



# The New Possible

Reinventing enterprise IT for digital business:  
mobile, analytics, cloud and security

# How can I help my organisation create better customer experiences?

The answer seems straightforward – spend less on infrastructure maintenance and more on innovative customer engagement via cloud, analytics and mobile applications.

But what does that actually involve? Is undergoing such a massive shift worth it? And how can you control costs, complexities and risk while doing so?

A recent global study by IBM® found fewer than 10% of companies felt their infrastructure was fully prepared to meet the demands of mobile technology, social media, big data and cloud computing<sup>1</sup>. However, enterprises that are prepared have improved customer experiences and gain a competitive advantage by:

- Enabling flawless mobile interaction
- Applying in-transaction analytics
- Delivering agile cloud services
- Ensuring high levels of security and availability.

By 2015, **72%** of enterprises will be pursuing a hybrid cloud strategy<sup>2</sup>.



When reaching out to a company, **71%** of customers expect to receive assistance within **five minutes**. If they don't, **48%** will leave the site<sup>3</sup>.



In 2010, the big data industry was worth **US\$3.2 billion**. In 2015, it will be worth an estimated **US\$16.9 billion**<sup>4</sup>.



By 2005, the world had generated **130 billion GB** of data – a level expected to increase to **40 trillion GB** by 2020<sup>5</sup>.



## Enabling flawless mobile interaction


By 2017, 35% of annual transaction growth will come from mobile transactions<sup>6</sup>. In today's mobile marketplace there is no room for error.

Mobile users want to interact with your organisation on their own terms, without delays or service interruptions. They desire personalised engagement with contextually relevant service at the point of interaction, and they want to do so knowing their personal data is secure.


To meet and exceed customer mobile expectations, enterprises require extreme computing performance, scalable and secure infrastructure, and powerful analytics to provide accurate customer insights when and where they matter most.

After a bad mobile experience,

**40%** of mobile consumers go to a competitor's site<sup>6</sup>.



If they have to wait more than **three seconds** for a page to load, **57%** of mobile customers will abandon a site<sup>6</sup>.



### The solution

IBM z Systems™ and Storage enable flawless mobile interaction by:

- Providing consistent response time of under one second, improving customer satisfaction
- Supporting millions of transactions per day at 17% less cost per transaction than distributed platforms<sup>7</sup>, and with minimal downtime
- Building analytics into 100% of transactions, providing new opportunities to extract the most value out of every interaction and transaction
- Providing cryptographic capabilities to help ensure data privacy and the integrity of mobile transactions.

### The evidence

**First National Bank – 234 million mobile-banking transactions a month**

One of South Africa's leading banks has grown its mobile channel and now processes 234 million mobile-banking transactions a month. The bank relies on its mainframe to evolve its infrastructure to support this new digital banking model, and reach customers in new ways – all the time, everywhere. [Watch the full story.](#)

**Citi – 150,000 customer data transactions a second**

While money is important, the data that surrounds that money is even more critical. Citi relies on its mainframe to process this massive amount of data, across industries, to keep its customers up to date. [Watch the full story.](#)

## Harnessing in-transaction analytics

Businesses today are marketing to the unique characteristics of each customer – the demographic of one.

To tailor offerings, services and experiences to individual customers, enterprises must access and analyse a wealth of incoming data and translate this into timely, actionable insights in real-time.

This in turn creates new challenges in the form of data integrity, fraud, ELT costs and regulatory and compliance issues.

Implementing analytics makes your organisation **2.2 times** more likely to out-perform competitors<sup>8</sup>.



Companies using engagement analytics experience an average **7.6% increase** in customer lifetime value<sup>9</sup>.



### The solution

IBM z Systems and Storage enable organisations to cater to the 'demographic of one' by:

- Co-locating the analytics platform with the transaction and data repository in a single system
- Optimising service delivery by delivering insights 17 times faster than distributed platforms<sup>10</sup>
- Supporting up-selling, cross-selling and fraud detection in "real time" during any stage of customers' transactions
- Eliminating off-platform ELT cost, complexity and inconsistency of data duplication.

### The evidence

**Met Office – saving the UK Government £260 million annually**

The UK's national weather service, the Met Office, collects 10 million daily weather observations. The organisation depends on its mainframe to process and output forecast reports quickly and without error.

[Watch the full story.](#)

**Swiss Re – one source of truth for 150 years of insurance data**

Swiss Re relies on its mainframe to be its 'one source of truth' for predictive 'what-if' modelling or for financial evaluations that help determine how far to extend coverage to clients. The mainframe is a safe, scalable platform for Swiss Re's vital data, moving data in the magnitude of three petabytes and housing the company's biggest database, containing 1.5 billion rows.

[Watch the full story.](#)

## Enterprise cloud built on trust

Cloud is the core business initiative of top-performing companies. By 2018, an estimated 78% of workloads will be processed by cloud data centres<sup>11</sup>.

Businesses are looking to take advantage of cloud economics for a broad set of workloads including business critical workloads. However, recent research suggests that security is considered the biggest inhibitor to cloud adoption by many CIO's<sup>12</sup>.

To deliver the economic benefits of a cloud delivery model without the risk, your underlying infrastructure must be scalable, secure, reliable and fully integrated.

IBM found **57%** of enterprises use big data and analytics on the cloud and **55%** use mobile on the cloud<sup>13</sup>.



Enterprises with a clearly defined cloud strategy enjoy almost twice the revenue

growth and **2.5 times** more gross profit than peers<sup>14</sup>.



### The solution

IBM z Systems and Storage create an ideal private cloud environment by:

- Delivering a fully virtualised cloud model costing up to 32% less than distributed x86 servers and up to 65% less than typical public cloud services<sup>15</sup>
- Providing unprecedented agility through almost unlimited capacity and automated resource provisioning across multiple workloads
- Delivering high transaction throughput with high-speed encryption capabilities of data at rest, in the network and in the cloud
- Having a 99.999% design point for application availability, increasing to 99.9999% with the addition of HyperSwap with Metro Mirror<sup>16</sup>.

### The evidence

**Walmart – serving 250 million customers a week**

The world's largest retailer uses cloud services on its mainframe to reduce costs, improve speed-to-market and continuously improve customer service.

[Watch the full story.](#)

**New York State – streamlining costs while fostering growth**

New York State has 1,600 local governments, some spending up to US\$8 million annually on IT infrastructure and services. Based on prototypes and models for shared services and cloud computing, the state's mainframe can help reduce that number by at least 25%.

[Watch the full story.](#)

## Protecting your investment

In 2014, the average cost of a technology security breach for a US company was US\$5.65 million<sup>17</sup>. Research indicates just one hour of downtime costs global enterprises around US\$1.5 million<sup>18</sup>.

The indirect cost of security breaches and downtime can far outweigh the direct costs, which is why security and availability are now board-level concerns.

Businesses need a trusted computing platform to protect business reputation and consumer confidence.

**70%**  
of enterprise security executives have cloud and mobile concerns<sup>19</sup>.



**614%**  
Mobile malware grew between 2012 and 2013<sup>20</sup>.



### The solution

IBM z Systems and Storage provide rock-solid security for mobile, analytics and cloud by:

- Providing less than one-sixth the availability risk profile of other platforms with a 99.999% availability design point<sup>21</sup>
- Delivering high levels of trust and confidence. The security exposures of other platforms are more than 17 times greater than IBM z13<sup>22</sup>
- Having dedicated cryptographic processors which fully encrypt every transaction end-to-end, never comprising client or corporate data
- Having EAL5+ security certification, making it the highest rated general purpose system in the technology industry.

### The evidence

#### Visa – processing 90 billion financial transactions a year

Over the last four decades, Visa has built a real-time global network – VisaNet – capable of authorising, clearing and settling more than 47,000 transactions a second, which is fully operational 99.999% of the time.

[Watch the full story.](#)

#### Vantiv – processing 20,000 financial transactions a second

Vantiv, the leading payments processor in the US, moved all encryption workloads on external appliances to an IBM Crypto Express3 coprocessor deployed within its existing IBM z Systems environment. Drastically cutting latency, the solution delivers higher processing speeds.

[Read the full story.](#)

The design of the enterprise infrastructure platform enables IBM z Systems and storage to deliver significant advantages for secure cloud, analytics and mobile applications.

### Introducing IBM z13™

The latest edition to the z Systems portfolio is the IBM z13. The culmination of a five year project, more than a billion dollars investment and co-created with our clients, the z13 is redefining enterprise IT for digital business.

It offers the capacity and processing power to improve business performance and growth, including:

- Up to 141 configurable cores to handle growth in data and transactions
- Up to 8,000 virtual machines in one system, managed and simplified with new open standards based KVM hypervisor
- Up to 10TB of available memory to boost performance and response times
- Up to 320 separate channels dedicated to driving I/O to handle massive data and transaction throughput
- Large memory pools to access and analyse large datasets in real time
- Simultaneous multi-threading to boost performance for Linux, Java and z/PLP workloads
- Crypto Express5S, providing dedicated cryptographic processing for secure transactions and data.

### IBM DS8870 Integration with z Systems

The unique integration between DS8870 and z Systems delivers continuous access to data, faster business insights, and optimized data economics.

Designed, developed and tested together this partnership boosts performance and significantly increases speed and quality of service, including:

- 99.9999% availability with Metro Mirror and HyperSwap<sup>23</sup>
- 3.2x Accelerated z System database performance in 50% less space with High Performance Flash Enclosure<sup>23</sup>
- 8x improvement on database scans for faster operational analytics<sup>23</sup>
- 61% reduction in DB2 commit elapsed times with IBM zHyperWrite<sup>23</sup>.

### IBM mainframe for smaller enterprises

IBM zEnterprise BC12™ is an affordable entry point for enterprise computing. The zBC12 embraces all the same flexible growth options, industry-leading virtualisation, trusted resiliency and innovative capabilities of the massively scalable IBM z13, but in a smaller, lower cost footprint.

IBM zBC12 is designed to help enterprises of all sizes improve customer service by delivering an efficient and flexible cloud, operational analytics capabilities and enterprise mobility, all within a highly secure and resilient environment.

## Stay Connected with IBM's z Systems Team

If you would like to learn more, contact us to  
speak to an IBM representative today.

### **Call**

AU: 1800 557 343

NZ: 0800 426 431

**[Email IBM](#)**

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Customer stories based on information provided by First National Bank, Citi, Met Office, Swiss Re, Walmart, New York State, Visa, and Vantiv, and illustrates how one organisation uses IBM products. Many factors have contributed to the results and benefits described. IBM does not guarantee comparable results elsewhere.

1. IBM Institute for Business Value, The IT Infrastructure Conversation, 2014.
2. Gartner, Hybrid Clouds and Hybrid IT: The Next Frontier, Thomas Bittman, September 9, 2014.
3. LivePerson, Connecting with Customers Report: A global in-depth study of the online customer experience, Loudhouse UK, 2013.
4. IBM research: <http://www.ibm.com/smarterplanet/us/en/smarter-enterprise/perspectives/big-data-and-analytics.html>
5. IBM research: <http://www.ibm.com/smarterplanet/us/en/smarter-enterprise/perspectives/big-data-and-analytics.html>
6. IBM Institute for Business Value and Oxford Economics: The "upwardly mobile" enterprise .
7. Estimated performance, sizing and cost for z13 based on tests conducted on zEC12

This is based on an IBM internal study designed to replicate a typical IBM customer workload usage in the marketplace. Test involved measuring throughput in transactions per second and response time for executing a materially identical mobile transaction processing workload in a controlled laboratory environment with comparable tuning and sizing. Prices, where applicable, are based on published US list prices as of 31/12/2014 for both IBM and competitor. Price comparison based on 3 Year Total Cost of Acquisition (TCA) includes all HW, SW and 3 years of service & support. Sizing shown is for Production with which 30% is added for System z for Dev/QA and CBU pricing for DR and 2x for Distributed.

8. Analytics: The Widening Divide. 2011 Business Analytics and Optimization study, developed by the IBM Institute for Business Value in partnership with MIT Sloan Management Review.
9. "Customer Engagement Analytics: How to Use Data to Create (and Keep) Happy Customers, The Aberdeen group, May 2014
10. The IBM 10TB BI Day "Fixed Execution" benchmark completed in 1 day, 6 hours, 9 minutes, 50 seconds (1,810 minutes), when executed on Pre-Integrated Competitor V4 Eighth Unit. IBM z13 + IDAA performed 17x faster and 13x lower price performance than competitor eighth unit (using list prices for the comparison). When projecting the competitor performance to Full Unit (using perfect linearity from the eighth unit as in dividing elapsed time by 8) and using street prices (75% discount for SW and 50% discount for hardware) IBM z13 + IDAA is 2x faster and 4x lower price/performance than competitor full unit.

Based on IBM internal tests comparing IBM zEnterprise Analytics System 9700 with a comparably priced, comparably tuned competitor Eighth Unit configuration (version available as of 31/12/2014), executing a materially identical 10 TB BIDAY "Fixed Execution" workload in a controlled laboratory environment. Test conducted with BIDAY "Fixed Execution" workload measures elapsed time for executing 161,166 concurrent reports using 80 concurrent users. Intermediate and complex reports are automatically redirected to IBM DB2 Analytics Accelerator for z/OS (powered by N3001-010 hardware or Mako). Price comparison based on a 3YR Total Cost of Acquisition (TCA) using publicly available U.S. prices current as of December 31, 2014, including hardware, software, and maintenance. Compared prices exclude applicable taxes, and are subject to change without notice. Competitor configuration: Eighth Unit including competitor recommended software options and features. IBM configuration: z13 platform with 1CP and 3 zIIPs with 128GB memory and DB2 Analytics Accelerator Full Rack (N3001-10) with 7 S-blades (140 Intel E5-2680v2 2.8GHz cores and 128 GB RAM), 2 Hosts (1 active – 1 passive) with 20 Intel E5-4650v2 2.4GHz cores each and 12 disk enclosures, each with 24 600GB SAS drives. 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

11. Cisco, Cisco Global Cloud Index: Forecast and Methodology, 2013–2018, October 2014.
12. 451 Research
13. IBM, Raising the game: The IBM Business Tech Trends Study, September 2014.
14. IBM Global Cloud Study "Under Cloud Cover"
15. For compared environments, it is estimated that a System z cloud on a z13 will have a 32% lower total cost of ownership over three years than an x86 Cloud and a 60% lower total cost of ownership over three years than a public cloud.

Performance comparison based on IBM Internal tests comparing IBM z13 cloud with one comparably configured private x86 cloud and one comparably configured public cloud running an aggregation of light, medium and heavy workloads designed to replicate typical IBM customer workload usage in the marketplace. System configurations are based on equivalence ratios derived from IBM internal studies and are as follows: Public Cloud configuration: total of 219 instances (128 for light workloads, 64 for medium workloads and 27 for heavy workloads); x86 Cloud configuration: total of eleven x86 systems each with 24 Intel E7-8857 v2 3.0GHz cores, 512GB memory, and 7x400GB SSDs; z13 Cloud configuration: total of 32 IFLs, 3806GB memory, and Storwize v7000 with 47x400GB SSDs. Price comparison estimates based on a 3YR Total Cost of Ownership (TCO) using publicly available U.S. prices (including a 20% discount for middleware) current as of January 1, 2015. Public Cloud TCO estimate includes costs (US East Region) of infrastructure (instances, data out, storage, support, free tier/reserved tier discounts), middleware and labor. z13 and x86 TCO estimates include costs of infrastructure (system, memory, storage, virtualization, OS, cloud management), middleware, power, floor space and labor. Results may vary based on actual workloads, system configurations, customer applications, queries and other variables in a production environment and may produce different results. Users of this document should verify the applicable data for their specific environment.

16. <http://www-03.ibm.com/systems/z/advantages/resiliency/datadriven/application.html>, [http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ST&infotype=SA&appname=STGE\\_TS\\_DE\\_US&htmlfid=TSJ03568USEN&attachment=TSJ03568USEN.PDF](http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ST&infotype=SA&appname=STGE_TS_DE_US&htmlfid=TSJ03568USEN&attachment=TSJ03568USEN.PDF)
17. IBM Client Example
18. IDC: "Measuring Cost of Downtime and Recovery Objectives Among U.S. Firms", doc #245125, December 2013; 2013 IBM CISO Survey
19. 2013 IBM CISO Survey
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