The Gold Standard for Enterprise Computing

The Enterprise Server for the 21st Century

Over the last 50 years, System z has become established as a platform for critical large-scale enterprise transaction workloads

70% of top 500 System z customers run CICS

67% of top 500 System z customers run CICS and DB2

21 of top **25** insurance organizations use System z

23 of top **25** retailers use System z

25 of top **25** world's banks use System z
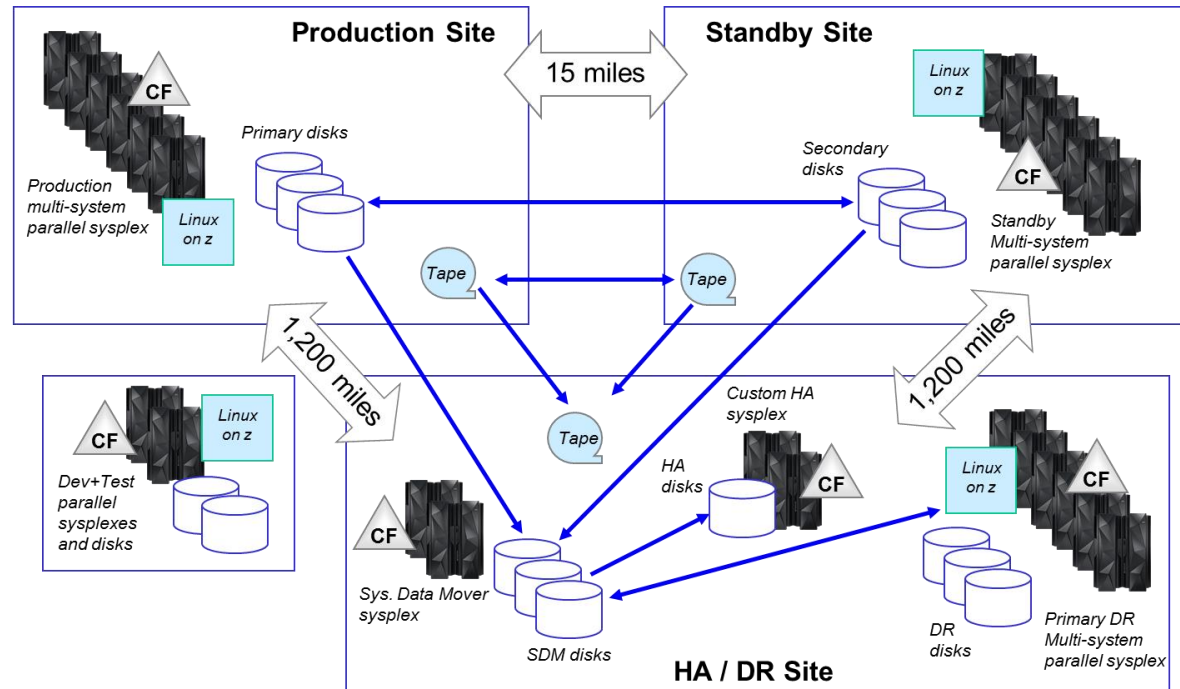
Today

IBM zEC12

1964

IBM S/360

Source: IBM

Only System z can provide state-of-the-art global scale transaction processing capability for many enterprise businesses

- 1B CICS trans/day

- 4,000 IMS trans/sec

- 5.6M ACH transactions/hr

- 6-way sysplex
  - 30ms response time
  - 216 processing cores at primary site

- Just under 1M MIPS total

- Highest levels of availability: zero outages, zero downtime…
  - …meaning zero customer impact

- Ultimate security: *"Crazy about security overall, and the z system has a fortress around it"*

Source: IBM

But the world is continuing to change…

Today, customers expect more than ever before

They are always connected, on a multitude of different, smart devices

They are better informed, and more socially networked

They expect immediate results, but want personalized service

…Today's forward-thinking businesses have to not only keep pace, but also lead the way

06. The enterprise server for the 21st century

System z is well positioned as the premier platform for the onslaught of new business challenges

Highly virtualized high-end server, supporting large numbers of workloads at very high utilization, with ultimate security and highest levels of reliability and availability…

An integrated platform for Data & Analytics

An efficient foundation for Cloud Computing

Sophisticated for Mobile Computing

Including ultimate levels of Security

IBM zEnterprise EC12   IBM zEnterprise BC12

06. The enterprise server for the 21st century

Exploiting these technologies addresses business challenges for all industries

Banking

Education

- Banks detect fraudulent money laundering activities

Data & Analytics

Mobile

- Universities provide students secure, flexible virtual desktops and real-time access to university information systems

Insurance

Government

- Insurers discover suspicious claims before payment made, minimizing loss

- City governments expand, coordinate and administer city services through citizen-centric applications

Cloud

Security

- Retailers boost revenue through discovery of customer buying behaviors

Retail

Healthcare

- Healthcare providers secure patient data while creating real-time data insights

06. The enterprise server for the 21st century

IBM®

FNB (South Africa) – Extending traditional banking workloads to support today's new technologies

Committed to IMS – it's strategic to their business, and will be for next 20 years

- Business challenge:
  - Improve customer satisfaction and add new revenue by shifting to self-service mobile banking

- Solution:
  - Implemented a proprietary 2-tier SOAP-based channel architecture around core z/OS IMS applications
  - Tuned performance and improved response time
  - Simplified overall architecture around IMS applications

- Benefits:
  - Constant innovation has resulted in IMS workload growth up to 8 times in 10 years, now up to 920M transactions a month
  - Customer-initiated transactions workload, including mobile, has doubled every year for six years

"Innovation and technology are core to FNB business strategy. We achieved our goals with IMS as our core strategic transactional system providing both transactional and batch workload support, capability to scale in both transactional and database volumes, cloud-like concepts, and 24x7 service capability."

— Jay Prag, FNB of South Africa

FNB
First National Bank

Solution components:

- IBM System z and z/OS

- IBM IMS 11

- IBM IMS Connect and IMS SOAP Gateway

06. The enterprise server for the 21st century

It's not just "traditional" workloads that are exploiting zEnterprise today….

Unique contemporary use cases define zEnterprise as a superior high end enterprise server for the 21st century:

- **University of Arizona College of Pharmacy** – a healthcare-focused educational facility in the United States

- **White Cube** – one of the world's leading contemporary art galleries

- **Petrol d.d.** – principle strategic supplier of oil and other energy products for the Slovenian market

- **Marist College** – an innovator for integrating technology and education

- **Algar Telecom** – Brazilian telecommunications company

- **A city in China** – the governing body of a city in eastern China

University of Arizona College of Pharmacy (Tucson, Arizona)

One of the top 10 colleges of pharmacy in the US, provides professional programs aimed at acquiring the doctor of pharmacy degree

- Used an Intel-based Apple Mac Pro desktop solution and MySQL to run and process information for more than 150,000 members
  - The Mac system's I/O was a major bottleneck – it took extensive amounts of time to load and run analyses; searching and analysis was time consuming and labor intensive

Business challenge:

- Member numbers were predicted to increase to be well over 10 million in the coming years, with claim volumes increasing to several million a year

IT challenge:

- Apple was not planning an upgrade for the Mac Pro system; hence needed a new, high performing, largely scalable and extremely robust solution, with a clear roadmap for future progression

06. The enterprise server for the 21st century

University of Arizona College of Pharmacy (Tucson, Arizona)

Solution:

Replaced their Mac servers with a zEnterprise 114 server with four IFLs, and replaced MYSQL with DB2

- The full environment, including the management of outcomes for a large patient population, was migrated to System z over a weekend
    - The mainframe was installed on Friday, the software was all loaded and tested on Saturday, and the entire environment went live on Sunday…
    - …with no hiccups or problems!

Benefits:

- Reduced data load times by 1/3

- Improved I/O performance for better data analysis

- Batch processes run during normal business hours without disrupting operations

- Today, their system is being run by a single Linux programmer on a part-time basis

"One of the reasons we went with the [System] z114 [server] was the ability to enhance the box almost infinitely. We can add more processors, memory, and a lot more I/O without reconfiguring"

"My DBAs have been playing with DB2 [software] and they're blown away. I've got two guys who have a lot of experience with Oracle and SQL server and they were a little leery about DB2[software] when I hired them. But they're very happy with the capabilities and functionality so far."

— Kevin Barber, director, data systems, UA College of Pharmacy

06. The enterprise server for the 21st century

White Cube (London, UK)

Focused on establishing lasting relationships with artists, as well as providing a richer experience for clients, artists and the public…

- Recently expanded internationally, opening new galleries in Hong Kong and Sao Paulo

Business challenge:

- Provide real-time inventory access and continuous availability in worldwide context, with options for growth

> *"We have suddenly transformed from a U.K.-centric business to a truly global organization, operating in three different time-zones. From an IT perspective, this posed some real challenges: our existing systems landscape was never designed for 24/7 operations and having a much smaller maintenance window made it more difficult to ensure availability."*
>
> — James Meara, IT manager at White Cube

IT challenge:

- Replace the 12 aging x86-based Sun servers that supported the majority of its core systems - including file servers, an in-house warehousing and logistics system, and traditional email and back-office systems

Larry Bell
Mirage Collage and the Light Knots

16 October 2013 – 12 January 2014
North Galleries, Inside the White Cube

White Cube (London, UK)

Solution:
Consolidate distributed servers onto IBM zEnterprise 114 running Linux

- Recognized benefits of a mainframe platform
  - Proven track record in traditional industries, offering reliability, performance, and flexibility
  - A single backbone for their entire IT landscape

- Would enable close integration of databases, repositories and email systems with new Cognos analytics platform

Benefits:

- Users reporting a noticeable improvement in response times for warehousing and logistics systems

- Improved performance has allowed IT team to introduce several new systems – including an iPad-based application giving sales team real-time information access

- Can now confidently scale up seamlessly to meet the needs of the business

"We wanted to find a platform that was built for high availability, that was versatile enough to handle all of our diverse workloads and that could scale up to meet new demands such as business intelligence. Running Linux operating system on the System z114 server was the best solution to meet all of our requirements."

"In all honesty, managing a Linux environment on System zEnteprise platform is hardly any different from managing a Linux environment anywhere else. We still use the same monitoring and administration tools, and our network and storage specialists have not needed to learn any mainframe-specific skills at all."

— James Meara, IT manager at White Cube

Petrol d.d. (Ljubljana, Slovenia)

Offers a broad range of automotive goods and services and a wide selection of household items, food products and other merchandise

- Over the years, has collected a significant amount of historical and transactional information from all aspects of its business

Business challenge:

- Analyze the data and subsequently transform it into actionable, timely intelligence

> *"Our goal at retail was to deliver, to the cashier at the store, the information they would need to suggest-sell specific products to those loyalty customers, as well as walk-in customers at the point of sale, in seconds… And keep in mind, this type of transaction happens two or three hundred thousand times per day across all our stores."*
>
> — Pavol Batista, CIO at Petrol

IT challenge:

- Existing intelligence model was not sustainable
  - Database was already 20TB and continuing to expand – queries were too slow to support desire for deep analysis

PETROL Energy for life

06. The enterprise server for the 21st century

Petrol d.d. (Ljubljana, Slovenia)

Solution:
Deployed the IBM DB2 Analytics Accelerator on a zEnterprise platform

- Basis for their smarter commerce initiative
  - Accelerator would speed up and automate their Cognos BI data-mining capability
  - Platform ensured reliability and data security
  - Laid groundwork for implementation of SPSS Modeler after 6 months, adding another dimension to business intelligence capability

Benefits:

- Dramatically reduced analytical query times, leading to receipt of suggest-sell information in seconds

- Provided company personnel with valuable, focused brand trend information

- Developed a new dynamic with customer base, providing an optimal product mix and individualizing the presales messaging to the greatest extent possible

> *"Smarter commerce is about transforming near-real-time analytics into personalized messages and offers for our customers. It's a system that ensures that we're not suggest-selling something the customer doesn't want to buy; we're offering him something he probably wants anyway, but he hasn't thought about it."*
>
> *"IBM provides us with tools that align with smarter commerce, enabling us to deliver the right message to the right person at the right time, to understand product affinities and intelligently drive the sale, all in a customer-centric way."*
>
> — Pavol Batista, CIO at Petrol

06. The enterprise server for the 21st century

Marist College (Poughkeepsie, NY)

A private liberal arts college, with a strong reputation of technology leadership in research and education

Business challenge:

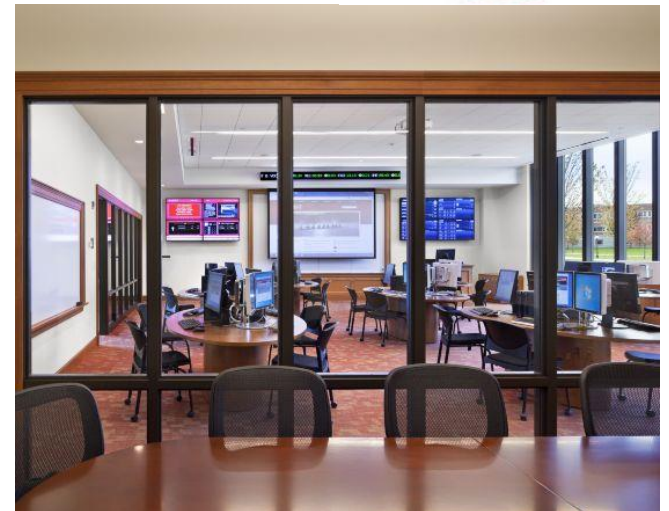- Maintain reputation with investment in a $35M technology-based research and education facility

> *"Our objective was to create a truly world class research environment that would give both students and researchers access to very high end computing systems, and help to advance Marist's reputation as a leader in the field. To meet these goals, we needed to equip the lab with powerful technology that also had the flexibility to support the requirements of a very diverse user base."*
>
> — Dr. Roger Norton, Dean, School of computer science and mathematics

IT challenge:

- Take full advantage of the state-of-the-art data center environment by equipping the space with cutting edge infrastructure and computing resources

- Provide a multi-architecture platform to support a variety of research projects

Marist College (Poughkeepsie, NY)

Solution:
Implement IBM zEnterprise 114, plus zEnterprise BladeCenter Extension

- z114 runs both z/OS and Linux; zBX includes 2 POWER blades and 2 x86 blades
  - Enterprise computing environment supports projects utilizing multiple operating system platforms, including AIX, Linux, Microsoft Windows and z/OS

- Cognos BI and SPSS Modeler bring new insights to research data

Benefits:

- Platform virtualization drives hundreds of virtual servers supporting a broad range of research projects

- Exceptional platform capacity and performance powers analysis of huge volumes of research
  - Reduced administration time and expenses to support business analytics, plus saved $350,000 in ERP costs

- Provides a platform for mainframe skills growth and learning

"With sophisticated IBM mainframe technology right on campus, we can supplement our theoretical IT courses with vital applied knowledge, and equip students with the real world experience they need to boost their job prospects."

"With the IBM z114 at the heart of our enterprise computing center, we have the perfect platform for advancing research in all kinds of fields, and for helping educate our students for success. This project is just a small example of the huge value that we gain from our partnership with IBM, and we look forward to many more years of supporting similar collaboration and innovation."

— Dr. Roger Norton,
Dean, Marist Collage

Algar Telecom (Uberlândia, Brazil)

Provides more than 800,000 customers with mobile and fixed voice telephone and broadband, as well as corporate communications and pay-tv

- Business expansion occurring against a backdrop of rising operational costs and increasing competition

Business challenge:

- As customer base grew, concern about keeping up with increased demand for services

> *"In the past, we did not take a very strategic approach when it came to expanding our IT infrastructure, we just added new servers as demand increased… The result was an environment that was not efficient or sustainable: we suffered from poor performance, with frequent service interruptions, and the complexity and cost of maintaining everything was starting to get out of control"*
>
> — Rogério Okada, IT manager of Algar Telecom

IT challenge:

- Upgrade the IT infrastructure to a solution that offered simpler maintenance, lower cost of ownership and greater flexibility

Algar Telecom (Uberlândia, Brazil)

Solution:
Consolidated 90+ distributed servers into a zEnterprise server with 24 IFLs…

- …for top levels of performance, stability and scalability

…and added zEnterprise BladeCenter Extension

- …extending mainframe environment across zBX HX5 servers

- IT staff easily manage multi-architecture resources across hybrid environment using URM

Benefits:

- Massive simplification of IT infrastructure
  - Huge reduction in data center floor space and a 70% cut in energy and cooling expenses

- Operational risk has been reduced, including fewer single points of failure

- Systems can be recovered up to 90% faster

"The IBM technology was completely new to us, but we clearly recognized the huge value that it could bring to our operations. Even as a first time customer, we had confidence that the solution would be the right fit for our needs."

"We have completely transformed our infrastructure and the way in which we manage it... We estimate that our operational efficiency has increased by at least 30% as a result. With our core business applications running on the most reliable and secure platform in the marketplace, we can deliver better service to more customers and focus on growing a better business."

— Rogério Okada, IT manager of Algar Telecom

People's government of a city in China

With a population of 8.1M people, the city is the second-largest commercial center in the region and a transportation hub

- Buses and taxis are the predominant modes of travel, and traffic congestion was becoming a serious problem

- Traffic speeds on arterial roads were slowing each year
  - During rush hours, nearly 20% of roads and intersections were in total gridlock

Business challenge:

- Analyze and model traffic patterns, and identify areas prone to congestion, optimize bus routes and effectively manage the urban transport system
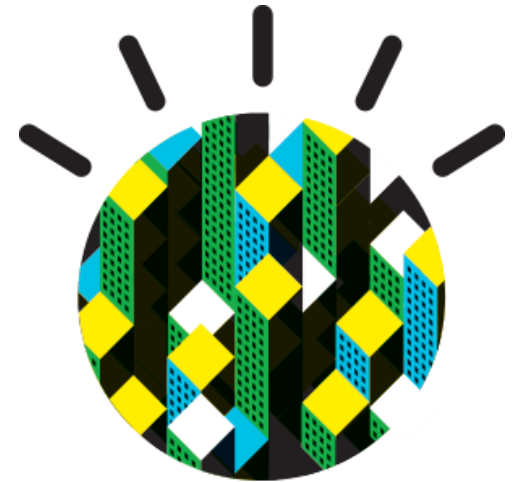
IT challenge:

- Infrastructure lacked informative data to give a comprehensive view of the city's traffic issues and tools to analyze accordingly

People's government of a city in China

Solution:

Implemented an Intelligent Operations Center Smarter City Project running on 2 IBM zEnterprise servers running Linux

- All city buses and some 8,000 taxis fitted with GPS devices, 300+ traffic monitoring cameras installed, and residents voluntarily installing RFID tags on vehicles

- Data processed by IBM InfoSphere DataStage software, and stored on DB2 UDB (with DB2 Spatial Extender)

- SPSS Modeler used for data mining

Benefits:

- From a single command center, traffic, vehicle and operational information is collected and analyzed, giving unprecedented insight into city conditions

- By applying advanced data analysis, simulations and models, officials can better identify traffic patterns, predict congestion and assess public transit needs

- Drivers can access web portal to assess traffic and adjust routes accordingly

Customers themselves highlight the value of zEnterprise

Data from IDC report (July 2013) in which they surveyed 6 organizations that consolidated onto System z platform:

79

Average number of servers consolidated by each organization

84

Average number of servers *avoided* purchasing over 5-year period due to scalability of zEnterprise platform

70%

Reduced infrastructure costs, inclusive of hardware, software and services

71%

Average reduction in software licensing costs due to consolidation of Linux workloads onto zEnterprise

57%

Reduction in operational costs due to increased IT staff productivity related to day-to-day support activities and maintenance

1/2

Cut in average outage time because server downtime was sharply reduced

5.3 and 501%

Average payback period (in months) and calculated ROI after investing in zEnterprise for consolidating servers and increasing compute capacity

Source: IDC

06. The enterprise server for the 21st century

Choice of technology is critical to success

Across sectors, organizations with higher mainframe use demonstrate …
- An average of 31% lower IT Cost of Goods
- Computational growth that is roughly 3x more economically efficient

… over distributed server heavy organizations

48% *lower IT cost per credit card transaction*

67% *less cost per teller transaction*

27% *less IT cost per hospital bed*

68% *lower IT cost per loan approval*

31% *lower IT spend per vehicle for automotive companies*

30% *lower IT spend per airline passenger mile*
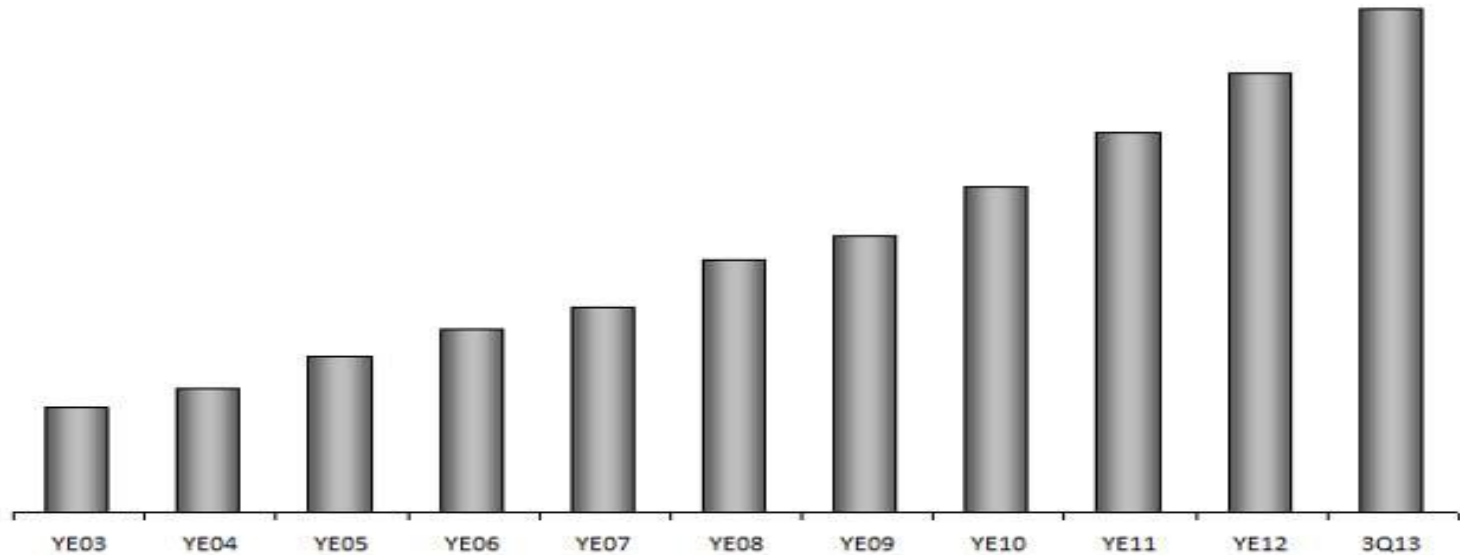
27% *lower IT cost per retail store*

28% *lower IT cost per barrel of oil*

*"…in the long run the marketplace **rewards those that make the optimum use of the right computing resources in the right way** as evidenced by business performance"*

Dr. Howard Rubin, Chief Executive Officer and Founder, Rubin Worldwide
Technology Economics: The impact of Your Computing Strategy in Real Business Terms; 2012 Rubin Worldwide.

Source: Rubin Worldwide

06. The enterprise server for the 21st century

zEnterprise continues to grow and shape the future

System z Total Installed Capacity

56%	**230+**	**290+**	**80%+**	**7,400+**
MIPS growth and 6% revenue growth year-to-year	new accounts since 3Q10 zEnterprise launch, with 38% in growth markets	hybrid computing units shipped since 3Q10	of Top 100 clients have installed IFLs	ISV apps run on IBM System z; 33 new ISVs added in 3Q13

Source: IBM

zEnterprise – The enterprise server for the 21st century

- **Highly virtualized, highly scalable**
  - Ideal for consolidation of low utilization servers
  - Cloud-ready

- **Operational data hub for enterprise businesses**
  - Bring the analytics to the data for fast real-time analysis
  - Mobile-enabled – only zEnterprise is capable of handling the tsunami of transactions generated by mobile business

- **Highest levels of reliability and availability; ultimate security**
  - Virtually always on to serve business

- **True multi-architecture platform to best serve hybrid applications**

- **Low total cost of ownership**

Next steps…

Ask yourself…

How can I stay ahead of my competitors?

Is the mainframe viable for my new applications?

How can I better understand the options I have?

Do I have a solid roadmap?

How do I generate a proper business case?

How can I use mobile to my advantage?

06. The enterprise server for the 21st century

The Eagle team can help with cost justification

- **Worldwide** team of senior technical IT staff

- **Free of charge** cost and business case assessments

  - Help customers evaluate cost options among alternative approaches

  - Includes an on-site visit and report specifically tailored to a customer's enterprise

- Studies cover Power Systems, PureSystems, System z and Storage

- Over 300 customer studies completed

- Contact: eagletco@us.ibm.com

Enterprise Server Economics

Fit For Purpose Platform Selection

Private Cloud Implementation

Consider a Portfolio Review and Analysis (PRA) to better understand your System z software assets

IBM's PRA team helps customers understand how to save money with IBM System z software

- A **Portfolio Review Analysis** provides:

(1) A snapshot of a client's current System z software portfolio cost structure….

(2) A mapping of the portfolio cost structure against multiple growth scenarios…

(3) An analysis of cost effective equivalent products projected with customized growth scenarios

of Tennessee

Blue Cross Blue Shield of Tennessee saved millions with the help of the Performance Review and Analysis

http://www-01.ibm.com/software/solutions/softwaremigration/BCBS_Final.exe

**http://www-3.ibm.com/software/solutions/softwaremigration/sps.html
Or contact Linda Beckner at (614) 659-7192 or at Becknel@us.ibm.com.**

Attend a System z Infrastructure Application Workshop (zIAW) to develop a vision and roadmap

A zIAW is a 1-2 day workshop aimed at maximizing the value of System z as a platform

- Engage in a consultative process to evaluate and recommend the best platform(s) for a specific workload

- Understand where a System z solution can help achieve competitive advantage

- Develop a future **VISION** for IT application architecture

- Develop a **ROADMAP** with recommended enhancements to the existing architecture

Contact:
Mike Benson (smb@us.ibm.com) or
Chris Norton (cnorton@us.ibm.com)

06. The enterprise server for the 21st century

Meet and plan with IBM architects at a MobileFirst Workshop

*A one day, no charge interactive workshop with an IBM Mobile expert
to help enterprises plan and develop a customized roadmap for success*

Workshop	Client Value	Highlights

For Line of business and IT leaders seeking expertise and experience in developing, enhancing, and/or executing their mobile enterprise strategy.

- Industry expertise with top use cases and successes
- Capability assessment including identification of opportunities and gaps in mobile strategy
- A detailed client report and next steps

- Interactive discussion to understand client business drivers, pains and requirements
- Overview of IBM MobileFirst Strategy, technology and POV's
- Industry trends and imperatives
- Structured working session to outline next steps

To schedule a workshop, email: ibmmobile@us.ibm.com

04. Is your enterprise ready for the mobile revolution?

IBM Executive Briefing Centers offer comprehensive, in-depth technology briefings and product demonstrations

Worldwide access to IBM's extensive technical resources and world-class research and development teams

Gain insight into how on-demand business is redefining the IT operating environment

Clients who take advantage of IBM Executive Briefing Centers can make more informed decisions

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