

Data Center du Futur : IBM présente l'évolution la plus significative dans la conception de systèmes depuis 20 ans : le nouveau mainframe zEnterprise, le "Système des systèmes"

New York - 22 juil. 2010: IBM (NYSE: IBM) today announced the zEnterprise mainframe server and a new systems design that allows workloads on mainframe, POWER7 and System x servers to share resources and be managed as a single, virtualized system. The new mainframe is also the most powerful and energy-efficient mainframe ever.

- La nouvelle architecture de systèmes IBM étend les bénéfices liés à la gouvernance et à la gestion des mainframes aux environnements System x et POWER 7
- Cette nouvelle technologie décuple les performances en matière d'analytiques complexes, fournissant des résultats d'analyses de données business en quelques minutes au lieu de quelques heures
- zEnterprise est le serveur mainframe le plus puissant et le plus évolutif jamais construit : il est jusqu'à 60% plus rapide que les System z10
- Le nouveau mainframe est également le serveur le plus écologique : plus de 100 000 serveurs virtualisés peuvent être gérés en tant que serveur unique ; il bénéficie de 60% de capacité en plus que les z10 pour la même consommation énergétique

The new systems design combines IBM's new zEnterprise mainframe server with new technology--the IBM zEnterprise BladeCenter Extension and the IBM zEnterprise Unified Resource Manager--that enable it to manage workloads running across System z, and select POWER7 and System x servers. The new technology is the result of an investment of more than \$1.5 billion in IBM research and development as well as more than three years of collaboration with some of IBM's top clients around the world.

As a result, customers can integrate the management of zEnterprise System resources as a single system and extend mainframe qualities, such as governance and manageability, to workloads running on select IBM POWER7 and System x blade servers. With the ability to manage workloads across systems as one, the zEnterprise System can drive up to 40% lower acquisition costs and reduce cost of ownership by 55%.4

IBM designed the zEnterprise System to address an important issue for corporate data centers -- the jumble of disparate technologies added over time to run specific applications and which operate in silos, sometimes unable to communicate with each other in real time and requiring separate staff and software tools to manage. This long-standing challenge for customers is aggravated by dramatic increases in cost and complexity amid a

rising tide of sophisticated, data-intensive workloads in an increasingly interconnected world.

For example, using the zEnterprise System with the zEnterprise BladeCenter Extension and IBM zEnterprise Unified Resource Manager, a financial services company managing credit card transactions on the mainframe using an IBM blade optimized for analytics can gain insights from the information in seconds. Previously, it would have taken hours for the two disparate systems to integrate their databases. IBM estimates that complex database queries can experience up to a ten-fold performance improvement in this hybrid environment.² In addition, with IBM's new design, the financial services company can extend the mainframe's always-on reliable qualities to its customer service applications running on IBM blades servers.

At Citi, IBM System z plays a major role as a core processing engine of virtually every line of business at the global financial services company.

*"The new IBM zEnterprise System represents a potentially revolutionary change to the platform and the next phase in the evolution of highly efficient, scalable processing opening up the possibility of hosting entire workloads on a single highly integrated system," said **Martin Kennedy, Managing Director, Citi's Enterprise System Infrastructure**. "The new zEnterprise also paves the way to enhance the energy dynamics of our data centers. As one of America's greenest banks we plan to take full advantage of the additional capacity and advanced power and cooling capabilities unique to zEnterprise. Citi's unified technology decision making model and its recent efforts to gain efficiencies prepared us to invest in these innovative technologies that benefit our clients."*

*"The new IBM zEnterprise System represents a bold move to fundamentally change how data centers are managed," said **Tom Rosamilia, General Manager, IBM Power and z Systems**. "The new mainframe is the fastest enterprise server in the world and represents a giant leap forward in performance. This new dimension in enterprise computing-- extending mainframe governance to POWER7 and System x blades integrated into the zEnterprise System architecture--was developed over the past three years with direct involvement from a team of IBM's 30 top customers, which provided direct input at every stage of the development process."*

IBM zEnterprise BladeCenter Extension

The IBM zEnterprise BladeCenter Extension allows supports purpose IBM POWER7 and System x BladeCenter systems as well as blades optimized for specific workloads, such as analytics and managing Web infrastructure.

IBM blade servers inside the IBM zEnterprise BladeCenter Extension--which can be managed like mainframe resources--integrate with System z and can run tens of thousands of off-the-shelf applications. Later this year, IBM will deliver the zEnterprise BladeCenter Extension with support for IBM POWER7 blades running AIX, IBM's UNIX operating system. IBM is also introducing the IBM Smart Analytics Optimizer to accelerate the performance of complex analytic workloads at a lower cost per transaction.

Next year, IBM plans to announce additional general purpose blades for the IBM zEnterprise BladeCenter Extension including select IBM System x-based blades running Linux. Additional workload optimized blades are planned to include IBM DataPower for improving website and network performance.

IBM zEnterprise Unified Resource Manager

New IBM Systems Software called Unified Resource Manager is first-of-its-kind firmware--software that controls how the hardware functions--that integrates multiple platform resources as a single virtualized system and provides unified management for zEnterprise. More than 100,000 virtualized servers can be managed as a single system on a fully-configured cluster of zEnterprise Systems.

The zEnterprise Unified Resource Manager is the key to using mainframe quality of service attributes, including security and reliability, to benefit workloads running on select Power and System x BladeCenter systems. For example, the Unified Resource Manager can identify system bottlenecks or failures among disparate systems. If a failure occurs on a System x blade server, the Unified Resource Manager can instantaneously move the affected application to another System x blade to keep it running. At the same time, the Unified Resource Manager automatically sends an electronic message to IBM to initiate a service call. The Unified Resource Manager can also help prioritize compute workloads in line with changing business priorities.

Additionally, the zEnterprise Unified Resource Manager improves network security across applications spanning the complete zEnterprise system, including workloads on IBM POWER 7 and System x blades. This helps reduce complexity and the need for additional encryption and firewall security software within the zEnterprise environment.

The New zEnterprise 196

From a performance standpoint, the zEnterprise System is the most powerful IBM system ever. The core server in the zEnterprise System--called zEnterprise 196--contains 96 of the world's fastest, most powerful microprocessors running at 5.2Ghz, capable of executing more than 50 billion instructions per second.

This new IBM microprocessor technology has new software to optimize performance of data-heavy workloads, including up to a 60% improvement in data intensive⁵ and Java workloads.⁶ Increased levels of system performance in turn increases software performance, which can reduce software license costs.

The new system offers 60% more capacity than its predecessor, the System z10, and uses about the same amount of electricity. For clients selecting Linux on System z, a single virtualized server can be created and deployed for less than \$1 per day.⁷ It costs 74% less to run comparative Oracle workloads on the zEnterprise

196 compared to x86 systems.⁸

Energy efficiencies were achieved through advances in microprocessor design, 45nm silicon technology, more efficient power conversion and distribution, as well as advanced sensors and cooling control firmware that monitors and makes adjustments based on environmental factors such as temperature and humidity levels and even air density.

A water cooling option is also available for the z196 that can reduce energy use by up to 12%.⁹ In a normal data center environment, water cooling reduces the required system air flow by more than 20%, while removing more than 70% of the system air heat load. This can be particularly beneficial for data centers with hot spots, or limited power and cooling capacity. Water cooling on the z196 is designed to connect directly to typical data center chilled water systems and does not require an external water conditioning unit.

The new z196 builds on the IBM System z industry leading security features. IBM System z servers are the only commercial system to achieve Evaluation Assurance Level 5 security classification.

The z196 can be configured to include up to 80 specialty engines to further reduce costs and increase performance including the System z Application Assist Processor (zAAP) for integrating Java workloads with core business applications, the System z Integrated Information Processor (zIIP) designed to help free-up computing capacity and lower IT costs, and the Integrated Facility for Linux (IFL) to optimize Linux workloads running on the mainframe.

Smart Analytics Optimizer

IBM is also announcing the new IBM Smart Analytics Optimizer--created by IBM Research--an accelerator for analytic workloads integrated to the new mainframe through the BladeCenter Extension. With the hybrid features of the new zEnterprise system and the Smart Analytics Optimizer customers can analyze data to anticipate emerging business trends, capture new opportunities and avoid risks up to 10 times faster.² Using zEnterprise with DB2 10 for z/OS (currently in beta), Cognos Business Intelligence and SPSS Predictive Analytics, clients will have a single platform for unprecedented insight across their most critical core information resulting in increased productivity.

New IBM Software

The unique value of zEnterprise System is the synergy among the range of IBM hardware and software. New software has been optimized for the zEnterprise and finely tuned to work cross platform when used in conjunction with the new Blade Center Extension. New Tivoli integrated service management for zEnterprise software helps provide visibility, control, and automation for applications, business services, infrastructure, and data resources. The new Tivoli security manager for zEnterprise software will allow clients to report and analyze

security events associated with Linux on System z and include these reports in the mainframe reporting and analysis, and also easily enroll and manage federated user access for zEnterprise and Linux on System z.

The new IBM Rational Developer for System z multi-platform environment for building, testing and deploying zEnterprise applications now offers a new Rational Developer for System z Unit Test feature. This feature improves zEnterprise development productivity by off-loading mainframe application development and testing to a workstation, which frees the mainframe to run high-value core business applications. New compilers also announced today help customers update applications designed to work on older systems to take advantage of the zEnterprise architecture. The new IBM Rational C++ compiler, for example, can boost overall application performance by as much as 60%¹⁰, when combined with new zEnterprise systems.

The new CICS deployment assistance for z/OS provides comprehensive reporting and improved change management facilities for CICS, helping further reduce ongoing IT infrastructure costs.

IBM Information Management System (IMS) 11, which drives a high percentage of today's transaction intensive workloads, extends its ability to easily interconnect with other applications using extended web services and connectivity for SOA. IMS runs 50 billion transactions every day on System z with real-time operational access from any application or platform.

The new Lotus collaborative tools on Linux on System z combine the productivity boost of collaboration with enterprise grade processor speed, scalability, and reliability to help people inside and outside an organization connect and collaborate faster and more reliably --- accelerating business processes and driving growth. New versions of IBM Lotus Quickr and IBM Lotus Sametime join other products in the IBM Lotus software portfolio in empowering globally distributed and mobile employees with highly scalable communications and collaboration capabilities.

IBM is also announcing a new z/OS Distributed Data Backup feature for its flagship DS8000 storage system that can help lower data protection and disaster recovery costs by consolidating cross platform disaster recovery environments on to the z196. Clients can now back up vital data from multi-platform workloads over high performance connections with the unmatched reliability and security of the mainframe.

For additional information please visit <http://www.ibm.com/press/zenterprise>

Footnotes:

1-The new IBM zEnterprise 196 will ship later this quarter. Select IBM POWER7 based blades that connect to the IBM zEnterprise BladeCenter Extension and managed by the zEnterprise Unified Resource Manager will ship in the fourth quarter of 2010. This feature will be extended to select System x blades next year.

2-Average improvements of 5x to 10x were seen in internal IBM test results that reflect actual client queries. Results can vary by user.

3-Up to 60% faster than z10 for new workloads.

4-Based on IBM analysis of a large Financial Services company Datacenter. See details on ibm.com/systems/zenterprise/ Deployment configurations based on IBM studies and will vary based on workload characteristics. Price calculations based on publicly available US list prices, prices will vary by country.

5-Up to 60% increase in total system capacity for Data managed with DB2 and IMS. As measured by IBM Large System Performance Reference (LSPR) workloads using z/OS® 1.11

6-Up to a 66% improvement in Java performance with Linux on System z. The improvement on z196 compared to z10 was measured using a single Java application that focus on a variety of Java Runtime Environment (JRE) application functions typically used in both client and servers.

7-Linux on System z virtual servers can be: Less than \$1000 for 3 years; Less than \$335 per year; Less than \$1 per day. Based on US ELS pricing. Pricing may vary by country. Model configuration included 64 IFL cores running a mixed workload averaging 47 virtual machines per core with varying degrees of activity. Includes zEnterprise hardware and z/VM virtualization software. Does not include Linux OS or middleware software.

8-Distributed server comparison is based on IBM cost modeling of Linux on zEnterprise vs. alternative distributed servers. Given there are multiple factors in this analysis such as utilization rates, application type and local pricing, etc.; savings may vary by user

9-IBM estimates, based on typical 4 book system.

10-Results are based on a compute-intensive integer benchmark suite compiled with z/OS C/C++ V1R9 executing on a System z10 and compared to the same benchmark compiled with z/OS C/C++ V1R12 executing on a System zEnterprise 196. Performance gains from other applications may vary.
