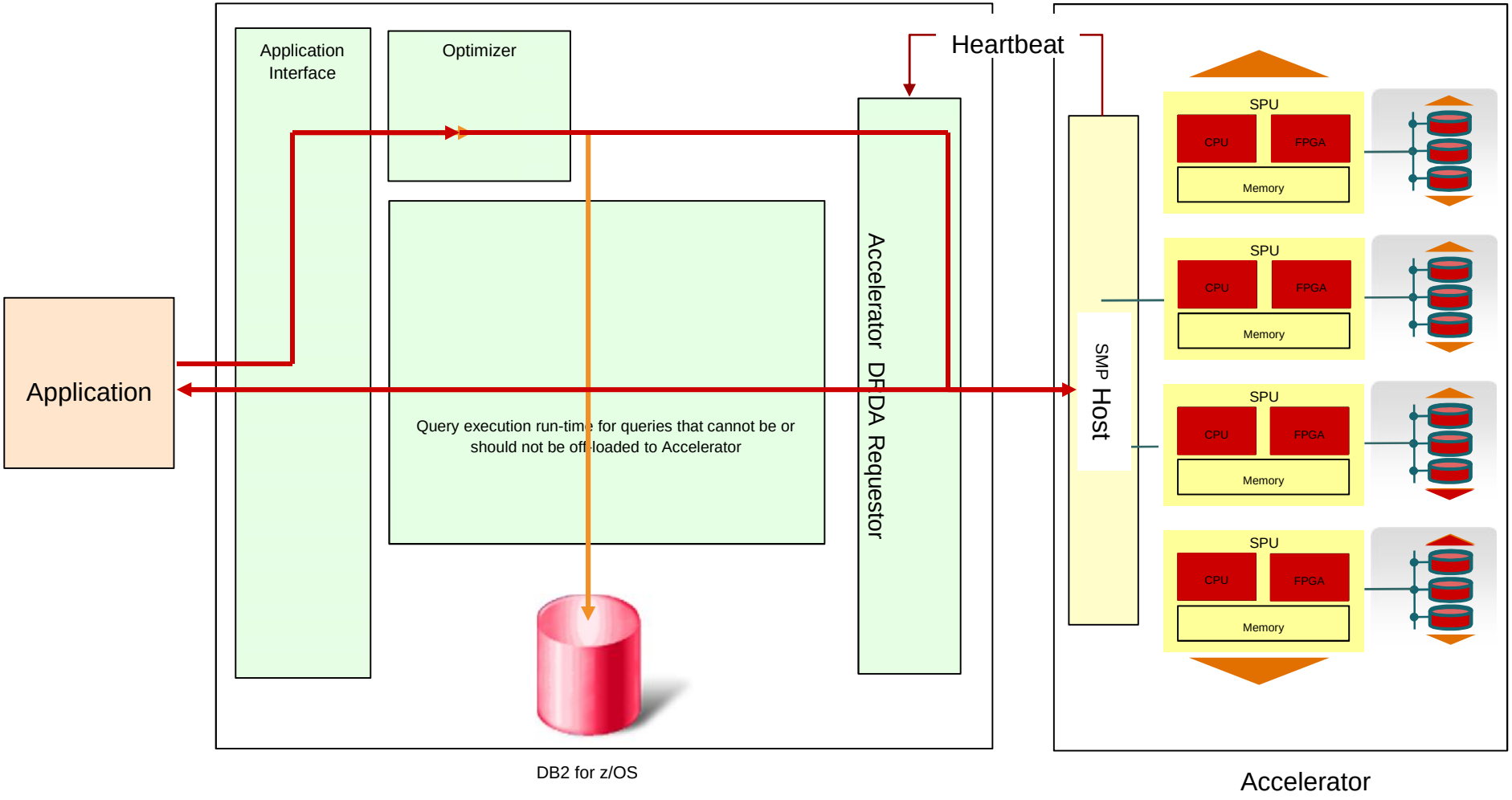
z Systems & DB2 Analytics Accelerator

Enables transactional/analytics environments for Business Critical Analytics

How is it different?

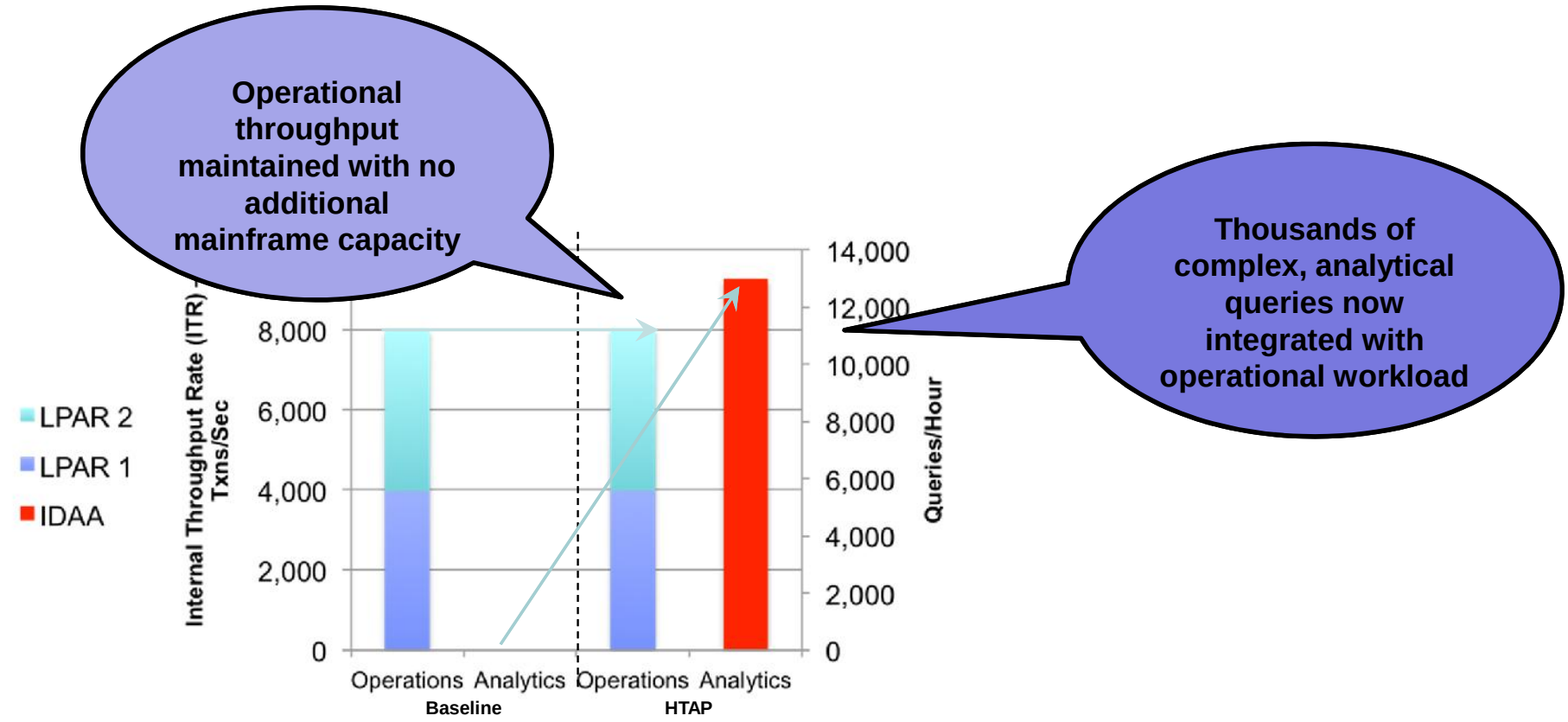
- Integration: DB2 applications can seamlessly combine OLTP and analytics on the same content
- Performance: Exceptional performance for both OLTP and analytic operations on the same platform and content
- Transparency: Accelerator is completely transparent to DB2 applications
- Self-managed workloads: Queries are automatically executed on the most efficient physical location
- Rapid time to deployment: 1-2 days from delivery to information
- Simple administration: Appliance hands-free operations, eliminating most database tuning tasks
- Cost efficient: Reduced cost through simplified administration and optimal use of enterprise computing assets

Query Execution Process Flow



Transactional Analytics operations and analytics co-location

Benchmark Results



IBM DB2 Analytics Accelerator and z Systems

The first-class System of Insight

Keeping analytics data on z Systems can save significant costs

88%

Cost savings

Source: IBM CPO internal study

z Systems + DB2 Analytics Accelerator beats the competition

2x

faster throughput

4x

better price performance

Source: IBM Internal Study; 10TB BI Day Analytics; 161,166 reports 80 users

DB2 Analytics Accelerator

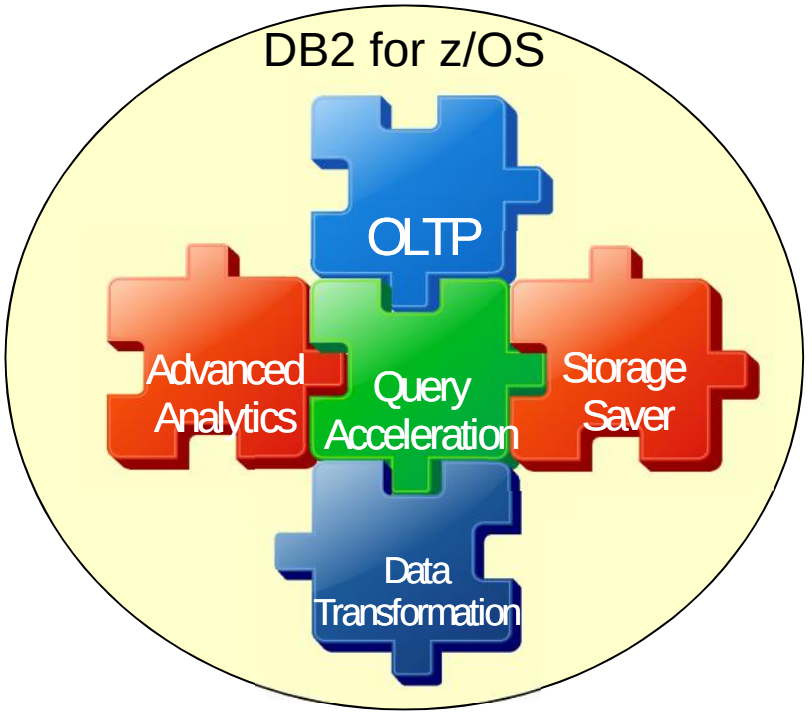
What's on the horizon . . .

Support new and innovative use cases

- In-database transformation
- Advanced predictive analytics

These enhancements will . . .

- Enable faster and more sophisticated reporting
- Allow for deep analytics application integration
- Drive the ability for sophisticated analytics on the z Systems platform
- Deliver right time insight based on real-time data



Deeper insight into operational status through faster reporting

MicroStrategy, QMF, home grown applications, etc.

Business Challenge: Today's hyper competitive environment requires business agility. Reporting tools must provide ease of use and performance to provide "insight into now".

Challenges:

- Data latency
- Expensive
- Data security breaches
- Data governance issues
- Data currency challenges
- Proliferation of data silos

Deeper insight into operational status through faster reporting

MicroStrategy, QMF, home grown applications, etc.

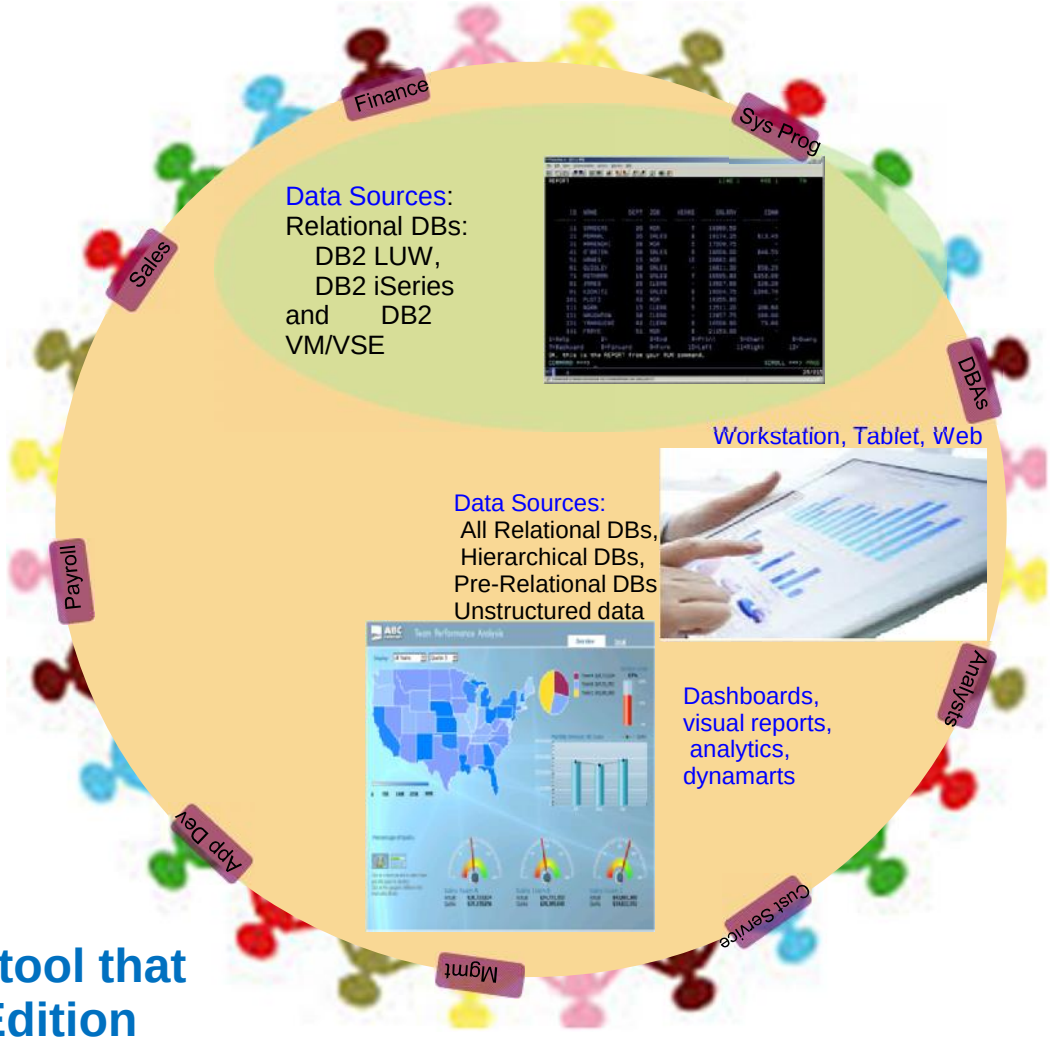
Solution: The new DB2 Analytics Accelerator temporary table support will open up industry leading performance to many more tools. Minimizing data latency and reducing complexity wherever possible enables business agility.

Advantage:

- "Insight into now"
- Maximize business opportunities
- Lower cost
- Simplified architecture

QMF 11 for z/OS

- Modern visual dashboards, reports, and analytics
- Quickly enhances QMF Classic Edition reports by allowing graphics and providing trend analysis
- Accessible from all current interfaces (web, workstation, Mobile devices)
- Workloads qualify for zIIP
- Manipulate and create additional reports is available to the entire enterprise, not just IT personnel
- Supports a myriad of data sources at no additional cost



NEW

Now available as an OTC tool that includes QMF Classic Edition

Accelerated campaign tuning for IBM Campaign (Unica)

Improved performance for iterative campaign tuning

Business Challenge: Unica campaign management has some long running processes. Businesses need quicker turn around for Campaign Management Customer Segmentation.

Challenges:

- Data latency
- Data currency
- Expensive
- Data governance issues

Accelerated campaign tuning for IBM Campaign (Unica)

Improved performance for iterative campaign tuning

Solution: DB2 Analytics Accelerator now supports IBM Campaign (formerly Unica Campaign), which will improve the performance of the campaign management process.

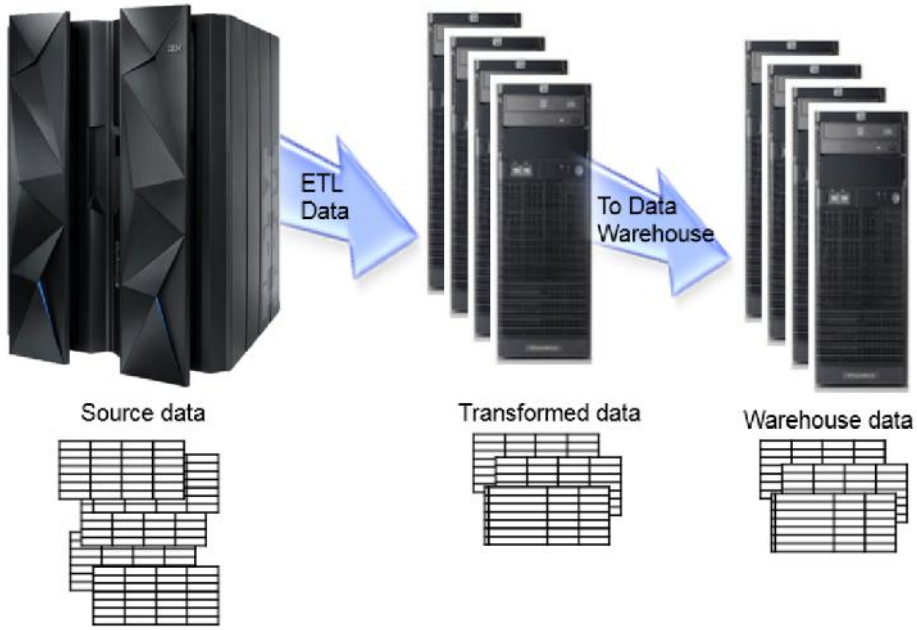
Advantage:

- Quicker turn around for iterative campaign tuning
- Leverage existing investments in z Systems and DB2 Analytics Accelerator
- Maximize business opportunities
- Lower cost
- Simplified architecture

Simplifying data-transformation processes

Delivering in-database transformation within DB2 Analytics Accelerator

Business Challenge: Today's decision systems depend upon moving data through several specialized data platform layers. Simplifying layers of transformation technology can minimize latency and reduce complexity, delivering better business agility.



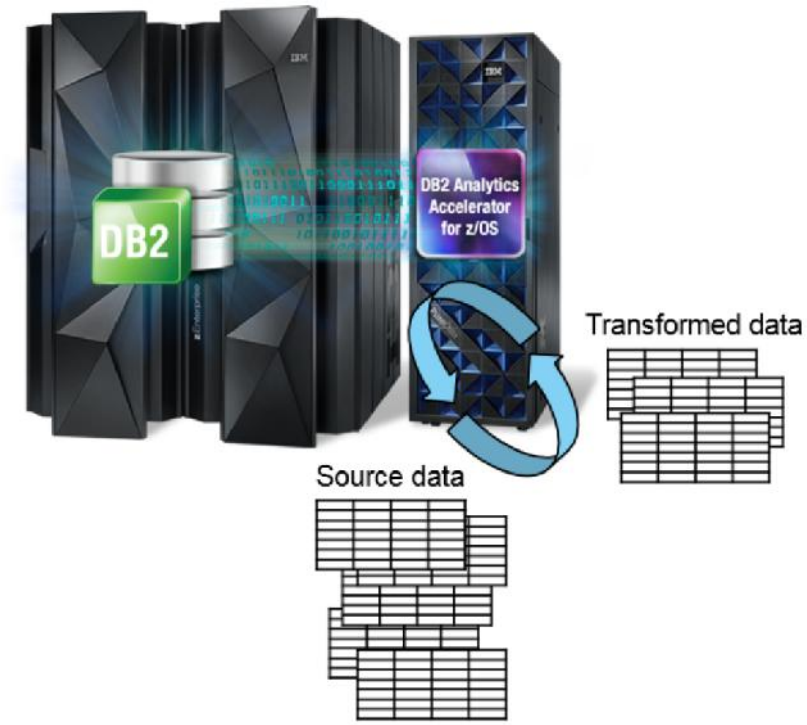
Challenges:

- Data latency
- Complexity
- Expensive
- Data security breaches
- Data governance issues
- Data currency challenges

Simplifying data-transformation processes

Delivering in-database transformation within DB2 Analytics Accelerator

Solution: The DB2 Analytics Accelerator simplifies data processing and minimizes data movement through in-database transformation technology. The Accelerator can significantly improve the performance of extract, transform and load processing.



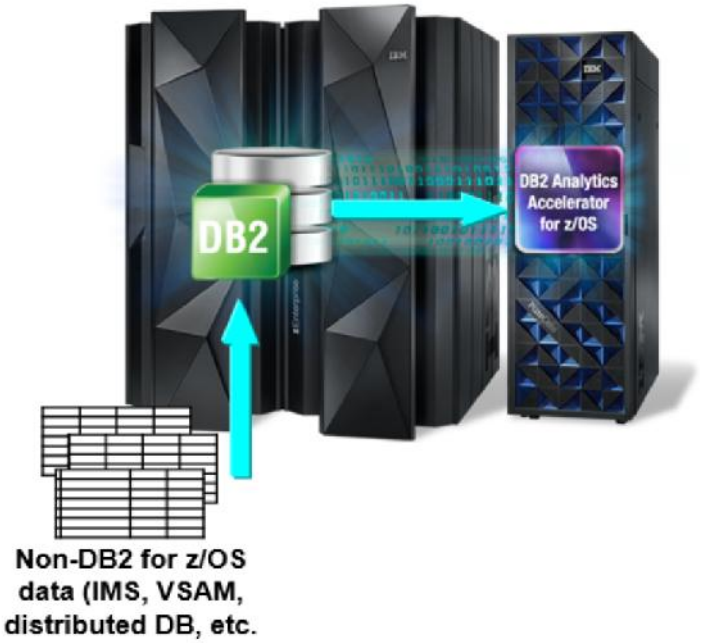
Advantage:

- Business agility through simplified architecture
- Lower cost
- Minimize data latency

Simpler data integration

DB2 Analytics Accelerator Loader for z/OS – load non-DB2 for z/OS data

Business Challenge: Business requirements and decisions often require data to be integrated from multiple incompatible systems. Combining data for ad hoc requests is a complex programming effort.



Challenges:

- Complex programming efforts
- High project costs
- Impacts to day-to-day operations
- Slow delivery

Simpler data integration

DB2 Analytics Accelerator Loader for z/OS – load non-DB2 for z/OS data

Solution: The DB2 Analytics Accelerator Loader simplifies efforts supporting the load of non-DB2 for z/OS data from other sources, such as IMS, VSAM, sequential files and distributed data sources into the Accelerator without moving the data first into DB2 for z/OS.

Advantage:

- Shorter development cycles
- Easier integration effort
- On-time delivery
- Information when you need it
- Lower cost
- Minimize data latency

Optimize and Innovate with IMS

IMS 13 delivers…

Speed & scalability

- **117,292 TPS – 800%** increase over IMS 12
- Increased workload throughput by **130%**

Affordability

- **10%** CPU savings for traditional workload
- **62%** CPU savings for Java workload
- Value Unit Editions available for IMS DB and IMS TM

Simplicity

- Mobile Feature Pack: Deliver IMS apps and data to mobile and cloud developers in a secure, governed, and optimized way
- Native SQL from COBOL
- Dynamic database management

IMS 13 – available now! (GA 4Q2103)

Beta (QPP) experience

- ***Highest quality rating (94/100) in IMS history***
- ***Three IMS 13 clients in production prior to GA***

Adoption

IMS 14 – QPP began January 2015

Optimize and extend the value of your IMS investment in the era of Data, Mobile Cloud & Engagement

Improved IMS TCO and Qualities of Service

IMS Global IBM

"With **IMS** as our core orchestration and business logic execution layer, we have **true 24/7 service capability** and the ability to manage growth without worrying about scalability."

- Jay Prag, CIO Hogan Channels, FNB

FNB

İsBank

Largest private bank in Turkey

Environment:

- Major IMS shop, with OLTP data in DB2 for z/OS
- Analytics and warehouse on Oracle Exadata (daily ETL of IMS data)

Pain points:

- Very complex environment
- Time and resource for ETL of IMS data
- Latency affecting decisions based on analytic query results
- Governance challenges
- Security concerns with data outside of z Systems

Resources:
about using the IBM DB2 Analytics Accelerator with IMS data:

Implementation “cookbook”
http://bit.ly/IMS_Analytics_Cookbook

with links to a related article, white paper, and recorded demo

The deal:

- Most of the client data is on IMS
- **Critical-success factor → DB2 Analytics Accelerator works on IMS data**
- This solution simplifies the client’s complex environment, reduces ETL cost, reduces latency, and removes security concerns.

Deeper insight into customers and markets

Data scientist work area

Business Challenge: Organizations need to provide facilities to support data science while ensuring data governance and security and controlling costs.

Challenges:

- Business agility
- Data latency
- Expensive
- Data security breaches
- Data governance issues

Deeper insight into customers and markets

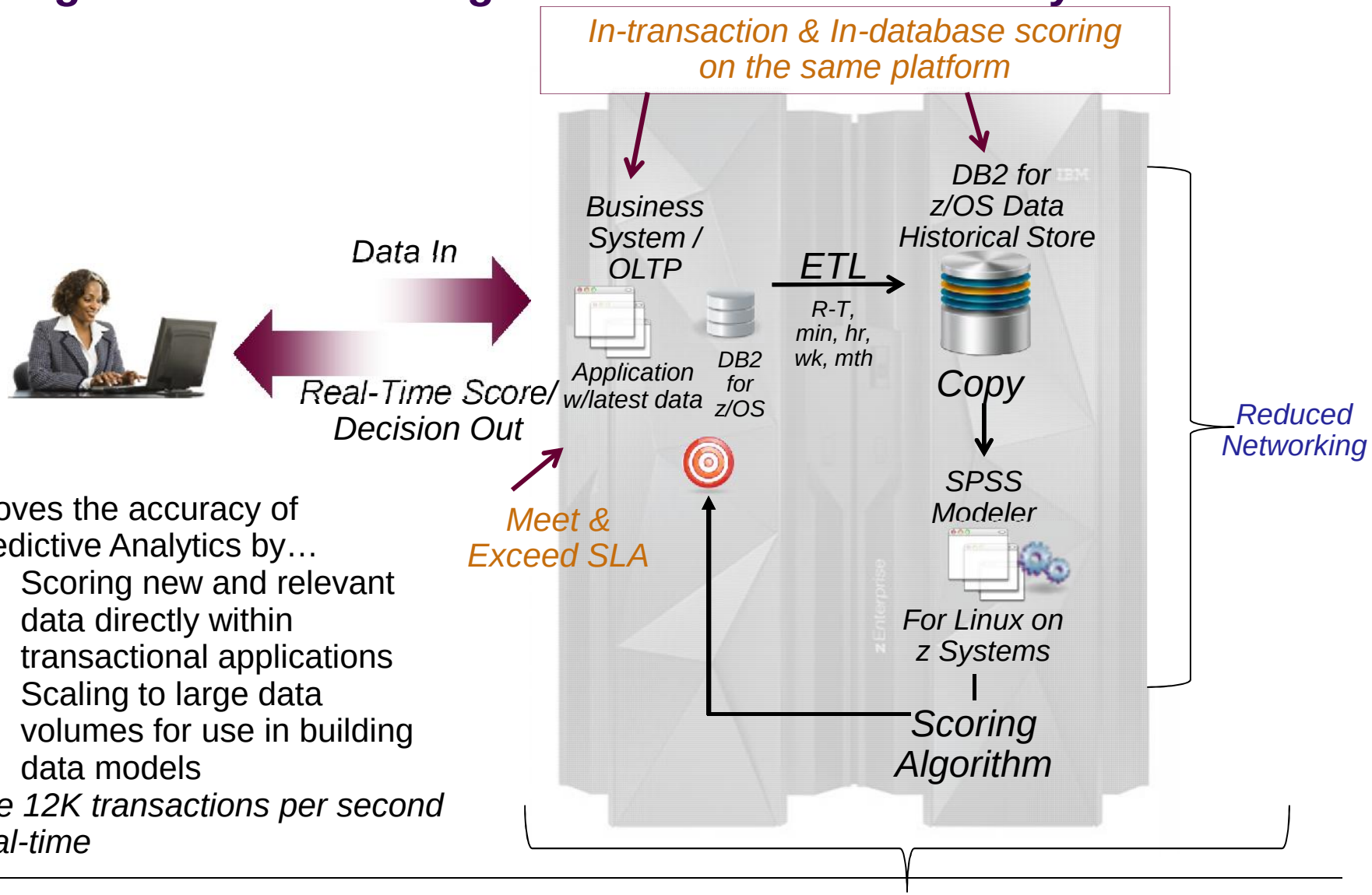
Data scientist work area

Solution: IBM DB2 Analytics Accelerator provides significant capacity and performance to support data scientists' iterative processing without additional cost.

Advantage:

- Integrated modeling
- Less infrastructure
- Less complexity
- Better governance
- Better customer understanding

Taking Real-Time Scoring to the next level with z Systems



Improves the accuracy of Predictive Analytics by…

- ✓ Scoring new and relevant data directly within transactional applications
- ✓ Scaling to large data volumes for use in building data models

Score 12K transactions per second in real-time

Data mart consolidation through flexible data infrastructure

Host data marts on z Systems, where the data originates

Business Challenge: With traditional analytics approaches, organizations duplicate and move data from z Systems to distributed departmental systems for analytic processing.

Challenges:

- Data latency
- Expensive
- Data security breaches
- Data governance issues
- Data currency challenges
- Proliferation of data silos

Data mart consolidation through flexible data infrastructure

Host data marts on z Systems, where the data originates

Solution: DB2 Analytics Accelerator, DB2 for z/OS, and z Systems offer a hybrid solution that brings together high-volume business transactions, batch reporting and complex analytic queries running concurrently in a mixed-workload environment.

Advantage:

- Decisions based on trusted and accurate data for improved business performance
- Lower cost
- Simplified architecture
- Minimize data latency
- Leverage existing investments in z Systems

Big Data & Analytics on z Systems drive significant business benefit

PETROL

Increased retail sales revenue through point-of -sale suggest-sell insight

MIAMI-DADE COUNTY

Gained 24/7 access to analytics for key public services such as courts, jails and the fire department. 3 million citizens can gain insight into the county's finances, helping them keep track of public spending

Swiss Mobiliar
Insurance & Pensions

Achieved its objective of providing access to the most timely, accurate data to improve customer satisfaction

BANCA CARIGE
Cassa di Risparmio di Genova e Imperia

1000+ users simultaneously get high-speed analytics on real-time data. Time cut from months to weeks to deliver the insight needed to develop and release new marketing campaigns

Imagine the possibility of leveraging all of your data assets

Traditional Approach
Structured, analytical, logical

Data
Rich, historical, private, structured
Customers, history, transactions

The "Circle of Trust"

Data warehouse & business analytics moving closer to this data

New Approach
Creative, holistic thought, intuition

Data: Intimate, unstructured.
Social, mobile, GPS, web, photos, video, email, logs

The real benefit is derived from integration of new data sources with traditional corporate data

- How can you query across both realms?
- How can you preserve security and lower TCO?
- How can you avoid costs and risks of offloading?

Obstacles to Including Mainframe Data with Hadoop-based tools

- **Data Governance** as data moves off z/OS operational systems
- **Data Ingestion** from z/OS into Hadoop (on or off platform) is a bottleneck (MIPS & ETL cost, Security around data access and transfer, Process Agility)

Lead to key requirements:

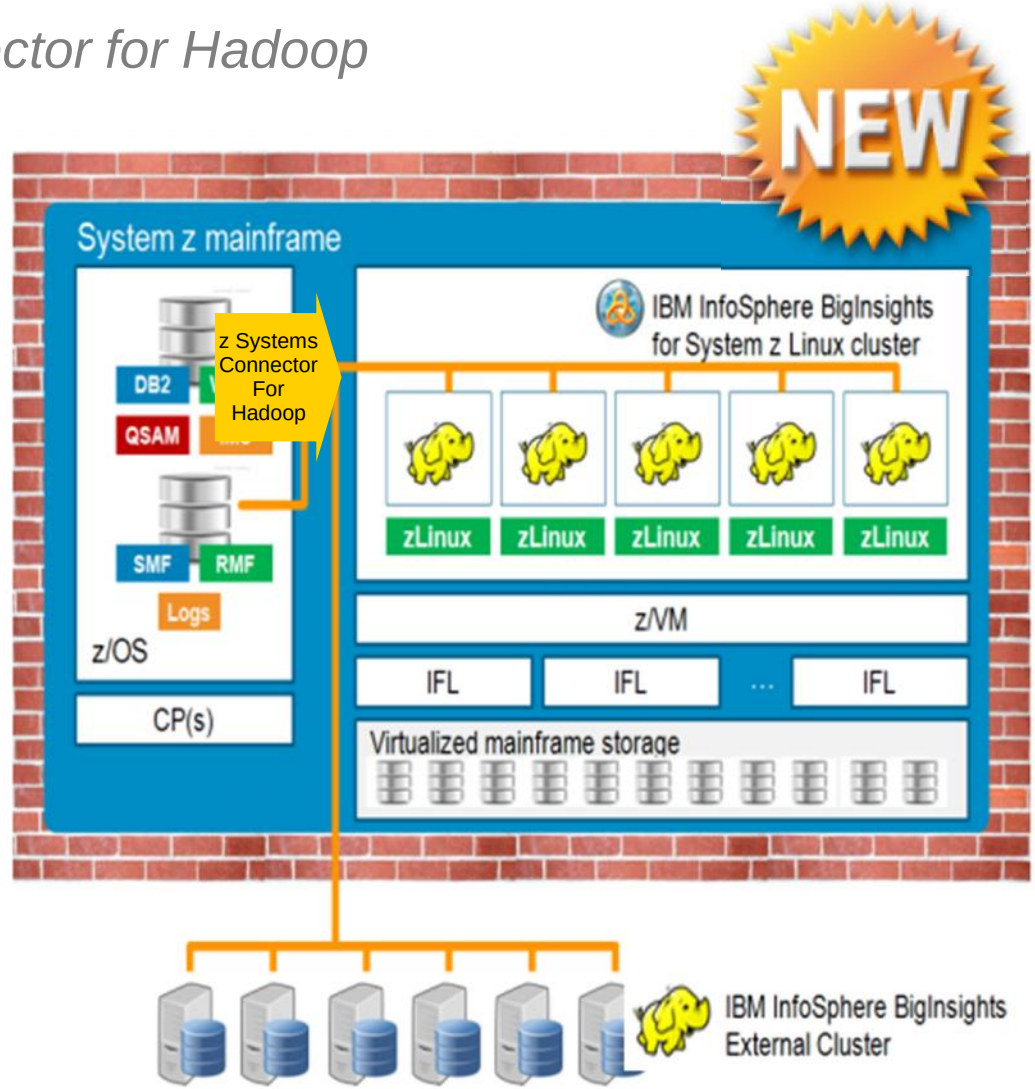
Existing security policies must be applied to data access and transfer.
There needs to be high speed / optimized connectors between traditional z/OS LPARs and the Hadoop clusters

Ability to serve data transparently into Hadoop clusters on mainframe AND on distributed platform

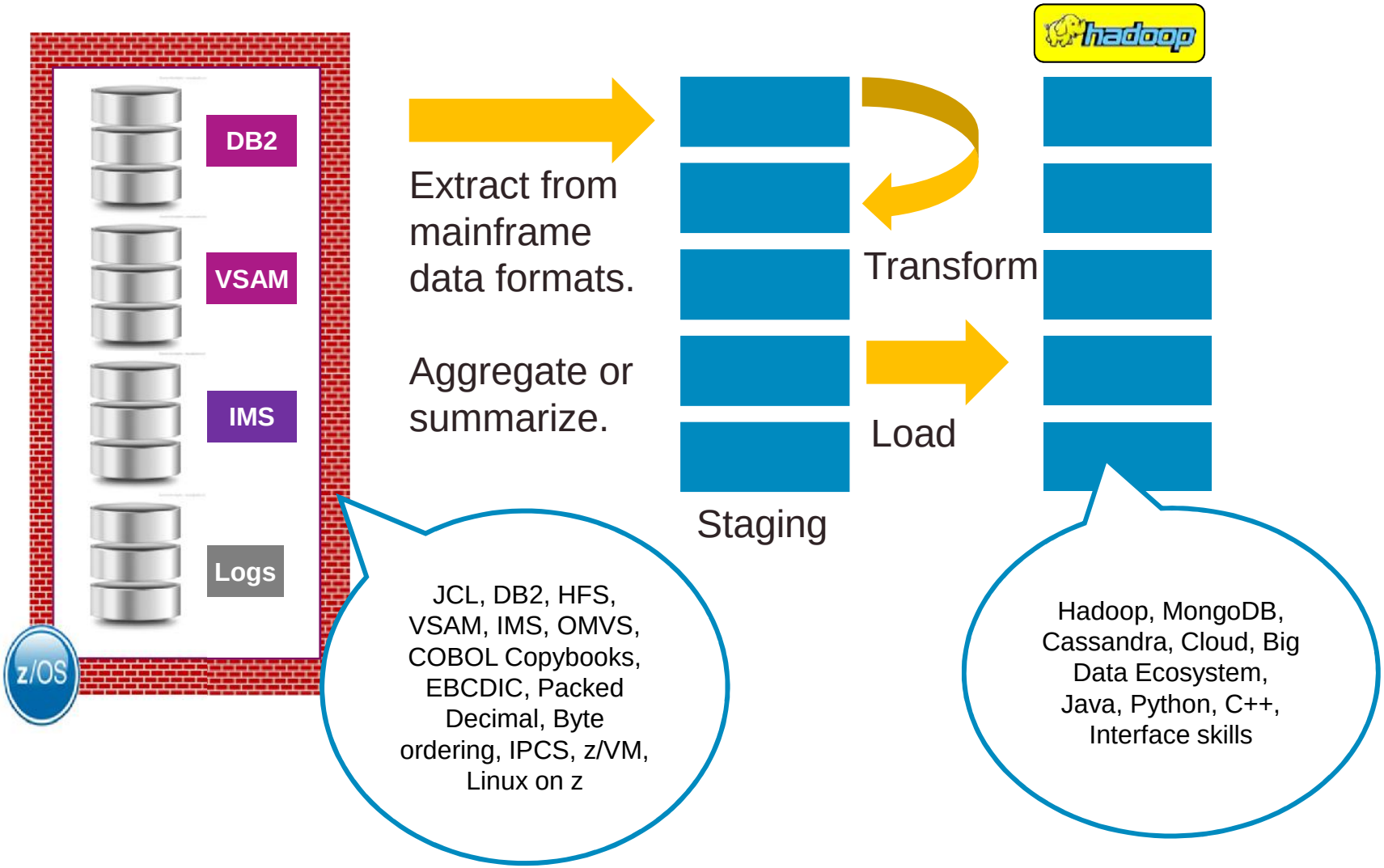
InfoSphere BigInsights

With InfoSphere z Systems Connector for Hadoop

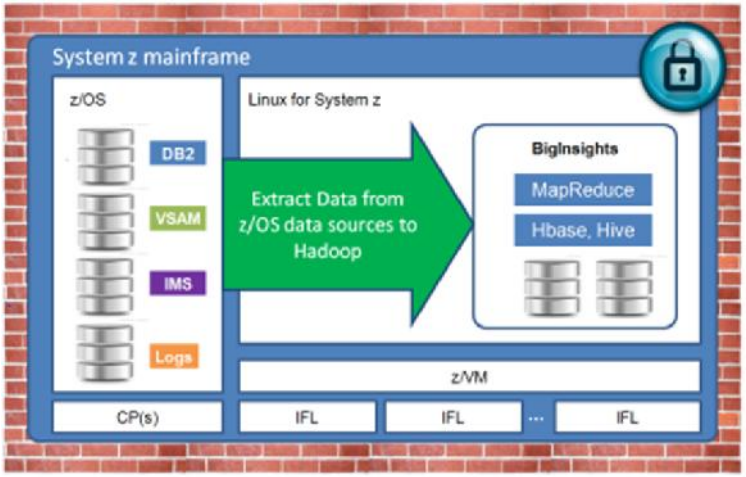
- Leverage the power of Hadoop on z Systems
- Investigative Analysis of z Systems data without it leaving the platform
- Drag-and-drop extracts from z/OS sources to Hadoop clusters both on and off platform
- Protects sensitive data
- Seamless interoperability with BigInsights
- Faster application delivery

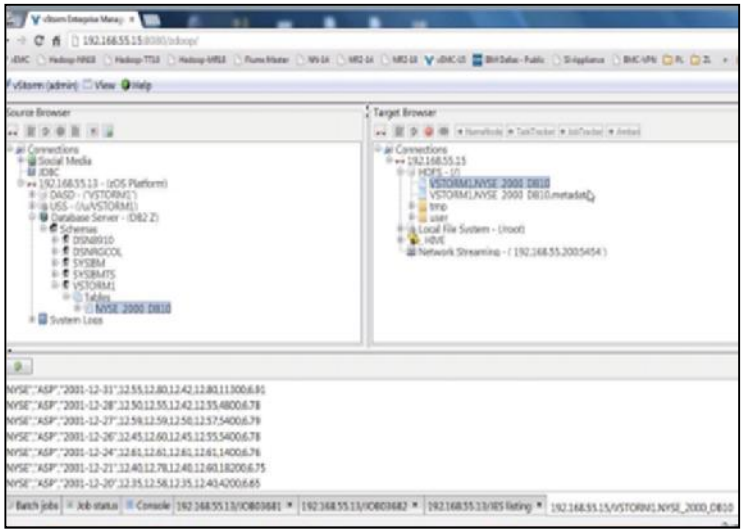


Data Ingestion Challenges



InfoSphere z Systems Connector for Hadoop





Easy to use ingestion engine

- Native data collectors accessed via graphical interface
- Light-weight; no programming required
- Multiple z/OS data sources
- Conversions handled automatically
- Streaming technology leverages USS (no z/OS engines) with no DASD required for staging

A secure pipe for data

- RACF integration – no need for separate or special credentials
- Data streamed over secure channel using hardware crypto
- Combining with BigInsights for Linux on z means data never leaves the box

Mainframe efficiencies