Right Time Insights at the Point of Impact for Real Results

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Agenda

- Market trends impacting analytics

- Analytics Challenges

- IBM Analytics Platform

- IBM z Analytics Solution

Market trends drive unprecedented use of analytics

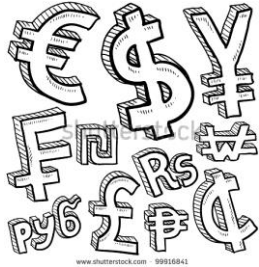| Analytics Spend	Analytics Top Priority	Competitive Advantage	Data Analyzed
44%	**90%**	**9/10**	**75%**
CIOs	**Companies**	**Companies**	**Enterprises**
increasing overall business analytics spending in the next 12 months[1]	indicate that big data analytics is either their top priority or in the top three[2]	are gaining major competitive advantage from Big Data & Analytics[3]	over the next two years plan to increase investments in Big Data & Analytics [3]

Sources – 1. Morgan Stanley CIO Survey 4/2015; 2.General Electric 11/2014; 3. IBM_Center_for_Applied_Insights 11/2014

Analytics driven organizations reap rewards

Analytics
pay back $13.01
for every dollar spent

Nucleus Research statistic

250% **is the ROI**
of solutions that
incorporate predictive analytics

Source: IDC, The Business Value of Predictive Analytics, June 2011
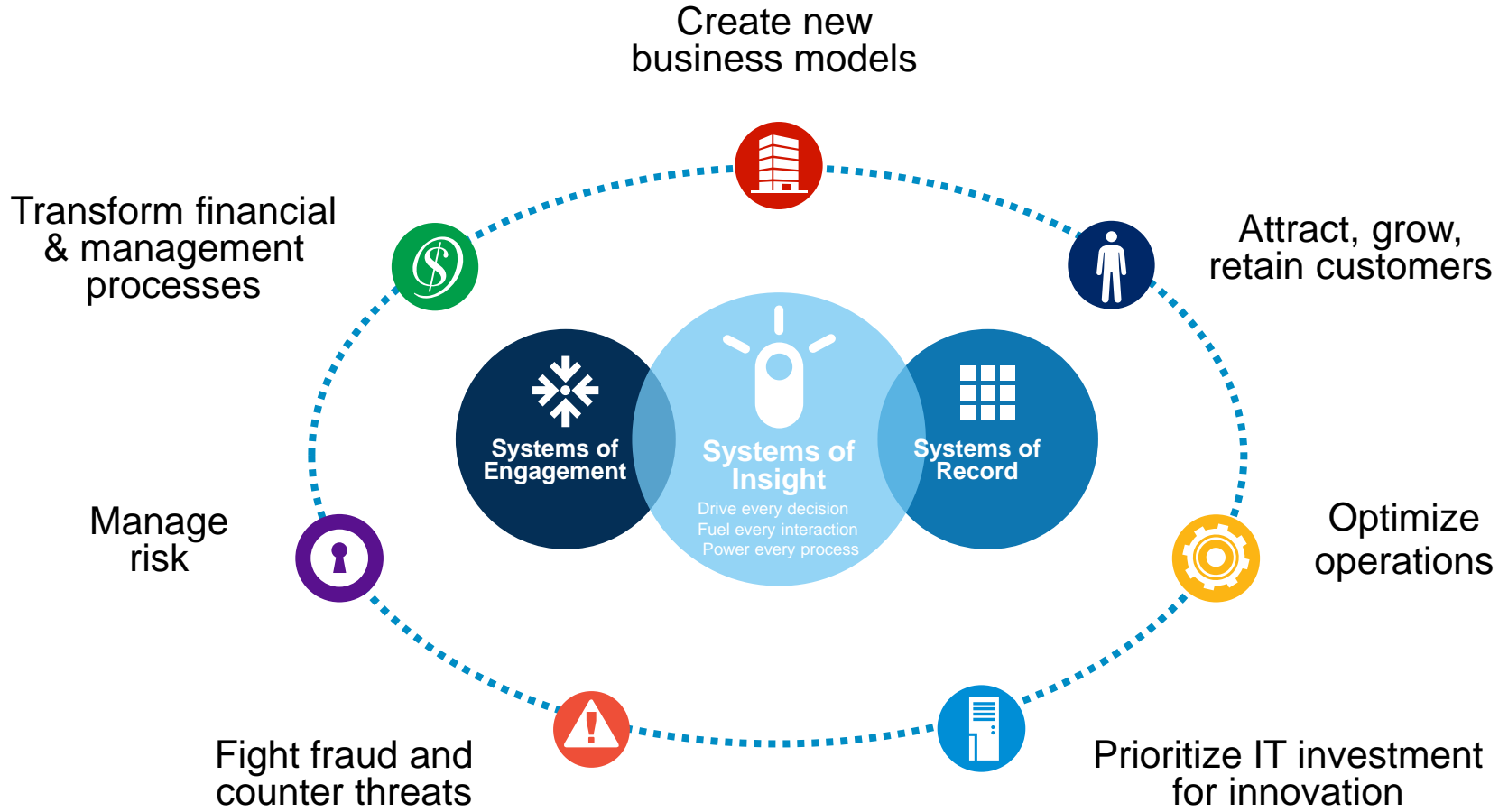
Front Runners outperform on…

**Business
outcomes
(69%)**

**Competitive
Advantage
(53%)**

**Revenue
(60%)**

…by using data and analytics

Source: IBM Institute for Business Value (IBV)

In the new insight economy, winners infuse analytics everywhere, driving insight to outcome

Create new business models

Transform financial & management processes

Attract, grow, retain customers

Manage risk

Optimize operations

Fight fraud and counter threats

Prioritize IT investment for innovation

Systems of Engagement

Systems of Insight
Drive every decision
Fuel every interaction
Power every process

Systems of Record

Many organizations however, are not able to leverage the full potential of analytics

Big Data Analytics

65%

of businesses are not using big data for business advantage

Consumer Expectations

76%

of consumers will switch banks based on data that is not available in real time
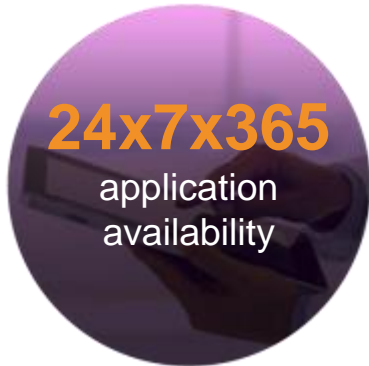
Mobile Computing

84%

of CIOs rate mobile solutions as a critical area to get closer to their customers

New IT imperatives for Business Critical Analytics

Availability

24x7x365
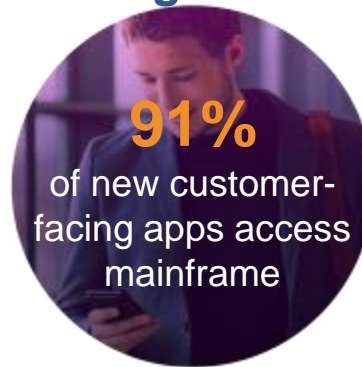application availability

Response Time

Users expect
<1 second
app utility

Cost & Complexity

$333,479
Cost of moving 200 GB data for use in analytics [1]

Security

70%
lack confidence in data security

Integration

91%
of new customer-facing apps access mainframe
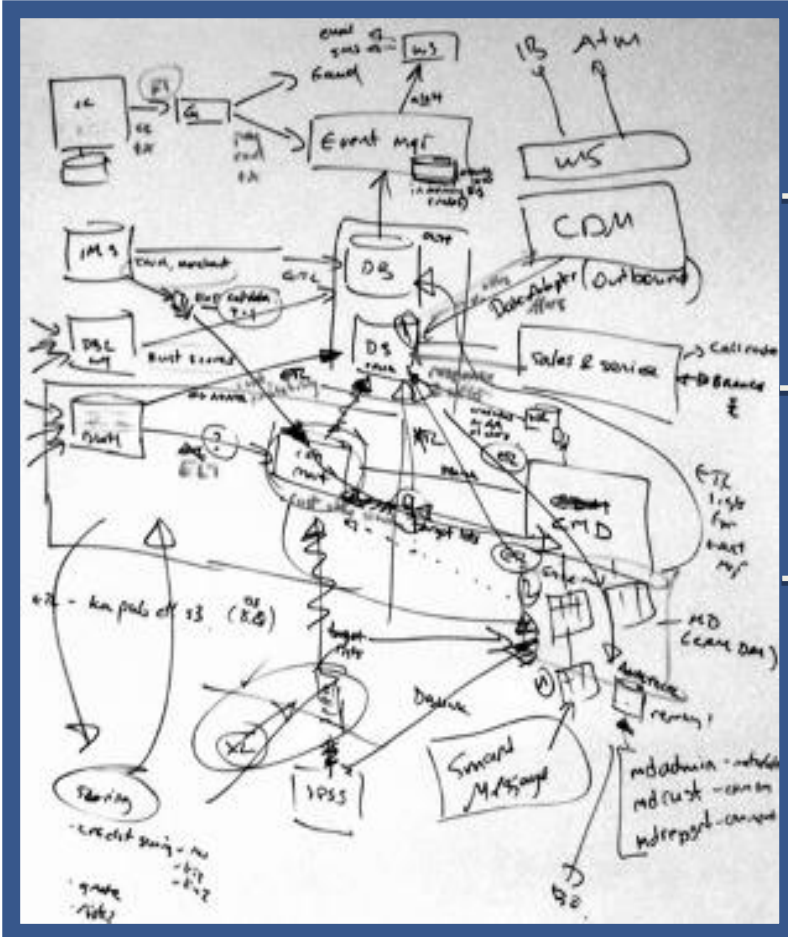
Scale

35%
mobile transaction growth annually

[1] This is based on an IBM internal total cost of ownership (TCO) calculation using the z Systems ETL Calculator App, which generates cost comparisons using customer-specific inputs. For this comparison, data usage was assumed to be 200 GB per day over a one-year period, using an ODS with one datamart with the z/OS operational software stack at medium complexity. More details on the ETL Calculator App, this specific example and customer-specific savings can be obtained by contacting the IBM Eagle team at eagletco@us.ibm.com

Current IT infrastructure not designed for business critical analytics

Analytics latency

Significant cost & complexity

Heightened security risks

The IBM analytics platform - comprehensive capabilities
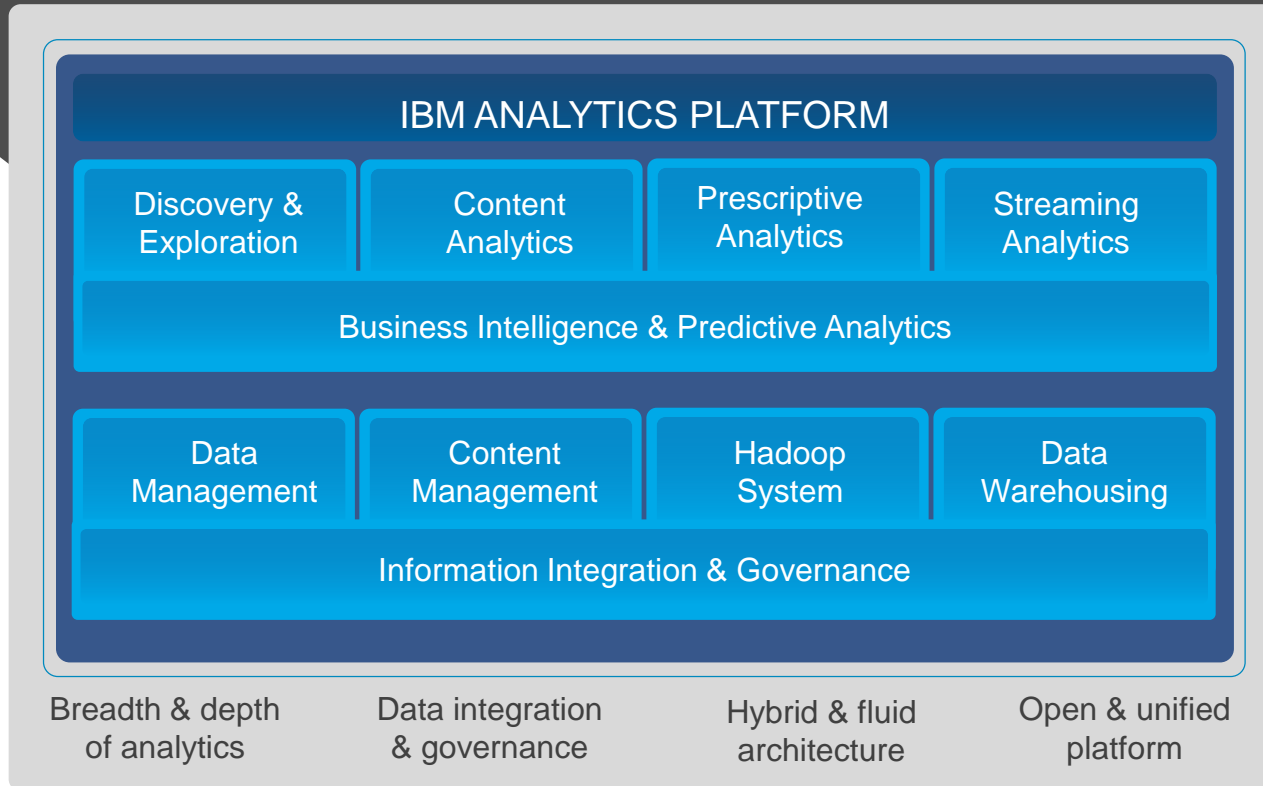
Create a new data foundation for the business

Prepare data for analytics

Predict the future for the business

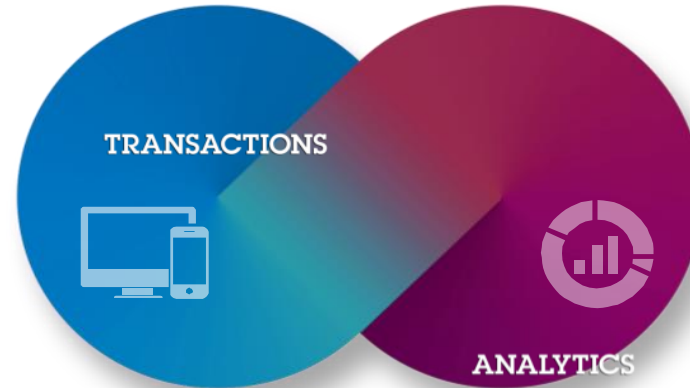Align data management strategy with customer expectations

Delight customers by understanding them better

Derive business value from unstructured content

IBM ANALYTICS PLATFORM

Discovery & Exploration	Content Analytics	Prescriptive Analytics	Streaming Analytics

Business Intelligence & Predictive Analytics

Data Management	Content Management	Hadoop System	Data Warehousing

Information Integration & Governance

Breadth & depth of analytics

Data integration & governance

Hybrid & fluid architecture

Open & unified platform

IBM z Analytics
A new approach for Enterprise Analytics

Bring the analytics to the data for Right-Time insight at the point of impact

- Reduce Latency
- Minimize Cost & Complexity
- Improve Data Governance & Security

72%
say greatest value will come
from analyzing transactional data

55%
of enterprise applications need
mainframe to complete transactions

IBM z Analytics deliver Business-Critical Insight

Delivers Right-Time Analytics across the enterprise	**Always-on, timely, accurate analytics** ✓ Integrates transactional data with analytics ✓ Improves query response times by 2000x ✓ Scores transactional data in real-time
Integrates different sources & varieties of data for a more holistic view of analytics	**Deeper & more complete analytics insight** ✓ Integrates Hadoop analytics with transactional data ✓ Uncovers hidden insights through exploratory analytics ✓ Rapidly drills down to gain more precise insight
Reduces IT cost & complexity for enterprise analytics initiatives	**Efficient, enterprise wide analytics** ✓ Reduces deployment time from 6+ months to 3 wks ✓ Minimizes need to copy/move data for reduced latency ✓ Leverages existing infrastructure, people & processes

BARCLAYS

Detects new fraud patterns in minutes vs. days

Business Challenge

Existing process not capable of meeting new business requirements to more quickly identify and respond to changing fraud patterns

Solution

Implemented IBM DB2 Analytics Accelerator to optimize their Real-time Core Fraud Monitoring Solution and now deliver right-time, high-volume operational reporting in a cost-effective way

- ✓ Analysis is now performed on right-time data - in just minutes
- ✓ NEW fraud patterns are quickly detected - reducing losses

Organizations benefiting from z Analytics today

BANCO DO BRASIL
- Analytics queries 1500+ times faster
- Query response times shortened from 11 hours to 26 seconds

PETROL
- Retail sales revenue increased at point-of -sale
- Analytics on complementary products delivered in seconds across 570 service stations

MIAMI-DADE COUNTY
- Gave public services teams 24/7 access to critical analytics
- Provided 3 million citizens insight into the county's finances

Swiss Mobiliar Insurance & Pensions
- Accelerated 50% of queries by a factor of 100
- Reduced query response times from 5 hrs. to 20 sec.
- Minimized transaction response times by 20%

BANCA CARIGE Cassa di Risparmio di Genova e Imperia
- Implemented 24x7 mobile banking
- Provide real time analytics to 1000+ concurrent users
- Cut time-to-value of delivering analytics from months to weeks for new marketing campaigns

IBM DB2 Analytics Accelerator for z/OS

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 & exceptional business value.

SPEED
- Dramatically improve query response – up to 2000X faster

SAVINGS
- Minimize data proliferation & lower the cost of storing and managing historical data

SIMPLICITY
- Simplify infrastructure, reduce ETL and data movement off-platform

SECURITY
- Safeguard valuable data under the control and security of DB2 for z/OS

WHAT'S COMING . . .
- In-database transformation & multi-step processing
- Real-time, in-database analytics
- Enterprise Incremental Update enhancements
- Encryption of data at rest and in motion

IBM z Analytics: Improved cost savings & better performance

Keeping analytics data on z Systems can save significant costs

88%

Cost savings

Source: IBM CPO internal study

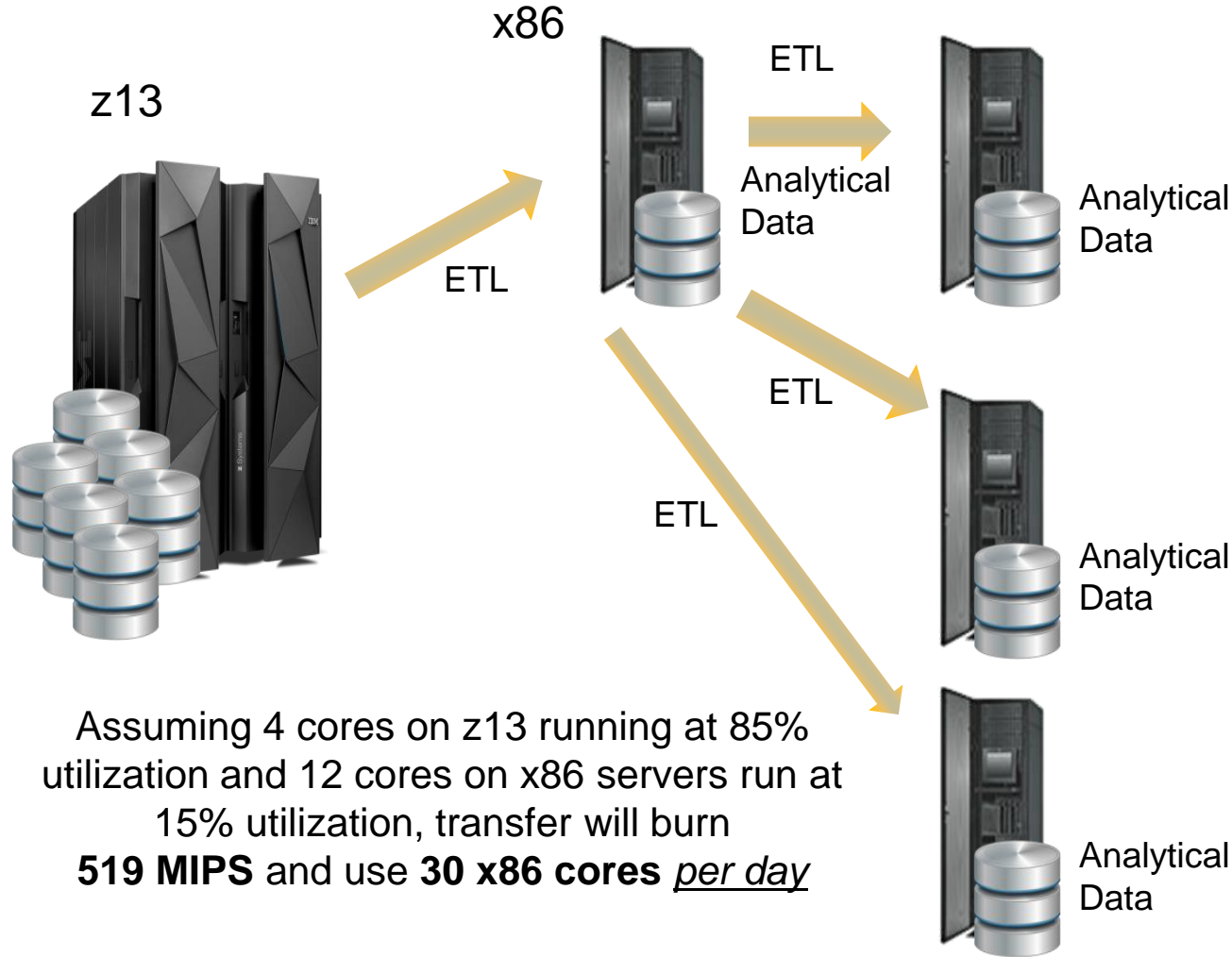**z Systems + DB2 Analytics Accelerator beats the competition**

2x

faster throughput

4x

better price performance

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

Movement of 1TB of data daily off of z Systems can cost over $10M over 4 years

z13

x86

ETL

ETL

Analytical Data

ETL

Analytical Data

ETL

Analytical Data

ETL

Analytical Data

Analytical Data

Assuming 4 cores on z13 running at 85% utilization and 12 cores on x86 servers run at 15% utilization, transfer will burn **519 MIPS** and use **30 x86 cores** _per day_

Estimated 4 year cost summary

System costs = $9,864,412
Labor costs = $393,927
Total = $10,258,339

IBM InfoSphere BigInsights for Linux on z Systems
with IBM InfoSphere z Systems Connector for Hadoop

- Integrates sources & varieties of data including transactional & log data for more holistic insight
  - ✓ Fast movement of data into Hadoop
  - ✓ Ensures sensitive data remains secure (built-in RACF integration)
  - ✓ Drag & drop z/OS sources to Hadoop clusters both on and off platform formatted for HDFS
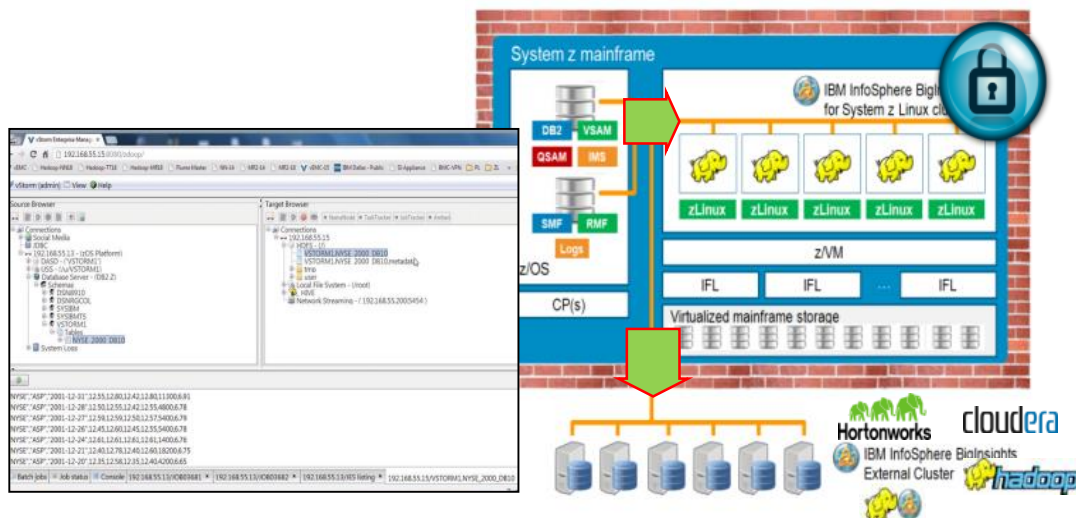
COMING SOON . . .

IBM BigInsights 4.1

* Built on the IBM Open Platform (free)

* Includes Spark

* Optional Value Packs: Data Scientist & Business Analyst

OPEN * INSIGHT * ANYWHERE

IBM Spark Technology

Spark

Join us for the Enterprise Spark Forum

Where: IBM Silicon Valley Lab

What: Spark Overview and Strategy - from Product Development to Research topics, Demos, Industry Analyst view points, Customer Advisory Council and more

When: First Briefing November 12, 2015

- Build Spark into the core of the company's analytics and commerce platforms.

- Open source our breakthrough IBM SystemML machine learning technology

- Commit more than 3,500 researchers and developers to work on Spark-related projects

- Educate at least 1 million data scientists and data engineers on Spark

Available today!
Apache Spark for Linux on z Systems
Coming Soon . . .
Apache Spark for z/OS

IBM z Analytics: Are you ready to # seize the moment?

Compete on speed to insight and action

Evolve your architecture for higher value
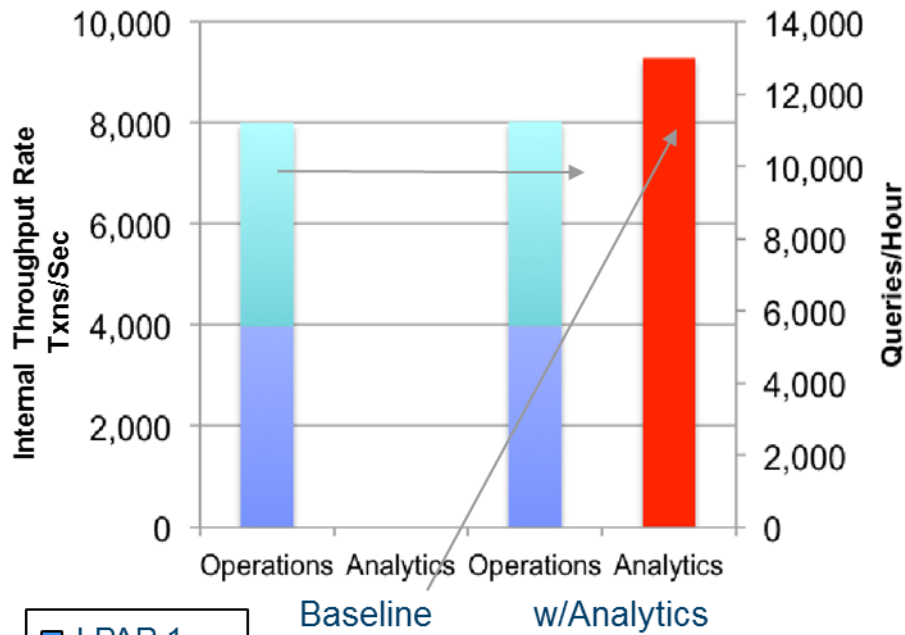
Get started today: ibm.biz/zAnalytics
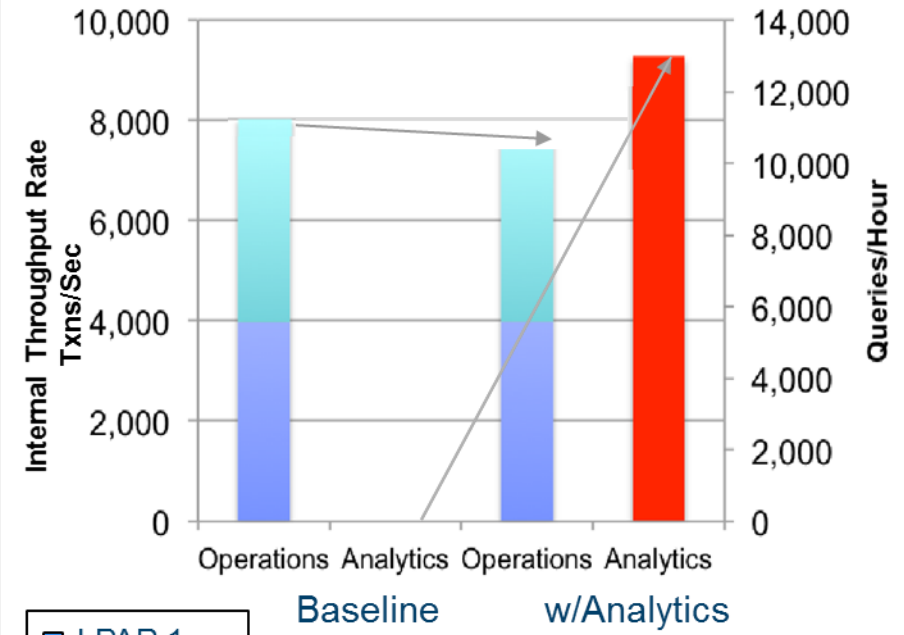
Thank-you

IBM ®

Operations and Analytics Coexistence: Results

- Thousands of complex, analytical queries now integrated with operational workload
- Operational throughput maintained with no additional mainframe capacity
- **Data kept in sync near real-time w/ minimal degradation in transaction ITR (3%)**

First use case: *End-of-Business Day Reporting*
periodic data synchronization

Second use case: *Continuous Analytics*
(near)real time data access

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IBM z Systems analytics beats the competition

On Throughput

2x faster

25 **reports/sec**
IBM z Systems + IDAA

12 reports/sec
Standalone
Pre-integrated
Competitor V4 Full Unit
Discounted –
75% SW, 50% SW

And Price Performance

$151**/RpH**
Standalone
Pre-integrated Competitor V4
Full Unit
Discounted –
75% SW, 50% SW

3.7x better

$40**/RpH**
IBM z Systems + IDAA

IBM z13 beats the competition head to head in analytic performance

17x performance
13x price performance

Standalone
Pre-Integrated
Competitor V4

DB2 v11

z/OS

IBM z Systems
Analytics 9700

Eight Unit

z13   IBM DB2 Analytics
Accelerator (N3001-010)

$514

Per Report per Hour
3yr TCA at no discount)

Workload Time	1,810 mins
Reports per Hour (RpH)	5,343
Competitor Eight Unit (HW + SW + Storage)	$ 2,745,041

Workload Time	105 mins
Reports per Hour (RpH)	92,095
z13 (1 GP + 3 zIIP + HW + SW + Storage) + Accelerator V4.1	$ 3,652,131

$40

Per Report per Hour
(3yr TCA at no discount)

What Are the Advantages of Spark?
In-memory compute engine, highly versatile to any environment

Build models quickly. Iterate faster. Apply intelligence everywhere.

Easily create insight from complex, messy data

APIs for streaming, graph database, SQL, machine learning

Knowledge of Hadoop not required

Bring familiar skills to leverage on Spark

Speed

In-memory processing

Capture insight in time to act

No code required to access data and work across systems

All Workloads

Machine learning

Iterative

Batch

App Dev

Available today!
Apache Spark for Linux on z Systems
Coming Soon!
Apache Spark for z/OS