



# **Big Data Imperative**

## **Smarter choices for Analytics with IBM Power systems**

**Abdo Gadmour**

Regional business leader – Big Data Analytics systems

Middle East, Turkey, Africa and Pakistan

@argadmour



## What's changing: Data is the new basis of competitive advantage

Data is the  
world's  
newest  
*resource*

Decision-making  
extends from  
few to *many*

As data *value*  
grows, current  
systems won't  
keep pace





# Customer Challenges in deploying Big Data and Analytics

## *Challenges:*

## *Platform Capabilities needed:*

Difficulty adding new data or analytic capability

Increased Agility

Lack of analytical insight

Accelerated Time to Value

Broad spectrum of workload and SLA requirements

Fit for Purpose Solutions

Growing data volume, variety and velocity

Tools for gaining insight from Big Data

Complicated system lifecycles

Reduced Complexity

Administration complexity

Simplicity

Growing costs of IT

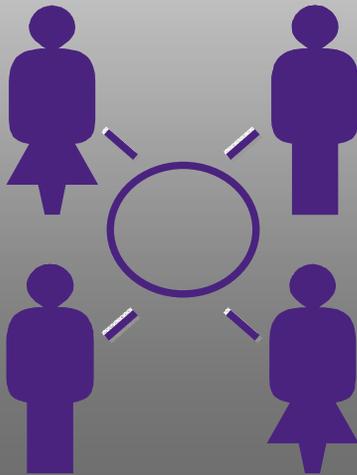
Increased Efficiency

## Big Data & Analytics requires a deliberate alignment of...



### Organizational Design

- Consider all relevant information
- Decision making to optimize outcomes
- Insights at the right place and the right time



### Infrastructure Design

- Shared access of federated information
- Accelerate the flow from data to analytics to the transaction
- Maximum availability of business insights





# IBM Power Systems – Design & capabilities for Big Data & Analytics

To drive business outcomes, you need to apply more sophisticated analytics across more disparate data sources in more parts of your organization.

To capture the time value of data, you need to develop 'speed of insight' and 'speed of action' as core differentiators.

To change the game in your industry or profession, you will increasingly need cognitive capability.

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## Infrastructure Matters with IBM Systems



**Access Matters**

To get new levels of visibility into customers and operations



**Speed Matters**

To accelerate insights in real time at the point of impact



**Availability Matters**

To consistently deliver insights to the people and processes that need them

Systems

Security

Storage

On premise, Cloud, As a service

# IBM BLU Acceleration Solution

## Power Systems Edition



Enterprise-class performance, scalability, and reliability for columnar, in-memory data analytics

- **8-25x faster reporting and analytics<sup>1</sup>**  
more than 1000x seen with some queries<sup>2</sup>
- **10x storage space savings<sup>3</sup>**  
seen during beta tests
- Integrated within DB2 10.5 for simple out of the box deployment on existing infrastructure
- Optimized to exploit unique Power Systems features



**IBM Power ESE<sup>1</sup>**

Learn more: [BLU Acceleration on Power](#)

<sup>1</sup> IBM Power ESE machine type model 8412-EAD now available. (Announcement letter: [http://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep\\_ca/3/897/ENUS113-43/index.html&lang=en&request\\_locale=en](http://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep_ca/3/897/ENUS113-43/index.html&lang=en&request_locale=en))

<sup>2</sup> Pre-load of hardware and software is not available in Greater China Group, Thailand, Korea and Australia.

<sup>3</sup> Includes pre-installed DB2 trial license ready for activation. [Registration](#) of valid license of DB2 Advanced Workgroup or DB2 Enterprise Workgroup Server Edition required prior to server shipment.

# BLU Acceleration is supported across Power Systems



Flexibility to implement on new servers, or activate cores and memory

# DB2 BLU Acceleration & Power Deliver Clear Advantages



## Speed and Simplicity



### Accelerated Performance

- Top 5 SAP Benchmarks Users per core on SAP 2-Tier SD benchmark
- 8x to 25x for typical analytic workloads<sup>1</sup>
- More predictable performance<sup>2</sup>



### Faster Time to Value

- Simple load & go in-memory support
- No change to applications needed
- Integrated administration for DBAs
- Simple upgrade to deploy

## Business Proven



### Lower Risk

- Accelerates SAP BW without application upgrade
- Proven technology leadership - including 10+ years of SAP optimization
- 1/6<sup>th</sup> the downtime compared to other platforms<sup>3</sup>
- Integrated security to simplify regulatory compliance
- Large number of client references



### Transparent Scalability

- Efficient and application transparent database scalability
- Most efficient use of resources
- Automated workload management with shared-everything resource pools
- No penalty if all data doesn't fit in memory

## Lower Cost



### Lower Acquisition Costs

- 7x-14x lower year 1 TCA<sup>4</sup>
- Flexible hardware options
- Flexible software licensing options including new IULA
- Leverage existing investment
- CoD, SubCap, TB based Licensing



### Lower Operating Costs

- Storage savings ranging from from 1.6x to 2.6x, through increased compression<sup>5</sup>
- Option to use lower cost near line storage
- Mature technology not requiring frequent patching

## IBM BLU Acceleration on Power Systems

...delivers breakthrough performance versus x86



CLABBY ANALYTICS

### Research Report

#### IBM DB2 BLU Acceleration vs. SAP HANA vs. Oracle Exadata

##### Executive Summary

Your organization has volumes upon volumes of structured and unstructured data. There is business value in that data: information that can enable your enterprise to capitalize on new opportunities or respond more quickly to competitive threats; information that can lead to better customer service, or better risk management, or the ability to spot new trends; information that can enable your enterprise to gain new insights. But the big question is how to best glean this wisdom from your Big Data database?

To find the pearls of wisdom within a Big Data database, enterprises need to:

1. find ways to shrink the database to a manageable size;
2. use effective analytics tools; and,
3. select a computing environment designed to process large databases.

Oracle, SAP, and IBM make analytics software designed to process Big Data databases. Oracle and IBM also make systems and integrate their software on these systems. SAP deploys on commodity hardware. There are some similarities in each vendor's approach, but there are also several distinct differences:

- Oracle's approach involves using an Oracle real application cluster (RAC) specially tuned to process vast amounts of data. According to Oracle's web site, this system (Oracle's Exadata Database Machine) combines massive memory and low-cost disks to deliver the highest performance and petabyte scalability at the lowest cost.
- SAP's HANA places large amounts of columnar data in main memory where the whole database can be analyzed in real time. HANA also compresses data by as much as 20X prior to analysis. According to SAP HANA's Website, HANA converges database and application platform capabilities in-memory to transform transactions, analytics, text analysis, predictive and spatial processing so businesses can operate in real-time. This in-memory real time approach is distinctly different from the memory and disk-based caching approaches used by both Oracle and IBM.
- IBM offers several different systems designed and tuned to run specific types of analytics workloads, including IBM PureData System for Analytics, PureData System for Operational Analytics, PureData System for Hadoop, and PureData System for Transactions. This approach is distinctly different from the one-size-fits-all approaches used by both Oracle and SAP.
- IBM also offers an accelerator environment known as BLU Acceleration that shrinks the size of a given Big Data database, speed reads compressed files, and delivers results exponentially faster than its competitors when running various analytics workloads.

*"Also noteworthy, from a systems design perspective, IBM's DB2 BLU Accelerator can be deployed on IBM POWER-based Power Systems as well as x86-based servers. Because POWER processors can execute twice as many threads as their Intel counterparts, it is reasonable to expect that Power Systems are able to significantly outperform x86-based SAP and Oracle counterparts when running the same query."*

*Industry Analyst – Joe Clabby*

## IBM customers like the speed and efficiency of BLU Acceleration on Power



“We've tested DB2 10.5 with BLU Acceleration and found that it can be up to **43X faster with an analytic workload than our existing multi-server partitioned database environment.**”

- Randy Wilson, Lead DB2 for LUW DBA, BlueCross BlueShield of Tennessee



“We tested some representative queries taken from our existing SAP application and tested them on DB2 with BLU Acceleration and observed performance improvements in many of our query response times. For example, **one of our most time consuming queries experienced a 50x performance improvement.**”

- Richard Simms, Director of Infrastructure, Fossil



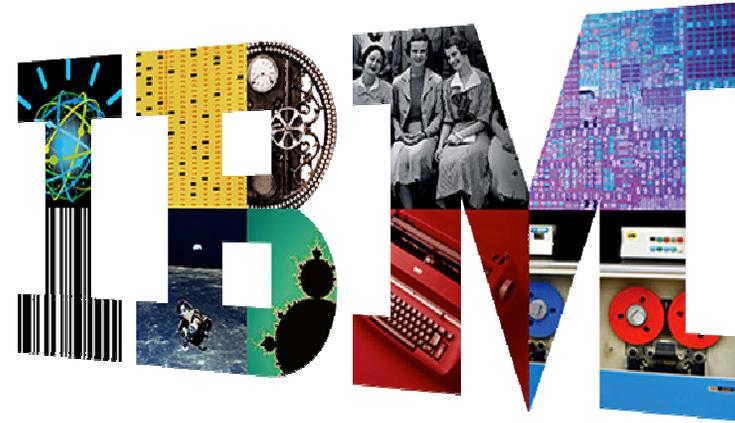
“The BLU Acceleration technology makes our analytical queries run **4-15x faster and decreases the size of our tables by 10x.** But it's all the things I don't have to do with BLU that make me appreciate the technology even more: **no tuning, no partitioning, no indexes, no aggregates.**”

- Andrew Juarez, Lead SAP Basis and DBA

**BLU NEDİR?**  
**DB2 BLU on POWER**  
Düşük maliyetlerle yüksek performans  
12 Mart 2014, Çarşamba / Le Meridien



**Thank You**



**IBM.**

**BLU** on Power puts more  
**'GREEN'** in your bank



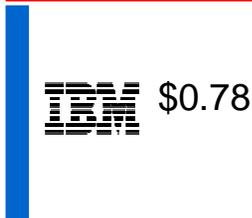
*DB2 delivers like performance for much, much less*

**3YR TCA/Mixed Reports per Hour**  
 Fixed Execution Test (2B rows)

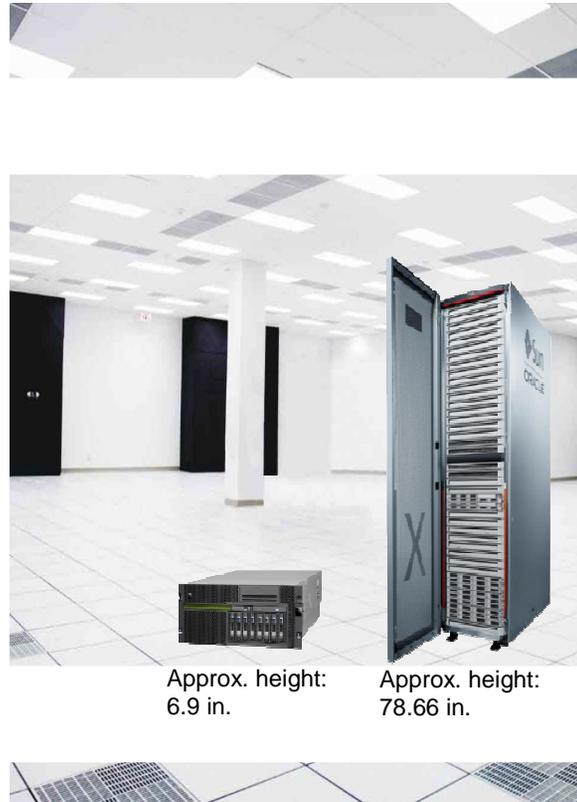
Intel/Linux  
 68 cores  
 4.8TB Flash  
 224882 RPH



IBM p740  
 16 cores  
 No Flash  
 207956 RPH



**Cost per Reports / Hour**  
 (Lower is Better)



Approx. height: 6.9 in.

Approx. height: 78.66 in.

**20x**  
**lower cost**  
 and

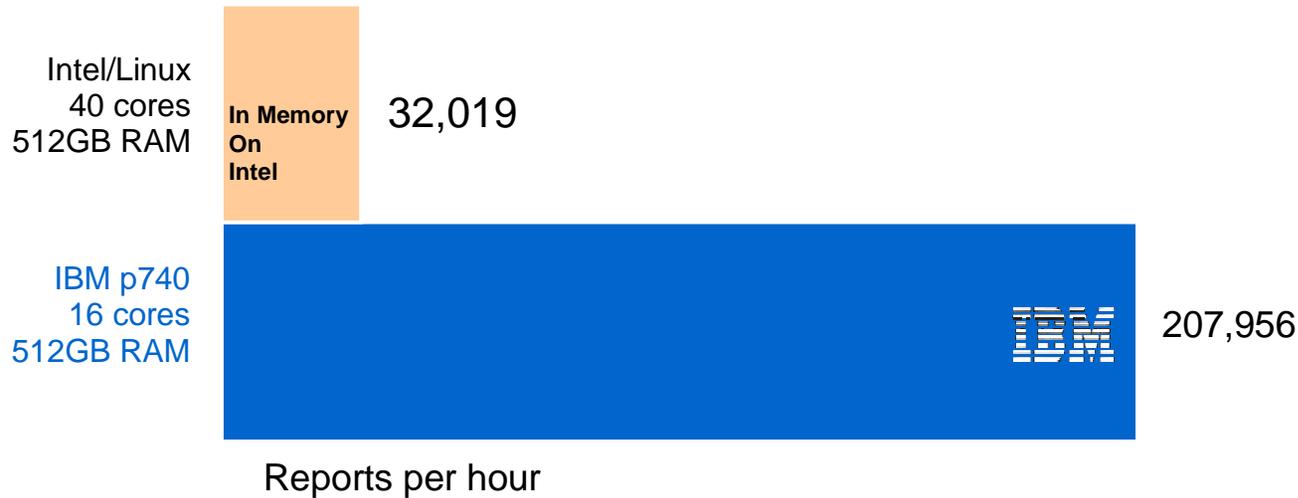
**5x**  
**less power**

Based on IBM internal tests comparing IBM BLU Acceleration system with a comparably tuned competitor configuration (version available as of 09/01/2014) executing a materially identical 220GB fixed execution workload in a controlled laboratory environment. Test measured 80 concurrent user report throughput executing identical SQL query workloads across a fixed number of each report. 3YR Total Cost of Acquisition (TCA) based on publicly available U.S. prices current as of September 1, 2014, including hardware, software, and maintenance. Compared prices exclude applicable taxes, and are subject to change without notice. Competitor configuration: ¼ Unit including competitor recommended software options and features. IBM configuration: IBM Power 740+, 16 cores, 512GB RAM, DB2 v10.5 FP1. Power comparison based on publicly available specifications by respective vendors. Results may not be typical and will vary based on actual workload, configuration, applications, queries and other variables in a production environment. Users of this document should verify the applicable data for their specific environment. Contact IBM and see what we can do for you.

# BLU Acceleration on Power beats in-memory competitor



Mixed Report Throughput/Hour  
Fixed Execution Test (2B rows)  
(Higher is Better)



**6.5x**  
faster  
for

**14x**  
lower cost

Based on IBM internal tests comparing IBM BLU Acceleration system with a comparably tuned competitor configuration (version available as of 09/01/2014) executing a materially identical 220GB fixed workload in a controlled laboratory environment. Test measured 79 concurrent user report throughput executing identical SQL query workloads. 3YR Total Cost of Acquisition (TCA) based on publicly available U.S. prices current as of September 1, 2014, including hardware, software, and maintenance. Compared prices exclude applicable taxes, and are subject to change without notice. Competitor configuration: 40 Intel Westmere cores, 512GB RAM, 1.2TB SSD + 8x900 GB HDD. IBM configuration: IBM Power 740+, 16 cores, 512GB RAM, DB2 v10.5 FP1 AWSE. Results may not be typical and will vary based on actual workload, configuration, applications, queries and other variables in a production environment. Users of this document should verify the applicable data for their specific environment. Contact IBM and see what we can do for you.