Db2 Z Os Cloning

Over the last few years, IBM® IMSTM and IMS tools have been modernizing the interfaces to IMS and the IMS tools to bring them more in line with the current interface designs. As the mainframe software products are becoming more integrated with the Windows and mobile environments, a common approach to interfaces is becoming more relevant. The traditional 3270 interface with ISPF as the main interface is no longer the only way to do some of these processes. There is also a need to provide more of a common looking interface so the tools do not have a product-specific interface. This allows more cross product integration. Eclipse and web-based interfaces being used in a development environment, tooling using those environments provides productivity improvements in that the interfaces are common and familiar. IMS and IMS tools developers are making use of those environments to provide tooling that will perform some of the standard DBA functions. This book will take some selected processes and show how this new tooling can be used. This will provide some productivity improvements and also provide a more familiar environment for new generations DBAs. Some of the functions normally done by DBA or console operators can now be done in this eclipse-based environment by the application developers. This means that the need to request these services from others can be eliminated. This IBM Redbooks® publication examines specific IMS DBA processes and highlights the new IMS and IMS tools features, which show an alternative way to accomplish those processes. Each chapter highlights a different area of the DBA processes like: PSB creation Starting/stopping a database in an IMS system Recovering a database Cloning a set of databases
IBM® DB2® Version 10.1 for z/OS® (DB2 10 for z/OS or just DB2 10 throughout this book) is the fourteenth release of DB2 for MVSTM. It brings improved performance and synergy with the System z® hardware and more opportunities to drive business value in the following areas: Cost savings and compliance through optimized innovations DB2 10 delivers value in this area by achieving up to 10% CPU savings for traditional workloads and up to 20% CPU savings for nontraditional workloads, depending on the environments. Synergy with other IBM System z platform components reduces CPU use by taking advantage of the latest processor improvements and z/OS enhancements. Streamline security and regulatory compliance through the separation of roles between security and data administrators, column level security access, and added auditing capabilities. Business insight innovations Productivity improvements are provided by new functions available for pureXML®, data warehousing, and traditional online TP applications Enhanced support for key business partners that allow you to get more from your data in critical business disciplines like ERP Bitemporal support for applications that need to correlate the validity of data with time. Business resiliency innovations Database on demand capabilities to ensure that information design can be changed dynamically, often without database outages DB2 operations and utility improvements enhancing performance, usability, and availability by exploiting disk storage technology. The DB2 10 environment is available either for brand new installations of DB2, or for migrations from DB2 9 for z/OS or from DB2 UDB for z/OS Version 8 subsystems. This IBM Redbooks® publication introduces the enhancements made available with DB2 10 for z/OS. The contents help you understand the new functions and performance enhancements, start planning for exploiting the key new capabilities, and justify the investment in installing or migrating or skip migrating to DB2 10.
Mainframe computers play a central role in the daily operations of many of the world's largest corporations, and batch processing is a fundamental part of the workloads that run on the mainframe. A large portion of the workload on IBM® z/OS® systems is processed in batch mode. Although several IBM Redbooks® publications discuss application modernization on the IBM z/OS platform, this book specifically addresses batch processing in detail. Many different technologies are available in a batch environment on z/OS systems. This book demonstrates these technologies and shows how the z/OS system offers a sophisticated environment for batch. In this practical book, we discuss a variety of themes that are of importance for batch workloads on z/OS systems and offer examples that you can try on your own system. The audience for this book includes IT architects and application developers, with a focus on batch processing on the z/OS platform.
This IBM Redbooks publication provides information to help Systems Programmers plan for merging systems into a sysplex. zSeries systems are highly flexibile systems capable of processing many workloads. As a result, there are many things to consider when merging independent systems into the more closely integrated environment of a sysplex. This book will help you identify these issues in advance and thereby ensure a successful project.
IBM® DB2® tools for z/OS® support and exploit the most current versions of DB2 for z/OS. These tools are integral for the administration of the DB2 for z/OS environment and optimization of data performance. DB2 Administration Solution Pack for z/OS V1.1 (5697-DAM) offers features, functions, and processes that database administrators (DBAs) can use to more effectively and efficiently manage DB2 environments. DB2 Administration Solution Pack for z/OS is composed of the following tools: IBM DB2 Administration Tool for z/OS IBM DB2 Object Comparison Tool for z/OS IBM InfoSphere® OptimTM Configuration Manager for DB2 for z/OS IBM DB2 Table Editor for z/OS This IBM Redbooks® publication shows how the delivered capabilities can help DBAs to more easily complete tasks associated with object management, change management, application management, and configuration management.
IBM DB2® for z/OS® is a high-performance database management system (DBMS) with a strong reputation in traditional high-volume transaction workloads that are based on relational technology. IBM WebSphere® Application Server is web application server software that runs on most platforms with a web server and is used to deploy, integrate, execute, and manage Java Platform, Enterprise Edition applications. In this IBM® Redbooks® publication, we describe the application architecture evolution focusing on the value of having DB2 for z/OS as the data server and IBM z/OS® as the platform for traditional and for modern applications. This book provides background technical information about DB2 and WebSphere features and demonstrates their applicability presenting a scenario about configuring WebSphere Version 8.5 on z/OS and type 2 and type 4 connectivity (including the XA transaction support) for accessing a DB2 for z/OS database server taking into account high-availability requirements. We also provide considerations about developing applications, monitoring performance, and documenting issues. DB2 database administrators, WebSphere specialists, and Java application developers will appreciate the holistic approach of this document.
This IBM Redbooks publication shows the strengths of z/VM and how you can use these strengths to create a highly flexible test and production environment. Some of the strengths of z/VM that are shown in this book are that you can run Linux on z/VM, you can run a sysplex under z/VM, and you can develop code under z/VM for z/TPF. You can also provision Linux guests under z/VM. A vswitch allows you to connect all of your guests (all operating systems that run under z/VM) easily to the network. You can simulate your production environment on a sysplex. The intention of this book is to show the strengths of z/VM and how you can use these strengths to simulate your production environment and expand your application development and testing environments.
This IBM® Redbooks® publication will help you install, configure, and use IBM InfoSphere® OptimTM Workload Replay (InfoSphere Workload Replay), a web-based tool that lets you capture real production SQL workload data and then replay the workload data in a pre-production environment. With InfoSphere Workload Replay, you can set up and run realistic tests for enterprise database changes without the need to create a complex client and application infrastructure to mimic your production environment. The publication goes through the steps to install and configure the InfoSphere Workload Replay appliance and related database components for IBM DB2® for Linux, UNIX, and Windows and for DB2 for IBM z/OS®. The capture, replay, and reporting process, including user ID and roles management, is described in detail to quickly get you up and running. Ongoing operations, such as appliance health monitoring, starting and stopping the product, and backup and restore in your day-to-day management of the product, extensive troubleshooting information, and information about how to integrate InfoSphere Workload Replay with other InfoSphere products are covered in separate chapters.

This IBM® Redbooks® publication can help you tailor and configure DFSMS constructs to be used in an IBM DB2® 9 for z/OS® environment. In addition, it provides a broad understanding of new disk architectures and their impact in DB2 data set management for large installations. This book addresses both the DB2 administrator and the storage administrator. The DB2 administrator can find information about how to use DFSMS for managing DB2 data sets; the storage administrator can find information about the characteristics of DB2 data sets and how DB2 uses the disks. This book describes optimal use of disk storage functions in DB2 for z/OS environments that can best make productive use of the synergy with I/O subsystem on IBM System z®. This book covers the following topics: - Using SMS to manage DB2 catalog, log, data, indexes, image copies, archives, work files - Taking advantage of IBM FlashCopy® for DB2 utilities, striping, copy pools - Setting page sizes and using sliding allocation - A description of PAV, MA, MIDAW, EF, EA, EAV, zHPF and why they are helpful - Compressing data and the use disk and tape for large data sets - Backup and restore, and remote copy services

The Multiple Components in One Database (MCOD) feature of SAP enables a reduction in the number of DB2 systems that need to be installed and maintained. This significantly simplifies overall database administration and is considered one of the major DB2 competitive advantages. This IBM Redbooks publication will help systems administrators, database administrators, managers, and operation staff to plan, implement, and administer an SAP MCOD landscape with DB2 Universal Database (UDB) for OS/390 and z/OS as the database management system. We describe how to merge existing systems into a single DB2 subsystem. Two different methods are developed, each of them addressing different needs. For small-to-medium SAP systems where high availability is not a requirement, we explain how to use SAP tools. For large systems, where the down time needed by SAP standard procedures is not acceptable, we document a technique to merge SAP components without moving the data. We also provide a cloning procedure using the Control Center. We show how to clone one component out of an MCOD landscape. We address the backup and recovery implications in an MCOD environment, to help database administrators plan accordingly. We also describe how to set up and use the Computer Center Management System (CCMS) in an MCOD landscape. Please note that the additional material referenced in the text is not available from IBM.

An information infrastructure is comprised of software, servers, storage, and networks, integrated and optimized to deliver timely, secure, and trusted information throughout the organization and to its clients and partners. With the explosive growth in data and information—coupled with demands for projects with rapid ROI—IT infrastructures and storage administrators are reaching a breaking point. IBM® can help with the changes needed to manage information availability, security, and regulatory and compliance requirements on a tighter budget. And because the health of any business often depends on its ability to take advantage of information in real time, a sound, intelligent information infrastructure becomes critical to supporting new growth initiatives. IBM offers an innovative approach to help you manage information growth more effectively and mitigate risks with a dynamic infrastructure that efficiently and securely stores and protects information, and optimizes information access. You can control, protect, manage, and gain new intelligence from your information with the IBM leading-edge Information Infrastructure products, services and integrated solutions, supported by world-class expertise and access to top experts from around the world. This IBM Redbooks® publication provides an overview of the IBM Information Infrastructure solutions that are designed to help you manage the information explosion and address challenges of information compliance, availability, retention, and security. This will lead your company toward improved productivity, service delivery, and reduced risk, while streamlining costs.

IBM® Z has a close and unique relationship to its storage. Over the years, improvements to the Z processors and storage software, the disk storage systems, and their communication architecture consistently reinforced this synergy. This IBM Redpaper publication summarizes and highlights the various aspects, advanced functions, and technologies that are often pioneered by IBM, and that make the IBM Z® and the IBM DS8000 products an ideal combination. This paper is intended for users who have some familiarity with IBM Z and the IBM DS8000® series and want a condensed but comprehensive overview of the synergy items up to the IBM z15TM server with z/OS v2.5 and the IBM DS8900 Release 9.2 firmware.

Server virtualization technologies are becoming more popular to help efficiently utilize resources by consolidating servers. IBM® , the first company that developed and made available the virtual technology in 1966, offers advanced, powerful, reliable, and cost-saving virtualization technologies in various hardware and software products including DB2® for Linux, UNIX, and Windows. This IBM Redbooks® publication describes using IBM DB2 9 with server virtualization. We start with a general overview of virtualization and describe specific server virtualization technologies to highlight how the server virtualization technologies have been implemented. With this introduction anyone new to virtualization will have a better understanding of server virtualization and the industry server virtualization technologies available in the market. Following the virtualization concept, we describe in detail the setup, configuration, and managing of DB2 with three leading server virtualization technologies: IBM Power SystemsTM with PowerVMTM VMware Hyper-V We discuss the virtual machine setup with DB2 in mind to help IT support understand the effective ways of setting up a virtual environment specific for DB2. We explain the architecture and components of these three server virtualization technologies to allow DBAs to understand how a database environment using DB2 can benefit from using the server virtualization technologies. In addition, we discuss the DB2 features and functions that can take advantage of using server virtualization. These features are put into practice when describing how to set up DB2 with the three virtualization technologies discussed in this book. This book also includes a list of best practices from the various tests performed while using these virtualization technologies. These best practices can be used as a guideline or a reference when setting up DB2 using these virtualization technologies.

IBM Db2® for z/OS® is well known as the gold-standard information steward. Deep synergy with the z/OS operating system and System Z platform provides support for the highest transaction volumes with the ultimate levels of availability. Just like any high-performance engine, occasional maintenance or upgrades are needed to maintain peak performance and to incorporate new features. Those that demand the highest standards and protection of their production environments know that you want to test changes outside of production first. It is common to have development or test environments for application development and verification. What about applying Db2 maintenance or performing migrations to new version or release levels? Sure, you probably perform these activities outside of production first, but are these environments similar enough to production to surface the same results as those you might encounter in production? Your production Db2 Catalog & Directory often has a different mix and complexity of objects, which were created at different levels of Db2, that can span decades of time. The best test of these activities is against your production system, but this is the system that we want to protect. How can we accomplish this? Clone it! Skeleton cloning produces a specific kind of clone, which provides a replica of the portions of your Db2 production environment that are

needed to complete your testing. You can use the skeleton clone to find issues before they occur in production. This process allows you to refine maintenance steps in a safe environment and to minimize potential downtime when performing the same steps in a production system. This IBM® RedpaperTM publication gives a high-level overview of the IBM Db2 Cloning Tool and includes specific use cases for the tool. It also details the skeleton cloning process, which you can use to test migration, function levels, and maintenance, and includes demo examples that show a Db2 11 to 12 migration test using skeleton cloning.

This IBM® RedpaperTM publication shows you how to speed up batch jobs by splitting them into near-identical instances (sometimes referred to as). It is a practical guide, which is based on the authors' testing experiences with a batch job that is similar to those jobs that are found in customer applications. This guide documents the issues that the team encountered and how the issues were resolved. The final tuned implementation produced better results than the initial traditional implementation. Because job splitting often requires application code changes, this guide includes a description of some aspects of application modernization you might consider if you must modify your application. The authors mirror the intended audience for this paper because they are specialists in IBM DB2®, IBM Tivoli® Workload Scheduler for z/OS®, and z/OS batch performance.

There is enormous pressure today for businesses across all industries to cut costs, enhance business performance, and deliver greater value with fewer resources. To take business analytics to the next level and drive tangible improvements to the bottom line, it is important to manage not only the volume of data, but the speed with which actionable findings can be drawn from a wide variety of disparate sources. The findings must be easily communicated to those responsible for making both strategic and tactical decisions. At the same time, strained IT budgets require that the solution be self-service for everyone from DBAs to business users, and easily deployed to thin, browser-based clients. Business analytics hosted in the Query Management FacilityTM (QMFTM) on DB2® and System z® allow you to tackle these challenges in a practical way, using new features and functions that are easily deployed across the enterprise and easily consumed by business users who do not have prior IT experience. This IBM® Redbooks® publication provides step-by-step instructions on using these new features: Access to data that resides in any JDBC-compliant data source OLAP access through XMLA 150+ new analytical functions Graphical query interfaces and graphical reports Graphical, interactive dashboards Ability to integrate QMF functions with third-party applications Support for the IBM DB2 Analytics Accelerator A new QMF Classic perspective in QMF for Workstation Ability to start QMF for TSO as a DB2 for z/OS stored procedure New metadata capabilities, including ER diagrams and capability to federate data into a single virtual source

Db2 Skeleton Cloning: Protecting Your Production EnvironmentIBM Redbooks

There are many reasons why you would want to optimize your servers through virtualization using Linux on IBM® System z®: Too many distributed physical servers with low utilization A lengthy provisioning process that delays the implementation of new applications Limitations in data center power and floor space High total cost of ownership (TCO) Difficulty allocating processing power for a dynamic environment This IBM Redbooks® publication provides a technical planning guide and example for IT organizations to migrate from their x86 environment to Linux on System z. It begins by examining the benefits of migrating workloads to Linux on System z. Here, we describe the workload centric method of information technology and then discuss the benefits of migrating workloads to Linux on System z. Next, we describe total cost of ownership analyses and we guide you in understanding how to analyze your environment before beginning a migration project. We also assist you in determining the expected consolidation ratio for a given workload type. We also describe virtualization concepts along with describing the benefits of migrating from the x86 environment to guests residing on an IBM z/VM® single system image with live guest relocation. This IBM Redbooks publication walks you through a migration approach, includes planning worksheets, as well as a chapter to assist you in analyzing your own systems. We also discuss post migration considerations such as acceptance testing of functionality and performance measurements.

Today's business environment has increased in the complexity and rate of change that a database administrator must control. The ability to respond quickly to a changing environment is constantly challenged by the explosion of data growth combined with a decline in an experienced work staff. The IBM® DB2® Administration Tool for z/OS® Version 10 helps you become productive from Day 1 with DB2 10 for z/OS by using performance savings right away, lowering the CPU costs while reducing the batch window. Users experience higher data availability by easily managing online schema changes, including additional columns to indexes to use index-only access. Customers are able to experience higher data availability through simplified recovery operations: Access new functionality in DB2 10 for z/OS to lower costs and improve efficiency both before, during, and after the DB2 migration process. Maximize the performance of your key DB2 business applications to speed their deployment in DB2 10 for z/OS. Improve the productivity and efficiency of your staff when DB2 10 for z/OS is running. This IBM Redbooks® publication highlights the data administration enhancements introduced by DB2 Administration Tool for z/OS Version 10 by providing scenarios of their use with the new functions provided by DB2 10 for z/OS.

IBM® DB2® Version 11.1 for z/OS® (DB2 11 for z/OS or just DB2 11 throughout this book) is the fifteenth release of DB2 for IBM MVSTM. It brings performance and synergy with the IBM System z® hardware and opportunities to drive business value in the following areas. DB2 11 can provide unmatched reliability, availability, and scalability - Improved data sharing performance and efficiency - Less downtime by removing growth limitations - Simplified management, improved autonomics, and reduced planned outages DB2 11 can save money and save time - Aggressive CPU reduction goals - Additional utilities performance and CPU improvements - Save time and resources with new autonomic and application development capabilities DB2 11 provides simpler, faster migration - SQL compatibility, divorce system migration from application migration - Access path stability improvements - Better application performance with SQL and XML enhancements DB2 11 includes enhanced business analytics - Faster, more efficient performance for query workloads - Accelerator enhancements - More efficient inline database scoring enables predictive analytics The DB2 11 environment is available either for new installations of DB2 or for migrations from DB2 10 for z/OS subsystems only. This IBM Redbooks® publication introduces the enhancements made available with DB2 11 for z/OS. The contents help database administrators to understand the new functions and performance enhancements, to plan for ways to use the key new capabilities, and to justify the investment in installing or migrating to DB2 11.

This IBM Redbooks publication presents many of the new and improved features and functions of DB2 V9.1 for z/OS and DB2 Connect V9.1. It explains how they complement and benefit your SAP NetWeaver environment. This book also shares some of our experiences in migrating our DB2 V8 SAP data sharing environment to DB2 9 for z/OS with a minimal amount of outage. This book is written for SAP and DB2 administrators. Knowledge of these products and of the z/OS environment is assumed.

The goal of this IBM® Redbooks® publication is to demonstrate the ability to perform single click automated deployments of multi-platform applications that include IBM Db2 for z/OS database schema changes by using the capabilities of IBM Db2 DevOps Experience for z/OS. Pushing the application and database code changes to a source control management system (SCM) triggers a single CI/CD pipeline execution for application and database changes. Therefore, it mitigates the dependency on the DBA to deploy those database changes in a separate process. At the same time, DBAs can safeguard the integrity of their organization's data by implementing site rules in Db2 DevOps Experience. DBAs define whether a schema change can be approved automatically after all site rules are satisfied or whether it must be approved manually. In this publication, we e provide an overview of the CI/CD pipeline architecture in the context of a sample application. We

also describe the steps that are relevant to the roles of the DevOps engineer who implements the enterprise CI/CD pipeline, the DBA who is responsible for database code changes in Db2 for z/OS and for defining site rules that ensure quality in production, and the application developer who changes the application code and communicates requirements for changes in the database schema.

A practical guide to DB2 z/OS database administration that is 100 percent focused on running DB2 in z/OS environments The only comprehensive preparation guide for the IBM Certified Database Administrator for DB2 Universal Database V8 z/OS certification Covers database planning, design, implementation, operation, recovery, security, performance, installation, migration, and more Sample test questions help you prepare for both IBM DB2 DBA Tests 700 and 702 IBM DB2 Universal Database Version 8 for z/OS offers enterprises unprecedented opportunities to integrate information, deliver it on demand, and manage it simply and cost-effectively. Now, one of the world's leading DB2 consultants presents the definitive guide to administering DB2 UDB V8 databases in z/OS environments. DB2 for z/OS Version 8 DBA Certification Guide also serves as a key tool for anyone preparing for IBM Certified Database Administrator for DB2 Universal Database V8 for z/OS certification. IBM Gold Consultant Susan Lawson presents hundreds of practical techniques, expert guidelines, and useful tips for every facet of DB2 UDB database administration, including database implementation, operation, recovery, security, auditing, performance, installation, migration, SQL, and more. Coverage includes Understanding the DB2 product family, architecture, attachments, and the DB2 z/OS environment Securing enterprise-class DB2 installations and applications Using SQL to create and manage database objects, and manipulate and retrieve information Mastering key DBA tasks, including loading, reorganizing, quiescing, repairing, and recovering data; recovering and rebuilding indexes; and gathering statistics Implementing data sharing in Parallel Sysplex environments Learning the fundamentals of DB2 application development from the DBA's perspective Leveraging advanced DB2 functions, including stored procedures and other object-relational extensions Optimizing DB2 applications and the DB2 engine for maximum performance Whether you are administering DB2 UDB V8 in z/OS environments, planning to do so, or preparing for DB2 UDB V8 DBA certification, DB2 for z/OS Version 8 DBA Certification Guide will be your single most valuable resource.

This IBM Redbooks publication shows the different techniques customers can use to clone their DB2 system. Although the scenarios in the book use an SAP workload, the DB2 cloning techniques we describe are not specific to SAP. Those techniques can apply to any DB2 system and the applications running on that DB2. The book describes hands-on details of selected DB2 database cloning scenarios, typically the most popular techniques currently used by customers, as well as the most efficient scenarios we would like to recommend to DB2 database administrators. The scenarios described in this book are based on SAP examples. Our source system resides on a DB2 data sharing group. We have one target system residing on another DB2 data sharing group and one residing on a non-data sharing DB2. All source and target systems are in the same OS/390 Sysplex environment. We discuss and show DB2 system cloning techniques using the following methods: - ESS Flashcopy - DFSMS copy and rename The book addresses an audience with in depth knowledge of DB2 for z/OS and OS/390 database administration and savy in SAP system requirements.

Time to market, flexibility, and cost reduction are among the top concerns common to all IT executives. If significant resource investments are placed in mature systems, IT organizations need to balance old and new technology. Older technology, such as non-IBM pre-relational databases, is costly, inflexible, and non-standard. Users store their information on the mainframe and thus preserve the skills and qualities of service their business needs. But users also benefit from standards-based modernization by migrating to IBM® DB2® for z/OS®. With this migration, users deliver new application features quickly and respond to changing business requirements more effectively. When migrating, the main decision is choosing between conversion and re-engineering. Although the rewards associated with rebuilding mature applications are high, so are the risks and customers that are embarking on a migration need that migration done quickly. In this IBM Redbooks® publication, we examine how to best approach the migration process by evaluating the environment, assessing the application as a conversion candidate, and identifying suitable tools. This publication is intended for IT decision makers and database administrators who are considering migrating their information to a modern database management system.

The IBM® Smart Analytics System 9600 is a single, end-to-end business analytics solution to accelerate data warehousing and business intelligence initiatives. It provides integrated hardware, software, and services that enable enterprise customers to quickly and cost-effectively deploy business-changing analytics across their organizations. As a workload-optimized system for business analytics, it leverages the strengths of the System z® platform to drive: Significant savings in hardware, software, operating, and people costs to deliver a complete range of data warehouse and BI capabilities Faster time to value with a reduction in the time and speed associated with deploying Business Intelligence Industry-leading scalability, reliability, availability, and security Simplified and faster access to the data on System z

The power of the IBM System z, combined with the flexibility of Linux on System z, provides the ideal platform on which to implement SAP application servers. System z provides the benefits of continuous availability, high performance, scalability, and ease of management; these qualities support and complement mission-critical SAP business applications. This IBM Redbooks publication focuses on the implementation of SAP application servers on Linux on System z to leverage the synergy of this combination of products. It provides detailed information to guide you through the planning process, including resource sharing considerations, hardware and software requirements, support and maintenance. This book takes you through the steps to prepare the system environment, describing system and network configurations, and demonstrates the procedures for installing and customizing your system. It describes in detail how to install SAP application servers in z/VM Linux images, including the installation of SAP and Java and hipersockets. Finally, it provides guidance for performance tuning and introduces some useful monitoring tools.

As IBM® continues to enhance the functionality, performance, and availability of IBM Db2®, the utilities have made significant strides towards self-management. IBM Db2 for z/OS utilities is leading the trend towards autonomics. During the last couple of versions of Db2 for z/OS, and through the maintenance stream, new features and enhancements have been delivered to further improve the performance and functionality of the Db2 utilities. The intent of this IBM RedpaperTM publication is to help Db2 Database Administrators, Db2 System Programmers, and anyone who runs Db2 for z/OS utilities implement best practices. The intent of this paper is not to replicate the Db2 for z/OS Utilities Reference Guide or the Db2 for z/OS Installation Guide. This paper describes and informs you how to apply real-life practical preferred practices for the IBM Db2 for z/OS Utilities Suite. The paper concentrates on the enhancements provided by Db2 utilities, regardless of the version, albeit some functions and features are available only in Db2 12 for IBM z/OS®.

IBM® DB2® Tools for z/OS® support and take advantage of the latest versions of DB2 for z/OS. These tools are integral for the administration of the DB2 for z/OS environment and for optimization of data performance. In addition, the IBM portfolio addresses additional client requirements in the areas of data governance and version upgrade acceleration. Underlying the operation of any database management system are the utilities. With the number of database objects growing exponentially, managing utility jobs, meeting service level agreements (SLAs), and ensuring recoverability can be overwhelming. IBM offers DB2 Tools solution packs that assist in the DB2 utilities management process. Solution packs combine several products into a single consolidated solution providing everything necessary to ensure the execution of a set of database administration functions. The goals are to reduce the operational complexity and reduce cost. The objective of this IBM Redbooks® publication is to document the added value in terms of productivity and performance for database administrators when using the IBM DB2 Utilities Solution Pack and the IBM DB2 Fast Copy Solution Pack. We show the functions of the tools provided by the solution packs as used in real-life scenarios and adopting utilities best practices.

DB2 Developer's Guide is the field's #1 go-to source for on-the-job information on programming and administering DB2 on IBM z/OS

mainframes. Now, three-time IBM Information Champion Craig S. Mullins has thoroughly updated this classic for DB2 v9 and v10. Mullins fully covers new DB2 innovations including temporal database support; hashing; universal tablespaces; pureXML; performance, security and governance improvements; new data types, and much more. Using current versions of DB2 for z/OS, readers will learn how to: * Build better databases and applications for CICS, IMS, batch, CAF, and RRSAF * Write proficient, code-optimized DB2 SQL * Implement efficient dynamic and static SQL applications * Use binding and rebinding to optimize applications * Efficiently create, administer, and manage DB2 databases and applications * Design, build, and populate efficient DB2 database structures for online, batch, and data warehousing * Improve the performance of DB2 subsystems, databases, utilities, programs, and SQL stat DB2 Developer's Guide, Sixth Edition builds on the unique approach that has made previous editions so valuable. It combines: * Condensed, easy-to-read coverage of all essential topics: information otherwise scattered through dozens of documents * Detailed discussions of crucial details within each topic * Expert, field-tested implementation advice * Sensible examples

Marketshare for DB2 has been growing steadily over the past 5 years and with the announcement of DB2 Universal Database V8 (T-Rex), the product has never had more momentum. DB2 owns about 30 percent of the database market--the same as Oracle. Not only is the product used in many Fortune 500 companies, but it is becoming very popular in small to medium sized businesses as well. This book provides the reader with a comprehensive reference and research tool for DB2 for the mainframe. Official material is awkwardly written, spans over a dozen manuals in PDF format, and lacks real-world guidance. Author, Craig Mullins, consistently hears from readers of past editions that they rely on this book as their primary reference for DB2. Craig Mullins is constantly being asked when it will support a new release.

IBM® continues to enhance the functionality, performance, availability, and ease of use of IBM DB2® utilities. This IBM Redbooks® publication is the result of a project dedicated to the current DB2 Version 9 Utilities Suite product. It provides information about introducing the functions that help set up and invoke the utilities in operational scenarios, shows how to optimize concurrent execution of utilities and collect information for triggering utilities execution, and provides considerations about partitioning. It also describes the new functions provided by several utilities for SHARE LEVEL CHANGE execution, which maximize availability and the exploitation of DFSMS constructs by the BACKUP and RESTORE SYSTEM utilities. This book concentrates on the enhancements provided by DB2 UDB for z/OS Version 8 and DB2 for z/OS Version 9. It implicitly assumes a basic level of familiarity with the utilities provided by DB2 for z/OS and OS/390® Version 7.

This IBM Redbooks publication addresses the challenges posed by monitoring high availability, scalability, and performance in an SAP sysplex data sharing environment. It introduces the motivations for utilizing a design based on DB2 data sharing. It includes the principal SAP-DB2 data sharing architecture options and trade-offs used in the industry today and issues that play a role in both high availability and scalability, such as failover design, database connectivity design, workload splitting and load balancing, MCOD, and coupling facility design. The book discusses single point of failure, important failover scenarios and outage avoidance, automation of high availability constructs, and backup and recovery considerations in data sharing environments. Performance issues are detailed in the order you would approach them at planning and implementation time. First, it discusses tuning the sysplex, which is the base for a well-performing DB2 data sharing system, then tuning the DB2 data sharing system, which is the base for a well-performing SAP system, and finally, tuning the SAP system. The book focuses on initial planning for performance and monitoring it afterward, and explains the key points to look for to health-check your system and maintain high performance.

IBM® DB2® for IBM z/OS® helps lower the cost of managing data by automating administration, increasing storage efficiency, improving performance, and simplifying the deployment of virtual appliances. By automating tasks such as memory allocation, storage management, and business policy maintenance, DB2 is able to perform many management tasks itself, freeing up Database Administrators to focus on new projects. This IBM Redbooks® publication introduces autonomics for DB2 for z/OS. IBM provides several different components that, when combined, can create an autonomic database environment. All these respective components cover certain aspects of autonomics, which can collaborate into one coherent solution. In our evolution of autonomics and the need to move to smarter systems there has been a bigger drive to the concept of "Active" versus "Passive" autonomics. With the inclusion of the IBM Management Console for IMSTM and DB2 for z/OS and the Autonomics Director, it is now easier than ever to make that transition by leveraging the strength of the DB2 Utilities Solution Pack for z/OS all in one standardized and centralized interface. This publication guides you through the business reasons for adopting autonomic solutions, and provides step-by-step guidance to implement these capabilities in your DB2 for z/OS configuration. This publication is of interest primarily to DB2 Database Administrators and DB2 Systems Programmers, and for anyone looking to understand the benefits of DB2 autonomic solutions.

This IBM® Redbooks® publication pulls together diverse information regarding the best way to design, implement, and manage a Parallel Sysplex® to deliver the levels of performance and availability required by your organization. This book should be of interest to system programmers, availability managers, and database administrators who are interested in verifying that your systems conform to IBM best practices for a Parallel Sysplex environment. In addition to z/OS® and the sysplex hardware configuration, this book also covers the major IBM subsystems: CICS® DB2® IMSTM MQ WebSphere® Application Server To get the best value from this book, readers should have hands-on experience with Parallel Sysplex and have working knowledge of how your systems are set up and why they were set up in that manner.

This IBM® Redbooks® publication helps you plan, install, configure, and manage Copy Services on the IBM DS8000® operating in an IBM Z® or Open Systems environment. This book helps you design and implement a new Copy Services installation or migrate from an existing installation. It includes hints and tips to maximize the effectiveness of your installation, and information about tools and products to automate Copy Services functions. It is intended for anyone who needs a detailed and practical understanding of the DS8000 Copy Services. This edition is an update for the DS8900 Release 9.1. Note that the Safeguarded Copy feature is covered in IBM DS8000 Safeguarded Copy, REDP-5506.

DFSMShsm fast replication provides DFSMShsm management for the use of volume-level fast replication. Fast replication is made possible by using the FlashCopy® capability of storage servers. With this capability, a set of storage groups can be defined as a copy pool. The volumes in this pool are processed collectively creating, by fast replication, backup versions that are managed by DFSMShsm. Recovery can be performed at the volume or copy pool level. This

capability is designed to work specifically with DB2® Version 8 or later. With DFSMShsm fast replication, the backup and recovery of DB2 copy pools can be managed by DFSMShsm. DFSMShsm fast replication provides a quick, easy-to-use backup and recovery solution. This IBM® Redbooks® publication consists of a technical overview of the DFSMShsm fast replication function in z/OS® V1R12 Data Facility Storage Management Subsystem (DFSMS). It provides you with the information that you need to understand and evaluate the function, with practical implementation hints and tips. This book is written for storage professionals, database administrators, and system programmers who have experience with the components of DFSMS. It provides sufficient information for you to implement the DFSMShsm fast replication function in your storage environment.

This IBM® Redbooks® publication is based on the book Introduction to the New Mainframe: z/OS Basics, SG24-6366, which was produced by the International Technical Support Organization (ITSO), Poughkeepsie Center. It provides students of information systems technology with the background knowledge and skills necessary to begin using the basic facilities of a mainframe computer. For optimal learning, students are assumed to have successfully completed an introductory course in computer system concepts, such as computer organization and architecture, operating systems, data management, or data communications. They should also have successfully completed courses in one or more programming languages, and be PC literate. This textbook can also be used as a prerequisite for courses in advanced topics, or for internships and special studies. It is not intended to be a complete text covering all aspects of mainframe operation. It is also not a reference book that discusses every feature and option of the mainframe facilities. Others who can benefit from this course include experienced data processing professionals who have worked with non-mainframe platforms, or who are familiar with some aspects of the mainframe but want to become knowledgeable with other facilities and benefits of the mainframe environment. As we go through this course, we suggest that the instructor alternate between text, lecture, discussions, and hands-on exercises. Many of the exercises are cumulative, and are designed to show the student how to design and implement the topic presented. The instructor-led discussions and hands-on exercises are an integral part of the course, and can include topics not covered in this textbook. In this course, we use simplified examples and focus mainly on basic system functions. Hands-on exercises are provided throughout the course to help students explore the mainframe style of computing. At the end of this course, you will be familiar with the following information: Basic concepts of the mainframe, including its usage and architecture Fundamentals of IBM z/VSE® (VSE), an IBM zTM Systems entry mainframe operating system (OS) An understanding of mainframe workloads and the major middleware applications in use on mainframes today The basis for subsequent course work in more advanced, specialized areas of z/VSE, such as system administration or application programming