z/OS Version 2 Release 2 highlights designed to support:

Exceptional scaleable environments with clouds:
- Simultaneous multithreading on z/ILP specialty engines on 213 processors for higher overall throughput.
- Up to 141 configurable processors or up to 128 processors per LPAR on 213 processors when running in SMT mode.
- Improved autonomic for health-based workload routing in a Parallel Sysplex(R) with new z/OS Workload Manager (WLM) and WLM Workload Manager (WLM) functions to be available that might be useful for administrators.
- Analytics enablement with information management, storage, and delivery capabilities.
  - Support up to 4 T4 of RAM to improve performance of IBM DB2(R) and other data-intensive workloads.
- Fabric I/O Priority, extending Workload Manager into the SAN fabric to prioritize your most important transactions and help improve overall I/O performance.
- 16 Gb FICON(TM) links to help reduce I/O latency.
- A new IBM-designed zHyperWrite(R) capability that helps you achieve better DB2 log write performance when running in a Parallel Sysplex(R)

A trusted and resilient system of records:
- Fabric I/O extension to handle increased transaction volume with both a new Crypto Express(R) cryptographic adapter and improved processor-based, on-chip cryptography.
- Digitally signed SMF records designed to provide a trusted audit record.
- Improved I/O management to help control access to tapes for alpha and RACF(R) enhancements.
- Capturing the potential of the mobile enterprise.
- z/OS V2.2 new OCSF protocol designed to help reduce risk and improve the security of mobile and other transactions by checking certificate revocation status over the network.
- Mobile Workload Processing programs help you reduce software costs during periods of peak mobile transaction workloads.
- The z/OS Connect software interface between mobile and backend systems is designed to help you easily integrate your z/OS systems into your mobile computing environment.

Exceptional scaleable environments with clouds:
- Any company implementing a private cloud will appreciate the scale of z/OS with up to 141 configurable processors of up to 128 processors per LPAR on 213 when running in SMT mode, and support for up to 85 LPARs to accommodate huge, diverse workloads and cloud environments.
- Simultaneous multithreading (SMT) support for zILP processors is expected to offer throughput improvements you can use to address the growing volume of zILP-eligible work, such as Java-based IBM WebSphere(R) Application Server and CICS(R) Transaction Server Java-based transactions, in addition to XML parsing.
- Enhanced WLM and XCF infrastructure designed to adjust server health values and help optimize workloads as needed.
- Infrastructure as a Service (IaaS) REST-based z/OS interfaces that let you build and deploy services like cryptographic services, file management services, and z/OS batch services that can be used to build cross-platform, browser-based, client-facing applications.

Enables analytics with information management, storage, and delivery:
- Analytics functions are embedded in the data as large as memory—up to 4 T4 per z/OS image on z/1 to unleash the power of large data in memory for processing big data.
- Enhanced I/O management functions provided for analytics acceleration, using new SIMD facilities.
- 16 GB FICON support can reduce I/O latency.
- Fabric I/O Priority helps ensure that your most important work is processed first to help you meet critical deadlines.

A new zHyperWrite capability helps you achieve better DB2 log write performance when running in a Parallel Sysplex(R)

Deliver a trusted and resilient system of record:
- SMF record signing intended to strengthen your SMF-based auditing data a highly trusted repository.
- New IBM-designed I/O priority capability for stronger separation of duties between security auditors and security administrators.
- Improved protection against attacks with a variety of strengthened security capabilities in RACF(R) and other components.
- Faster data handle to increased transaction volume with the new Crypto Express(R) cryptographic adapter and improved performance for on-chip cryptographic coprocessors; also, improved virtualization of the cryptographic adapter across up to 85 domains for improved economics.

Capture the potential of the mobile enterprise:
- Enhanced communications with mobile devices to reduce the time you spend dealing with near multiple of the mobile enterprise.
- IBM encrypted Remote Cloud Connect to reduce the time you spend dealing with near multiple of the mobile enterprise.
- Enhanced vector factory and support for large memory make it possible to incorporate real-time analytics into your applications for transactions for retail, healthcare, financial, and other mobile applications.
- A new Mobile Workload Processing program helps you to improve the cost of handling transactions during peak processing periods.
- The WebSphere Liberty zOS Connect function enables z/OS-based systems such as those built using CICS and IMS(TM) to easily participate in mobile computing environments.

z/OS V2.2 is planned to be the last release to include the RMI-XP support for Microsoft Windows Server.

The z/13 server with z/OS V2.2 enables a new tier of innovation that can catalyze your ability to reach new markets and capture new revenue opportunities.

Planned z/OS enhancements are designed to leverage the new z/OS chip multithreading, new transforms, and huge amounts of memory to help improve throughput, performance, and latency.

Data serving is promoted to a new level with mobile cloud services designed for throughput and autonomic, enhanced vector processing support, and memory scalability designed to improve performance.

With more mobile capabilities you can understand customer data and move quickly, transform process, information in your cloud, conduct transactions with a mobile device, and serve customers across the globe.

z/OS V2.2 runs on these 2 Systems servers:
- IBM Enterprise(R) E12 (zEC12)
- IBM Enterprise(R) z13
- IBM Enterprise(R) z14
- IBM Enterprise(R) z15
- IBM z10 BC
- IBM z10 BC

These products are withdrawn from market.

IBM continues to simplify z/OS administration and management, and to extend the reach of your existing skills. By improving administrative ease, z/OS/MF can help ensure that your work is delivered faster and productivity improvements while reducing opportunities for error. z/OS V2.2 z/OS/MF offers many enhancements.

IBM Knowledge Center is IBM's website for knowledge and to provide Internet-based product documentation. z/OS V2.2 is planned to include IBM Knowledge Center for z/OS, which is designed to provide enhanced search technology similar to that used for Information Centers.

z/OS is planned to provide new function to extend z/OS connectivity, check point HOLD and DORMANCY times in a multispace access (MAS) environment. The system will be designed to allow you to specify that it automatically reacts to changes within A/M and adjust these values dynamically. This is intended to help simplify z/OS management.

Availability
A new z/OS V2.2 WLM service will be designed to accept server health adjustments from other servers in a sysplex. Cross-system coupling facility (XCF) processing will be designed to provide server health adjustment factors to WLM based on how well servers are processing XCF messages, lowering or raising the health factors as circumstances warrant. It is expected to help workloads to offload processing to other servers that are working well and away from those that are not, helping improve application and Parallel Sysplex availability.

z/OS Runtime Diagnostics (RTD) is planned to identify servers having health values that fall below the maximum (100), to help manage server health and to provide a mechanism that might be useful in a sysplex. z/OS V2.2 DFMS will be designed to provide new FlashCopy(R) function by supporting up to 12 targets for incremental FlashCopy. z/OS V2.2 will be designed to allow LOGREC data sets to be deallocated without an IPL.

New dump collection is planned to allow you to specify that dump collection, including new dump collection, is to be performed with a dump structure that is duplexed Predictive Failure Analysis (PFA) will be designed to monitor several ranges of private area virtual storage for multiple address spaces and to warn you when one or more of those address spaces exceeds criteria that can indicate eventual private area virtual storage exhaustion.

System logger is planned to provide support for preallocating offdata pools.

SLIP processing is planned to be changed to allow you to specify an operator console command to be issued when the trap buffer is full.

z/OS V2.2 will be designed to provide additional prioritization data for the FICON fabric so that the highest priority write operations can be done first when the fabric becomes congested.

The new z/OS V2.2 of the System z/OS servers (single instruction, multiple data) enabled for high-performance analytics processing and is planned to be supported by z/OS XML, Java, and Apache Tomcat. This version of System z/OS servers, Version 8 (5655-DUG), and other enhancements are designed to help improve system performance.

Library Lookaside (LLA) will be designed to make it more likely that certain program objects, such as those compiled using C/C++ (5655-V3), can be cached by LLA in VLF.

DFSMS/FC Application Support (DFSM/FC) will be planned to be used for a control area (CA) level of requests that a data set level lock for operations that affect only a single CA.

DFSR is planned to be improved for high-performance FICON (zHPF), when available, for SORTIN, SORTOUT, and OUTFIL data.

z/OS V2.2 is planned to support up to four subchannel sets on z/13 servers. This helps relieve subchannel constraints, and can be used to support new high-demand workloads such as a target Mirror (PPRC) along with large numbers of PPRC secondary and Parallel Access Volume (PAV) aliases.

A number of improvements are planned for z/OS V2.2, including support for many of the new features in the processor-based features already available in z/OS V2.2.

UNIX System Services will be designed to support a substantially increased number of threads. The current limit of the # of threads per process is to be increased by approximately 32,000. The new expected limit is approximately 10x the current limit.

Support up to 4 T4 of real memory in a single LPAR on z13 processors. This is intended to help support more workloads per processor and more memory-intensive applications.

Generation data set extended (GDSME) is planned to be supported to allow you to specify that up to 999 generations be kept when the function is enabled in an IGGGATxx member of parmlib.

Significant changes to the system architecture include:
- An enhanced File and Data Set REST API, designed to help you to edit and browse data sets and files and intended to support data sets and files up to 8 MB in size.
- Enhanced data set extended (GDSMD) is planned to simplify plug-in enablement.
- The Jobs REST API is planned to allow you to retrieve the new step-level completion codes in JESE2 environments.
- JES2 and SDFS are designed to support a new way to track job step completion codes.
- SMF 5655-V21 ENRMEGC command is planned for Enhanced System Management.

A new SCHEDULE JCL statement is planned: STARTBY and HOLDUNT keywords of SCHEDULE will be designed to make it easier for you to submit jobs for initiation without the need to log on to a system at the time you want the jobs to run.

z/OS UNIX System Services bpxntext command is used to retrieve information about return codes from various The System z/OS Performance Environment, Communications Servers, 2FS, and 1FS. In z/OS V2.2, support is planned to be added for NFS messages. This is intended to make it faster and easier to interpret return codes from NFS messages.

Infoprint Server is designed to support a new TS0E command intended to allow authorized users to start and stop Infoprint Server PrintWay(R) extended mode printers.

IBM Knowledge Center for z/OS is designed to provide enhanced search technology similar to that used for Information Centers. It is also designed to allow you to create your own local repositories and tailor the content presented from them.
IBM Tivoli Directory Server (ITDS, LDAP) is planned to be designed to allow you to specify that a number of additional events are recorded in the LDAP activity log and in SMF Type 83 records. This data is intended to help you diagnose problems with LDAP servers, help you detect denial of service attacks, and help improve auditability for LDAP-related activities.

- z/OS V2.2 GSAM records additional information when the system is IPLed using an alternate name, by adding the IFL device number and volume serial number to an operator message.

- Server Timer Protocol (STP) is planned to issue additional z/OS console messages to notify you of events that can affect system operation.

- InprintServer will be designed to support converting its daemons to started tasks in sysplex (multiplex) and Parallel Sysplex environments intended to make it easier for you to automate startup and recovery actions.

- NetServer is planned to support the use of z/OS UNIX Sockets Listener interface.

- z/OS V2.2 Communications Server is planned to support the new virtualization capability planned for RDMA over Converged Ethernet (RoCE) adapters. This support will be provided on z/13 processors. The support will come in the RoCE adapter and to share adapters across up to 32 z/13 processors on a z/13 system. Also, z/OS V2.2 Communications Server is planned to support selecting between TCP/IP and RoCE transport layer protocols automatically based on traffic characteristics.

- z/OS V2.2 Communications Server is planned to support a number of capabilities intended to make the V2.2 Communication Server meet the requirements of the United States National Institute of Standards and Technology (NIST) Special Publications 800-53 at least at the level of a IRF-A.

- Updates to the z/OS UNIX System Services based Sendmail client and server, with support for TLSv1.2, SHA-2, and enhanced encryption strengths of 112 bits or more.

- communications Server is planned to increase the maximum number of application-instance dynamic virtual Internet IP Addresses (DVIPA}s) for a single TCP/IP stack by 2,024 to 4,096.

- Communications Server is planned to help improve load balancing on systems where system resolver cache has been implemented. This support will be designed to allow the resolver to use TCP/IP protocol selection with each cached hostname.

- Application development

- z/OS V2.2 is planned to provide support for the new z/13 processor, with ARCH(11) and TUNE(11) parameters designed to take advantage of the new instructions to better optimize your generated code.

- z/OS V2.2 XL C/++ is planned to deliver a number of usability and performance enhancements.

- z/OS V2.2 XL C/++ support is planned to be available on XL C and XL C++ code. This support will be designed to not require Metal C compilation and to allow you to easily use specialized instructions with your C and C++ objects.

- Parallel Sysplex services (XES) are planned to deliver automatic conversion of code to take advantage of the vector facility, to allow more efficient use of the hardware, and to parallelize code for better performing applications.

- Introduction of a new z/OS Client Web Enablement Toolkit, designed to enable applications written in C++, COBOL, PL/I, and High Level Assembler to participate more easily as a client in a RESTful web application programming model.

- IBM HTTP Server Powered by Apache is planned to provide a new function in IP PrintWay extended mode that you can use to add personalized text notes that include print output code.

- DFSORT is planned to support new two date functions. A WEEKNUM function will be designed to convert input dates to numbers from 1 to 53, representing weeks of the year. An AGE function will be designed to calculate the time between a given date and the current date.

- "V1.13 introduced support for user-defined line commands for ISPF Edit and View. In z/OS V2.2, this support is extended to allow any line command, including line commands defined to the Edit and View Interface Services (EDIF and EVI) and to allow you to specify a set of line commands in a new global line command table."

- DB2 Cloud Server Powered by Apache is planned to provide Perl support for the new z/13 processor, with new ARCH(11) and TUNE(11) parameters designed to take advantage of the new instructions and better optimize the generated code.

- z/OS V2.2 is planned to be designed to support up to 4 TB of real memory in a single LPAR on z/13 processors.

- This is intended to help support more workload per z/OS and more memory per z/OS processor.

- z/OS V2.2 is planned to be the last release to support the HCD LDAP backend for use with the IBM Tivoli Directory Server for z/OS (LDAP).

- z/OS V2.2 is planned to be designed to support being called from applications as a service for synchronous requests / Cancel requests / Terminate TSO=YES address spaces / Initiate TSO=NO requests / Stop the AXR address space.

- The data collection is designed to be scalable to support multiple z/OS instances and to allow you to share the collected data across multiple LPARs.

- New RMF metrics to help you with capacity planning and performance analysis.

- z/OS V2.2 is designed to be planned to be designed to support additional z/OS SMS-managed nonstriped VSAM data sets and non-VSAM data sets, and is intended to help you improve disk space utilization.

- Additionally, z/OS V2.2 is also planned to deliver automatic conversion of code to take advantage of the vector facility, to allow more efficient use of the hardware, and to parallelize code for better performing applications.

- New RMF metrics to help you with capacity planning and performance analysis.

- z/OS V2.2 is designed to support additional z/OS SMS-managed nonstriped VSAM data sets and non-VSAM data sets, and is intended to help you improve disk space utilization.

- The additional RMF metrics to help you with capacity planning and performance analysis.

- z/OS V2.2 is designed to be planned to be designed to support additional z/OS SMS-managed nonstriped VSAM data sets and non-VSAM data sets, and is intended to help you improve disk space utilization.

- Additionally, z/OS V2.2 is also planned to deliver automatic conversion of code to take advantage of the vector facility, to allow more efficient use of the hardware, and to parallelize code for better performing applications.