IBM®

IBM z/OS Version 1 Release 2: Enabling and Protecting Your e-business and Preview: z/OS Version 1 Release 3

Overview

z/OS™ V1R2 offers:

New and Improved Tools to Manage Your e-business:

- HiperSockets, a new high-speed low-latency TCP/IP communication between logical partitions, encourages deployment of new Linux and z/OS applications on the z900 (expected to be available in the fourth quarter of 2001).

- The Kerberos infrastructure adds administration support for non-z/OS platforms and provides TDES encryption. Additional mechanisms to help protect your system from outside attacks are also provided.

- Improved flexibility for Infoprint® Server allows you to distribute output as e-mail as well as print it to host and distributed printers throughout your enterprise.

Better Application Flexibility:

- z/OS V1R2 provides enhanced ASCII support and also supports the ISO C++ 1998 Standard language level. These enhancements make it easier to port ASCII applications from other UNIX® platforms to z/OS UNIX System Services.

- Working with IBM and other software providers is easier. Directly install software products and updates available for download over the Internet with SMP/E.

Greater Ease-of-Use Through Innovative Technology:

- Creating a Parallel Sysplex® environment is easier. Basic tasks like defining TCP/IP configuration files are easier and require less in-depth technical knowledge.

- An even more robust failure recovery capability will be provided through System-Managed Coupling Facility (CF) Structure Duplexing*

- z/OS V1R2 can reduce cost and complexity in e-business infrastructure, as outlined in Project eLiza. z/OS will be able to direct CPU resources to Linux LPARs on the same IBM @server zSeries server (expected to be available in fourth quarter 2001).

* Expected to be available in fourth quarter 2001. An announcement will be made by the end of June of 2002 with information on the requirements and availability for System Managed Coupling Facility Duplexing.

Key Prerequisites

z/OS V1R2 runs on the following IBM servers:

- z900 or comparable server

- S/390 Parallel Enterprise Servers —Generation 5 (G5) and Generation 6 (G6) models or comparable server

- All models of the Multiprise® 3000 Enterprise Server or comparable server

For a complete description of z/OS V1R2 software prerequisites, refer to the *z/OS Planning for Installation* (GA22-7504) publication which is available on the Web at:

http://www.ibm.com/servers/ eserver/zseries/zos/bkserv

Planned Availability Date

October 26, 2001

Description

e-business Enabling

Networking for Large-Scale e-business Serving: z/OS continues to meet the ever-increasing availability and scalability demands of successful large-scale e-business deployments. New Parallel Sysplex quality of service and workload distribution functions and other improvements combine to increase z900 availability, scalability, performance, and usability. z/OS also supports:

- Proven compatibility with leading networking infrastructure providers, improved migration to dynamic routing protocols, consistent host name resolution, updated DNS support (BIND9), improvements to global connection, and multiple FTP and TN3270 enhancements all serve to encourage convergence to IP networks.

- HiperSockets provides high-speed, low-latency TCP/IP data communications across LPARs resident within the same z900 to free up system and network resources for client traffic and user applications. The additional HiperSockets Accelerator function can improve performance and reduce costs when attaching a high number of TCP/IP (such as Linux) images through HiperSockets to a z/OS system for shared access to a set of OSA-Express adapters.

  This support requires a combination of an IBM @server zSeries 900 at EC Level J10607 or J10608, z/OS V1R2, and an enabling PTF corresponding to APAR OW49475, which is expected to be available by year-end 2001.

For further details, refer to the **e-business Enabling** section under the **Additional Information** section.

Securing your e-business: Companies continue to leverage core business information and applications, residing on z900 and S/390® servers, with existing infrastructures to create Web-based solutions that increase customer value and provide competitive business advantage. As businesses extend their reach through the Web, z/OS provides new and enhanced e-business security that reduces vulnerability to attack with "host-based" Intrusion Detection Services, in addition to these security enhancements:

- Additional Kerberos encryption methods and administrative tools, provided by Network Authentication Services

- Continued integration of Public Key Infrastructure (PKI) services and digital certificate fulfillment with z/OS to improve the usability and administration of digital certificates

- Improved logon security using digital certificates for user authentication in 3270-based applications

- Client authentication and single signon with enhancements to Secure Sockets Layer (SSL)

- Aid in configuring Virtual Private Networks (VPNs)

- Easier definition of large numbers of system users for RACF® groups

- Improvements in Lightweight Directory Access Protocol (LDAP) Server, which is Entrust-certified

For further details, refer to the **e-business Enabling** section under the **Additional Information** section.

Flexibility for The Output of e-business™: With Infoprint Server for z/OS, you can:

- Consolidate your enterprise distributed print workload onto your reliable, scalable, and security-rich zSeries server

- Eliminate the hardware, software and administrative costs of distributed print servers by defining and managing all of your print on z/OS

- Leverage your investment in Advanced Function Printer (AFP™ applications and printers by using the Infoprint Server Transforms to print LAN-based applications on AFP printers and AFP applications on Printer Command Language (PCL) and PostScript printers anywhere in the enterprise ─ all managed by z/OS.

NetSpool™ component of Infoprint Server supports the output of e-business transaction applications such as CICS® and IMS™. z/OS V1R2 enables NetSpool to transform output directly into PCL before the jobs are placed on the JES spool for printing. This includes automatic handling of page orientation for portrait or landscape printing.

z/OS V1R2 further supports e-business output delivery with Infoprint Server's ability to send output as e-mail instead of, or in addition to print.

For further details, refer to the **Flexibility for the Output of e-business** section under the **Additional Information** section.

Application Flexibility

C/C++ Enhancements: Enhanced ASCII support simplifies the porting of applications from ASCII platforms to a UNIX System Services environment in z/OS.

ISO C++ 1998 Standard language level, including the Standard Template Library (STL), enables you to more easily port C++ applications from ASCII platforms to a UNIX environment in z/OS.

For further details, refer to the **C/C++ Improvements** section under the **Additional Information** section.

zFS: Workload usage patterns of data vary, meaning the requirements for the underlying data store might vary greatly as well. To meet the changing needs of new workloads, an additional file system to be used with z/OS UNIX System Services is provided.

Accessing zFS data from local UNIX applications, combined with the ability to access zFS data from Windows® systems (using the SMB server) and UNIX systems (using the NFS Server), enables z/OS to provide a more robust file sharing environment.

Note: The zFS support is expected to be made available for OS/390® V2R10 and z/OS V1R1 in fourth quarter 2001. A System Center Flash announcement will be issued to identify the APAR/PTFs for the support. For details, visit:

http://www.ibm.com/support/techdocs/

For further details, refer to the **zFS** section under the **Additional Information** section.

64-bit Virtual Support: In z/OS V1R2, IBM delivers the initial basic 64-bit virtual storage management support. This is a major milestone for the new z/OS 64-bit operating environment. Assembler programs can take advantage of this basic 64-bit virtual support to obtain virtual storage above 2 GB for storing and manipulating data. The target program must reside in

31-bit-addressable storage, but application data may reside in 64-bit-addressable storage.

In support of 64-bit virtual storage support, the Interactive Debug Facility of the High Level Assembler Toolkit Feature (ASMIDF) is enhanced to support debugging of programs running in 64-bit addressing mode.

Additionally, CF access services support the use of 64-bit virtual storage for buffers used in transferring data to and from the CF, and EXCP services support the use of 64-bit virtual storage for buffers used in transferring data to and from tape or DASD devices.

This initial 64-bit virtual storage support opens up a tremendous opportunity for software products that can make use of large virtual storage to relieve virtual storage constraint and to enhance data caching capability. For a more complete view of z/OS 64-bit environment, visit the **IBM e(logo)server z/Series 900 z/OS 64-bit Virtual Storage Roadmap:**

> **http://www.ibm.com/servers/eserver/zseries/ library/whitepapers/pdf/gm130076.pdf**

In z/OS V1R2, additional 64-bit real support is provided. The OSA-Express device driver and the OSA-Express adapters are enabled to support 64-bit real storage.

Ease-of-Use Through Innovative Technology

New Ease-of-Use and Self-Management: Project eLiza can help customers reduce the cost and complexity of their e-business infrastructures, and overcome the challenges of systems management by using systems that:

- Self-optimize
- Self-configure
- Self-heal
- Self-protect

zSeries plays a major role in Project eLiza, since self-management capabilities available for zSeries function as a model for other IBM servers. z/OS V1R2 provides the following functions to address the goals of eLiza:

- The advanced self-management capabilities of z/OS WLM and the zSeries z900 IRD can handle unpredictable workloads. Consequently, human intervention for setting up and operating the system is minimized, and available CPU and I/O resources are effectively utilized.

  zSeries IRD LPAR CPU management function is enhanced to dynamically manage non-z/OS operating systems such as Linux. This function (expected to be available in the fourth quarter of 2001) allows a non-z/OS partition like Linux to be given a goal and business importance through the WLM policy.

- Managed System Infrastructure for Operations (msys for Operations) can:

  - Increase availability of systems and applications by greater operational awareness and self-healing of selected critical resources

  - Decrease total cost of ownership by reduced operations complexity and reduced outages due to operations errors.

- Managed System Infrastructure for Setup (msys for Setup), significantly simplifies the configuration tasks for z/OS software setup. It reduces the total cost of ownership by lowering the required skill levels and by

enabling customers to get their systems up and running more quickly.

- System-Managed CF Structure Duplexing provides a robust failure recovery mechanism to enable near-continuous availability for CF structure data.

- New and updated Web-based wizards simplify your planning and configuration needs by exploiting recommended values and by providing customized checklists and output that reduce the number of steps and the number of information sources that you need.

  For more information on eLiza, visit:
  > **http://www.ibm.com/servers/eserver/zseries/ zos/sm/eliza.html**

Other enhancements to improve z/OS ease-of-use include:

- Easier-to-use Parallel Sysplex functions and more reliable and serviceable tape sharing support.

- Flexible Global Resource Serialization (GRS) Resource Name List (RNL) Wildcard support for improved systems management and enhanced availability.

- An RMF™ Partition Data report helps you understand how much of the defined capacity an LPAR is consuming.

- Management of zSeries cryptographic hardware is easier by the ability to identify cryptographic bottlenecks based on managed workloads. RMF helps customers understand Cryptographic Coprocessor usage and identifies the workloads that use or experience delays when trying to use the Cryptography Coprocessor, which supports capacity planning.

For further details, refer to the **Ease-of-Use Through Innovative Technology in z/OS** section under the **Additional Information** section.

e-care

Order z/OS through the Internet: ShopzSeries (formerly SHOPS390) provides an easy way to plan and order your z/OS ServerPac or CBPDO. It will analyze your current installation, determine the correct product migration and present your new configuration based on z/OS. Additional products can also be added to your order (including determination of whether all product requisites are satisfied).

ShopzSeries is available in the U.S. and several countries in Europe. For more details and availability, visit the ShopzSeries Web site:

> **https://www14.software.ibm.com/ShopzSeries**

Support for Workload License Charges (WLC): As previously announced, WLC at less than full machine capacity will be available to eligible z/OS customers September 30, 2001. IBM intends to provide a staged approach to implementing sub-capacity WLC:

- Initially through a planned Sub-Capacity Reporting Tool
- In the future through updates to the IBM License Manager (ILM), an element of z/OS

A production-ready version of ILM will not be made available September 30, 2001, as was previously anticipated. Effective immediately, IBM is discontinuing the previously-announced ILM Preproduction Period.

To learn more about ILM for planning purposes and to obtain the latest news on ILM as it becomes available, visit the ILM Web site:

> **http://www.ibm.com/servers/eserver/zseries/ zos/ilm**

For details on the initial sub-capacity WLC solution, refer to:

- Software Announcement 201-258, (RFA35803) dated September 11, 2001
- The WLC Web site at:
  > **http://www.ibm.com/servers/eserver/zseries/ wlc_lm**

SMP/E Enhancements: SMP/E contains the following functional enhancements:

- The ability to install software products and service directly from a network source, such as the Internet reduces the tasks and time required to install software delivered electronically

- The ability to use SMPPTS "spill" data sets to contain the overflow when the SMPPTS data set is full provides multiple physical data sets to be used for a single logical data store

- SMP/E consolidates and summarizes the HOLD information encountered during APPLY and ACCEPT command processing, reducing the time needed to research HOLD information when installing software service

For further details, refer to the **SMP/E Enhancements** section under the **Additional Information** section.

Important Web Sites

- z/OS Web site:
  > **http://www.ibm.com/servers/eserver/zseries/zos/**

- General Q & A:
  > **http://www.ibm.com/servers/eserver/zseries/faq/**

Accessibility by People with Disabilities

The following features support use by people with disabilities:

- Operation by keyboard alone

- Optional font enlargement and high-contrast display settings

- Screen readers and screen magnifiers tested for use by people with visual impairment

Product Positioning

z/OS is the next generation of the OS/390 operating system. Together with the z900, it offers 64-bit addressing and IRD. You will receive optimal processing capabilities when running z/OS on a z900. However, z/OS does not require z900, nor does the z900 require that you run z/OS.

You are encouraged to implement WLM goal mode. Goal mode is required for the IRD. WLM in goal mode continues to grow in its role and importance on the S/390 platform, and consequently, z/OS V1R2 is the last release to support WLM compatibility mode.

Statement of Direction

IBM plans to deliver:

- 64-bit virtual storage addressing for the DB2® for z/OS product in a future release. The future release of DB2 for z/OS, with 64-bit virtual address support, can only execute on IBM @server zSeries 900 (z900), or equivalent, running z/OS V1R2, or later. DB2 V6 (5645-DB2) and V7 (5675-DB2) already support 64-bit real storage addressing for data space buffers.

- Enhancements to DB2 that will permit utilization of security features of the SecureWay® Security Server of z/OS known as multilevel security. These enhancements are planned to be delivered through the service stream to DB2 for z/OS and OS/390, V7 (5675-DB2) and follow-on releases, if any.

- IBM plans to withdraw the RDBM backend from the LDAP Server in the z/OS release expected to be available in the second half of 2002. Because of its improved scalability and availability, customers are encouraged to migrate to the enhanced TDBM backend according to instructions in *LDAP Server Administration and Usage Guide.*

- Architectural Level Sets (ALS) have recently been announced for OS/390 and z/OS. ALS 2 indicated that z/OS V1R1 would require architectural enhancements available in 9672 G5 and G6, MP3000, and z900 servers. No new Architectural Level Sets have been announced since then. In order to assist customers with their planning, IBM is advising that there will be no new Architectural Level Set with z/OS V1R4. Therefore, z/OS V1R4, expected to be available in the second half of 2002, will run on G5, G6, MP3000 and z900 Servers, or the equivalent. Information regarding future Architectural Level Sets will be provided in z/OS announcement letters when appropriate.

These statements represent current intentions of IBM. IBM development plans are subject to change or withdrawal without further notice. Any reliance on this Statement of Direction is at the relying party's sole risk and will not create any liability or obligation for IBM.

For further details, refer to the **Notable Changes in z/OS V1R2** and the **Notable Changes in z/OS V1R3** sections.

Hardware and Software Support Services

SmoothStart™ /Installation Services

SmoothStart Services, on-site implementation and training startup service, are designed to accelerate your productive use of your IBM solution. The service is provided by IBM Global Services or your IBM Business Partner at an additional cost. For additional information, refer to Services Announcement 697-004, dated March 25, 1997, or contact your IBM representative and ask for SmoothStart Services for z/OS.

Reference Information

- Software Announcement 200-352, dated October 3, 2000
- Software Announcement 201-044, dated February 27, 2001
- Software Announcement 200-354, dated October 3, 2000

- Software Announcement 201-072, dated March 27, 2001
- Software Announcement 201-258, dated September 11, 2001
- Software Announcement 201-257, dated September 11, 2001

Trademarks

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The e-business logo, The output of e-business, z/OS, AFP, NetSpool, IMS, RMF, and SmoothStart are trademarks of International Business Machines Corporation in the United States or other countries or both.

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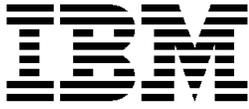
Additional Information

e-business Enabling

Networking for Large-Scale e-business Serving: The importance of an application and specific transactions within the application often vary. For instance, "buy transactions" are generally more important than "browse transactions." To address this, the IBM HTTP Server for z/OS™ provides a Universal Resource Identifier (URI) with responses from z/OS. This allows the system administrator to prioritize outbound traffic by assigning different network quality of service levels.

The Sysplex Distributor is extended to control workload balancing, working in conjunction with Cisco MultiNode Load Balancing (MNLB). Sysplex Distributor resides in the Parallel Sysplex® and has the ability to factor "real-time" information, including server and application status from WLM, and QoS and policy settings from Policy Agent (to provide increased availability and workload balancing). Combining these factors helps ensure that the best destination server instance is chosen. This selection is sent to the MNLB Forwarding Agent, which is resident in a Cisco router or switch. Subsequent traffic flows directly to the destination server, eliminating Sysplex Distributor packet forwarding. This unique combination of superior server management and direct packet forwarding provides for increased availability and more efficient workload balancing.

FTP is used extensively for movement of bulk data. The FTP Client and FTP Server both support Secure Sockets Layer (SSL) and Transport Layer Security (TLS) to help protect confidentiality of data and user authentication information. In addition, clients can use digital certificates or Kerberos for authentication of the requestor.

Direct global connection across an IP network with Enterprise Extender provides for significant improvement of SNA data transfers. The IP network can be defined as a single virtual node eliminating the need to connect through a single potential bottleneck (Extended Border Node) and enabling direct connection to the target servers with high performance OSA-Express adapters.

IP host name resolution processing is enhanced in this release with new consolidated resolver services that provide consistency and enhanced functionality across all the z/OS socket API libraries. These consolidated resolver services provide several configuration enhancements, such as:

- The ability to search several domains when resolving a host name and the ability to define a preference for which IP addresses are used by TCP/IP client programs invoking resolver services on z/OS.

- Capability to allow for a consistent, installation-controlled specification of resolver configuration parameters. This enhancement allows

an administrator to configure selected TCPIP.DATA parameters, such as the Name Server specifications, to be used at a global level for all applications running on a z/OS image. This enhancement can greatly simplify the administration of TCPIP.DATA files as the installation can now decide on the level of customization they defer to the end user.

Name Servers are a key component of any TCP/IP network. z/OS V1R2 supports DNS Bind 9.1, the new industry-standard, Domain Name Server (DNS). It provides for future Domain name system growth and includes a number of new security features. DNS Bind 9.1 is based on a multiprocessing architecture and provides additional high-availability and reliability features, which, when combined with inherent z/OS and z900 qualities, makes an excellent platform for hosting your corporate DNS.

Support is provided on the z900 for a new OSA-Express Token Ring feature, which has two independent ports. Each port supporting attachment to a 4-, 16-, or 100-Mbps Token Ring LAN. The adapter supports TCP/IP in QDIO mode, and both TCP/IP and SNA in non-QDIO mode of operation.

z/OS V1R2 expands SNMP support for OSA-Express Gigabit Ethernet, Fast Ethernet, and ATM features to all their operating modes (QDIO and non-QDIO) for z900 environments only. The OSA-Express Token Ring feature is not supported in the SNMP environment at this time. In addition, performance information is now passed by OSA/SF to Tivoli® NetView. Performance data for the OSA-Express features was previously only available through the RMF™. This information shows microprocessor utilization (per Logical Partition ─LPAR), physical PCI bus utilization, and bandwidth per port. This information is available for the READ path (network to z900) and the WRITE path (z900 to the network) for each LPAR. This same information is now available through SNMP for z900 environments only. For more detailed information regarding all of the Communications Server enhancements available in z/OS V1R2, visit:

**http://www.ibm.com/servers/eserver/zseries/
zos/commserver/v1r2_enhancements.html**

HiperSockets and HiperSockets Accelerator: HiperSockets provides high-speed, low-latency TCP/IP data communications across LPARs resident within the same z900 server. HiperSockets acts like a TCP/IP network within the server. The HiperSockets function, also known as iQDIO or internal QDIO, is tightly integrated into the system to provide users with attachment to up to four high-speed "logical" LANs with minimal system and network overhead. Whenever HiperSockets is configured, it is utilized by TCP/IP in place of XCF for sysplex connectivity between images that exist in the same CEC.

It eliminates the need to utilize I/O subsystem operations and the need to traverse an external network connection to communicate between LPARs in the same server. HiperSockets can have significant value in server

consolidation, for example, by connecting multiple Linux partitions under z/VM™ to z/OS partitions. Management and administration cost reductions over existing configurations is possible. Because HiperSockets does not use an external network it can free up system and network resources, eliminating attachment cost while improving availability and performance.

z/OS V1R2 also introduces the HiperSockets Accelerator function. This function can improve performance, simplify configuration, and increase scalability while lowering cost by lessening the number of networking adapters and associated I/O cage slots required to attach many TCP/IP images to the external network. It allows a large number of system images on one server, such as zSeries Linux images in separate LPARs or under z/VM, to share access to a pool of OSA-Express adapters, in QDIO mode, attached to the external network through a "front end" z/OS system. It concentrates the external TCP/IP traffic onto the internal HiperSockets connections to the back-end TCP/IP images and LPARs. This new connection design can decrease the need for many separate OSA-Express adapters and I/O cage slots for each Linux or z/VM machine while also minimizing the requirement for high numbers of channel addresses on the OSA-Express adapters. It provides increased server scalability at lower cost when consolidating combinations of large Linux, z/VM, and z/OS configurations.

HiperSockets Accelerator, which requires minimal explicit configuration, runs in one z/OS TCP/IP. It routes traffic at an accelerated, higher performing, device driver level instead of traversing the full z/OS TCP/IP stack path. This accelerated highly optimized data transport using routes, dynamically learned from the z/OS TCP/IP stack, allows data to be routed between the HiperSockets attached images and the external OSA-Express connected network. This is with less CPU utilization in the z/OS TCP/IP stack and simpler configuration.

HiperSockets Accelerator provides a higher performance path between the OSA-Express and z/OS TCP/IP external network connections (to and from the multiple other TCP/IP system images, such as Linux) within the same server communicating using the internal HiperSockets network.

To provide additional redundancy in the network connection, a second HiperSockets Accelerator LPAR can be enabled. This means separate, backup TCP/IP stacks with HiperSockets Accelerator can be running in the same Server to provide redundancy. Each backup stack running HiperSockets Accelerator must have equivalent connection through both HiperSockets and OSA-Express.

This function is expected to be available in fourth quarter 2001.

Securing your System with Distributed Security Infrastructure: Kerberos is one of several enterprise security infrastructure technologies implemented in z/OS. z/OS V1R2 provides several enhancements to z/OS infrastructure usage of Kerberos functions.

Complex e-business applications can run various operations and functions across multiple systems. Techniques to authenticate a user once, while allowing the user to access multiple systems are coming into increasing usage. For example, Windows® 2000 is using Kerberos third-party authentication techniques to provide security credentials in a workgroup environment.

z/OS Network Authentication Service provides a Kerberos credential server and Kerberos application services for z/OS application integration into Kerberos environments. z/OS V1R2 enhances these functions with:

- New ways to administer Kerberos registry information outside of z/OS

- Stronger encryption

- Exploitation of Integrated Cryptographic Coprocessors

- Near-continuous availability across TCP/IP network outages

- Improved performance in a Parallel Sysplex environment

Additionally, several z/OS e-business services have been enhanced in z/OS V1R2 with support for Kerberos:

- z/OS LDAP directory client and server
- File Transfer Protocol (FTP)
- UNIX® System Services version of Telnet
- UNIX System Services version of RSH

Secure Sockets Layer (SSL) Protocol Enhancements: SSL is a key protocol in secure Web serving and e-commerce. z/OS V1R2 enhances System SSL with new functions, including support for:

- Transport Layer Security (TLS) V1 protocol (RFC 2246)

- PKIX-compliant Certificate Revocations Lists (CRLs) created by the Tivoli SecureWay® Public Key Infrastructure

- Allowing applications to create multiple SSL environments within a single process. With this support, changes to the environment (such as key database, LDAP servers, or session timeouts) can simply be done through the definition of a new SSL environment and directing any new SSL connections to the new environment. This will allow the previous environment to stay around until all active SSL connections have been terminated by the application and the application chooses to terminate the environment. This support also allows applications to perform connection management across multiple SSL environments within a single process.

  In previous releases, applications were allowed to define exactly one SSL environment. In order for environment attributes to be modified, the application had to end the SSL environment terminating any SSL sessions underway and reinitialize another environment.

- Removing the need for SSL sessions to be re-established after an LDAP server is recycled. System SSL now has the capability to detect that the connection to the LDAP server has been severed and reestablish a connection to the LDAP server each time access is required.

- Detection when the RACF® key ring was modified. A new API has been added to allow an application using RACF key rings to know if the ring has been modified since the SSL environment was defined. This API will allow an application to start a new SSL environment to use the current certificates on the RACF key ring. SSL sessions established with the old SSL environment will be allowed to continue to completion.

- The ability to perform interactive debugging.

Securing your System with Digital Certificates: Digital certificate-based authentication provides strong identification and authentication of end users. This technology, known as PKI, is growing in use. Support for PKIX-based certificates (RFC 2459) incorporates industry standard PKIX certificate architecture into System SSL. This also paves the way for System SSL to support inter-operation with a wider selection of certificate authority software.

The TN3270 function of z/OS V1R2, in conjunction with client access software such as Host-On-Demand (HOD), support the use of digital certificates in place of user IDs and passwords to sign the user on to SNA applications such as CICS®, TSO, and IMS™. HOD users will be able to sign on to multiple SNA applications with a single digital certificate. Users need not provide or know their host user ID or password as the system will provide the proper credentials (RACF PassTicket) to allow signon to the application.

z/OS is progressing toward providing generalized certificate authority functions on z/OS. In z/OS V1R2, existing RACF-defined users can be given authorization to request a client digital certificate through a Web-based application. The user will need to supply a user ID and password, and the issuance of the certificate will be granted automatically by the system and downloaded to the user's Web browser. (This function is available on OS/390® V2R10 or z/OS V1R1 with RACF SPE APAR OW45211 and SAF SPE APAR OW45212.)

RACF Improvements: In addition to its digital certificate support, in z/OS V1R2 RACF provides support to improve usability and availability for designing e-business applications:

- The ability to create a new kind of Group that can contain an effectively unlimited number of users accommodates the need to associate more users under a RACF Group definition when designing e-business applications.

- Improved RACF messages for security failures while accessing UNIX files and directories, and extensions to superuser granularity to cover the chmod command, provide improved UNIX security.

- Better toleration of CF errors provide improved availability.

- Improved security tracing minimizes time spent doing problem determination.

Virtual Private Networks (VPNs): Enhancements to Firewall Technologies support include:

- The Firewall GUI has been enhanced with a dialog to aid in the configuration of dynamic VPNs. This dialog steps users through the process of configuring a dynamic VPN on z/OS.

- Commit Bit support has been added as defined in the **Internet Key Exchange (IKE)** draft dated May 1999.

- Enhanced Virtual IP adress (VIPA) support is added for the ISAKMP server. This allows the ISAKMP server to detect the presence of a VIPA on a Firewall stack (when that stack acquires the VIPA).

LDAP: The following improvements have been made to LDAP, which is Entrust-certified:

- The LDAP Server supports thousands of concurrent clients instead of hundreds of concurrent clients, increasing the maximum number of concurrently connected clients by an order of magnitude.

- The LDAP Server supports authentication using Kerberos credentials for users that have decided to use Kerberos identities for single sign-on.

- The LDAP Server has been enhanced to provide finer-grained "listen" control. The server can now be configured to listen on a specific interface/port combination, providing users with more flexibility and control in establishing LDAP servers in their Networks.

- LDAP Directory service enhancements are provided in usability, performance, and integration into security-aware e-business environments. An LDAP Configuration Utility easily automates a basic setup.

- LDAP SDBM, the RACF-based backing store, provides the capability to manage RACF-defined users and groups using the LDAP protocol. SDBM is enhanced to include support for connection profiles (adding users to groups), the Kerberos segment, the Notes™ segment, and the NDS segment.

The following improvements simplify LDAP Client Setup:

- An ability to bind to LDAP Servers (on and off z/OS) using Kerberos credentials for improved security

- Client-side caching of search results for improved performance of some searches

- The ability to find an LDAP server with information in a DNS server without knowing the LDAP server's host name or IP address in advance

Cryptographic Services: PCI Cryptographic Coprocessor supports the loading of customized cryptographic functions. This is a capability important in the finance and banking industry. OS/390 V2R10 provided facilities for you to engage IBM in creating these custom functions (known as User-Defined Extensions). With z/OS V1R2, zSeries PCI Cryptographic Coprocessors, and under a special contract with IBM, you will gain the flexibility to define and build customized cryptographic functions yourself.

The European financial community has identified new requirements to meet their objectives for providing increased home banking applications. ICSF will provide greater support for essential elements such as Smart Cards, and banking standards such as VISA, ZKA, and Europay.

In response to other financial industry requests, ICSF will also provide new support for Public Key Cryptography Standards #1 (PKCS #1) V2.0 Optimal Asymmetric Encryption Padding (OAEP) Method of Key Encryption callable services. This support will be included in z/OS V1R3 and will be provided through service stream APAR OW50507 for z/OS V1R2 and OS/390 V2R10. This function will require the PCI Cryptographic Coprocessor hardware feature (available on z900 and S/390® G5/G6 servers) at specified microcode release levels.

Intrusion Detection Services (IDS): Security is threatened for all business infrastructure —from outside the internal network and from within the internal network. Although firewalls provide a level of protection against outside attacks, they cannot provide protection when the attack is from within or when end-to-end encryption is employed.

Host-based IDS complements network-based IDS sensors and scanners by providing defense mechanisms that discard attacking packets before they cause damage, discard packets exceeding established thresholds, and limit the number of connections from "greedy" users. In addition, IDS provides event recording and reporting, including standalone reporting of IDS events (attacks) to

z900 console and Syslog, a new specialized IDS packet trace for off-line analysis, and statistics gathering for baseline and exception reporting.

Flexibility for the Output of e-business: With z/OS V1R2, the Infoprint® Server is enhanced with powerful new functionality to support the output from e-business transactions. Transaction-based applications are crucial to e-business enabling. Consequently these applications need instant output to verify the transaction.

Now you can allow legacy CICS and IMS applications that generate SNA character string (SCS) or 3270 output formats to print on LAN-attached PCL printers, without changes to the application program. NetSpool™, a component of Infoprint Server, converts the SCS or 3270 print formatting controls directly into PCL so the output is ready to send to a PCL printer. For SCS data, line and print densities are also preserved in the conversion.

A new automatic page orientation option in the printer definition allows NetSpool to automatically detect in SCS data whether each page should be printed in portrait or landscape mode, eliminating the need to set up special queues or printer definitions for landscape as opposed to portrait printing. Page orientation is handled automatically for every printout and can even change from page to page within a single job.

Support for the output of e-business is further enhanced in z/OS V1R2 with the ability to send output as e-mail in addition to, or instead of print. e-business is about integrating and streamlining business processes, and electronic distribution of documents plays a key role in doing business faster and more effectively. Production documents such as customer statements can be stored in an archival system and retrieved and e-mailed on demand in support of Customer Relationship Management (CRM) applications.

Purchase orders or invoices can be e-mailed to suppliers or business partners to support new e-commerce initiatives. This support requires a combination of z/OS V1R2 and an enabling PTF corresponding to APARs OW50406 and OW48556, which is expected to be available by year end 2001.

Infoprint Server and its companion product, Infoprint Server Transforms (5697-F51), continue to deliver leading edge solutions for the output of e-business in z/OS. For additional information, refer to:

- Software Announcement 200-210, dated June 27, 2000
- Software Announcement 200-376, dated October 24, 2000

Application Flexibility

C/C++ Improvements: A C++ compiler that is fully compliant with the ISO C++ standard, also known as the ANSI C++ standard, is available. This includes support for:

- Namespaces
- New keywords (bool, true, false, mutable, explicit)
- New casts
- New template model
- Run Time Type Identification (RTTI)
- ISO Standard C++ Libraries, and other language features of ISO C++ 1998

Note: There are incompatibilities between the ISO C++ 1998 standard language level and C++ compiler language levels provided in prior releases of OS/390 and z/OS. To ease your migration to the new level of C++,

z/OS V1R2 includes both the "old" (OS/390 V2R10) and "new" (z/OS V1R2) C/C++ compilers.

The C/C++ Open Class™ (IOC) Library is a comprehensive library of C++ classes that has been upgraded to be consistent with what shipped in VisualAge® C++ for AIX® V5.0. This is to ease porting of applications from platform, but is not intended for use in new development. Support will be withdrawn in a future release.

New application development involving C++ classes should make use of the C++ Standard Class Library, shipped with Language Environment®, instead of the C/C++ IBM Open Class Library. All existing applications that use the C/C++ IBM Open Class Headers, Source, DLLs and Sidedecks will need to be migrated to the ISO C++ Standard Class Library. Note that the C/C++ IBM Open Class Library shipped in z/OS V1R2 can be used with either the new z/OS V1R2 C++ compiler or the OS/390 V2R10 C++ compiler.

The following C/C++ features are also enhanced in z/OS V1R2:

- Large File Support in ISO IOSTREAM Class Library enables access to hierarchical file system (HFS) files that are over 2GB in size, using the ISO Standard Class Libraries.

- IPA support for XPLINK combines the highest optimization level (InterProcedural Analysis) for z/OS C/C++ with its high performance linkage (XPLINK).

- Enhanced ASCII support provides the ability to produce code that contains ASCII string literals and character constants allows ASCII dependent logic to continue working as on ASCII platforms thus eliminating the need to find all such places in the code and converting them to EBCDIC.

- Address constants (ADCONs) require load-time fixups, which slows program loading. The compiler can now generate instructions from the Branch Relative family in order to reduce the number of ADCONs in the object code, which improves load times.

Multi-System Cascaded Transactions: Use Multi-System Cascaded Transactions to run multiple applications on multiple systems within a Parallel Sysplex as part of a single transaction. This also allows Resource Recovery Services (RRS) to coordinate a cascaded (distributed) transaction that crosses multiple systems in a sysplex without the overhead or complexity of using a communication manager such as APPC and distributed two-phase commit protocols. This also removes existing RRS-based Resource Managers and subsystem restart restrictions, enabling improved sysplex availability and simplified failure management.

Note: IBM plans to utilize this capability in a subsequent IMS version, providing Synchronous Shared Queues support for IMS Application Program-to-Program Communication (APPC) and Open Transaction Manager Access (OTMA) transactions. You can distribute IMS synchronous APPC and OTMA transactions across a Parallel Sysplex for workload balancing of these IMS transactions.

Support for Unicode: The functions previously available via Web download as OS/390 V2R8-V2R10 support for Unicode have been integrated into z/OS V1R2. Functions for code set conversion between Unicode and a large set of EBCDIC and ASCII code pages are included, as well as functions for performing case conversion on Unicode text.

If you are interested in the support for Unicode available for OS/390 V2R8, R9, R10, and z/OS V1R1, a download of the code and program directory (book and PDF formats) can be found at the following Web site:

http://www.ibm.com/downloads

Java*™ *Support for z/OS V1R2: The IBM Developer Kit for OS/390, Java 2 Technology Edition (5655-D35) V1R1 provides a comprehensive Java 2 Technology Development Kit at the Software Development Kit (SDK) 1.3 level for z/OS V1R2 and the zSeries platform. In addition to the Java 2 APIs, the IBM Developer Kit for OS/390, Java 2 Technology Edition provides additional functional capability as represented by the Java Record I/O (JRIO) and security API functions.

The IBM Developer Kit for OS/390, Java 2 Technology Edition (5655-D35) requires OS/390 V2R8, or later, or z/OS and is available at no additional charge to customers who have an OS/390 V2 or z/OS V1 license.

For further information, visit:

http://www.ibm.com/servers/eserver/zseries/ software/java/

Note: An order from Software Delivery and Fulfillment (SDF) is required to revise a customer profile to help ensure future service delivery.

XML Toolkit Support for z/OS (and OS/390): To support e-business application development, IBM offers both a Java parser and a C++ parser for XML, which are based on the Apache Open Source XML parsers. Your developers can exchange information among diverse platforms and applications, across geographies, and between businesses.

The XML Toolkit for z/OS and OS/390 (5655-D44) V1R2 requires OS/390 V2R6 or later or z/OS and is available at no additional charge to customers who have an OS/390 V2 or z/OS V1 license.

For further information:

- Refer to Software Announcement 201-072, dated March 27, 2001

- Visit:

    http://www.ibm.com/servers/eserver/zseries/ software/xml

Note: An order from SDF is required to revise customer profile to help ensure future service delivery.

zFS: zFS is part of the z/OS Distributed File Service base element. zFS is a UNIX file system that can be used in addition to the Hierarchical File System (HFS). zFS file systems contain files and directories that can be accessed with the z/OS hierarchical file system file APIs. zFS file systems can be mounted into the UNIX System Services hierarchy along with other local (or remote) file system types (for example, HFS, TFS, AUTOMNT, NFS). zFS does not replace HFS, rather zFS is complementary to HFS. HFS is still required for z/OS installation and the root file system must be HFS.

zFS is invoked by using the APIs documented in the UNIX System Services Assembler Callable Services that refer to files, directories, and other file system objects. Alternatively, the C/C++ Run-Time Library routines that are associated with files and directories can also invoke zFS. The commands that are documented in *z/OS UNIX System Services Command Reference (SA22-7802)* that refer to files and directories can also refer to zFS files and

directories. This includes shell commands and TSO/E commands (OGET, OPUT, OCOPY).

By supporting the file access APIs used for HFS, zFS will provide significant performance gains in most customer environments requiring files 8 KB in size or greater (since zFS performance benefits are not seen until the file size approaches 8 KB) that are frequently accessed and updated. The access performance of smaller files is equivalent to HFS. For all files, zFS provides a reduced exposure to loss of updates. zFS is a logging file system with a write pattern to disk that reduces the points of failure after a system outage.

Although the application and command view of zFS is very similar to HFS, the administrator's view of zFS is different from HFS. zFS introduces the concept of an aggregate. An aggregate is a container of zFS file systems. A zFS aggregate can contain one or more zFS file systems. An aggregate is a Virtual Storage Access Method Linear Data Set (VSAM LDS). Refer to the *z/OS DFSMS Access Method Services for Catalogs Book* (SC26-7394), for more information on defining VSAM Linear Data Sets. zFS aggregates and file systems are created using zFS utilities.

zFS aggregates are created using the IOEAGFMT utility. zFS aggregates come in two types, multifile system aggregates and compatibility mode aggregates. A multifile system aggregate contains any number of zFS file systems. A compatibility mode aggregate contains a single zFS file system. The name of an aggregate (either multifile system aggregate or compatibility mode aggregate) is the same as its VSAM LDS cluster entryname.

Ease-of-Use Through Innovative Technology in z/OS

z/OS msys for Operations — Self-Healing: z/OS msys for Operations is a base element in z/OS V1R2 that incorporates well-proven automation technology into z/OS. It provides self-healing for some critical system and sysplex resources and simplifies the day-to-day operation of a z/OS Parallel Sysplex. It monitors sypslex-specific events to avoid single points of failure (such as no alternate couple data set, or CDS) or sysplex-wide outages due to operator mistakes or system load. Critical resources in a sysplex that are provided with these self-healing mechanisms are CDS, System Logger, or WTO buffers.

With msys for Operations you can easily manage all the systems in a Parallel Sysplex cluster, CFs and their structures, and couple data sets. By automating typical operator tasks and events in a Parallel Sysplex, it reduces operations complexity and improves system recoverability, enhancing the availability of Parallel Sysplex clusters. Distinct displays of relevant information allow greater operational awareness, providing ease of manageability. It is also possible to backup a CF to a spare CF (that is, to drain the CF, rebuild its structures in the spare CF, release the structure connections, and reconnect them to the spare CF) all with one simple, interactive command. Additionally, msys for Operations resolves situations, like WTO buffer shortages or system logger failures, through its built-in automation technology.

Customer benefits include:

- Increased availability of systems and applications by greater operational awareness and improved system recoverability

- Decreased total cost of ownership by reduced operations complexity and reduced outages due to operations errors.

z/OS msys for Setup Enhancements: z/OS msys for Setup has introduced a new, easy-to-use approach for configuring z/OS components and z/OS products. It offers the opportunity for more productivity improvements and faster deployment of z/OS technology in support of growing e-business requirements. Wizard-like configuration dialogs make the configuration of a product or component much easier. msys for Setup automates the process of updating the configuration values in the system, so that the system administrator does not need to deal with the syntax intricacies of each configuration file or resource. All configuration information is stored in a central z/OS Management Directory.

msys for Setup externalizes only a small set of parameters based on meaningful defaults and best practices, helping avoid outages caused by misconfigurations by ensuring configuration accuracy. It automatically updates the system configuration files, with little need for the user to understand system internals. msys for Setup exploits the industry standard LDAP for its management directory and standard IBM user interface tooling.

With z/OS V1R2, additional components use z/OS msys for Setup for their configuration, thus extending the value of msys for Setup by providing major productivity improvements and reduced skill requirements.

z/OS V1R2 adds new exploitation for the IP Services and ISPF, and increased exploitation for setup of a base or Parallel Sysplex:

- IP Services exploits msys for Setup for defining basic IP settings, easily defining network devices and links, and setting up an FTP or Telnet 3270 server based on standard defaults. After customization, the corresponding IP configuration data sets (like tcp.data, profile.tcp, and omproute) are created automatically. The customized configuration files are written to a partitioned data set (PDS) of the user's choice on the msys driving system. The user can then manually integrate the generated configuration statements into existing configuration files, if there is a running IP environment to upgrade with the new configuration data. The easy-to-use configuration dialogs for IP especially benefit new users.

- ISPF uses msys for Setup for creating the ISPF configuration table, keyword file and load module. The ISPF configuration table is a keyword-driven flat file. It is for changing site-wide defaults and to indicate that installation exit routines are provided for some of the ISPF functions.

- Parallel Sysplex uses msys for Setup to cover additional tasks, such as the setup of the system logger environment, which includes the logger requirements for OPERLOG and LOGREC, and customizing the support of Enhanced Catalog Sharing. With z/OS V1R2 you can also set up a base sysplex environment using msys for Setup. It has all functions of the Parallel Sysplex support relevant for base sysplex, including the support for migrating from a base sysplex to a Parallel Sysplex. msys for Setup understands any existing definitions, to make them easier to manage using the msys for Setup dialogs.

Wizards and Other Tools: New and updated Web-based wizards simplify your planning and configuration needs by exploiting recommended values and by providing customized checklists and outputs for you to use. To try out the z/OS wizards, visit:

http://www.ibm.com/eserver/zseries/zos/wizards/

Our newest wizards are:

- **z/OS msys for Operations Customization Wizard:** Helps users configure msys for Operations, which integrates the automation of specific system resources into z/OS to simplify operator commands, increases awareness of important indicators, and improve system recovery.

- **z/OS DFSMSrmm™ Customization Wizard** and **OS/390 DFSMSrmm Customization Wizard:** Assist new DFSMSrmm customers in customizing DFSMSrmm for OS/390 V2R10, z/OS V1R1, and z/OS V1R2.

- Enhancements to the **z/OS Parallel Sysplex Customization Wizard** and **z/OS Base Sysplex Customization Wizard:** Help customers configure the five logstreams used by RRS the WebSphere™ error logstream, and the IRD and Multiple Console Support (MCS) consoles. This is intended for customers setting up a Parallel Sysplex or base sysplex for the first time. These enhancements are available for Parallel Sysplex and base sysplex systems running z/OS V1R1 and later.

Simplified Systems Management: With z/OS V1R2, Parallel Sysplex technology continues to evolve and improve. New and enhanced functions help support the Parallel Sysplex continuous availability objective and make several Parallel Sysplex functions easier to use and less complex. In particular, z/OS V1R2 introduces System-Managed CF Structure Duplexing to significantly enhance Parallel Sysplex availability.

Additionally, z/OS improves the availability and system management characteristics of existing functions such as Global Resource Serialization (GRS) and automatic tape switching. z/OS V1R2 also provides a new self-optimizing function called Heuristic CF Request Sync-to-Async Conversion to help ensure optimal performance for Parallel Sysplex configurations. These new and enhanced functions satisfy a number of customer requirements.

System-Managed CF Structure Duplexing* Support: Providing the basis for a continuously available application environment has always been a key objective for Parallel Sysplex technology. A major new function, System-Managed CF Structure Duplexing, is provided to further that objective. Prior to the advent of System-Managed CF Structure Duplexing, some users of the CF (primarily subsystems or operating system components) had no recovery mechanism for data kept in the CF. For those that did provide a recovery mechanism, some were:

- Complex
- Unique to that particular structure exploiter
- Did not recover in all failure scenarios, or
- Involved significant manual intervention

System-Managed CF Structure Duplexing eliminates these shortcomings by:

- Providing a robust failure recovery capability through the CF structure redundancy

- Enhancing Parallel Sysplex ease of use by reducing the complexity of CF structure recovery

The robust failure recovery capability of System-Managed CF Structure Duplexing will be achieved by creating a duplicate (or duplexed) copy of a CF structure and then maintaining the two structure instances in a synchronized state during normal CF operation. In the event of a CF-related failure (or even a planned outage of a CF), failover to the remaining copy of the duplexed structures

is initiated and quickly completed transparent to the CF structure user and without manual intervention.

The major beneficiaries of System-Managed CF Structure Duplexing recovery will be those structures without a recovery mechanism today.

Those CF structure users that can replace a complex CF structure recovery mechanism with System-Managed CF Structure Duplexing (such as JES checkpoint) will benefit from a consistent, simple recovery mechanism. Finally, System-Managed CF Structure Duplexing provides a recovery mechanism that can recover from certain failures that could not be previously recovered. For example, for some structures and exploiters, existing rebuild support cannot recover from a situation where a CF and one or more exploiter instances fail concurrently as might be the case in a data-sharing configuration if an exploiter subsystem instance and an ICF reside on the same Central Electronics Complex (CEC) and that CEC fails.

System-Managed CF Structure Duplexing will enable the recovery of structures in such configurations and therefore it may be possible to eliminate stand-alone CFs in some customer configurations, should they choose to enable System-Managed CF Structure Duplexing for all CF structures sensitive to failure isolation.

The System-Managed CF Structure Duplexing capability requires a combination of z/OS V1R2 (and an enabling PTF corresponding to APAR OW41617 that is expected to be available by year end 2001) and Coupling Facility Control Code (CFCC) LEVEL 10 LIC running on a zSeries or G5/G6 server, or R06 CF. It also requires the appropriate product level for the exploiter of System-Managed CF Structure Duplexing.

z/OS V1R2 and z/OS software products will provide a number of exploiters of System-Managed CF Structure Duplexing:

- System logger, the JES2 checkpoint, WLM for multisystem enclaves and IRD, VTAM® GR and Multi-node Persistent Sessions (MNPS), and also BatchPipes® (through APAR PQ49953) enable the use of System-Managed CF Structure Duplexing in z/OS V1R2.

- IRLM V2.1 provides enablement of System-Managed CF Structure Duplexing for the IRLM Lock structure for IMS Data Sharing and DB2® through APAR PQ48823. Additionally, PQ48996 is required for the DB2 data sharing environment.

- DB2 for z/OS and OS/390, V7 provides support for System-Managed CF Structure Duplexing for its System communication Area. DB2 has supported User-Managed CF Structure Duplexing for its Group Buffer Pools since DB2 V5 and OS/390 R3 with supporting APARs.

- MQSeries® has provided enablement of System-Managed CF Structure Duplexing for shared queues in MQSeries for OS/390, V5R2.

- CICS shared temporary storage queues, CF data tables, and named counters will be protected by System-Managed CF Structure Duplexing in CICS TS V2R2. System-managed rebuild for the CICS TS V2R2 structures on systems prior to z/OS V1R2 requires APAR OW39892.

- IMS is providing support for System-Managed CF Structure Duplexing function for IMS Shared Message Queue structures and IMS Fast Path Expedited Message Handler (EMH) structures. This support is being provided through the IMS V7 service process, and is enabled by APAR PQ47642.

    IMS also provides support for z/OS System Managed CF Structure Duplexing function for IMS Fast Path Virtual Storage Option (VSO) structures. This support is being provided through the IMS V7 service process through APAR PQ50661. It also enables the System-Managed Rebuild and Automatic Altering of the VSO structure size.

System-Managed CF Structure Duplexing requires customers to configure bidirectional CF-to-CF link connectivity between CFs engaged in duplexing structures. This is supported with HCD APAR OW45976. This is a new requirement that may require additional hardware using standard CF links. For those CF structures that support use of System-Managed CF Structure Duplexing, users have the ability to selectively (by structure) enable or disable the use of CF duplexing.

* Expected to be available in fourth quarter 2001. An announcement will be made by the end of June of 2002 with information on the requirements and availability for System Managed Coupling Facility Duplexing.

Automatic Tape Switching Support: The existing Parallel Sysplex tape switching support has been rewritten to make it more reliable, robust, and serviceable. The new design makes use of GRS resources and XCF services to maintain serialization when allocating shared tape drives, dropping the use of the IEFAUTOS CF structure. In order to maximize the benefits of this function, it is highly recommended that you use GRS STAR (as opposed to ring). This support is intended to be made available by a PTF in fourth quarter 2001.

Heuristic CF Request Sync-to-Async Conversion: z/OS V1R2 can now dynamically determine if starting an asynchronous CF request instead of a synchronous CF request would provide better overall performance and thus self-optimize the CF accesses. The system will observe the actual performance of synchronous CF requests, and based on this real-time information, heuristically determine how best to initiate new requests to the CF. The algorithims optimizing CPU utilization on the sending z/OS system take into consideration factors such as the type of CF request that is being launched and the amount of data that is being transferred to or from the CF.

Customers who will benefit most from this include those that are configuring their Parallel Sysplex to serve as a remote site recovery alternative (for example, using GDPS™), and those that have configurations where the CPCs running z/OS are significantly faster than the CF to which they are sending requests.

GRS RNLs: GRS is a required component of a Parallel Sysplex. GRS ENQ/DEQ requests can be modified by specifying resource names in RNLs. Prior to the GRS Wildcard support in z/OS V1R2, GRS resource names in RNLs could match resource requests either exactly or by having the prefix specification in the RNL match the resource request.

The use of system cloning techniques and the fact that more operating system components are using GRS services mean that more resources need to be managed with RNLs. This has led to a growing number of resources for which prefix matching is insufficient. As a result, the RNL matching mechanism must be more flexible. The

GRS RNL Wildcard Support adds a new RNL specification that allows the use of wildcard characters ("*" and "?") within resource names to provide an extremely flexible means to modify ENQ/DEQ requests.

Furthermore, the RNL exit (ISGGREX0), an alternate means for you to modify ENQ requests, has been removed. It has been replaced with a more flexible dynamic exit (ISGNQXIT). The new exit allows the modification of resource QNAME, RNAME, SCOPE, or UCB address (for a RESERVE), or the bypassing of RNL processing entirely. Using the dynamic exits facility allows for this additional flexibility and helps avoid the possibility of a poorly-coded exit causing an outage or resource integrity errors.

Tell the System What You Want, Not How to Do It: The unique workload and self-optimizing capabilities provided by WLM and the Intelligent IRD allow you to define response goals based on business priorities. z/OS can handle unpredictable workloads, allows high CPU and I/O utilization while still meeting response goals with minimal human intervention for setup and operation. This can increase customer satisfaction and lower required skills and total cost of ownership.

The new workload and LPAR management enhancements create one of the industry′s most effective automatic load-balancing capability, which is becoming crucial for the new application workloads. An effective usage of WLM will allow users to purchase less MIPS and fewer channels, to effectively handle peaks in demands and increase the efficiency of using computing resources. The z/Architecture continues to enhance the zSeries platform as the best technical platform for new workloads.

WLM Self-Optimizing Advances

- zSeries workload management is now enhanced to also allow workload balancing of non-z/OS partitions, in particular Linux images. The z/OS WLM then manages the CPU resources given to these partitions based on their relative importance compared to the other workloads running in the same LPAR cluster. This function is expected to be available in fourth quarter 2001.

- WLM provides a new mechanism to dynamically determine the number of server tasks that should be run in a server address space. This removes the user burden of monitoring and tuning to react to changing workloads. DB2 intends to use this new self-optimizing mechanism to allow z/OS to manage the number of tasks required to process stored procedures.

  Note: This statement represents current intentions of IBM. IBM development plans are subject to change or withdrawal without further notice.

- Enclaves improvements allow subsystems that execute work on behalf of the same single business unit of work (enclave) to protect the transaction from accidental deletion by another subsystem.

- In-real Swap provides a more efficient algorithm to recover fixed real storage from a "swappable" address space. Real storage can now be recovered without swapping allowing for faster storage reconfigurations.

- WLM provides a new service that allows a work manager to preserve a temporary affinity with a specific server region across multiple independent work requests. WebSphere V4.0 uses this function to create objects which live across multiple transactions on behalf of the same client.

New Hardware and Software Support by Resource Measurement Facility (RMF)

- Statistics on response times is a key performance metric used for groups of work having response time objectives. WLM report classes allow aggregation of performance data so that you can evaluate performance of applications independent of the definition how they are managed. The WLM interface is changed to provide users with the ability to more effectively and efficiently manage applications and tools running on their system. RMF adapted to these changes and can provide new information for report classes when only one service class contributes data to a report class.

  RMF shows response time distributions and work manager delay data, and reporting information according to the periods defined in the service class.

- HiperSockets can be used for a fast communication among operating systems images running in different partitions of a processor. Reporting is done in all Channel Activity reports. In addition, new overview criteria are available for the Postprocessor.

- RMF provides the performance management aspects about CF-to-CF connectivity (in the Postprocessor CF Activity Report) that have to be covered for System-Managed CF Structure Duplexing. This allows you to evaluate and monitor your CF configuration, so you can apply the necessary changes to tune accommodation of new structure instances resulting from System-Managed CF Structure Duplexing.

- The performance impact of cryptographic processing is shown by new Crypto Using and Delay values in the Postprocessor WLMGL report.

- RMF Monitor III is being extended to support workload-based pricing, by providing online, real-time utilization information about logical partitions (LPARs). A new Monitor III CEC Capacity report is available that provides information about defined and consumed processor capacity of all partitions in a CEC (central electronic complex). This report can help users understand the 4-hour CPU utilization of each LPAR and contrast that with the LPAR′s defined capacity required for Variable WLC.

- With the availability of the new cryptographic hardware (PCI Cryptographic Coprocessors) on an LPAR basis, RMF now provides performance monitoring with the new Postprocessor Cryptographic Hardware Activity report, which is based on new SMF records **type 70 subtype 2.**

- The Monitor I I/O Queuing report has been enhanced by providing more information about the utilization of I/O processors. This helps you analyze your IOP capacity and in plan for future growth. Without this support, this information is available only through hardware instrumentation and can now be accessed in a more usable way by the customers.

JES Support

JES2 and JES3 provide:

- **Greater than 64K Job Support:** Allows the installation to have their job number range grow from 65,534 jobs to 999,999 jobs.

- **Long Running Job Support:** Provides the installation the ability to obtain (spinoff) their JESlog data sets prior to job completion. Currently, an installation has to cancel a job that runs for a long period of time to obtain the job's JESlog data sets. This support allows an installation to keep these jobs running indefinitely.

- **Simplified Processing Requirements for the JES3 Global Address Space:** Available by moving message processing to the user's address space.

e-care

SMP/E Enhancements: SMP/E provides the ability to install software products and service directly from a network source, such as the Internet. Today SMP/E can only process input locally on tape or DASD. By installing directly from a network source, SMP/E enables a more seamless integration of electronic software delivery and installation. This reduces the tasks and time required to install software delivered electronically.

SMP/E will also provide facilities to construct, and then later unwrap, network transportable packages of software. This allows customers and vendors to create their own packages of SMP/E installable software, and then distribute them within their own enterprise, or to other enterprises. Specifically, the packaging routine will accept partitioned or sequential data sets as input and will create a network transportable package as output. Once this package is made accessible on an FTP server, the SMP/E RECEIVE command can then be used to transfer the package through a TCP/IP network directly into a z/OS SMP/E environment.

The SMPPTS data set is used by SMP/E to stage PTFs before they are to be installed. Due to the size and scope of today's z/OS, and the increase in size of individual PTFs, the space needs of this data set have grown quite large. Since the SMPPTS data set is of partitioned organization (PDS or PDSE), it is limited to a single DASD volume, and yet often a single volume is not large enough. To combat this problem, SMP/E will provide relief by allowing the use of SMPPTS "spill" data sets to contain the overflow when the SMPPTS data set is full. In effect, this provides multiple physical data sets to be used for a single logical data store.

By eliminating the tasks involved when recovering from an overflowing SMPPTS data set, the new SMPPTS spill data set support allows users to install software service with less intervention and less management of the SMP/E environment.

To assist users in researching and acting upon important HOLD information, SMP/E will consolidate and summarize the HOLD information encountered during APPLY and ACCEPT command processing. The new Holddata reports will reduce the time needed to research HOLD information when installing software service.

The new Holddata reports list the details for each unresolved and bypassed HOLD encountered during APPLY and ACCEPT command processing. The report contains the actual text of the HOLD, thereby saving the user from having to find this information elsewhere. In addition, certain hold reasons (for example, DOC) can contain extremely large amounts of data. Therefore a mechanism is supplied to allow a user to suppress certain hold reasons from the reports.

Preview: z/OS V1R3

Previews provide insight into IBM plans and direction. Availability, prices, ordering information, and terms and conditions will be provided when the product is announced. These statements represent current intentions of IBM. IBM development plans are subject to change or withdrawal without further notice.

e-business Enabling

Security for Your e-business: The IBM 4758 Cryptographic Coprocessor will provide a security-rich platform on which developers can build encrypted applications. The Cryptographic Coprocessor and ICSF will support international cryptographic standards including personal identification number (PIN) processing, and message authentication, and Rivest-Shamir-Adelman (RSA), the de facto public key algorithm standard, and others.

This release will also support the Advanced Encryption Standard (AES) algorithm and the Derived Unique Key Per Transaction (DUKPT) algorithm. The AES algorithm will satisfy all of the National Institute of Standards and Technology (NIST) requirements including 128-bit key. It will provide unprecedented network speed, flexibility and security. The DUKPT algorithm will support point-of-sale terminals that do not yet support the Triple DES encryption algorithm.

In prior releases, system administrators had to create an entirely new PKA key data set (PKDS) every time the PKA master keys were changed. In this release, system administrators will have the capability to re-encipher the PKDS when the PKA master keys are changed.

PKI, a new component of the SecureWay Security Server, will be embedded in z/OS. It consists of a certificate authority that provides digital credentials to participants and a public-key cryptographic system that uses these digital credentials to help ensure overall message integrity, signature verification, and user authentication. Together these technologies will provide the trusted infrastructure required for security-rich transactions over the Internet.

Security experts generally agree that PKI is critical for transaction security and integrity. New functions in this release will extend the currently available Web-based, front-end to manage the entire life-cycle of a digital certificate that is based on PKI. Using the Web interface, digital certificates will be able to be generated for both users with RACF user IDs and external clients. Additionally, certificates and certificate requests will be able to be administered using the same Web-based front end.

Application Flexibility

z/OS UNIX System Services Support: System operators will be able to manage the z/OS Unix System Services environment and UNIX file systems more effectively by using several new and updated commands:

- Since the introduction of Permanent Kernel in OS/390 V1R3, customers have indicated the need to still have the capability to recycle the OMVS address space and associated UNIX workload in order to avoid having to re-IPL mission-critical systems. To accomplish the recycling of the UNIX workload, new **modify** command support will be provided that will allow a customer to shutdown and then restart the UNIX environment.

- Automount is a facility to help administrators manage systems. To further assist administrators in managing their systems, the following will be done:

  1. Allocate an HFS file system if one does not exist

  2. Display the current automount policy

  3. Execute a generic match using only lower case names

  4. Do not use gid 0 for the automount mount points

  5. Support system symbolics

- ConfigHFS will be enhanced so that it can be used by any member of the sysplex when you have read/write sharing. It had been previously restricted to the owning system.

Performance and management improvements to the zFS will ease the deployment of these file systems.

z/OS will allow for need-to-know or discretionary security using access control of protected information resources — that is, it will specify who can be granted access over system information or resources. The major task in administering access control is to define the group memberships of users because these memberships determine the users' access rights to the files they do not own. In z/OS V1R3, RACF and UNIX will allow the use of access control lists ACLs to increase the quality of file access controls by adding extended permissions assigned to individuals and groups.

UNIX users will have a finer level of control beyond that provided by permission bits on a file, that is **rwx for owner/group/other.** You will be able to access a particular file without having to allow all others to access the file, and additionally, without having to set up a special group for specifying a single user. This capability will not only ease the porting of UNIX applications to z/OS, but it will provide the level of security that is expected in a z/OS environment.

ISHELL, a 3270 panel interface to OMVS, will be greatly enhanced due to customer requests. ISHELL will also make it easy for ISPF users to work with z/OS UNIX facilities and files. With ISHELL, you will be able to view and manage ACLs.

The directory list service will be significantly enhanced. The directory list is sensitive to the location of the cursor when the Enter key is pressed. Using a single key stroke, you will be able to sort a column, change an attribute, or show the full path for a file. You will be able to specify primary and secondary sort columns and use color to highlight various file types and attributes.

64-bit Support: In z/OS V1R3, IBM will continue the delivery of 64-bit virtual support with additional z/OS system services to support the 64-bit virtual operating environment. For more information, visit the **IBM e(logo)server z/Series 900 z/OS 64-bit Virtual Storage Roadmap:**

> **http://www.ibm.com/servers/eserver/zseries/ library/whitepapers/pdf/gm130076.pdf**

Ease-of-Use Through Innovative Technology

Parallel Sysplex Support: System logger is integral to a Parallel Sysplex and is used by many components of the operating system and by many middleware products and subsystems for logging services. With z/OS V1R3, the system logger's availability characteristics will be improved by allowing most of the log stream policy attributes to be changed dynamically, that is, without requiring the disruption of quiescing all activity to the log stream, stopping all connectors to the log stream, changing the attribute and then allowing reconnection. Instead, dynamic changes will take effect during the next offload activity or the next logger structure rebuild.

Two other enhancements will significantly improve the systems management characteristics of the system logger. The system logger will allow a log stream definition to be associated with a different log structure which will greatly reduce the need to provide specific logger structure updates (log streams can be re-mapped to a structure with the desired attributes instead). And, system logger will support a new extended high level qualifier (EHLQ) parameter to provide greater flexibility in naming log stream data sets.

msys for Setup Support: In z/OS V1R3, new exploiters for msys for Setup will be z/OS UNIX System Services and Language Environment (LE). You will be able to:

- Use msys for Setup to set limits on your UNIX system resources (such as the maximum number of user IDs that can be concurrent at one time and the maximum number of processes that the system will run at one time). These settings will be stored in the z/OS UNIX parmlib member BPXPRMxx. When using this UNIX Systems Services exploitation of the msys for Setup element, the system will also do self-discovery and prime with the values that your system already has. You will also then be able to use msys for Setup property sheets to do any on-going customization of BPXPRMxx.

- Use msys for Setup to configure the default system-wide run-time options for Language Environment. msys for Setup builds the necessary configuration files, through an easy to use dialog and accompanying help text, which will then be put into production by the system programmer. In addition, msys for Setup will be used to create the region-wide run-time options for both CICS and IMS regions. Since the customization for these regions will now be done in a central location, keeping track of the region-wide options will be easier.

WLM Support: WLM and SDSF will be enhanced to allow operators or system programmers to change the service characteristics of work units running as WLM enclaves. This will provide improved operational management of distributed DB2, scalable Web Server, and WebSphere 4.0 work requests.

WLM Compatibility Mode will not be supported starting with z/OS V1R3.

Enhancements to Data Access and Storage Management: In z/OS V1R3, DFSMS will continue to add enhancements to performance, availability, system throughput, and usability for data access and storage management.

Performance will be improved with the following:

- System-managed buffering is extended to support VSAM spheres containing alternate indices.

- VSAM RLS will now cache control intervals larger than 4 KB in the CF to provide improved performance.

- The REUSE attribute is available for VSAM striped data sets. DB2 table spaces will be able to be defined using the REUSE attribute. By providing the capability to stripe VSAM data sets defined with REUSE attribute, DB2 users will be able to take advantage of the benefits of VSAM striping which include a significant reduction in the elapsed time of batch jobs accessing large DB2 table spaces. This is also available on OS/390 V2R10 with APAR OW50528.

Availability will be improved with the following:

- VSAM RLS lock structures will now exploit System-Managed CF Structure Duplexing to provide improved availability. When failures occur affecting one of the duplexed structure instances, the system will automatically fail over to the unaffected structure instance.

- SMS-managed VSAM and non-VSAM data sets will be extended to the maximum number of volumes defined in the data set's "dynamic volume count" data class value, without impacting an active application. Any changes to the count made after the data set is allocated is applied on subsequent allocations.

- The high-availability requirement for data sets such as the couple data set and backup couple data set (or software duplexed copies of DB2 logs) will be met by allocating them on separate storage control units.

- One or more SMS DASD pool storage groups designated as overflow storage groups will be reserved to handle peak workloads. SMS will attempt not to prefer allocating new data sets on volumes in these overflow storage groups.

- Instead of failing "extends" when new volumes are not available in the storage group where the data set currently resides, you will be able to elect to extend the data set to another volume in a predesignated storage group.

- Multiple Object Backup storage groups will be supported by OAM. Capability will also be provided to make 2 backup copies of OAM objects.

System throughput will be improved with the following:

- This release will allow large real storage to be exploited for buffers for all VSAM record organizations. You will be able to increase the number of data and index buffers to realize the benefits of large real storage for batch programs as well as IMS and CICS data sets, provided it does not impact your virtual storage and region constraints.

- DFSMShsm™ will use the commonly accessible CF for its recall work queues. This will enable each DFSMShsm host to place its recall requests onto a common queue and have those requests distributed evenly among all DFSMShsm hosts. This support will also allow a host that has a tape mounted for recall to process all recall requests requiring that tape, regardless of which host initiated the recall request.

When combined with DFSMShsm's multiple address space support, the common recall queue enhancement will enable the number of concurrent recall tasks to be increased above the current limit of 15 tasks per z/OS image. This common recall queue function will exploit System-Managed CF Structure Duplexing for the new CF structure that it requires.

Automation and ease of use will be improved with the following:

- DFSMSdss™ will copy a HFS data set in one step instead of requiring a two-step process of dump and restore.

- SMS data set allocation failure messages will be written to console to allow automation products to take corrective action. This also will allow one to gather these statistics for projecting future DASD requirements.

Improved Diagnostics: z/OS V1R3 will provide several new diagnostic enhancements for data collection and analysis:

- Improvements will be made to the Interactive Problem Control System (IPCS). IPCS is an interactive, online facility used to format system dumps and traces used in diagnosing software failures. The quality of IPCS Reporting will be improved so that the data it collects allows you to analyze dumps more productively.

Euro Sign Support

z/OS V1R2 includes Euro Currency Symbol support for an additional set of countries and languages.

z/OS V1R2 Product Content

z/OS V1R2 elements are listed below. z/OS elements that are also available as stand-alone products are listed with the release level used in z/OS.

- **System Services**

  - Base Control Program (BCP)[1]
  - JES2[1]
  - ESCON® Director support[1]
  - MICR/OCR support[1]
  - Bulk Data Transfer (BDT) base[1,2]
  - DFSMS[1]
  - EREP/MVS™ Version 3 Release 5
  - High Level Assembler for MVS & VM & VSE V1R4
  - ICKDSF Release 16
  - ISPF[1]
  - TSO/E[1]
  - 3270 PC File Transfer Program Version 1.1.1
  - FFST[1]
  - TIOC[1]
  - IBM License Manager[1,3]

- **Systems Management**

  - HCD[1]
  - Managed System Infrastructure for Setup (msys for Setup)[1]
  - Managed System Infrastructure for Operations (msys for Operations)[1]
  - SMP/E for OS/390 and z/OS, V3R1

- **Cryptographic Services**

  - Cryptographic Services
    -- ICSF[1]
    -- Open Cryptographic Services Facility (RC2/RC4/RC5 40-56-bit, DES 56-bit)[1]
    -- System SSL (RC2/RC4, DES through 56-bit)[1]

- **Application Enablement Services**

  - C/C++ IBM Open Class Library[1,4]
  - Language Environment (Limited DES)[1]
  - DCE AS[1]
  - Encina® Toolkit Executive[1]

- **Distributed Computing Services**

  - Network File System Feature[1]
  - DCE Base Services (OSF DCE level 1.1) (Limited DES)[1]
  - Distributed File Service (DFS™/SMB) (DFS support at OSF DCE level 1.2.2) (DES 56-bit)[1]

- **Communications Server**

  - Communications Server[1]
    -- SNA/APPN® Services (Includes VTAM) (Limited DES)[1]
    -- Multiprotocol/HPR Services (Includes AnyNet®)[1]
    -- TCP/IP Services (Includes TCP/IP for MVS) (Firewall CDMF DES 40-bit, SNMPv3 DES 56-bit, IP Sec DES 56-bit)[1]

- **e-business Services**

  - IBM HTTP Server[1]
  - Text Search (formerly NetQuestion)[1]

- **LAN Services**

  - LANRES (Limited DES)[1]
  - OSA Support Facility OS/390 Version 2 Release 1

- **z/OS UNIX System Services**

  - z/OS UNIX System Services Application Services[1]
    -- z/OS UNIX System Services Shell and Utilities[1]
    -- z/OS UNIX System Services Debugger[1]

- **Softcopy Publications Support**

  - BookManager® READ V1R3
  - BookManager BookServer[1]
  - GDDM® Version 3 Release 2 (including PCLK and OS/2® Link)

You have the ability to replace a z/OS base function with a commercially available product that provides a similar function. Contact an IBM representative for qualification and pricing information. All z/OS integrated testing results and performance claims are voided with such replacement.

z/OS delivers optional features that have a high affinity to the base z/OS system.

- **System Services**

  - JES3[1]
  - Bulk Data Transfer (BDT) File-to-File[1]
  - Bulk Data Transfer (BDT) SNA NJE[1]

- **Systems Management**

  Note: The DFSMS features are packaged in combinations.

  - DFSMSdss, hsm[1]
  - DFSMSrmm[1]
  - DFSMSdss[1]
  - RMF[1]

  - SDSF[1]
  - HCM[1]

- **Cryptographic Services**

  - Open Cryptographic Services Facility Security Level 3 (TDES, DES, RC2/RC4/RC5)[1,5]
  - System SSL Security Level 3 (RC2/RC4,TDES)[1,5]

- **SecureWay Security Server**

  - DCE Security Server at OSF DCE level 1.2.2 (Limited DES)[1]
  - Open Cryptographic Enhanced Plug-ins (uses OCSF)[1]
  - RACF (DES, RC2 40 bit)[1]
  - Firewall Technologies (DES)[1,4]
  - LDAP Server (uses System SSL)[1,4]
  - Network Authentication Service (DES)[1,4]
  - Network Authentication Service Level 3 (TDES)[1,5]

- **Application Enablement Services**

  - C/C++ with Debug Tool[1,4]
  - C/C++ without Debug Tool[1,4]
  - DFSORT[1,6]
  - GDDM-PGF Version 2 Release 1.3
  - GDDM REXX Version 3 Release 2
  - HLASM Toolkit (Toolkit feature of HLASM for MVS & VM & VSE V1R4)
  - Infoprint Server[1]
    -- IP PrintWay[1] and NetSpool[1]
    -- Print Interface[1]

- **Communications Server**

  - Communications Server Security Level 3 (TDES)[5]
  - Communications Server Network Print Facility[1]

- **e-business Services**

  - IBM HTTP Server NA Secure[1,7]

- **Softcopy Publications Support**

  - BookManager BUILD Version 1 Release 3

[1] This element or feature is exclusive to z/OS. Any functional enhancements will be made only through z/OS.
[2] One or both of the BDT optional features (file-to-file or SNA NJE) must be ordered and installed in order to use the BDT function shipped with the base.
[3] ILM is not available for use at this time.
[4] The following components of priced optional features are now licensed as part of the z/OS base and can be used without enabling the optional feature:
C/C++ IBM Open Class Library
LDAP server component of SecureWay Security Server
Network Authentication Service component of SecureWay Security Server
Firewall Technologies (IKE and GUI only) component of SecureWay Security Server
[5] Items have export considerations.
[6] DFSORT™ (5740-SM1), as a stand-alone product, was withdrawn from marketing on September 5, 2001, and can no longer be enabled with z/OS V1 R2, or later. On z/OS V1R2, or later, only the copy of DFSORT delivered and licensed as an optional feature of z/OS can be enabled. On z/OS V1 R1 and supported releases of OS/390 (Version 2 Release 7 through 10), either the DFSORT stand-alone product or the copy delivered as an optional feature of z/OS and OS/390 can be enabled.
[7] If ordering IBM HTTP Server NA Secure, System SSL Security Level 3 should also be ordered to obtain additional security function over what is provided in the z/OS Version 1 Release 2 Base.

For further detail on z/OS V1R2 elements, features, and functions, refer to the **Notable Changes in V1R2** section. For further detail on z/OS V1R3 elements, features, and functions, refer to the **Notable Changes in V1R3** section.

Enabling z/OS Optional Priced Features

The z/OS optional priced features use a z/OS product registration service, together with product policy statements, to determine whether or not the z/OS priced feature has been ordered and should run.

z/OS optional priced features that are ordered concurrently with z/OS will be shipped by IBM together with policy statements in PARMLIB which enable the ordered priced features. z/OS priced features which have not been ordered will also be shipped with z/OS, but with policy statements which disable the unordered features. If the customer subsequently enables any of the optional priced features, those features also become subject to the payment terms of the customer's existing z/OS license as described in *z/OS Licensed Program Specifications* (GA22-7503). Customers must notify IBM when they enable an optional feature that was shipped disabled from IBM. A detailed description of the enablement support for z/OS features is available in *z/OS Planning for Installation* (GA22-7504):

> **http://www.ibm.com/servers/eserver/zseries/ zos/bkserv**

The z/OS priced features that support this enablement capability in z/OS V1R2 are:

- BookManager BUILD
- BDT File to File
- BDT SNA NJE
- C/C++ (with Debug Tool)[8]
- C/C++ (without Debug Tool)[8]
- DFSMSdss
- DFSMSrmm
- DFSMSdss,hsm
- DFSORT
- GDDM PGF
- GDDM REXX
- HCM
- High Level Assembler Toolkit
- JES3
- Infoprint Server
- RMF
- SDSF
- SecureWay Security Server[9]

[8] The C/C++ IBM Open Class Library component of the C/C++ Optional Feature is licensed with the z/OS base operating system and can be used without enabling the C/C++ Optional Feature.
[9] The Network Authentication Service, the LDAP Server, and Firewall Technologies (IKE and GUI only) components of the SecureWay Security Server Optional Feature are licensed with the z/OS base operating system and can be used without enabling the SecureWay Security Server Optional Feature.

Planning Improvements

The SMP/E enhancements available in z/OS V1R2 for CBPDO (refer to the **SMP/E Enhancements** section earlier in this announcement) are also available for OS/390 V2 customers who order SMP/E for z/OS and OS/390, V3R1 (5655-G44). z/OS V1R2 SMP/E and SMP/E V3R1 are functionally equivalent. For more information about SMP/E for z/OS and OS/390, V3R1, refer to Software Announcement 201-257, dated September 11, 2001.

In order to make it easier for customers to take advantage of the new SMP/E functions, all OS/390 V2R10 ServerPac and Systempac® (CBPDO) only orders will be built with, and must include, the new level of SMP/E, starting at z/OS V1R2 general availability.

As always, you must use the same level of SMP/E a system was built with (or a higher level) to maintain a system; in other words, you must maintain the OS/390 V2R10 ServerPac or SystemPac (CBPDO only) system you receive after z/OS V1R2 general availability with the level of SMP/E that was used to build your order (namely, SMP/E for z/OS and OS/390, V3R1 or z/OS V1R2 SMP/E).

You can prepare for this now, by installing the coexistence service for SMP/E for z/OS and OS/390, V3R1 on any systems that will share SMP/E information with your new OS/390 V2 R10 ServerPac system. The coexistence PTFs are:

- OS/390 V2R6 PTF UR52664
- OS/390 V2R7, V2R8, V2R9, and V2R10 PTF UR52665
- z/OS V1R1 PTF UR52665

Program Services

Central service for suspected defects in z/OS code is provided by the IBM Support Center within the customer's geography. On-site (local) support, although available, is provided as part of IBM's portfolio of fee-based services.

Service Policy

IBM intends to provide service support for each release of z/OS for three years following its general availability date. IBM may occasionally choose to leave a release supported for more than three years. Service support is available for:

- OS/390 V2R6, until March 31, 2002
- OS/390 V2R10, until September 30, 2004

Notes

- Existing coexistence and migration rules continue to apply and should be taken into account in planning future migrations. See **General coexistence, release migrations, and fallback** for additional information.

- At lease twelve months' written notice prior to the withdrawal of service for a version or release will be given for z/OS.

- This statement represents current intentions of IBM. IBM development plans are subject to change or withdrawal without further notice.

Recommended Service Upgrade

IBM is redefining the Recommended Service Upgrade (RSU) for the z/OS platform based on additional Consolidated Service Testing (CST). This is expected in the beginning of the fourth quarter of 2001. Testing of service for the following subsystems and products is now being done in a customer-like sysplex environment, using industry representative workloads.

- z/OS
- OS/390
- IMS
- DB2
- CICS
- MQSeries

Service will be tested in this consolidated service test environment on a quarterly basis. The resulting RSU is the new recommended level of service. Additionally, testing will be done on Hipers, PE Fixes and other fixes as warranted, on a monthly basis. These monthly RSUs are recommended for customers who want to stay more current. As always, customers should review Hipers and

PE Fixes on a regular basis and install those that apply to their environment. For more information about CST, ordering and installing the redefined recommended service, refer to:

http://www.ibm.com/servers/eserver/zseries/ zos/servicetst

Notes

- These service recommendations are based on IBM's test environment and workloads. Customer environments and workloads are likely to differ. Therefore, these service recommendations are provided without warranties of any kind. Each customer must consider their environment, maintenance philosophy, and production needs in making the final decision as to what maintenance to apply.

- These statements represent IBM's current intentions. IBM development plans are subject to change or withdrawal without further notice.

Notable Changes in z/OS V1R2

The following elements, features, and functions are no longer included in z/OS starting with z/OS V1R2:

- LanServer element

- Tivoli Management Framework element (Tivoli Management Framework, will only be available as a stand-alone product (5697-D10), for which we do not currently intend to charge a separate license fee.)

- Spanish language version of the Infoprint Server feature

- Communications Server Level 1 feature

- Communications Server Level 2 feature

- V4 Kerberos function from the Communications Server

- ISPF Library Management Facility (LMF) function

- Pre-Compiled Header files (PCH) function from the C++ compiler

- RMF Monitor II local 3270 display sessions function

- The SOMobjects™ for MVS Runtime Library (RTL) element and SOMobjects for MVS Application Development Environment (ADE), an optional feature. Service support is still available for this element and feature in previous releases of z/OS, and on OS/390 V2. No new functionality will be added to the element or feature in previous releases of z/OS or OS/390.

 There continues to be recognizable value in the ability to build COBOL Object-Oriented (OO) applications that can be deployed on the S/390 platform, and the COBOL OO technology is currently based upon SOMobjects. For that reason, IBM will continue to support SOM®-based COBOL OO applications on OS/390 V2 and z/OS V1R1.

 The Statement of Direction for SOMobjects as announced in Software Announcement 200-352, dated October 3, 2000, included plans to incorporate the SOMobjects ADE as a part of the IBM COBOL for OS/390 and VM compiler product, and move a subset of the SOMobjects RTL to the Language Environment component of z/OS. Since this effort would not benefit our customers, while improved interoperability of COBOL with Java and with the WebSphere Application Server would, IBM will focus future enhancements to COBOL in this direction.

It is strongly recommended that customers with programs which depend on SOMobjects evaluate the WebSphere Family of products for replacement purposes. There is no detailed migration strategy from SOMobjects due to the many changes which have come about in the underlying technology.

For further information about WebSphere, visit:

http://www.ibm.com/software/webservers/ appserv/

For further information about IBM COBOL for OS/390 and VM, visit:

http://www.ibm.com/software/ad/cobol/

Additional changes follow:

- The ISPF Data Compression function will remain in z/OS V1R2 and z/OS for the foreseeable future. However, many compression products are more capable and efficient and should be considered. The "Terse/MVS" function commonly used to compress FTP dumps is but one example. The ISPF Data Compression code will not be enhanced in any future release and is now considered functionally stable.

- Effective immediately, OS/390 and z/OS customers are no longer entitled to free downloads of the Host-on-Demand (HOD) Entry function. Customers interested in HOD Entry should contact their IBM representative.

Notable Changes in z/OS V1R3

z/OS V1R3 changes will be made to the following functions:

- WLM compatibility mode will not be supported.

- It is the intent of IBM to ignore the KEYRANGE specification on the IDCAMS DEFINE and IMPORT commands for any data sets created beginning with z/OS V1R3. Existing KEYRANGE data sets will continue to work without change.

 For additional information, see System Center Flash 10072. Select **Flashes** and search on **Flash10072** on:

http://www.ibm.com/support/techdocs/

Additionally, LANRES will not be supported. For information on migration alternatives, visit:

http://www.ibm.com/servers/eserver/zseries/ library/whitepapers/gm130035.html

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Education Support

The following worldwide courses are available for classroom delivery:

- Introduction to z/OS and OS/390 Environment (ES05)
- Fundamental System Skills for z/OS and OS/390 (ES10)
- z/OS and OS/390 Facilities (ES15)
- z/Architecture for zSeries (OZ09)
- Migration to Parallel Sysplex for zSeries (OZ40)
- Using Infoprint Server for z/OS (PR74)

In the United States and Canada call 800-IBM-TEACH (426-8322) to enroll in one or more of these classes.

Technical Information

Hardware Requirements: z/OS V1R2 runs on the following IBM servers:

- z900 or comparable server

- S/390 Parallel Enterprise Servers ─ G5 and G6 models or comparable server

- All models of the Multiprise® 3000 Enterprise Server or comparable server

z/OS V1R3 and the release expected in second half of 2002 will run on the same IBM Servers as listed for z/OS V1R2.

Software Requirements: The z/OS base is an IPL-able system. There are no hard software prerequisite requirements in order to IPL. Specific functions may require additional products not included in z/OS base, or in the optional features of z/OS. Refer to *z/OS Planning for Installation* (GA22-7504) for a listing of specific software requirements, available at:

> **http://www.ibm.com/servers/eserver/zseries/ zos/bkserv**

General Coexistence, Release Migrations, and Fallback

z/OS continues to give you compatibility and flexibility as you migrate systems in a multisystem configuration by allowing several releases of OS/390 and z/OS to coexist. This includes non-Parallel Sysplex and Parallel Sysplex multisystem configurations.

Coexistence allows systems within a multisystem configuration to be upgraded to a new release level of the operating system one system at a time. This is contingent on the fact that the release you are migrating to can coexist with the lowest release running in your multisystem configuration.

As previously described in Software Announcement 200-352, dated October 3, 2000, OS/390 V2R8, V2R9, V2R10, and z/OS V1R1 are coexistence-supported with z/OS V1R2. This takes into account the special combined treatment of OS/390 V2R10 and z/OS V1R1.

As also described in Software Announcement 200-145, dated May 16, 2000, IBM has converged on a consistent migration and coexistence policy. This consistent migration and coexistence policy is based on the current coexistence policy. Migration forward as well as backward should be made within the same releases supported by the coexistence policy. Four releases is the general migration and coexistence policy that should be assumed, except where special provisions have been provided.

This consistent coexistence, migration and fallback policy applies to release migrations for:

- Single system configurations

- Individual systems within a multisystem configuration

- Cases where a simultaneous IPL is used to migrate all systems in a multisystem configuration at the same time

For additional information on coexistence and release migration information, refer to *z/OS Planning for Installation (GA22-7504):*

> **http://www.ibm.com/servers/eserver/zseries/ zos/bkserv/**

JES Coexistence, Release Migrations, and Fallback: It is recommended you migrate to the JES2 or JES3 that comes comprehensively-tested with z/OS V1R2 at the same time you migrate to the rest of z/OS V1R2, or as soon as possible thereafter. In this way, you benefit directly from the new function provided by the most current JES and enable other elements and features to benefit from this level.

Because such a migration is not always practical, certain prior JES levels are supported. The JES levels supported by a given z/OS release (that is, the allowable JES-BCP combinations) are the same as the JES levels that may coexist in the same multi-access spool (MAS) or multisystem complex with the JES delivered in that z/OS release. That is, the JES levels that may run on the latest z/OS release (when run on either a single system or on individual systems participating in a multisystem configuration) are the four most recent JES levels.

Refer below for the specific JES levels that are coexistence-supported with z/OS V1R2.

With z/OS V1R2, compliance to the allowable JES-BCP combinations is enforced. Failure to use one of the four most recent JES levels with the z/OS V1R2 BCP results in an ABEND and subsequent termination of the JES address space.

Since z/OS allows the JES element to be separately staged, z/OS also supports the coexistence of certain lower-level JES releases with the JES release provided with z/OS V1R2.

To be specific, the following JES releases are coexistence supported with z/OS V1R2 JES running in the same multi-access spool (MAS) or multisystem complex:

- For JES2: OS/390 R7 JES2, OS/390 R8-R9 JES2 (both are functionally equivalent), OS/390 R10-z/OS V1R1 JES2 (both are functionally equivalent), and z/OS V1R2 JES2

- For JES3: OS/390 R8 JES3, OS/390 R9 JES3, OS/390 R10-z/OS V1R1 JES3 (both are functionally equivalent), and z/OS V1R2 JES3

The above releases are also the JES releases that are supported from a migration and fallback perspective.

With z/OS V1R2, compliance to the coexistence policy for the JESes (JES2 and JES3) is enforced. A migration to a JES release level that is not supported by the policy results in the following:

- For JES2: If the JES2 release level for a system that is initializing is not compatible with the other active systems in the JES2 MAS, message HASP710 is issued and the JES2 address space for the initializing system is terminated.

- For JES3: If the JES3 release level for a local is not compatible with the global in a JES3 multisystem complex, message IAT2640 is issued and the JES3 local is not allowed to connect to the global.

For additional information on JES coexistence and release migration information, refer to *z/OS Planning for Installation (GA22-7504)* at:

http://www.ibm.com/servers/eserver/zseries/ zos/bkserv/

Limitations: The Customized Offerings Driver is now based on a OS/390 V2R9 system. It no longer supports delivery on either 6250 tape media or installation on 9345 DASD devices.

ServerPac has been enhanced to provide:

- More flexibility for modifying your system layout and working with data sets

- Support for the recommended system layout

- Basic sysplex configuration

- System logger configuration, including OPERLOG and LOGREC

- Default Work Load Manger (WLM) Goal Mode configuration

- OCSF configuration

- Generation of msys product definitions for products not installed with ServerPac, using SMP/E information

Performance Considerations: Additional information on z/OS V1R2 performance will be available at general availability. You should consult your marketing representative at or after general availability.

User Group Requirements

z/OS V1R2 satisfies or partially satisfies requirements from IBM customers, and one or more of the worldwide user group communities. Information on the specific User Group requirements (numbers and descriptions) can be found at:

http://www.ibm.com/servers/eserver/zseries/zos/ bkserv/user_group_reqs.html

Planning Information

Customer Responsibilities: Installation and support are provided by the S/390 Support Family offerings. For information on available services, call 800-IBM-4YOU (426-4968).

Direct Customer Support

Direct customer support is provided by IBM Operational Support Services — Support Line. This fee service can enhance your productivity by providing voice and electronic access into the IBM support organization. IBM Operational Support Services — Support Line will help answer questions pertaining to usage, how to and suspected software defects for eligible products.

Installation and technical support is provided by IBM Global Services. For more information on services, call 800-IBM-4YOU (426-4968).

Packaging: When ordering z/OS unpriced optional **(encryption controlled)** features, IBM recommends that you order these features during the release cycle. The function is only sent when ordered. For example, to obtain encryption support (security) for IBM HTTP Server for z/OS, you **must** specify the security feature **IBM HTTP Server North America Secure.**

For specific details on feature numbers, refer to the **Ordering Information** section.

System Integrity

IBM will accept APARs where the installation of z/OS introduces an exposure to system integrity.

Security, Auditability, and Control

Data security and auditability in the z/OS environment are enhanced by the functions available in the optional SecureWay Security Server for z/OS feature. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Customer Financing

IBM Global Financing offers attractive financing to credit-qualified commercial and government customers and Business Partners in more than 40 countries. IBM Global Financing is provided by the IBM Credit Corporation in the United States. Offerings, rates, terms and availability may vary by country. Contact your local IBM Global Financing organization. Country organizations are listed on the Web at:

http://www.financing.ibm.com

Ordering Information

For ordering and pricing information previously announced for z/OS V1, refer to Software Announcement 200-352, dated October 3, 2000.

Key Dates

- **September 11, 2001:** z/OS V1R2 CFSW configurator support for stand-alone path (5694-A01).

- **October 2, 2001:** Recommended date for submitting z/OS V1R1 orders for ServerPac, SystemPac, CBPDO. This date will allow for adequate order processing time.

- **October 11, 2001:** Last date for ordering z/OS V1R1 ServerPac, SystemPac, CBPDO except for the z/OS V1R1 Upgrade Package for OS/390 V2R10 (see below).

- **October 12, 2001:** First date for ordering z/OS V1R2 ServerPac, SystemPac, CBPDO using CFSW configuration support. Note that most z/OS media (executable code) is shipped only through z/OS Customized Offerings (ServerPac, SystemPac, and CBPDO).

- **October 26, 2001:** z/OS V1R2 general availability.

- **June 25, 2002:** Last date for ordering the z/OS V1R1 Upgrade Package for OS/390 V2R10, offered through CBPDO.

- **December 17, 2002:** Last date for ordering OS/390 V2 R10 (5647-A01).

- **December 17, 2002:** Last date for Web download of the OS/390 V2R8, R9, and R10, and z/OS V1R1 support for Unicode.

Note: The end of service for OS/390 V2R10 is September 30, 2004. For further details, refer to the **General Coexistence, Release Migrations, and Fallback** and **Service Policy** sections.

z/OS V1R2 will not be offering the following optional features:

- Communications Server Security Level 1
- Communications Server Security Level 2
- SOMobjects ADE
- Infoprint Spanish

Note: You can order the above features if you plan to migrate from OS/390 V2R10, and wish to order the z/OS V1R1 Upgrade Package. When migrating to z/OS V1R1 this way, this allows you to obtain a license under z/OS V1R1 (5694-A01) for the same features you had previously licensed under OS/390 V2R10 (5647-A01).

SecureWay Security Server Network Authentication Service Level 3, a new unpriced optional feature, is being offered in z/OS V1R2.

Current Licensees of OS/390 V2R10

Migration to z/OS V1R1: OS/390 V2R10 customers can migrate to z/OS V1R1 by:

- Obtaining a license for z/OS V1R1 (5694-A01) with the same feature list contained in the initial order for OS/390 V2R10 (5647-A01)

- Ordering the z/OS V1R1-OS/390 R10 Upgrade feature by CBPDO

The z/OS V1R1 licensing/pricing features can be ordered to migrate OS/390 V2R10 customers who order the z/OS V1R1 Upgrade Package for OS/390 V2R10. This upgrade package is available only through CBPDO format.

There are important service considerations when ordering and installing the z/OS V1R1 Upgrade Package for OS/390 V2R10. It is highly recommended that you upgrade service for the entire OS/390 V2R10 system at the time you install the upgrade package. This will ensure that you are at the minimum service level that was integration tested by IBM. You should choose the CBPDO Selective service option when ordering the upgrade package. This will provide you with service for OS/390 V2R10, the upgrade package, and other products in your ordering profile.

When z/OS V1R2 can be ordered on **October 12, 2001**, the z/OS V1R1 full-product support in ServerPac, SystemPac, and CBPDO will no longer be offered for z/OS V1R1.

OS/390 V2R10 with the z/OS V1R1 Upgrade Package for OS/390 V2R10 gives you an additional migration option when migrating to z/OS. For considerations on which migration path might be optimal, refer to *z/OS Planning and Installation, Chapter 6, Preparing for Migration.* This publication is available on the Web:

> **http://www.ibm.com/servers/eserver/zseries/ zos/bkserv**

Migration to z/OS V1R2: The z/OS V1R2 full-product support in ServerPac, SystemPac, and CBPDO is the delivery vehicle for z/OS V1R2, and can be ordered on **October 12, 2001.**

There is no upgrade package being offered to migrate you to z/OS V1R2.

For more details, refer to the **New Licensees of z/OS V1R2** section.

Current Licensees of z/OS V1R1

z/OS V1R1 customers can migrate to z/OS V1R2 by ordering the release through the Customized Offerings (ServerPac, SystemPac, CBPDO) as done in the past.

There is no upgrade package offered to migrate to z/OS V1R2.

Refer to the **New Licensees** section for all the license media feature numbers that should be obtained when migrating to z/OS V1R2. You can then proceed to order the executable code through the Customized Offerings (ServerPac, SystemPac, CBPDO).

New Licensees of z/OS V1R2

For all z/OS orders, the current customers install base of Customized Offering (5751-CSx) (not the install base of 5694-A01 or 5746-A01) must be retained to determine the z/OS version/release level most recently ordered.

Production of z/OS V1R2 orders will begin on the general availability date, **October 26, 2001.** Ship dates for orders will be based on order sequence, Customized Offering selected, production capability, and customer-requested arrival date. Due to the amount of customization of ServerPac orders, shipments will begin approximately **two weeks after** general availability. Due to the amount of additional customization of SystemPac orders, shipments will begin approximately four weeks after order and data input verification.

For CBPDO orders, shipments will begin one week after general availability. In all cases, no delivery commitments are to be made to the customer until confirmed arrival dates are in ESW/AAS.

Basic License

To order a basic license, specify the z/OS V1R2 program number 5694-A01, and feature number 9001 for asset registration. Proceed to select the license media feature numbers listed, which are required, and then select any optional feature numbers.

Single Version Charging: To elect single version charging, the customer must notify and identify to IBM the prior program and replacement program and the designated machine the programs are operating on.

Basic Machine-Readable Material

The following optional features are added to z/OS V1R2 marketing, and they can be ordered effective **September 11, 2001.**

z/OS V1R2 Feature Description	z/OS V1R2 Feature Number
Base	6119

Note: The billing features and pricing information for the above feature descriptions are unchanged. Refer to Software Announcement 200-352, dated October 3, 2000, for details.

Basic Publications

A memo, program directory, LANRES diskettes, and one copy of the following publications are supplied automatically with the basic machine-readable material.

Basic/Unlicensed Hardcopy Publications

Title	Order Number
z/OS Version 1 Release 2 Hot Topics Newsletter	GA22-7501
z/OS Version 1 Release 2 Planning for Installation	GA22-7504
z/OS Version 1 Release 2 Planning for Workload License Charges	SA22-7506

Basic/Unlicensed Softcopy Publications

Title	Order Number
z/OS Version 1 Release 2 Collection	SK3T-4269

For a fee, you can order additional copies of these books or any other z/OS V1R2 hardcopy book or softcopy collection using the IBM Publication Center on the Web:

http://www.ibm.com/shop/publications/order

For other publications ordering options, visit:

http://www.ibm.com/servers/eserver/zseries/zos/ bkserv/order_books.html

z/OS V1R2 Collection (BookManager and PDF): *The z/OS V1R2 Collection* contains the z/OS V1R2 product books in both BookManager and PDF softcopy formats on CD-ROM. If this collection is refreshed three months after general availability, an updated collection will be automatically sent to z/OS V1R2 licensees.

By general availability, all of the z/OS V1R2 unlicensed books will also be available at:

http://www.ibm.com/servers/eserver/zseries/zos/ bkserv/order_books.html

If you want to upload BookManager softcopy and create softcopy repositories, the SoftCopy Librarian is our strategic tool for uploading and managing BookManager files on a z/OS or OS/390 host or server, and on LANs and workstations. SoftCopy Librarian, a free program that is provided on the softcopy tools disc of the CD-ROM collections, outperforms the previous Softcopy Receiver Tool (SCRT) for uploading books and also provides you with management functions for your bookshelves and book files. Since the SCRT is no longer supported, you should migrate to the SoftCopy Librarian now.

SoftCopy Librarian runs on Windows 95 or later and Windows NT 4.0 or later. The latest versions of the SoftCopy Librarian can be downloaded from the following site:

ftp://ftp.software.ibm.com/ps/products/ibmreader/ tools/

Optional Machine-Readable Material

Optional Unpriced Features: The following optional features are added to z/OS V1R2 marketing, and they can be ordered, effective **September 11, 2001.**

z/OS V1R2 Feature Description	z/OS V1R2 Feature Number
Communications Server Security Level 3	6151
Communications Server Network Print Facility	6155
IBM HTTP Server NA Secure	6088
OCSF Security Level 3	6098
System SSL Security Level 3	6117
SecureWay Security Server Network Authentication Service Level 3	6156

Notes

- All above features can be exported outside the U.S. These features should be ordered during this release cycle, since they are not automatically included in all orders, due to need for export regulation tracking.

- The Kerberos function mentioned earlier in this announcement is obtainable by ordering SecureWay Security Server Network Authentication Service Level 3.

- The above feature descriptions are offered at no additional charge.

Optional Priced Features: The following optional features are added to z/OS V1R2 marketing, and they can be ordered, effective **September 11, 2001.**

z/OS V1R2 Feature Description	z/OS V1R2 Feature Number
BDT FTF	6148
BDT SNA NJE	6097
BookManager Build	6136
C/C++ with Debug	6145
C/C++ without Debug	6112
DFSMS dss,hsm	6147
DFSMS rmm	6142
DFSMS dss	6144
DFSORT	6110
GDDM-PGF	6101
GDDM-REXX	6116
HCM	6118
HLASM Toolkit	6143
Infoprint Server	6089
JES3	6092
RMF	6106
SDSF	6099
SecureWay Security Server	6149

Notes

- If you subsequently enable any of the optional priced features, those features also become subject to the payment terms of your existing z/OS license as described in *z/OS Licensed Program Specifications* (GA22-7503). You must notify IBM when you enable an optional feature that was shipped disabled from IBM.
- The billing features and pricing information for the above feature descriptions are unchanged. Refer to Software Announcement 200-352, dated October 3, 2000 for details.

Optional Unpriced National Language Version (NLV) Features

The z/OS V1R2 NLV support features will become generally available on the same date the release code becomes available.

z/OS V1R2 provides support in the languages listed below. However, not all elements within z/OS V1R2 are translated into each language. Refer to *z/OS Version 1 Release 2 Planning for Installation* (GA22-7504) for information on which elements are translated into which languages, by visiting:

> **http://www.ibm.com/servers/eserver/zseries/ zos/bkserv**

The following optional features are added to z/OS V1R2 marketing, and they can be ordered, effective **September 11, 2001.**

The NLV features for z/OS V1R2 are:

NLV Features

z/OS V1R2 NLV Feature Description	z/OS V1R2 Feature Number
Brazilian Portugese Base (PTB)	6120
Brazilian Portugese BookMgr Build	6141
Canadian French Base (FRC)	6121
Canadian French BookMgr Build	6137
Danish Base (DAN)	6132
Dutch Base (NLD)	6130
French Base (FRA)	6129
French BookMgr Build	6138
German Base (DEU)	6125
German BookMgr Build	6139
Italian Base (ITA)	6127
JPN Base	6133
JPN C++ With Debug	6146
JPN C++ Without Debug	6113
JPN DFSORT	6111
JPN Infoprint Server	6091
JPN RMF	6107
JPN SDSF	6100
JPN SecureWay Security Server	6150
Upper Case English Base (ENP)	6123
Korean Base (KOR)	6122
Norwegian Base (NOR)	6124
Spanish Base (ESP)	6131
Spanish BookMgr Build	6140
Swedish Base (SVE)	6134
Swiss German Base (DES)	6135
Simplified Chinese Base (CHS)	6126
Traditional Chinese Base (CHT)	6128

Note: The above feature descriptions are offered at no additional charge.

Features Not Offered in z/OS V1R2

z/OS Optional Features

SOMobjects ADE and RTL
Communications Server Level 1
Communications Server Level 2
Infoprint Spanish

Optional Unpriced Source Media

The following optional features are added to z/OS V1R2 marketing, and can be ordered effective **September 11, 2001.**

Optional Source Feature Description	z/OS V1R2 Feature Number	
	3480 Cartridge	4mm DAT
Source Base[10]	6093	6094
Source Base JPN[11]	6095	6096
Source SecureWay Security Server (RACF)[12]	6114	6115

[10] Base source code contains source for elements: BCP, DFSMS, BDT, MICR/OCR.
[11] Base source code contains source for BCP JPN element.
[12] SecureWay Security Server source code is for RACF.

Notes

- Effective with z/OS V1R2, unpriced source media will no longer be offered in 6250 media format.
- The above feature descriptions are offered at no additional charge.

Optional Unlicensed Publications

Optional Unlicensed Softcopy Publications: The following optional features are ADDED to z/OS V1R2 marketing, and can be ordered, effective **September 11, 2001.**

Subscriptions to the following softcopy collections may be ordered for a fee by specifying the one-time charge feature numbers listed below:

Title	Order Number	Feature Number
z/OS Software Products Collection	SK3T-4270	8003
IBM e(logo)server zSeries Redbooks Collection[13]	SK3T-7876	8005
z/OS SecureWay Security Server RACF Collection	SK3T-4272	8004
z/OS Version 1 Release 2 and Software Products DVD Collection	SK3T-4271	8006

[13] The Redbooks collection is updated twice a year, concurrent with z/OS releases.

Note: When the above softcopy collections are ordered as features of z/OS V1R2, the special subscription price includes automatic shipment of all updates made while the product version can be ordered.

The *z/OS Software Products Collection* includes about 1,300 unlicensed online books for more than 200 z/OS software products and Parallel Sysplex, and a softcopy tools disc. This collection includes books for multiple releases of software products that run on z/OS. The books are provided in BookManager format and, when available, in PDF format as well.

The *IBM e(logo)server zSeries Redbooks Collection* contains IBM redbooks, in PDF format, related to z/OS and other zSeries products. IBM redbooks, which are produced by the International Technical Support

Organization, include timely technical information based on realistic scenarios and are created by IBM experts, customers, and business partners from around the world.

The *z/OS SecureWay Security Server RACF Collection* includes unlicensed softcopy books, in BookManager format, for numerous software product libraries that reference the SecureWay Security Server. It also includes education course listings, Web sites to access sample code on the Internet, and Portable Document Format (PDF) files for the z/OS SecureWay Security Server manuals, as well as softcopy tools. Using this collection, you have easy access to all the Security Server RACF-related information without handling individual sets of books and libraries on many CD-ROMs.

The *z/OS Version 1 Release 2 and Software Products DVD Collection* includes softcopy tools, libraries for z/OS Version 1 Release 2 (the element and feature libraries), the libraries for multiple releases of z/OS software products, and selected zSeries redbooks. Both BookManager and PDF formats, when available, are included on this single DVD. This comprehensive z/OS collection is essentially the *z/OS Version 1 Release 2 Collection (SK3T-4269)* and the *z/OS Software Products Collection (SK3T-4270)* combined with selected redbooks from the *IBM e(logo)server zSeries Redbooks Collection (SK3T-7876)* and delivered on the higher density DVD technology.

Optional Licensed Publications: There are no optional licensed hardcopy or softcopy publications available for ordering by feature numbers, for inclusion in the product package shipment. However, z/OS licensed publications are offered in softcopy format for customers to order in addition to their product package.

Licensed users can obtain the licensed books for z/OS by purchasing the z/OS Licensed Product Library collection (LK3T-4307) using the usual ordering methods. Users can also access the licensed books on the Internet free of charge using the IBM Resource Link™ Web site. Access to these books on IBM Resource Link requires a key code and an IBM Resource Link Web user ID and password. Your z/OS order includes a memo that contains the keycode. Information about ordering the licensed softcopy collection and accessing IBM Resource Link is provided on the following Web site:

http://www.ibm.com/servers/eserver/zseries/ zos/bkserv/resource_link.html

Terms and Conditions

The terms and conditions of z/OS V1R1 (5694-A01) are unaffected by this announcement.

For more information, refer to Software Announcement 200-352, dated October, 3, 2000.

Prices

The prices for z/OS V1R1 (5694-A01) are unaffected by this announcement.

For more information, refer to Software Announcement 200-352, dated October, 3, 2000.

IBM Operational Support Services — Support Line: Yes

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Note: Shipments will begin after the planned availability date.

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