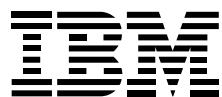

IBM System z
Update
September 2012

IBM System z Personal Development Tool

FAQ

**Worldwide
September 2012**



ZSQ03041-USEN-00

IBM System z Personal Development Tool (zPDT) Technology - V1R3

This FAQ is designed for use by Independent Software Vendors only. The RD&T tool is designed for use by commercial application developers.

Please see

<http://w3-01.ibm.com/sales/ssi/cgi-bin/ssialias?htmlfid=897/ENUS212-145&infotype=AN&subtype=IA&appname=w3skm> for details on the latest announcement for RD&T

1. Question:

What is the IBM System z® Personal Development Tool?

Answer:

The IBM System z Personal Development Tool (zPDT) is a software-based application development tool from IBM. The zPDT technology can enable a virtual System z architecture environment that allows mainframe operating systems, middleware, and software to run unaltered on 64-bit (x86_64bit) and compatible systems. It is intended only for development and not for production use.

The zPDT technology gives you freedom of choice. With zPDT:

- You have a low-cost platform for System z application development.
- You gain many of the benefits of a mainframe at low cost
- You can showcase your solutions easily
- You have a low cost IBM System z development solution that facilitates mobile or remote development
- You have a portable System z application demonstration platform useful for ISVs to build and showcase applications
- You have a more personalized, flexible and secure personal development environment which may be more beneficial than a shared, centralized mainframe resource

2. Question:

What comprises the IBM System z Personal Development Tool?

Answer:

The zPDT technology consists of software authenticated and enabled by a USB hardware key, a token. The zPDT software help enable System z technology to run on 64-bit (x86_64bit) or compatible system.

zPDT is available as an instance supporting one, two, or three virtual engines .

The zPDT provides elements of the z/Architecture® and I/O. Other products, like the underlying hardware, Linux operating system, or IBM software products, such as IBM Operating Systems, middleware and tools, are *not* bundled with zPDT and must be acquired and installed separately.

3. Question:

What processors and operating systems are supported?

Answer:

Processors can be defined as System z general purpose processors, System z Integrated Information Processors (zIIPs), System z Application Assist Processors (zAAPs), and System z Integrated Facility for Linux® (IFL). The virtual engines can be enabled as separate uni-processors or as a multi-processor configuration.

On a zPDT ISVs can run z/OS®, z/VM®, z/VSE™, Linux for System z operating systems and related middleware and software products and tools. These operating systems and software products are not bundled with zPDT and are available separately.

For more information on what System z technology is and is not supported on zPDT, see:

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_about.html

4. Question:

What are the advantages and limitations of zPDT?

The zPDT application development tool can be a valuable addition for vendors developing for System z.

zPDT does not create an environment identical to that of a System z server. Some characteristics of System z cannot be replicated in the zPDT environment. These characteristics include the ability to verify and enhance the scalability of a program, or to run programs requiring hundreds of MIPS, or programs requiring unique performance functions of a cryptographic adapter. Likewise, zPDT is not recommended for fine-level performance tuning that is sensitive to memory location, cache functions, and pipeline optimization. Also zPDT does not provide the same quality of service or scale as a mainframe, such as the levels of availability and connectivity. For these reasons, zPDT is not intended as a replacement for System z.

System z functions NOT supported by zPDT include:

- Physical channels and coupling links, STP, ETR
- IBM zEnterprise™ System function (such as Inbound Workload Queuing and z/OS FICON Discover and Auto Configuration)
- The excluded list includes FCP, list-directed IPL, MIDAWs, logical channel subsystems, HiperSockets™, HMC, multiple I/O paths, and reconfiguration

Anyone needing any of the functions outlined above should consider a traditional System z server.

5. Question:

What are criteria I should use in deciding the best platform for development?

Answer:

Selecting the right development environment:

- If an ISV needs to run with large amounts of data and I/O, complex I/O and networking configurations, Parallel Sysplex, and real performance with real devices, the best choice would be an IBM System z10 or above Business Class™ machine.
- If an ISV is unable to build and manage their own System z or zPDT development platform, then another choice might be remote development from the IBM Innovation Centers

- Another choice is the zPDT-based uPDT solution from ITC which offers support, service and configuration help.
-

6. Question:

What IBM System z operating systems can run on zPDT?

Answer:

See chart below

.....

z/OS, z/VM, z/VSE, Linux for System z operating systems and related middleware and software products run on zPDT. Specifically, IBM has tested the following System z software:

z/OS: 1.9 1.10 1.11 1.12 1.13

z/VM: 5.3 5.4 6.1 6.2

z/VSE: 4.1 4.2 4.3 5.1

Linux on System z: SLES 10, SLES 11, RHEL 5.2, RHEL 5.4

NOTE: The zPDT environment as part of the IBM Rational® Development and Test Environment (RD&T) is currently limited to just single-image z/OS environments.

7. Question:

Does zPDT support coupling facilities (CFs) for System z?

Answer:

The zPDT tool supports CFs on z/VM.

8. Question:

Can I run commercial production workloads on zPDT?

Answer:

No.

9. Question:

What are the license terms for zPDT?

Answer:

For ISVs, under the Developer Discount Program:

The license terms and conditions for zPDT software (5799-ADE), the requirements for participating in the System z Developer Discount offering, and the terms and conditions of any IBM software discount contracts associated with the IBM System z Developer Discount (zDD) are clear:

The development system must be 100% dedicated to development use only with no production or outsourcing workloads of any kind. The development system cannot be used for any fee based activities, nor any other purpose, e.g. disaster recovery, custom application development, or Capacity Back UP (CBU).

For information on the requirements and restrictions of zDD, see:

www.ibm.com/partnerworld/pwhome.nsf/weblook/zpdt_zdd.html

For more information on the RD&T feature:

www-01.ibm.com/software/awdtools/rdz/unit_test.html

10. Question:

Can I share a zPDT application development environment within my organization?

Answer:

It depends.

If you purchased zPDT technology as part of the IBM System z Developer Discount Program from IBM or from ITC, then you (an ISV) may have multiple developers working on one zPDT system and "sharing" that system – under the Developer Discount program the zPDT license and operation is not on a per seat basis.

If you acquired zPDT technology as part the IBM Rational Developer and Test Environment for z, then usage and pricing is now per floating or authorized user. Please see RD&T terms and conditions as they are different. Please refer to

www.ibm.com/software/rational/products/devtest/systemz/features/?S_CMP=rnav

Regardless of the packaged offer, you may NOT share any zPDT-based system with another ISV, other partner, vendor, or commercial client, who is not licensed for that system.

11. Question:

What are the prerequisites for zPDT?

Answer:

- The zPDT application development software (5799-ADE) along with a 1090 USB hardware key (1090-L01, 1090-L02, and 1090-L03, where the model number corresponds to the number of virtual engines).
- The zPDT does not come with mainframe operating systems or middleware, these have to be acquired separately as ADCDs. ISVs approved for the zPDT can receive the System z SW provided on the z/OS, z/VM, or z/VSE ADCD SW stacks. There is a US \$900 annual subscription fee for use of the ADCDs.
- Linux distributions must also be acquired separately

For more information on recommended minimum system requirements, see:

[https://www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_requirements.html](http://www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_requirements.html)

Also for Rational Developer for z see:

<http://www-01.ibm.com/software/awdtools/rdz/sysreas/index.html#RationalDeveloperforSystemzUnitTest>

12. Question:

Can I run non-IBM (3rd party) software on the zPDT technology?

Answer:

ISVs, as part of the IBM System z Developer Discount program, are allowed to run non-IBM (3rd party) software on zPDT. Consult your 3rd party vendor for their product terms and conditions.

13. Question:

Can you enable additional engines after zPDT is installed?

Can I upgrade a zPDT, say, from a 1-way to a 2-way, for example an L01 to an L02?

Answer:

As an ISV as part of the Developer Discount program, you have the following options:

1. You can wait until your current zPDT license expires within the year and then purchase a larger (L02 or L03) license.
ITC (IBM partner) will send you new code and a token and issue an 'MES' that will upgrade your license and agreement. It is important to time the new license with the expiration of the old license; no credits are issued for unused time on licenses.
2. If purchased from ITC or from the self-serve process (US only), you may purchase an additional zPDT license from ITC (and get an additional token) for the additional capacity you need.

Example:

In going from an 'L01 to an L02' you would purchase an additional L01 and use the two tokens in the same machine at the same time. There is no performance or pricing benefit of a single L02 versus two L01s. With multiple tokens you have the advantage of running them together for a larger system, or separately for smaller systems. With multiple tokens you have the disadvantage of managing multiple tokens with separate expirations.

14. Question:

Can I run zPDT on my existing x86_64 or compatible system I already have?

Answer:

The base systems IBM has tested for support of zPDT include the following:

- Lenovo Thinkpad® W Series
- IBM System x® 3500 M1, M2, M3, or 3650 M1, M2, M3, or 3755 M1, M3
- The base machine should have one more x86_64 or compatible processor (core) than the number of zPDT virtual engines configured
 - A 1090-L01 (one virtual engine) is best used with a machine that has at least two processors (cores)
 - A 1090-L02 (two virtual engines) must be used on a machine that has at least three processors (cores)
 - A 1090-L03 (three virtual engines) must be used on a machine that has at least four processors (cores)
- The Linux Operating System should be either 64-bit SUSE, Red Hat Linux distribution or SLES tested by IBM. The current Linux distributions tested for zPDT include
 - Red Hat Enterprise Linux (RHEL) 6.0, 6.1, 6.2
 - openSUSE™ 11.0, 11.1, 11.2, 11.3, 11.4

- SLES 11 SP1
- The base machine must have at least 3 GB of real memory, more is generally recommended depending on the System z configuration
- The base machine must have available disk space for the System z operating system
 - Recommendations start at 320 GB and up, depending largely on your configuration
- The zPDT 1090 USB hardware key is required. A license key can be installed on your local machine or on a remote license server.
 - The zPDT 1090 token can be moved between different machines to support different hardware and/ or software configurations.
 - The 1090 token contains a mechanism to enforce license duration. Assure the clocks are set reasonably close to avoid problems when moving the token between systems.
- At least one Ethernet adapter is required for OSA operation.

See recommended minimum system requirements:

www-304.ibm.com/partnerworld/wps/servlet/ContentHandler/pw_com_zpdt_requirements

You may choose to use hardware and software resources already in house and build a zPDT system. ISVs may choose to contact ITC (Information Technology Company, LLC.) for products and services.

See how to order:

www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_order.html

See also the minimum requirements for RD&T:

www.ibm.com/software/awdtools/rdz/sysreqs/index.html#RationalDeveloperforSystemzUnitTest

15. Question:

Do ISVs have several options for getting the zPDT technology?

Answer:

The zPDT technology is the foundation for several System z application development environment solutions.

Through ITC, qualified ISVs can get zPDT as a set of components or get a preconfigured systems. ISVs need to be part of the **IBM System z Developer Discount program**.

The Ultimate Personal Development Tool (uPDT) is available from Information Technology Company, LLC (ITC) and is delivered fully configured, including IBM operating systems, select IBM SW, and support.

For ISVs, the zPDT as part of the IBM System z Developer Discount program (and from ITC) is best for hosting multiple environments, configurations, and users.

For more information on zDD, see:

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/zpdt_zdd.html

16. Question:

What is the System z Developer Discount program and how does it relate to zPDT?

Answer:

The intent of the System z Developer Discount program is to help lower the development cost to ISVs who want to develop, market and support their commercially available applications and tools for the System z market. Through this offering, qualified approved ISVs can receive discounts on IBM hardware and software. The ISV needs to be approved for the IBM System z Developer Discount offering program (zDD) in order to get discounts on System z application development offers – including zPDT.

The **IBM System z Developer Discount** offering program (**zDD**) can provide additional benefits for ISVs supporting IBM System z. The zDD offering is for ISVs with commercially available software products only, and is not intended for other parties involved with just providing education, seminars, outsourcing, or other forms of workloads not dedicated to the development and support of new applications for System z.

The intent of the zDD is to help lower the cost of developing, marketing, and supporting commercially available applications and tools for the System z market. The zDD can provide discounts on IBM System z hardware and software, including IBM System z10® servers and the zPDT tool.

Note: The zDD may not be available in some countries.

Additional information is provided at:

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/zpdt_zdd.html

As a member of zDD, you will also be eligible to order the z/OS, z/VM, and z/VSE ADCDs, additional IBM software, and the zPDT.

All ISV participants in the zDD are required to complete an annual product certification.

17. Question:

How does the zPDT technology compare with the IBM Rational Developer and Test Environment?

Answer:

The zPDT (via the zDD and the ITC uPDT), and Rational Development and Test Environment all use the SAME base zPDT technology for enabling a System z environment on an x86 or x86-compatible system.

The solutions have different supporting software, terms and conditions, and prices.

zPDT provides a wider variety of operating systems (z/OS, z/VSE, z/VM and Linux for System z) and tools. Under the Developer Discount program ISVs are allowed to run many different configurations.

IBM Rational Developer and Test Environment provide a user development system focused on building z/OS applications. It only supports 1-way or 3-way single image z/OS sandbox configurations only and select IBM z/OS software. z/VM is not allowed, therefore functions requiring z/VM (like Coupling Facility function) are not allowed. It does not allow production workloads including test and final compiles.

The largest difference is the licensing model. zPDT is licensed per machine, allowing machines to be
8

shared by multiple users. RD&T has a user licensing model.

The Rational Development and Test Environment for System z provides a simplified package from what was available previously with Rational Developer for System zUnit Test. Customers can purchase either **Authorized Users or Floating Users** licenses and configure the Development and Test Environment in either desktop or server configurations for a single user price. The Development and Test Environment will support up to a 4-CPU configuration, providing 3 CPUs for the product and 1 CPU dedicated to run the underlying Linux operating system. This provides a platform with the provided middleware to facilitate an individual or small team configuration

See following link for Rational HW/SW configuration requirements:

www.ibm.com/software/rational/products/devtest/systemz/sysreq/?S_CMP=rnav

18. Question:

How can ISVs purchase zPDT technology?

Answer:

For more information on ordering zPDT-based systems, see ITC web site

<http://www.p390.com/zpdt.htm>

https://www.ibm.com/partnerworld/pwhome.nsf/webook/pat_sas_zpdt_order.html

19. Question:

How do I acquire the IBM System z software used by zPDT?

Answer:

ISVs, as part of the Developer Discount Program:

- z/OS, z/VM, and z/VSE ADCDs are available to approved ISVs as part of the System z Developer Discount program.
- ADCDs are distributed through the IBM Innovation Center, Dallas
- Distributed software (for Linux for System z) can be acquired through the IBM Software Mall (Passport Advantage).
- Additional System z SW that is not provided as part of the ADCD builds may also be available depending on the SW being requested and your country location. The available System z SW could include any System z SW product that would be ordered through IBM's normal System z ordering and fulfillment processes.
- IBM products that are royalty-bearing or products that IBM deems to be competitive are not available at a discount through this offering.

20. Question:

Please explain the ADCDs (Application Development Controlled Distribution) and how do they relate to the zPDT?

Answer:

There are various ADCDs available

- A z/OS ADCD is a pre-defined stack of IBM System z operating systems and a very large selection of IBM middleware for the development and support of applications for System z. ADCDs are made available in DVD format through the IBM System z Developer Discount program (zDD) for use on zPDT systems.
- The z/VM ADCD is a pre-defined configuration of z/VM, useful for the development of and support of applications on z/VM, or for supporting multiple guest OS images, such as Linux for System z and z/OS. The z/VM ADCD contains z/VM and an assortment of z/VM program products and is available to zDD participants via internet download only.
- The z/VSE ADCD is a pre-defined configuration of z/VSE that provides the base Operating System, associated products, and software maintenance for development purposes. No customization or configuration is done on the z/VSE ADCD. The z/VSE ADCD is available to zDD participants via internet download only.
- The z/OS ADCD and the z/VM and z/VSE ADCDs run on zPDT-based systems. The ADCDs are built and maintained by IBM Dallas Development Center (IBM Innovation Center). They are provided as-is without warranty or support.
- There is a US\$900/ per year subscription fee for the use of the ADCD SW distributions. This annual fee covers the z/OS, z/VM, and z/VSE ADCD SW stacks regardless of whether one, two, or all three ADCD stacks are requested.

For more information on ADCDs, please see

['](http://dtsc.dfw.ibm.com/MVSDS/'HTTPD2.ADCD.GLOBAL.HTML(COUP12W))

21. Question:

How much does zPDT technology cost?

Answer: see

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_requirements.html

Suggested pricing for the zPDT technology for ISVs under the Developer Discount Program available through ITC:

- The zPDT application development software (5799-ADE) is licensed under the IBM International License Agreement for Non-Warranted Programs (ILAN) with an annual license of US \$3,750* per year per System z virtual engine. The size of the virtual system is defined by the model of the 1090 USB hardware key (1090-L01, 1090-L02, and 1090-L03, where the model number corresponds to the number of virtual engines). Approximate prices:
 - zPDT SW defined by a 1090-L01 is US \$3,750 per year*
 - zPDT SW defined by a 1090-L02 is US \$7,500 per year*
 - zPDT SW defined by a 1090-L03 is US \$11,250 per year*
- The 1090 USB hardware key (1090, all models) is US \$299* and ships with the zPDT software.

For pricing for the ITC uPDT solution from ITC, please see contact ITC for its product and services pricing:

<http://www.p390.com/zpdt.htm>

*NOTE: * Prices are suggested for US only. Prices for other countries and regions will vary. The above reflects the current IBM pricing. IBM reserves the right in its sole discretion to, among other things, change one or more of the foregoing without notice*

22. Question:

What types of license agreements are needed?

Answer:

ISVs, under the Developer Discount Program:

The IBM System z Personal Development Tool product itself - Product Number 5799-ADE - has its own license agreement which is a click-through license agreement when the product is installed.

All users must also sign a System z Developer Discount software discount contract which defines the SW discount and the terms and conditions under which the System z software can be used on the zPDT system.

If you purchase a z/OS, z/VM, or z/VSE ADCD, these are distributed under separate license agreements.

23. Question:

How is zPDT supported?

Please refer to your license agreement.

Answer:

For the zPDT informal forum see:

<http://groups.yahoo.com/group/z1090>

For a summary of zPDT support, see:

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_support.html

The subset ADCD stack continues to be provided unwarranted.

The zPDT forum offers discussions about the Unit Test environment and basic z/OS ADCD questions.

24. Question:

How many zPDT licenses/ systems do I need?

Answer:

ISVs, under the Developer Discount Program:

If you acquired zPDT technology as part the IBM Developer Discount program, you may purchase up to three zPDT licenses. Requests for more than three zPDT licenses, as well as more than three z/OS, z/VM, and/or z/VSE ADCD licenses are subject to review and approval from the IBM System z Developer Discount offering.

The zPDT and the ADCDs are licensed per system (in this case, the system is defined by the 1090 USB

hardware key) and there is no discount for purchasing larger volumes of zPDT or ADCD licenses. zPDT is not licensed per user or per seat. Many users can use a single zPDT system.

You can load the zPDT software on any number of systems you have in-house, but the zPDT environment will only be activated with the 1090 USB hardware key that comes with each zPDT software license.

25. Question:

What if I need to run several OS instances on zPDT? How do I configure this?

Answer:

There are several approaches:

Run one OS per zPDT instance, max 3 instances per L03 USB key

Run z/VM on an instance and virtualize the OS

Configure multiple machines and then move the token between the machines (or use the remote license server)

26. Question:

How can I configure my zPDT instances and engines?

For example a zPDT using a key with three licenses (an L03) can be configured as:

- A single instance with three engines in a multiprocessor configuration
- Three instances with a single engine each
- Two instances, one with two engines and the other with one engine
- These virtual engines can be defined as System z general purpose processors, System z Integrated Information Processor (zIIP), System z Application Assist Processor (zAAP), System z Integrated Linux Facility (IFL)

If more than one System z OS instance is needed per zPDT virtual engine, then the z/VM operating system can be used to virtualize these configurations even further and create any number of engines and engine types within an instance.

27. Question:

How do I share DASD between zPDT instances?

Answer:

DASD can be shared on the same physical Intel machine:

For example a zPDT using a key with three licenses (an L03) can share DASD in the following ways:

- You can share DASD on the same physical machine
- Three instances with a single engine each can share DASD
- You cannot share DASD across *multiple* physical machines

28. Question:

How does the zPDT tool compare with other System z application development solutions available to ISVs in the System z Developer Discount Program?

Answer:

As a member of the IBM System z Developer Discount Program there are several System z application development environment options available to you in addition to zPDT-based offers:

- Discounted System z hardware and software as provided by the IBM System z Developer Discount program offers. This includes IBM System z9® and IBM System z10 systems. For more information on System z Developer Discounts, contact:
syszdd@us.ibm.com
 - Remote Development Program offerings provided by the IBM Innovation Centers, for example the RDP program in Dallas, TX. All PartnerWorld members who qualify for mainframe server benefits are eligible to participate in the enhanced Remote Development Program. The Remote Development Program can provide a readily available, inexpensive, cloud environment in which to develop or test their applications including access to the latest software. For more information, contact: <http://www-304.ibm.com/jct01005c/isv/spc/rdp.html>
-

29. Question:

Why would customers choose zPDT over a remote testing and development alternative?

Answer:

Some customers want to have complete control over own demo systems and data, and prefer not to have a third party control aspects of their data or systems

Some third party software is not offered as an option on other alternatives due to licensing constraints

The convenience of a standalone system may be helpful for scheduling demo periods

For compliance purposes such as regulation (Sarbanes-Oxley) data must be protected confidentially and in some cases a zPDT solution is preferable

Without Internet connectivity, a zPDT demo solution may be more flexible

30. Question:

Where can I get more information on zPDT?

Answer:

zPDT public landing

www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt.html

System z Developer Discount Requirements page

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/zpdt_zdd.html

zPDT features and functions

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_about.html

zPDT system requirements

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_requirements.html

zPDT support options

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_support.html

zPDT how to order

https://www.ibm.com/partnerworld/pwhome.nsf/weblook/pat_sas_zpdt_order.html

Forum for zPDT users:

<http://groups.yahoo.com/group/z1090>

Information Technology Company (ITC), LLC

<http://www.p390.com/zpdt.htm>

Rational Developer and Test Environment for System z

Web = http://www-01.ibm.com/software/awdtools/rdz/unit_test.html

zPDT Redbooks:

<http://www.redbooks.ibm.com>

Resource Link:

www.ibm.com/servers/resourcelink



(C) Copyright IBM Corporation 2010
IBM System and Technology Group
Somers, NY 10589
U.S.A

10/2010

Produced in the United States of America,
All Rights Reserved

This publication was produced in the United States.

IBM, IBM logo, DB2, developerWorks, CICS, ESCON, FICON, HiperSockets, IMS, Language Environment, Parallel Sysplex, PartnerWorld, Passport Advantage, Rational, Redbooks, REXX, System x, System z, System z9, System z10, System z10 Business Class, WebSphere, z/Architecture, zEnterprise, z/OS, z/VM and z/VSE are either registered trademarks or trademarks of International Business Machines in the United States, and/or other countries.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.

InfiniBand and InfiniBand Trade Association are registered trademarks of the InfiniBand Trade Association.

Java and all Java-based trademarks are trademarks of Oracle, Inc. in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency, which is now part of the Office of Government Commerce.

ZSQ03041-USEN-00