



# IBM zEnterprise System, z/OS, and z/VM enhancements shorten time to value, deliver enhanced security, and improve data access

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## At a glance

Today's announcement includes the following enhancements:

- IBM<sup>(R)</sup> WebSphere<sup>(R)</sup> DataPower<sup>(R)</sup> Integration Appliance XI50 for zEnterprise<sup>(R)</sup> (DataPower XI50z) V6.0 firmware for the IBM zEnterprise BladeCenter<sup>(R)</sup> Extension (zBX) Model 003 when attached to IBM zEnterprise EC12 (zEC12) and IBM zEnterprise BC12 (zBC12) servers:
  - Helps provide fast time to value and improved developer productivity with configuration-pattern-authoring and deployment support
  - Helps to reduce infrastructure complexity and lowers total cost of ownership for security and integration gateway solutions
  - Designed to provide easy-to-use, security-enhanced integration with Worklight<sup>(R)</sup> for Mobile web traffic
- IBM Mobile Systems Remote application designed to allow you to display the configuration, status, and metrics information for servers managed by the System z<sup>(R)</sup> Hardware Management Console (HMC)
- Common Cryptographic Architecture (CCA) enhancements for the zEC12, zBC12, IBM zEnterprise 196 (z196), and IBM zEnterprise 114 (z114) servers when a Crypto Express4S or Crypto Express3 PCIe adapter is configured as a CCA coprocessor
- z/VM<sup>(R)</sup> V6.3 support for CPU pooling, designed to allow you to cap CPU utilization for a group of guests, to better balance CPU resource usage
- z/VM V6.3 interface for environment information, designed to allow you to gather CPU resource information that can be exploited by applications to help determine their operating environment including machine, logical partition, CPU pool, and virtual machine configuration
- z/VM V6.3 guest exploitation of the zEDC Express<sup>(R)</sup> feature (#0420) on the zEC12 and zBC12 servers, designed for compression acceleration for resource optimization
- z/VM V6.3 guest exploitation of the 10GbE RoCE Express feature (#0411) on the zEC12 and zBC12 servers, designed to allow guests to utilize Remote Direct Memory Access over Converged Ethernet (RoCE) for optimized networking
- z/OS<sup>(R)</sup> V2.1 updates and z/OS platform product updates
- Coupling Facility Control Code (CFCC) Level 19 exploitation of the Flash Express feature (#0402) on the zEC12 and zBC12 servers, designed to allow certain keyed list structure data to be migrated to Flash Express memory, helping WebSphere MQ provide significant buffering against enterprise messaging workload spikes

There is momentum growing around the world for the System z platform. The market is seeing a new wave of computing, which IBM calls Smarter Computing. The forces that are powering Smarter Computing are Big Data and Analytics, mobile computing, social networking, and the adoption of cloud-ready IT solutions. These transforming technologies are causing IT environments to shift from stable to unpredictable workloads, and from a static infrastructure to more of a private cloud-enabled set of services. For these reasons companies of all sizes are turning to the System z platform to improve their client experience and to gain new business advantages.

These shifts are driving demand for a secure, scalable, available, and reliable environment with integrated capabilities that zEnterprise delivers today. The zEnterprise offers a total systems approach for your infrastructure. Real-time operational analytics can protect your business by detecting a fraudulent transaction before it costs the company money. The advent of mobile computing is driving massive amounts of data and those numbers are growing in volume and complexity; System z is designed to cope with the required scalability. Consolidation of Linux™ on System z can result in significant IT simplification and cost savings to allow you to reinvest in growing your business. The zEnterprise System provides advanced heterogeneous systems management capabilities that are unmatched in the industry.

Today, IBM is strengthening its commitment to support Smarter Computing by announcing enhancements to the IBM zEnterprise EC12 (zEC12), the IBM zEnterprise BC12 (zBC12), and the IBM zEnterprise BladeCenter Extension (zBX). New support provided for the IBM WebSphere DataPower Integration Appliance X150 for zEnterprise firmware V6.0 can help with the rapid data transformation for cloud and mobile applications.

A mobile application is now available, IBM Mobile Systems Remote, to allow you to display the configuration, status, and metrics information for systems managed by the System z Hardware Management Console (HMC). The application can be downloaded from the web to your iOS devices from the Apple App Store or, for Android devices, from the Google Play Store.

Additional Common Cryptographic Architecture enhancements are now being made available in support of Die Deutsche Kreditwirtschaft (DK) AES PIN, new message authentication codes (MAC) using the AES-CMAC algorithm, and User Defined Extension (UDX) simplification for PKA Key Translate. These enhancements are available on the zEC12, zBC12, z196, and z114 servers.

Delivering on statements of direction, z/VM V6.3 now supports guest exploitation for compression acceleration using the zEDC Express feature and Remote Direct Memory Access over Converged Ethernet using the 10GbE RoCE Express feature, which is designed to help improve data transmission and communications across servers. Two additional enhancements are being offered for z/VM V6.3 environments: CPU pooling and an environment information interface.

z/OS V2.1 was made generally available September 30, 2013. To further enhance the groundwork for the next tier of mainframe computing, additional enhancements are now being offered for both z/OS V2.1 environments and z/OS platform products.

An enhancement to CFCC Level 19 is designed for exploitation of the Flash Express feature to help improve the resiliency of the Coupling Facility with cost-effective standby capacity to handle overflow of WebSphere MQ shared queues.

Through our continuous investment, the zEnterprise System is built to help you embrace IT and shifting market forces. It can help you reshape the value you deliver to your customers with a level of efficiency and economics unmatched in the industry.

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## Key prerequisites

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Refer to the [Description](#) section for specific firmware drivers and software requirements.

### **Machine Change Levels (MCLs) are required.**

Descriptions of the MCLs are available on Resource Link<sup>(R)</sup>.

Access Resource Link at

<https://www.ibm.com/servers/resourcelink/>

Refer to: Mainframe products (select Product), Planning, Machine Information, EC/MCL report.

MCLs are designed to be applied concurrently except for the Crypto MCLs for the zEC12 and zBC12 servers. Contact IBM service personnel for further information.

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## Planned availability date

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Available now:

- IBM Mobile Systems Remote application for System z
- CCA enhancement for DK AES PIN support when a Crypto Express4S (zEC12, zBC12) or Crypto Express3 (zEC12, zBC12, z196, z114) PCIe adapter is configured as a CCA coprocessor

March 31, 2014:

- DataPower XI50z V6.0 firmware for zBX Model 003 when attached to zEC12 and zBC12 servers
- CCA enhancements for Message Authentication Codes and UDX simplification for PKA Key Translate when a Crypto Express4S (zEC12, zBC12) or Crypto Express3 (zEC12, zBC12, z196, z114) PCIe adapter is configured as a CCA coprocessor
- CFCC Level 19 exploitation of the Flash Express feature (#0402) on the zEC12 and zBC12 servers

June 27, 2014:

- z/VM V6.3 support for CPU pooling
- z/VM V6.3 support for environment information interface
- z/VM V6.3 guest exploitation of the zEDC Express feature (#0420) on the zEC12 and zBC12 servers
- z/VM V6.3 guest exploitation of the 10GbE RoCE Express feature (#0411) on the zEC12 and zBC12 servers

For availability of z/OS V2.1 updates and z/OS platform product updates, refer to the [Description](#) section.

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## Description

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### ***Additional support for the IBM BladeCenter Extension (zBX) Model 003***

**Firmware V6.0 support for DataPower XI50:** The IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise (DataPower XI50z) is a multifunctional appliance that is positioned to act as a security and integration gateway for a full range of web, mobile, service-oriented architecture (SOA), and cloud workloads in a single, highly secure, enhanced appliance. Today we are announcing support for

DataPower XI50z firmware V6.0 for the zBX Model 003 supported on the zEC12 and zBC12 servers.

Firmware Version 6.0 includes:

- Functionality to rapidly enable security, control, integration, and optimized access to web and mobile workloads
- Mobile web traffic security for IBM Worklight: Easy-to-use authentication integration for Worklight platform
- Front-end proxy for WebSphere Application Server: Embedded, on-demand router functionality for WebSphere Application Server Network Deployment environments
- Local response caching and integration with DataPower XC10 Caching Appliance: Optimized application delivery with local response caching on the appliance and seamless integration with elastic caching XC10 appliances
- Enhanced value for System z: New integration capabilities between DataPower and IMS™ that are designed to allow IMS transactions to more easily consume external web services and remote applications to more easily consume IMS data as a service
- Pattern-based configurations: Intuitive and easy-to-use tool for creating and deploying common DataPower configuration

The zBX Model 003 is supported for attachment to the zEC12 and zBC12 servers. This support is transparent to operating systems.

Hardware requirements when a zBX Model 003 is attached to the zEC12 and zBC12 servers:

Family	Machine type	Firmware driver	SE version
zEC12	2827	15 with MCLs	2.12.1
zBC12	2828	15 with MCLs	2.12.1

For more information regarding IBM WebSphere DataPower Appliances firmware V6.0, refer to Software Announcement [AP13-0167](#), dated 2013-04-23.

### ***IBM Mobile Systems Remote application for System z***

An experimental mobile application, IBM Mobile Systems Remote, is designed to allow you to display the configuration, status, and metrics information for servers managed by the System z Hardware Management Console (HMC). The mobile application presents information in an intuitive drill-down style interface for ensembles, Central Processor Complexes (CPCs), workloads, virtual servers, and IBM blades (resources managed by IBM zEnterprise Unified Resource Manager). This application is designed to provide IT personnel greater flexibility in performing their tasks.

IBM Mobile Systems Remote is available for iOS devices from the Apple App Store and available for Android devices from the Google Play Store. The developer's website provides an overview of the functionality of the application and its key features. Refer to

[http://ibmremote.com/IBM\\_Mobile\\_Systems\\_Remote/Welcome.html](http://ibmremote.com/IBM_Mobile_Systems_Remote/Welcome.html)

The mobile application requires network access to the desired HMC. The user must arrange for access using either the corporate WiFi or VPN from an external network. In addition, the HMC must have its Web Service APIs enabled in order for the application to access and display system configuration, status, and metrics.

### ***Common Cryptographic Architecture (CCA) enhancements***

When a Crypto Express4S (zEC12, zBC12) or Crypto Express3 (zEC12, zBC12, z196, z114) PCIe adapter is configured as a CCA coprocessor, the following cryptographic enhancements are supported:

**Die Deutsche Kreditwirtschaft (DK) AES PIN support:** The German banking industry organization, DK, has defined a new set of Personal Identification Number

(PIN) processing functions to be used on the internal systems of the banks and servers. CCA is designed to support these functions that are essential to those parts of the German banking industry governed by DK requirements. The functionality includes key management support for new AES key types, AES key derivation support, and several DK specific PIN and administrative functions. The intellectual property rights regarding the methods and specification of this support belong to the German Banking Industry Committee. DK is an association of the German banking industry. The German Banking Industry Committee is the hybrid term, in English, for Die Deutsche Kreditwirtschaft. Prior to August 2011, DK was named ZKA for Zentraler Kreditausschuss, or Central Credit Committee.

**New Message Authentication Code (MAC) support:** CCA now supports new message authentication codes using the Advanced Encryption Standard Cipher-based MAC (AES-CMAC) algorithm.

**User Defined Extension (UDX) simplification for PKA Key Translate:** The Integrated Cryptographic Service Facility (ICSF) and CCA are designed to allow businesses to create extensions to the base CCA services. All UDX services are provided under contract to specific customers by IBM Global Business Services<sup>(R)</sup>. With this announcement, ICSF and CCA add support for a UDX to the base CCA services. Support is added for translating an external RSA CRT key into new formats. These new formats use tags to identify key components. Depending on which new rule array keyword is used with the PKA Key Translate callable service, the service TDES encrypts those components in either CBC or ECB mode.

Hardware requirements for CCA enhancements:

Family	Machine type	Firmware driver	SE version
zEC12	2827	15 with MCLs	2.12.1
zBC12	2828	15 with MCLs	2.12.1
z196	2817	93 with MCLs	2.11.1
z114	2818	93 with MCLs	2.11.1

Software requirements for CCA enhancements:

When a Crypto Express4S (#0865) or Crypto Express3 (#0864, #0871) PCIe adapter is configured as CCA coprocessor the DK AES PIN Support and new Message Authentication Code support requires at a minimum:

- z/OS V2.1 with the Cryptographic Support for z/OS V1R13-z/OS V2R1 web deliverable (FMID HCR77A1) with PTFs
- z/OS V2.1 (FMID HCR77A0) with PTFs
- z/OS V1.13 with the Cryptographic Support for z/OS V1R13-z/OS V2R1 web deliverable (FMID HCR77A1) with PTFs
- z/OS V1.12 or z/OS V1.13 with the Cryptographic Support for z/OS V1R12-V1R13 web deliverable (FMID HCR77A0) with PTFs
- z/VM V5.4 with PTFs for guest exploitation

When a Crypto Express4S (#0865) or Crypto Express3 (#0864, #0871) PCIe adapter is configured as CCA coprocessor the new PKA Key Translate support requires at a minimum:

- z/OS V2.1 with the Cryptographic Support for z/OS V1R13-z/OS V2R1 web deliverable (FMID HCR77A1) with PTFs
- z/OS V2.1 (FMID HCR77A0) with PTFs
- z/OS V1.13 with the Cryptographic Support for z/OS V1R13-z/OS V2R1 web deliverable (FMID HCR77A1) with PTFs
- z/OS V1.13 with the Cryptographic Support for z/OS V1R12-V1R13 web deliverable (FMID HCR77A0) with PTFs
- z/OS V1.12 or z/OS V1.13 with the Cryptographic Support for z/OS V1R11-V1R13 web deliverable (FMID HCR7790) with PTFs

- z/VM V5.4 with PTFs for guest exploitation

The Cryptographic Support for z/OS web deliverables are available at

<http://www.ibm.com/systems/z/os/zos/downloads/>

### ***z/VM V6.3 enhancements***

**z/VM V6.3 support for CPU pooling:** With z/VM V6.3 you now have the ability to define new entities called CPU pools. CPU pooling is designed to allow you to define and limit the CPU resources a group of z/VM guests is allowed to consume in aggregate (in terms of physical processor units: general purpose processor (CP) or Integrated Facility for Linux (IFL) speciality engine).

A CPU pool has a name and an associated capacity. One or more virtual machines can be associated with a CPU pool and have their aggregate CPU consumption limited to the pool's capacity. In a single system image (SSI) cluster, Live Guest Relocation (LGR) for a guest associated with a CPU pool requires a compatible pool definition on the target cluster member. Capacity limits are defined and enforced independently on each cluster member.

This support is designed to allow you to cap CPU utilization for sets of guests to better balance overall resource usage, for example, to limit CPU charges based on what a set of guests is allowed to use. This support is provided by the PTF for APAR VM65418. This support is transparent to hardware.

**New z/VM V6.3 environment information interface:** A new interface in z/VM V6.3 has been designed to provide you the ability to obtain CPU resource information and to enable virtual machines to understand the characteristics of the environment in which they are running. Information is provided at many levels: the machine, logical partition, CPU pool, and virtual machine.

This new interface is designed to be exploited by application tools that need to understand the configuration of the application used by z/VM guest operating systems. The applications need to understand what is deployed and the amount of capacity available to be consumed by those applications. This support is provided by the PTF for APAR VM65419. This support is transparent to hardware.

**z/VM V6.3 guest exploitation of the zEDC Express feature:** z/OS guests running under z/VM V6.3 may now exploit the zEDC Express feature. IBM zEnterprise Data Compression (zEDC) for z/OS V2.1 and the zEDC Express feature are designed to support a new data compression function to help provide high-performance, low-latency compression without significant CPU overhead. This may help to reduce disk usage, provide optimized cross-platform exchange of data, and provide higher write rates for SMF data. This support is provided by the PTF for APAR VM65417.

The zEDC Express feature (#0420) on zEC12 and zBC12 servers requires at a minimum:

- z/OS V2.1 with PTFs and the zEDC for z/OS feature
- z/OS V1.13 with PTFs (software decompression support only)
- z/OS V1.12 with PTFs (software decompression support only)
- z/VM V6.3 with PTFs for guest exploitation

**z/VM V6.3 guest exploitation of the 10GbE RoCE Express feature:** z/OS guests running under z/VM V6.3 may now exploit the 10GbE RoCE Express feature. The term RoCE refers to Remote Direct Memory Access over Converged Ethernet. The 10 Gigabit Ethernet (10GbE) RoCE Express feature is designed to help reduce consumption of CPU resources for applications utilizing the TCP/IP stack (such as WebSphere Application Server accessing a DB2<sup>®</sup> database). Use of the 10GbE RoCE Express feature is designed to help reduce network latency with memory-to-memory transfers utilizing Shared Memory Communications-Remote Direct Memory Access (SMC-R) in z/OS V2.1. It is transparent to applications and can be used for LPAR-

to-LPAR communication on a single system or server-to-server communication in a multiple-CPC environment. This support is provided by the PTF for APAR VM65417.

The 10GbE RoCE Express feature (#0411) on zEC12 and zBC12 servers requires at a minimum:

- z/OS V2.1 with PTFs
- z/OS V1.13 with PTFs (compatibility support only)
- z/OS V1.12 with PTFs (compatibility support only)
- z/VM V6.3 with PTFs for guest exploitation

### **z/OS V2.1 update**

z/OS V2.1 was made generally available September 30, 2013. Version 2 sets the groundwork for the next tier of mainframe computing, enabling you to pursue the innovation to drive highly scalable workloads including private clouds, improved support for mobile and social applications, and more. Its unrivaled infrastructure is designed to help secure vast amounts of data; improved data analytics solutions in conjunction with highly optimized availability can help you deliver new value to your business; and continued improvements in management are targeted to help simplify and automate the operations of IBM zEnterprise Systems.

With support for and exploitation of the zEC12 and zBC12 servers and their features, z/OS V2.1 is designed to offer unmatched availability, scalability, and security to meet the emerging business challenges presented by cloud and data analytics, and to meet security demands for mobile and social applications. Through its unique design and qualities of service, z/OS is designed to deliver the foundation you need to support demanding workloads such as operational analytics and clouds alongside your traditional mission-critical applications.

With enhancements to management and operations, the combination of z/OS V2.1 and z/OS Management Facility V2.1 are designed to help improve ease of configuration and software service level management and to help you reduce cost and improve your configuration and management processes. Enhancements for z/OS V2.1 are designed to help you achieve the scalability and availability needed for cloud, deliver a superior data serving environment, and secure your mission-critical assets.

These z/OS V2.1 enhancements are now available:

- Support for recovering prior levels of PDSE Version 2 members. This new support is designed to allow you to specify how many member versions will be kept in a PDSE when creating one using JCL, ISPF, and dynamic allocation. Support is provided for specifying a system-wide maximum using a new MAXGENS\_LIMIT keyword in an IGDSMSxx parmlib member. A variety of programming services have been updated to support this new function. In addition, ISPF is designed to support editing, browsing, and recovering PDSE member versions. This support is provided by the PTF for APAR OA42358.
- z/OS Unicode support for the Hong Kong Supplementary Character Set (HKSCS-2008) for CCSID 1377 and 1375. This support is provided by the PTF for APAR OA43021.
- Common Cryptographic Architecture (CCA) enhancement support for the zEC12, zBC12, z196, and z114 servers with an MCL when a Crypto Express4S (zEC12, zBC12) or Crypto Express3 (zEC12, zBC12, z196, z114) PCIe adapter is configured as a CCA coprocessor. The German banking industry organization, DK, has defined a new set of Personal Identification Number (PIN) processing functions. CCA supports these new functions: key management support for new AES key types, AES key derivation support, and several DK-specific PIN and administrative functions. The ICSF support for these functions is provided by the PTF for APAR OA42246.

## New z/OS V2.1 functions:

- Further CCA enhancements for the zEC12, zBC12, z196, and z114 servers with an MCL when a Crypto Express4S (zEC12, zBC12) or Crypto Express3 PCIe adapter is configured as a CCA coprocessor. These are designed to further extend support for German banking industry organization (DK) Personal Identification Number (PIN) processing functions to include a number of new functions: Deterministic PIN Generate, Personal Account Number Translate, PIN Reference Value Card Number Update, PIN Reference MAC Generation, and the ability to Regenerate a new PIN reference value for a changed account number. This support is provided by the PTF for APAR OA43906 in the first quarter of 2014.
- CCA enhancements for Message Authentication Codes and new PKA Key Translate for the zEC12, zBC12, z196, and z114 servers with an MCL when a Crypto Express4S (zEC12, zBC12) or Crypto Express3 PCIe adapter is configured as a CCA coprocessor. Availability of the following new functions will be provided in the first quarter of 2014:
  - CCA support for new message authentication codes (MAC) using the AES-CMAC algorithm with corresponding ICSF support in the PTF for APAR OA43906.
  - ICSF and CCA support to reduce the need for User Defined Extensions (UDXs). CCA is designed to support additional algorithms used to translate RSA CRT keys, so that new UDXs do not need to be created for each ICSF or CCA level. The ICSF component of this support is provided by the PTF for APAR OA43816.
- A new, browser-based SDSF application designed to run in a z/OSMF environment. This new SDSF task is designed to support many of the same functions provided by the ISPF- and TSO/E-based SDSF applications, but take advantage of the richer display capabilities of a graphical user interface. This capability requires z/OSMF V2.1 (5610-A01). This support is provided by the PTF for APAR PM86303 in the first quarter of 2014.

In addition, more information is available for these previously announced z/OS V2.1 functions:

- Support for Extended Format BSAM and QSAM data set compression. This support, using the zEDC Express feature on the zEC12 and zBC12 servers, and zEnterprise Data Compression (zEDC) for z/OS V2.1 feature, is designed to offer a new option for compressed-format data sets. A new COMPACTION option in the SMS DATACLAS definition and a new COMPRESS option in an IGDSMSxx member of parmlib is designed to allow you to specify use of zEDC compression for data sets larger than a minimum size. This function is designed to help you save disk space and reduce the CPU usage required for compression compared to existing generic and tailored compression functions. This support is provided by the PTF for APAR OA42195 in the first quarter of 2014.

These z/OS platform products have also been updated:

- IBM 31-bit and 64-bit SDK for z/OS Java™ Technology Edition, Version 7 Release 1 (5655-W43 and 5655-W44) (IBM SDK 7 for z/OS Java) now provides exploitation of the zEDC Express feature, as well as exploitation of Shared Memory Communications-Remote Direct Memory Access (SMC-R), which is utilized by the 10GbE RoCE Express feature. In addition, this update is designed to provide improved integration of Java with core z/OS workload management facilities with new Java APIs that allow you to use the Workload Manager (WLM) query contention service (SYSEVENT QRYCONT). These programming interfaces are designed to support adaptive concurrent online and batch workloads in Java-based processing environments such as WebSphere Compute Grid.
- With the Java update above and the PTF for APAR OA43869, the IBM Encryption Facility for z/OS (5655-P97) now exploits the zEDC Express feature on the zEC12 and zBC12 servers and the zEnterprise Data Compression (zEDC) for z/OS V2.1 feature. This complements the software compression support available with the Encryption Facility OpenPGP support, and is designed to help decrease encryption time by using the zEDC Express feature rather than software compression.



- Version 5.2 of Sterling Connect:Direct<sup>®</sup> for z/OS (5655-X01 and 5655-X09) supports new performance-related functions; high-speed file transfer capabilities using a combination of Extended Count Key Data (ECKD<sup>™</sup>) and Fixed Block Architecture (zFBA) interfaces to the IBM System Storage<sup>®</sup> DS8000<sup>®</sup> series with the z/OS Distributed Data Backup (zDDB) feature. In addition, z/OS support for large data sets and Extended Address Volumes (EAVs). Sterling Connect:Direct also supports file compression using the zEDC Express feature available for zEC12 and zBC12 servers and the zEnterprise Data Compression (zEDC) for z/OS V2.1 feature.

For more information regarding Version 5.2 of Sterling Connect:Direct for z/OS, refer to Software Announcement [AP14-0022](#), dated 2014-02-11 .

z/OSMF V2.1 (5610-A01) is being updated with designs to provide:

- A new API to support external applications, allowing you to import them into z/OSMF in a way that makes them appear in the z/OSMF navigation tree. An external application that has been imported into z/OSMF, while not part of z/OSMF itself, is designed to be:
  - Presented in the z/OSMF user interface
  - Allowed to use certain z/OSMF services
  - Able to link to other z/OSMF applications
- Improvements to the workflow capability introduced in z/OSMF V2.1, to allow workflow authors additional flexibility, such as support for supplying defaults for a workflow, and allow end users to specify that some workflow steps be performed automatically when appropriate. This is designed to improve the usability of workflows.
- The capability to retrieve and display recent historical performance information in the Resource Monitoring application. In addition, new function is designed to allow you to export information displayed in the application to a file that can be imported by popular spreadsheet programs.
- The ability to add comments to WLM service definition actions. For example, you might use this to document the reason for changes to WLM policies for later review.
- New capabilities in the Software Management application:
  - Make it easier to add non-SMP/E-managed data sets to a software instance. This is designed to make it easier to associate many data sets that are not managed by SMP/E zones with a software instance.
  - Offer a more convenient way to edit mount points for the z/OS UNIX<sup>™</sup> System Services file system. This capability is designed to make it easier for you to manage multiple mount points for z/OS UNIX file system data sets during a deployment operation.
- Support for using the Ctrl key on most PC keyboards as the Enter key in the ISPF task. This makes it easier to use the ISPF task by providing better consistency with typical 3270 emulator keyboard layouts.
- Support in the REST Jobs API to hold and release jobs, and to work with jobs using a secondary JES2 subsystem. These new capabilities provide more flexibility.
- Two new z/OSMF REST services designed to allow you to view lists of data sets, and to view lists of z/OS UNIX files and directories. These new interfaces further extend the capabilities for developing web-based applications using data stored on z/OS.
- A new workflow designed to help you configure z/OSMF plug-ins quickly and easily. This can help you complete the steps needed to take advantage of z/OSMF functions more quickly.

Support for the above listed z/OSMF V2.1 functions is provided with the PTF for APAR PM98630 in the first quarter of 2014.

## Improved Coupling Facility resiliency

Coupling Facility Control Code (CFCC) Level 19 exploitation of the Flash Express feature is designed to help improve resiliency while providing cost-effective standby capacity to help handle the overflow of WebSphere MQ shared queues. You can now specify overflow areas for certain Coupling Facility list structures in the Storage Class Memory (SCM) provided by the Flash Express feature. This is designed to allow structure data to be migrated to Flash Express memory as needed and migrated back to real memory to be processed. When using WebSphere MQ for z/OS Version 7 (5655-R36), this new capability is expected to help provide significant buffering against enterprise messaging workload spikes and to help provide support for storing very large amounts of data in shared queue structures, potentially allowing several hours of data to be stored without causing interruptions in processing.

CFCC Level 19 exploitation of the Flash Express feature (#0402) on zEC12 and zBC12 Coupling Facilities requires the following:

Hardware requirements:

Family	Machine type	Firmware driver	SE version
zEC12	2827	15 with MCLs	2.12.1
zBC12	2828	15 with MCLs	2.12.1

Software requirements with availability in the first half of 2014:

- z/OS V2.1 with PTFs for APAR OA40747
- z/OS V1.13 with PTFs for APAR OA40747

**CFSizer has been updated** with support for CFCC Level 19 exploitation of the Flash Express feature. The following are now available:

- The MQSeries<sup>®</sup> input page now accepts an input describing the number of minutes of overflow capacity desired. Specifying a non-0 value for that input triggers the Flash Express calculations. Refer to <http://www-947.ibm.com/systems/support/z/cfsizer/mqseries/>
- The Alternate Sizing Techniques page now provides two versions of the Sizer utility for download. The new version, 1.01, supports Flash Express along with other significant changes, most notably writing to a user-specified data set or sysout instead of to the console. The previous version, 0.12, is provided for fallback or compatibility and will eventually be deprecated. Refer to <http://www-947.ibm.com/systems/support/z/cfsizer/altsize.html>

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## Product positioning

The IBM zEnterprise is designed to enable organizations of all sizes to build a better customer experience for a strong business advantage. With a history of being at the forefront of delivering leading business capabilities, extreme computing efficiency, and software and firmware enhancements (fulfillment of statements of direction), zEnterprise continues to be in a position to capitalize on, and support key market shifts and transformative technologies that enable a competitive advantage.

For clients embracing the new technologies, the opportunity will require the enterprise to accommodate additional security capabilities and access controls, and to manage the exponential growth in application traffic. The IBM WebSphere DataPower Integrated Appliance XI50 for zEnterprise (DataPower XI50z) is designed to provide security and integration gateway capabilities in convenient form factors for blade and IBM System z environments. Enhancements with the Firmware V6.0 are designed to offer additional capabilities, including mobile web traffic security, on-demand router functionality, and new integration capabilities for IMS to help make it easier to consume IBM data as a service.

Clients wanting to obtain key systems configuration, status, and metrics on their mobile devices will be interested in a new mobile application. IBM Mobile Systems

Remote is designed to allow you to display the configuration, status, and metrics information for ensembles, CPCs, workloads, virtual servers, and IBM blades (resources managed by IBM zEnterprise Unified Resource Manager). The application is available for iOS and Android devices.

If your business has zEC12 or zBC12 servers with Crypto Express4S or Crypto Express3 features installed or you have z196 or z114 servers with Crypto Express3 features installed, you may benefit from the Common Cryptographic Architecture enhancements now being made available in support of Die Deutsche Kreditwirtschaft (DK) AES PIN, new message authentication codes (MAC) using the AES-CMAC algorithm, and User Defined Extension (UDX) simplification for PKA Key Translate.

z/VM V6.3 has been enhanced to provide guest support for both the zEDC Express and 10GbE RoCE Express features. The zEnterprise compression capability (zEDC Express) is designed to offer industry-standard compression that supports cross-platform data distribution, help reduce disk space requirements, and help improve channel and networking bandwidth. The Remote Direct Memory Access over Converged Ethernet offered by the 10GbE RoCE Express feature is designed to help reduce latency and CPU resource consumption as compared to traditional TCP/IP communications, without requiring any application changes.

z/VM V6.3 has also been enhanced to support CPU pooling and an interface for environment information. CPU pooling is designed to allow you to cap CPU utilization for a group of guests to help balance resource usage. The interface for environment information is designed to allow you to gather CPU resource information that can be exploited by applications to help determine their operating environment including machine, logical partition, CPU pool, and virtual machine configuration.

z/OS V2.1 was made generally available September 30, 2013. To further position you to deploy highly scalable workloads, including private clouds, additional enhancements are now being offered for both z/OS V2.1 environments and z/OS platform products. These enhancements are designed to help you deliver additional value to your customers while allowing you to continue to maintain an infrastructure to help secure vast amounts of data.

The Flash Express feature is designed to offer improved availability and performance for key workloads at critical processing times. Flash memory is designed to help improve the availability during workload transition periods and spikes such as start-of-day processing or batch online transitions. With enhancements announced today, CFCC Level 19 can now exploit the Flash Express feature to help improve WebSphere MQ resiliency by providing a cost-effective way to handle WebSphere MQ shared queue overflows.

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## Statement of general direction

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**Enhanced RACF<sup>(R)</sup> password encryption algorithm:** In the future, an enhanced RACF password encryption algorithm is planned. This support will be designed to provide improved cryptographic strength in RACF password algorithm processing. This will be intended to help protect RACF password data in the event that a copy of a RACF database becomes inadvertently accessible.

**New function for z/OSMF:** New function is planned for z/OSMF V2.1 to include support for the Microsoft<sup>TM</sup> Internet Explorer 10 browser, OpenSSH SFTP support for the Incident Log, integrated management of generated jobs in the Software Management application, workflow improvements, and z/OSMF REST services support for editing and browsing files and data sets.

**Last z/OS release to provide software support for several TCP/IP device drivers:** z/OS V2.1 is planned to be the last z/OS release to provide software support for several TCP/IP device drivers. IBM recommends that customers using any of these device drivers migrate to more recent device types, such as OSA-Express QDIO and HiperSockets<sup>TM</sup>. The TCP/IP device drivers planned to be removed are: Asynchronous Transfer Mode (ATM), Common Link Access To Workstation

(CLAW), HYPERChannel, Channel Data Link Control (CDLC), SNALINK (both LU0 and LU6.2), and X.25. **Note:** Support for SNA device drivers is not affected.

**Removal of SMTPD NJE Mail Gateway and Sendmail mail transports from z/OS Communications Server:** It is the intention of IBM to remove the Simple Mail Transport Protocol Network Job Entry (SMTPD NJE) Mail Gateway and Sendmail mail transports from z/OS Communications Server in the future. If you use the SMTPD NJE Gateway to send mail, IBM recommends you use the existing CSSMTP SMTP NJE Mail Gateway instead. CSSMTP provides significant functional and performance improvements. The Sendmail client program can also be used to send mail messages; a replacement function using CSSMTP as the SMTP transport is planned. This function will be designed so that it does not require application programming changes. No replacement function is planned in z/OS Communications Server to support using SMTPD or Sendmail as a (SMTP) server for receiving mail for delivery to local TSO/E or z/OS UNIX System Services user mailboxes, or for forwarding mail to other destinations.

**Removal of support for ESA/390 interpretive-execution facility:** The IBM zEnterprise EC12 and the IBM zEnterprise BC12 are planned to be the last System z servers to support the ESA/390 interpretive-execution facility. All future System z servers are designed to support the z/Architecture<sup>(R)</sup> interpretive-execution facility exclusively. This will prevent all non-z/Architecture versions of the z/VM operating system (V4.4 and earlier, which are currently out of service), and any other operating system or program that directly exploits the ESA/390 interpretive-execution facility, from running on future System z servers. However, an ESA/390 operating system may still be able to run as a guest of supported releases of z/VM V6, which utilize the z/Architecture interpretive-execution facility.

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## Reference information

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Refer to:

- Hardware Announcement [AG13-0131](#), dated 2013-07-23
- Hardware Announcement [AG13-0134](#), dated 2013-07-23
- Hardware Announcement [AG13-0184](#), dated 2013-09-03
- Software Announcement [AP13-0307](#), dated 2013-07-23
- Software Announcement [AP13-0495](#), dated 2013-12-10
- Software Announcement [AP13-0496](#), dated 2013-12-10

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## Publications

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The following updated publications are available now in the *Library* section of Resource Link:

Title	Order number
zEC12 System Overview	SA22-1088
zBC12 System Overview	SA22-1089
z196 System Overview	SA22-1086
z114 System Overview	SA22-1087
zEnterprise System PR/SM™ Planning Guide	SB10-7156

The following updated publications are shipped with the products and will be available at planned availability in the *Library* section of Resource Link:

Title	Order number
zBX Service Guide	GC28-6884
zEC12 Service Guide	GC28-6915
zBC12 Service Guide	GC28-6924

The following updated publications will be available at planned availability in the *Library* section of Resource Link:

Title	Order number
zEnterprise System Introduction to Ensembles	GC27-2609
zEnterprise System Ensemble Planning and Configuring Guide	GC27-2608
System z HMC Web Services API (Version 2.12.1)	SC27-2626
System z IOCP User's Guide for ICP	SB10-7037

Using the instructions on the Resource Link panels, obtain a user ID and password. Resource Link has been designed for easy access and navigation. Visit the following website

<https://www.ibm.com/servers/resourcelink/>

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## Prices

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## AP distribution

Country/Region	Announced
AP IOT	
ASEAN *	Yes
India/South Asia **	Yes
Australia	Yes
People's Republic of China	Yes
Hong Kong S.A.R of the PRC	Yes
Macao S.A.R of the PRC	Yes
Taiwan	Yes
South Korea	Yes
New Zealand	Yes
JAPAN IOT	
Japan	Yes

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