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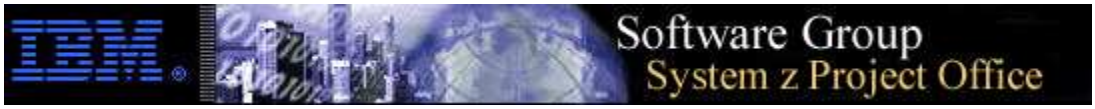
Kettner's Corner #08 - zTidBits@CPO (zOS + UNIX = Winner)

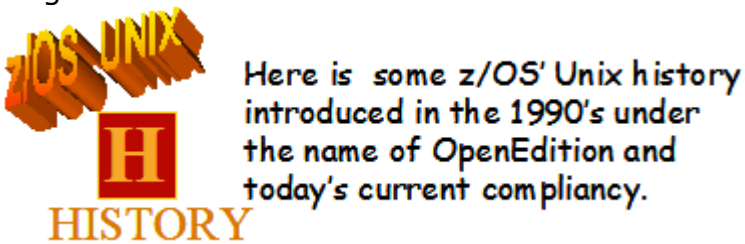


John Kettner is a member of the Z CPO team and teaches classes on z/OS fundamentals to customers and IBMers. John will share his expertise sharing his answers on key questions and topics on Z.

Check out the System z Project office Website: http://w3.ibm.com/sales/competition/compdlib.nsf/weball/9CF22F2F65E01639872571 OpenDocument

02/09/07 - #08 zTidBit@CPO (zOS + UNIX = Winner)

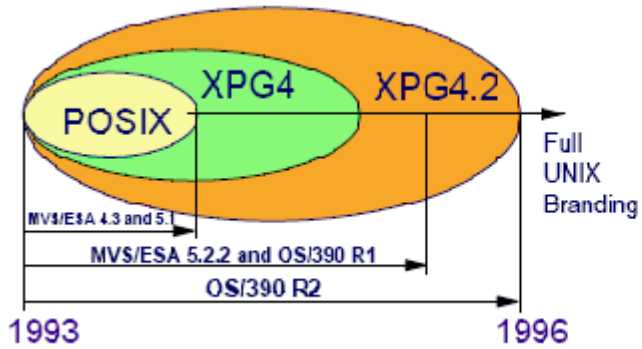
A very important feature of z/OS is the rich functionality of its UNIX services. This is a compelling selling point when interfacing with customers that have a strong allegiance to a competitive UNIX platform. The z/OS Product offers two world renown operating environments under a single umbrella cohesively working as a single operating system and presents the ultimate computing environment for any mid to large-size customer.



z/OS UNIX was originally implemented in MVS/ESA 4.3 as OpenEdition and supported the POSIX standards (1003.1,

1003.1a, 1003.1c, and 1003.2) with approximately 300 functions. When OS/390 was renamed to z/OS, the new abbreviation for UNIX System Services (USS) became z/OS UNIX.

In MVS/ESA 5.2.2 many additional functions were added to meet the XPG4 requirements and their implementation. This incorporated the full X/Open Portability Guide issue 4 (XPG4) and over 90% of the single UNIX specification as defined in XPG4.2. The remaining functions were added afterwards, and OpenEdition became branded as an official UNIX system.



The name OpenEdition was changed to OS/390 UNIX System Services beginning with OS/390 Release 5. UNIX Services was then abbreviated OS/390 UNIX.

XPG4 branding

The z/OS environment is XPG4 branded. XPG4 branding means that products use a common set of UNIX APIs. X/Open branding is the procedure by which a vendor certifies that its product complies with one or more of X/Open's vendor-independent product standards and OpenEdition in MVS 4.2.2 received base branding. In 1996, OpenEdition in MVS/ESA SP Version 5 Release 2 received a full XPG4.2 branding. Branding allows applications that are developed on one branded flavor of UNIX to run unchanged on other branded UNIX systems. It is called branding because it allows the right to use the X/Open Trade Mark**.** OpenEdition inMVS was shown to comply with the specifications, therefore IBM is entitled to use the X/Open Trade Mark in relation to OpenEdition having X/Open-compliant

features. That right continues for as long as z/OS UNIX remains compliant and registered in the Directory of X/Open Branded Products**.**
The XPG4.2 support includes all commands and utilities, most of the additional C services defined in the standard and curses, which was included in specification 1170 but not in the XPG4.2 itself. Curses is the UNIX multi-color, multi-language screen control package which comes from the Novell SVID Edition 3 package. Since OS/390 V2R2, the following items were added: STREAMS, X/Open Transport Interface (XTI), XPG4.2 regular expressions, XPG4.2 context switching, and XPG4.2 behavior specific to sockets.

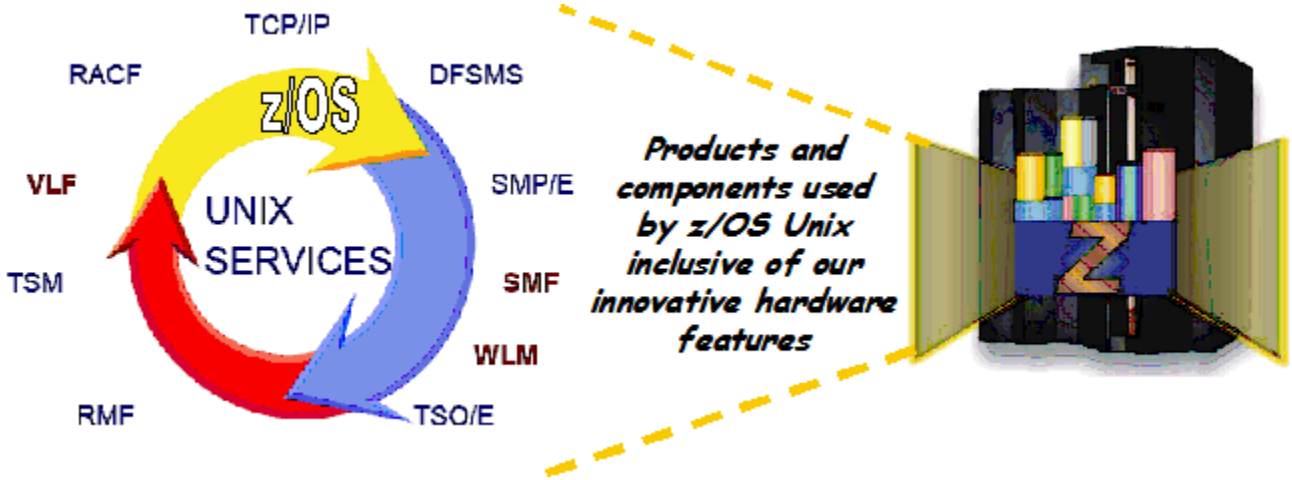
POSIX standards

The z/OS environment is POSIX compliant. The work on Portability Operating Systems Interface (POSIX) started as an effort to standardize UNIX and was performed by a workgroup under the Institute of Electrical and Electronics Engineers (IEEE). What they defined was an application programming interface which could be applied not only to UNIX systems but to other operating systems like MVS (z/OS).

Note: POSIX is not a product. It is an evolving family of standards describing a wide spectrum of operating system components ranging from C language and shell interfaces to system administration.

The POSIX standard is sponsored by the International Organization for Standardization (ISO) and is incorporated into X/Open Portability Guides (XPG). Each element of the standard is defined by a 1003 number. POSIX defines the *interfaces* and not the solution or implementation. In this way POSIX can be supported by any operating system. Implementation of POSIX can be different in areas such as performance, availability, and recoverability. All POSIX-compliant

systems aren't the same, although they all support basically the same interface. The support for open systems in z/OS is based on the POSIX standard.



A few important points is z/OS UNIX inherits all the qualities of service features that come native on the mainframe. This is inclusive of the sophisticated Workload Manager, instrumentation functionality of SMF through Storage Management of SMS. It maintains the world renowned Security functions the mainframe is known for. Therefore having the best of both computing environments captured within a single product as well as the lowest cost of ownership provides the optimal solution for customers.

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More of z/OS' UNIX features and functions are covered in the **'Introduction to z/OS and the Mainframe'** Class that is being sponsored by the zCompetitive Project Office. See **SWGCPO** Announcements for scheduling.

If you have question for John, send him an email at: John H Kettner/New York/IBM.

For a direct link to the Z Project Office Website Click Here:http://w3.ibm.com/sales/competition/compdlib.nsf/weball/9CF22F2F65E0163987 OpenDocument

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