

# IBM zEnterprise

## The Modern Mainframe

*Reinvention, transformation & growth for the future*



# Technology is essential for leadership

## **LEAD**

your industry  
through differentiation

## **GROW**

through new markets,  
services, business  
opportunities

## **INNOVATE**

with disruptive  
technologies



The mainframe is **everywhere**, at the heart of enabling global commerce.



Up to **3 Billion** passengers take flight a year; with **2x** that expected **by 2030**

Over **\$6 Trillion** in card payments to execute annually<sup>2</sup>

**23 Billion** ATM transactions processed a year; worth more than **\$1.4 Trillion**

**1.3 million**

CICS Transactions.  
Every Second.  
Every Day.<sup>1</sup>

In comparison, there are  
**68,542 Google searches**  
every second globally.<sup>2</sup>

<sup>1</sup> IBM estimates based on real client usage.

<sup>2</sup> <http://www.statisticbrain.com/google-searches/>





It all started with a  
**\$5 billion** dollar bet

**Reshape industries**  
making the world work better





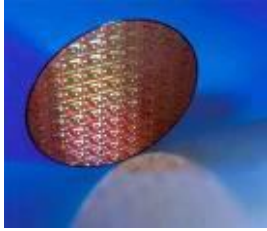



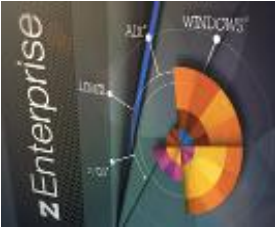


**Reinvent and transform business**  
for competitive advantage

**Build trust and confidence**  
through secure transactions & data

“This is the beginning of a new generation—not only of computers—but of their application to business, science and government.”

–Thomas Watson, Jr.

# Constant evolution driven through co-creation with our clients

<p><b>IBM System/360™</b></p> 	<p><b>PR/SM Virtualization</b></p> 	<p><b>CICS, DB2 &amp; IMS</b></p> 	<p><b>Parallel Sysplex</b></p> 	<p><b>Bipolar to CMOS</b></p> 	<p><b>Capacity on Demand</b></p> 
<p><b>Linux</b></p> 	<p><b>Java</b></p> 	<p><b>Hybrid with zBX</b></p> 	<p><b>IBM DB2 Analytics Accelerator</b></p> 	<p><b>IBM zEnterprise EC12 &amp; zBC12</b></p> 	

# From the System/360 to today's modern **zEnterprise EC12**



Performance has improved  
over **78,000%**

Memory capacity has  
increased over **333,000x**

Boasts the industries fastest  
processor running at an  
astounding **5.5 GHz**



To provide the performance of  
today's mainframe would require a  
datacenter full of System/360s the  
size of **10,000** soccer fields

*Imagine what it can do for  
your business!*

# Leaders of Industry

run on System z

**92** of the top 100  
worldwide banks<sup>1</sup>

**23** of the top 25  
US retailers<sup>2</sup>

**10** out of 10 of the world's  
largest insurers<sup>3</sup>

**23** out of 25 of the world's  
largest airlines<sup>4</sup>



<sup>1</sup> Based on 'The Banker', System z install base and financial records

<sup>2</sup> Based on IBM market development and insights documentation on top 25 ranked by Fortune 500 listing.

<sup>3</sup> Based on IBM market development and insights documentation on top 10 insurance companies, ranked by non-banking assets.

<sup>4</sup> Based on the amount of passengers carried each year



Engines of  
PROGRESS



Enabling progress for individuals,  
communities, institutions and nations

# The Modern Mainframe

Continuous evolution for leadership in the new era of IT

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The ultimate **Analytics** engine for instant insight

The foundation for a **Mobile** and **Social** enterprise

Superior service at lower cost through **Cloud**

A robust and **Trusted** infrastructure



# Enable better, faster decision-making

with the ultimate analytics engine for insights in an instant

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**72%** of respondents  
plan to analyze transactional data  
from enterprise applications

**80%** of world's corporate  
data resides or originates  
on mainframes

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The greatest value  
occurs when you  
**execute analytics**  
**where the data originates**

Avoid the high cost of ETL

Centralized data security  
and governance

Enable in-transaction analytics

Engines of  
PROGRESS



Enabling industry and society  
to take the risks that drive progress



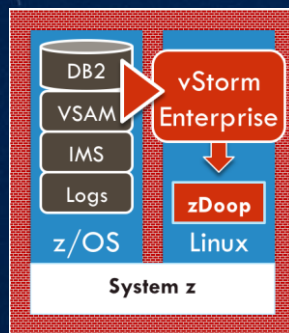
# Speed time to value & insight

with new data and analytics offerings on the mainframe

## Industry's first commercial Hadoop for Linux on System z

NEW

- Veristorm partnership
- Analyze System z data using Hadoop without ever leaving the box
- 2 billion records in 2 hours using 2 IFLs



## High-performance Flash Enclosure on IBM DS8870

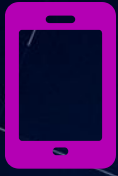
NEW

- Up to 4x increase in I/Os per second performance over SSD, 30x over disk
- Accelerate System z database performance by up to 3.2x; shrink batch times by up to 10%
- Faster FlashCopy replication with up to 70% better response time than disk

NEW

## Enhanced file transfer with DS8870 and IBM Sterling Connect:Direct

- Cut data transfer CPU cost by up to **50%**
- Reduce transfer time by up to **30%**



MOBILE

# The smart phone's ultimate accessory enables growth through optimized engagement

**Big opportunities**  
for business growth  
through small screens

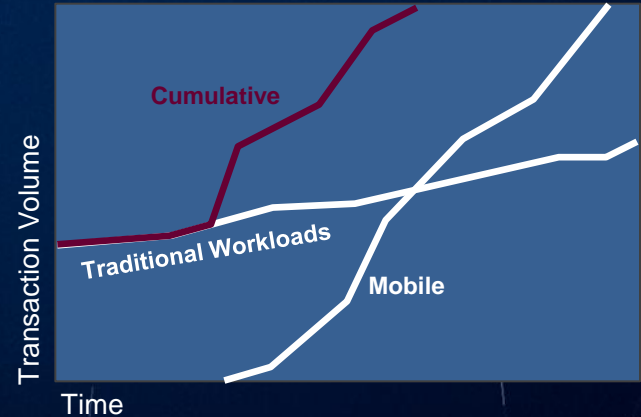
**10 billion+**  
devices accessing  
information

**70 percent**  
increase in mobile data  
bandwidth usage per year

**Bridging Systems  
of Record with  
Systems of Engagement** as a  
foundation for a mobile  
enterprise



Mobile transactions can quickly  
outpace traditional transactions

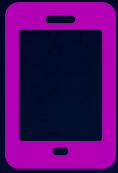




**FNB**  
First National Bank

Delivering mobile banking that promotes  
upward mobility for the 80% unbanked  
population of Africa





# Build & integrate enterprise & mobile applications to optimize the customer experience

## IBM WebSphere Liberty z/OS Connect

Rapid and secure enablement of web, cloud and mobile access to z/OS assets

Discover z/OS assets  
Simplified connection  
Auditing and chargeback

Embedded in z/OS middleware:  
CICS, IMS, WebSphere Application Server  
Batch, UNIX applications

NEW

## IBM CICS Transaction Server v5.2

Enhanced mobile protocol support and flexible application lifecycle management in a cloud environment

NEW

## IBM Mobile Quality Assurance

Capture tester and live-user experience for building great mobile apps

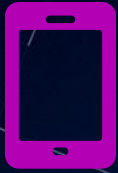
NEW

## IBM Continuous Integration for System z

Compresses application delivery cycle from months to weeks or days

NEW



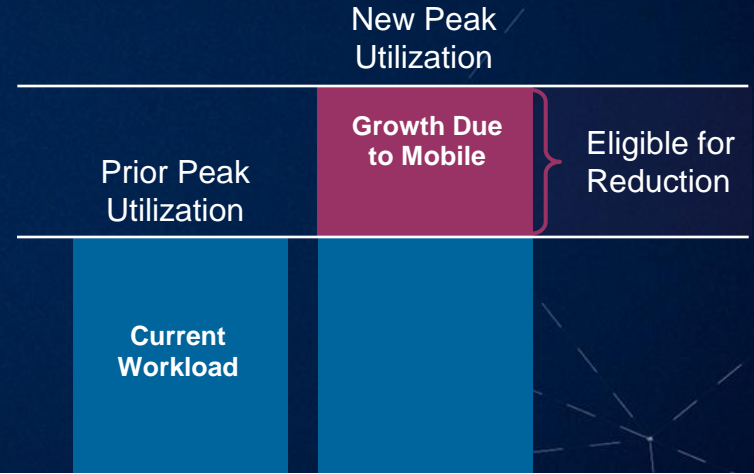


MOBILE

# New System z Mobile Workload Pricing

enables IT investments to scale with growth & business returns of mobile

## Improving the economics of mobile computing



No infrastructure changes required

Available on zEnterprise EC12 & zBC12

**Up to 60% reduction in incremental growth from mobile transactions**

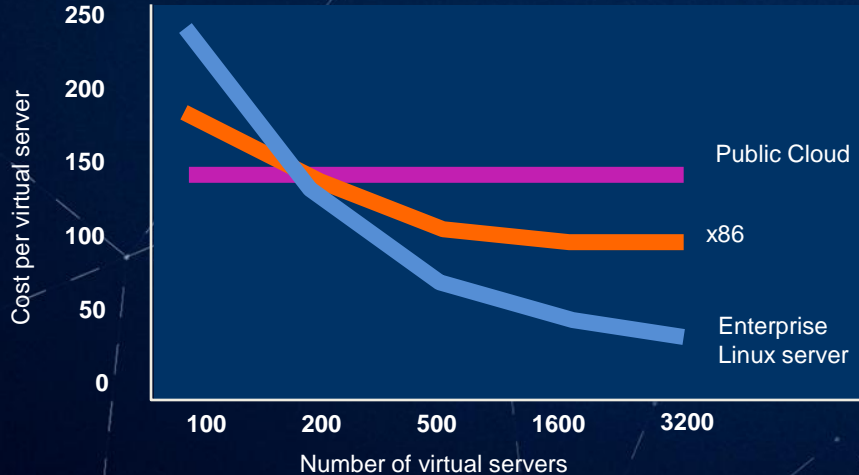


# zEnterprise redefines efficiency & economics of IT enabling new levels of business agility

**Economics** will continue to be #1 driver of cloud adoption through 2016

80% view **security** as #1 challenge to cloud;  
48% concerned with **reliability**

Delivering **superior service at lower cost** than legacy x86 or Public Cloud vendors



Saved **\$46 million** through consolidation

Cut data center costs by **70%**



Growing **MSP** uptake around the world



Engines of  
**PROGRESS**



# Business Connexion

Enriching communities by making the impossible possible, through technology



Connecting cities to fuel growth and  
prosperity via the cloud



MIAMI-DADE  
COUNTY

ZHUHAI

Cnav Retraite  
& Action  
sociale  
— Sécurité sociale —

Enabling improved services, faster insights and continuous access to over 100 million citizens




# Ongoing investments in Linux & Cloud solutions on zEnterprise enables speed, flexibility & efficiency

NEW

## IBM Enterprise Cloud System

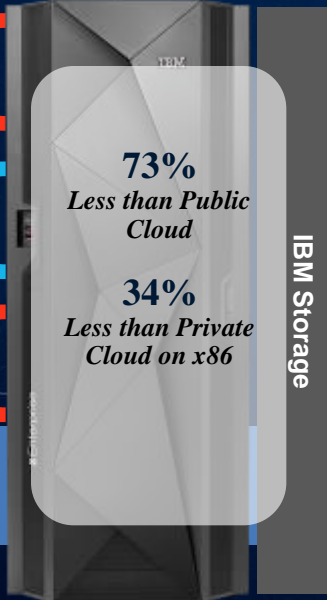
Trusted Cloud. Better Economics. Simply Delivered.  
Rapid deployment of public, private and hybrid cloud

 Open Linux Environment

Fully Automated Cloud Management Suite  


Hypervisor and Virtualization Management

- Factory Integrated
- Delivered in 45 Days
- Production Ready in Hours



**73%**  
*Less than Public Cloud*

**34%**  
*Less than Private Cloud on x86*

IBM Storage

Utility Pricing and MSP  
Flexible Financing

Trusted, 24/7 IBM Support

Award Winning Hardware Design  
 

- Scale up to 6,000 VMs
- Mainframe Availability
- Proven Security

NEW

## IBM Wave for z/VM

Manage virtual machines with drag-and-drop simplicity

NEW

## System z & SoftLayer for hybrid cloud

Exploit on- and off-premise cloud resources with new optimized configuration patterns for SLA requirements

NEW

## IBM Utility Pricing for System z

Flexible pay-as-you-grow pricing for the enterprise cloud system and more

NEW

## IBM Linux & Cloud Centers

Accelerating cloud & open source adoption on zEnterprise



SECURITY

# A trusted infrastructure is essential for a cloud, analytics, mobile & social-enabled business

**\$11 million**

average cost of  
a security breach

**\$7,900**

average cost per  
minute of downtime

**Highest**

level of security with Common  
Criteria certification (EAL 5+)

**IT Analytics**

to spot potential failures and  
capacity needs before they occur

zEnterprise delivers trust  
and confidence  
with **unmatched security  
& reliability**

**Enterprise Key Management**  
across mainframe and distributed

**99.999%**

design point for application  
availability

**Encryption**

of data at rest, in flight,  
and in use

**Zero Second**

recovery point objective  
across thousands of miles





**VISA**

Redefining and securing global commerce at the rate of  
240 million transactions every day



# Visionary endeavors to transform and improve lives through new Research Projects

## IBM-Ghana-Yale Partnership



Creating a System of Insight to eliminate HIV transmission from Mother to Child in Ghana

## Rheumatoid Arthritis DREAM Project



Cutting edge research to help millions with chronic pain

## Alzheimer's DREAM Project



Identifying better predictors of Alzheimer's in pre-clinical populations

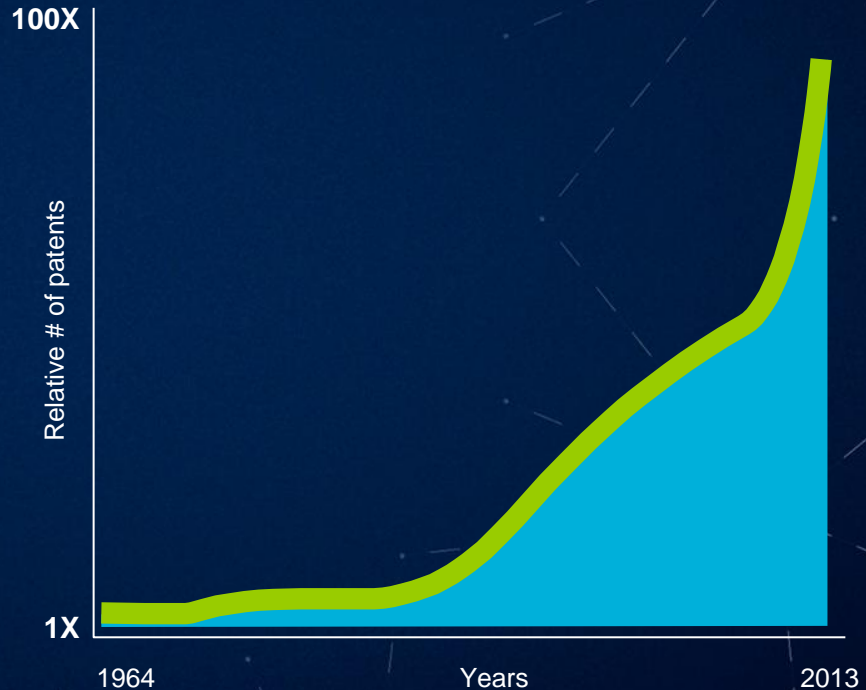
**Patent leadership** demonstrates continuous research, innovation and transformation of the mainframe

**>7,000**

mainframe-related patents since 1964

**>500**


new patents issued in the past year alone



# The future of next-generation mainframe systems



# People Make it Possible

A circular image with a yellow tint showing two students, a woman and a man, sitting at a desk in a classroom or computer lab, looking at a laptop screen.

***High School  
Students***

+

A circular image with an orange tint showing a young man in a plaid shirt looking intently at a laptop screen.

***College  
Students***

+

A circular image with a purple tint showing three people in a professional setting, two men and one woman, gathered around a desk with laptops, engaged in a discussion.

***Professionals***

# IBM System z Academic Initiative: Building the talent of the future



**70** Countries



**1,400** Universities



**180,000** Students

# Announcing New *Massive Open On-line Courses*

Online courses will be open to  
anyone, anywhere, anytime,  
all 100% free



***An Introduction to  
Enterprise Computing***  
(Starting in May 2014)



***Enterprise Computing  
Strategies***  
(Starting in October 2014)



***Introduction  
to Linux***  
(Starting in August 2014)

# Master the Mainframe Contests

Across 38 countries and 70,000 students



IBM MASTER THE MAINFRAME

# WORLD CHAMPIONSHIP

43

Students

23

Countries

3

Winners

6

Finalists





# And the winners are....



Pravin Prame Kumar  
Monash University  
Australia



**1st Place**  
**Yong-Siang Shih**  
National Taiwan University  
Taiwan



**2nd Place**  
**Rijnard van Tonder**  
Stellenbosch University  
South Africa



**3rd Place**  
**Philipp Egli**  
University of Brighton  
United Kingdom



Rijnard van Tonder  
Stellenbosch University  
South Africa



Jessica Castillo  
University of San Marcos  
Peru



Martin Ovaldo Gorgazzi  
University of Buenos Aires  
Argentina



Cristina Santa Sepúlveda  
University of Puerto Rico at  
Mayaguez, Puerto Rico



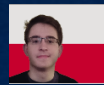
Raphael Kiminya  
Strathmore University  
Kenya



Ricardo Pastío  
Universidad de Antioquia  
Colombia



Alain Sanguinets  
Polytech Paris UPMC  
France



Piotr Masłanka  
Rzeszow University of Technology  
Poland



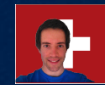
Rudolf Dambis  
University of Nevada  
Las Vegas, United States



Yong-Siang Shih  
National Taiwan University  
Taiwan



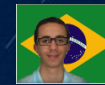
JD Stecker  
FNB Hogan Academy  
South Africa



Lukas Diener  
University of Berne  
Switzerland



Christopher McMaster  
Mohawk College  
Canada



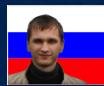
Oberlan Chelito Romão  
Universidade de São Paulo  
Brazil



Mugha Kadam  
University of South Florida  
United States



Aaron Call Balleiro  
Universidad Politècnica de  
Catalunya, Spain



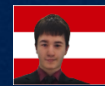
Egor Pugin  
Maxom Institute of Vladimir  
State University, Russia



Robert Recknagel  
University of Leipzig  
Germany (DACH)



Liu Zhenhe  
Tongji University  
China



Benjamin Schwalb  
HTL Donaustadt  
Austria



Shashi Sengupta  
RCC Institute of Information  
Technology, India



Jia-Sian Jhang (Fred)  
National Central University  
Taiwan



Luis Felipe Espinosa Elizalde  
Tec de Monterrey, campus  
Estado de Mexico, Mexico



Carlos Arturo Castro  
Espanola Universidad de  
Antioquia  
Colombia



Andrei Alm Popescu  
University of East Anglia  
United Kingdom



Pan Yen Chang  
University of Buenos Aires  
Argentina



Selvakumar Vairasamy  
Dalhousie University,  
Halifax, NS  
Canada



Vladislav Gorbaliuk  
National Technical University  
of Ukraine (Kyiv Polytechnic  
Institute), Ukraine



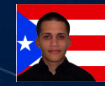
Elton Cheng  
University of California San  
Diego, United States



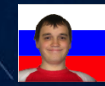
David Eusebio Muñoz Vázquez  
Monterrey Institute of  
Technology and Higher  
Education, Mexico



Tu Fellen  
Heazhong University of  
Science and Technology  
China



Enmanuel Vargas  
University of Puerto Rico at  
Mayaguez, Puerto Rico



Denis Sorokin  
Bauman Moscow State  
Technical University  
Russia



Deborah Mesquita  
Federal University of  
Pernambuco, Brazil



Andriy Duna  
Oleksandrivch  
Law Polytechnic National  
University, Institute of  
Computer Technologies  
Ukraine



Philipp Egli  
University of Brighton  
United Kingdom



Daria Mayorova  
Universitat Politècnica de  
Catalunya  
Spain



Margaret Adhambiro Orendy  
Kenya University  
Kenya



Lola Rigault-Luzak  
University of Compiègne  
France



Abhinav Dasgupta  
Indian Institute of Technology  
India



Luciano Miguel Chiriguana  
Universidad de Alas Peruanas  
Peru



Mirosław Juch  
Rzeszow University of  
Technology/ Poland

Engines of  
PROGRESS



Building the most resilient infrastructure in  
the world for the biggest bank on the planet



# Drive innovation & productivity through social business on the strength of the mainframe

**71% of CEOs**

rate their employees as their most important source of sustained economic value

**Drive enterprise-wide collaboration**

**Design and implement social strategies**

**Empower every employee**

**400,000+**

IBMers generating vast amounts of information

**50 million+**

instant messages per day

**75%**

lower cost

**Scalable**

to accommodate rapid growth and enable non-disruptive change

# Reinventing & transforming for competitive advantage



Serving **2.6 million** people while supporting rapid business growth with robust, secure and efficient mainframe technology

## Enabled growth of:

**600%** in mobile, **200%** in internet, **60%** in in-branch transactions, **24%** increase in tariff revenue through analytics, and avoids **USD 1.5 million** in electricity costs annually through the cloud



Make the extraordinary  
**POSSIBLE**

**VISION**

**PROGRESS**


**LEADERSHIP**

# Innovative technology

for the next generation of business leadership

“This is the beginning of a new generation—not only of computers—but of their application in business, science and government.”

–Thomas Watson, Jr.

The image features the classic IBM logo, consisting of eight horizontal white stripes of varying lengths that form the letters 'I', 'B', and 'M'. The logo is centered on a dark blue background. A white dashed grid pattern, resembling a network or molecular structure, is overlaid on the entire background. To the right of the logo is a registered trademark symbol (®).

IBM®