

# Ibm Puredata System For Analytics Architecture

Analytics is increasingly an integral part of day-to-day operations at today's leading businesses, and transformation is also occurring through huge growth in mobile and digital channels. Enterprise organizations are attempting to leverage analytics in new ways and transition existing analytics capabilities to respond with more flexibility while making the most efficient use of highly valuable data science skills. The recent growth and adoption of Apache Spark as an analytics framework and platform is very timely and helps meet these challenging demands. The Apache Spark environment on IBM z/OS® and Linux on IBM z Systems™ platforms allows this analytics framework to run on the same enterprise platform as the originating sources of data and transactions that feed it. If most of the data that will be used for Apache Spark analytics, or the most sensitive or quickly changing data is originating on z/OS, then an Apache Spark z/OS based environment will be the optimal choice for performance, security, and governance. This IBM® Redpaper™ publication explores the enterprise analytics market, use of Apache Spark on IBM z Systems™ platforms, integration between Apache Spark and other enterprise data sources, and case studies and examples of what can be achieved with Apache Spark in enterprise environments. It is of interest to data scientists, data engineers, enterprise architects, or anybody looking to better understand how to combine an analytics framework and platform on enterprise systems.

Welcome to the Underground! Newly Revised for 2014, for IBM PureData for Analytics Powered by Netezza Technology, including TwinFin and Striper. Ever wanted to know more about the most powerful data processing technology on the planet? Look no further than this

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foray into the simplest, most effective and easiest-to-implement data appliance that the marketplace has to offer. Get some insight into the data warehousing principles that spawned the genius inside "the machine," how to leverage it to meet critical deadlines, and how to put some serious processing juice to work on a large-scale problem domain. Need some gravity-bending power to shape and mold whole terabytes-at-a-time like they were so much warm cookie dough? Inside are some tricks, tips and opinions on how to make a smooth and clean transition from an underpowered - er - overwhelmed data processing system and into the future of a quietly running appliance - that can inhale and exhale data at scales that will blow your mind. Okay, enough of the hype. Just crack the pages and get moving. This book is for those who already have a machine (and those who might want to just kick the tires). But keep in mind, once you kick the tires, you'll want one. Maybe two. Big Data. Complex Data. It's what's for dinner!

Today's data analysis requires the use of statistical techniques to learn from data, highlight patterns and anomalies, predictions and professionals who know how to use them. The use of Big Data technologies not only allows us to increase processing capacity, it is also about finding those ideas that allow us to obtain the knowledge embedded in the data, as long as we have the profiles and experience to carry it out. For this reason, Analytics techniques (essentially Data Mining and Business Intelligence) and Big Data go hand in hand for the optimal exploitation of information. Professionals, with skills in mathematics, statistics and computer engineering, who are able to extract the maximum value from the organisation's data through Analytics, must work together with optimal Big Data infrastructures. The management and analysis of big data, structured and unstructured, applied in fields such as scientific

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research, health, security, social networks or media, among others, is a unique tool for companies to gain competitiveness and improve the life of citizens. This tool can only be optimised with the combined application of Analytics and Big Data techniques.

Create a complete roadmap for capitalizing on analytics to grow topline revenue and build shareholder value in your unique organization! Modern Analytics Methodologies goes far beyond the classic Analytics Maturity Model to help you overcome the gaps between your current analytics capabilities and where you need to go. Pioneering analytics experts Michele Chambers and Thomas Dinsmore help you implement analytics that supports your strategy, aligns with your culture, and serves your customers and stakeholders. Drawing on work with dozens of leading enterprises, Michele Chambers and Thomas Dinsmore describe high-value applications from many industries, and help you systematically identify and deliver on your company's best opportunities. Writing for both professionals and students, they show how to: Leverage the convergence of macro trends ranging from "flattening" and "green" to Big Data and machine learning Go beyond the Analytics Maturity Model: power your unique business strategy with an equally focused analytics strategy Link key business objectives with core characteristics of your organization, value chain, and stakeholders Take advantage of game changing opportunities before competitors do Effectively integrate the managerial and operational aspects of analytics Measure performance with dashboards, scorecards, visualization, simulation, and more Prioritize and score prospective analytics projects Identify "Quick Wins" you can implement while you're planning for the long-term Build an effective Analytic Program Office to make your roadmap persistent Update and revise your roadmap for new needs and technologies Modern Analytics Methodologies will be an indispensable

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resource for any executive or professional concerned with analytics, including Chief Analytics Officers; Chief Data Officers; Chief Scientists; Chief Marketing Officers; Chief Risk Officers; Chief Strategy Officers; VPs of Analytics or Big Data; data scientists; business strategists; and line-of-business executives.

Unique prospective on the big data analytics phenomenon for both business and IT professionals The availability of Big Data, low-cost commodity hardware and new information management and analytics software has produced a unique moment in the history of business. The convergence of these trends means that we have the capabilities required to analyze astonishing data sets quickly and cost-effectively for the first time in history. These capabilities are neither theoretical nor trivial. They represent a genuine leap forward and a clear opportunity to realize enormous gains in terms of efficiency, productivity, revenue and profitability. The Age of Big Data is here, and these are truly revolutionary times. This timely book looks at cutting-edge companies supporting an exciting new generation of business analytics. Learn more about the trends in big data and how they are impacting the business world (Risk, Marketing, Healthcare, Financial Services, etc.) Explains this new technology and how companies can use them effectively to gather the data that they need and glean critical insights Explores relevant topics such as data privacy, data visualization, unstructured data, crowd sourcing data scientists, cloud computing for big data, and much more.

IBM® Information Management System (IMSTM) applications and data are the core of critical online transaction processing (OLTP) workloads for many of the world's major organizations. This operational data, when analyzed properly, forms the basis for making better decisions by organizations running IMS. With IBM DB2® Analytics Accelerator for z/OS®, you can exploit

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your IBM z Systems™ platform's IMS data where it originates so that delivering new insights to improve efficiency and drive smart outcomes is possible. Critical business insights that are gained by performing analytics on IMS operational data is a valuable corporate asset and must be delivered efficiently across an organization, with high quality and proper governance, which is possible with this solution. This IBM Redbooks® Solution Guide describes DB2 Analytics Accelerator for z/OS and how it enables you to exploit the IMS data. It explains the business value of the solution, provides an overview and high-level solution architecture and includes usage scenarios.

Hybrid Analytics Solution using IBM DB2 Analytics Accelerator for z/OS V3.1 IBM Redbooks Advanced Analytics Methodologies is today's definitive guide to analytics implementation for MBA and university-level business students and sophisticated practitioners. Its expanded, cutting-edge coverage helps readers systematically "jump the gap" between their organization's current analytical capabilities and where they need to be. Step by step, Michele Chambers and Thomas Dinsmore help readers customize a complete roadmap for implementing analytics that supports unique corporate strategies, aligns with specific corporate cultures, and serves unique customer and stakeholder communities. Drawing on work with dozens of leading enterprises, Michele Chambers and Thomas Dinsmore provide advanced applications and examples not available elsewhere, describe high-value applications from many industries, and help you systematically identify and deliver on your company's best opportunities. They show how to: Go beyond the Analytics Maturity Model: power your unique business strategy with an equally focused analytics strategy Link key business objectives with core characteristics of your organization, value chain, and stakeholders Take advantage of

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game changing opportunities before competitors do Effectively integrate the managerial and operational aspects of analytics Measure performance with dashboards, scorecards, visualization, simulation, and more Prioritize and score prospective analytics projects Identify "Quick Wins" you can implement while you're planning for the long-term Build an effective Analytic Program Office to make your roadmap persistent Update and revise your roadmap for new needs and technologies This advanced text will serve the needs of students and faculty studying cutting-edge analytics techniques, as well as experienced analytics leaders and professionals including Chief Analytics Officers; Chief Data Officers; Chief Scientists; Chief Marketing Officers; Chief Risk Officers; Chief Strategy Officers; VPs of Analytics or Big Data; data scientists; business strategists; and many line-of-business executives.

The third international conference on INformation Systems Design and Intelligent Applications (INDIA – 2016) held in Visakhapatnam, India during January 8-9, 2016. The book covers all aspects of information system design, computer science and technology, general sciences, and educational research. Upon a double blind review process, a number of high quality papers are selected and collected in the book, which is composed of three different volumes, and covers a variety of topics, including natural language processing, artificial intelligence, security and privacy, communications, wireless and sensor networks, microelectronics, circuit and systems, machine learning, soft computing, mobile computing and applications, cloud computing, software engineering, graphics and image processing, rural engineering, e-commerce, e-governance, business computing, molecular computing, nano-computing, chemical computing, intelligent computing for GIS and remote sensing, bio-informatics and bio-computing. These fields are not only limited to computer researchers but also include

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mathematics, chemistry, biology, bio-chemistry, engineering, statistics, and all others in which computer techniques may assist.

If you are a developer who is familiar with Ext JS and want to augment your skills to create even better web applications, this is the book for you. Basic knowledge of JavaScript/HTML/CSS and any server-side language (PHP, Java, C#, Ruby, or Python) is required.

Data centers must become smarter to meet today's business needs. They need to be more efficient, scalable, and flexible and at the same time keep operational costs in check. A smarter data center must seamlessly integrate IT resources, such as servers, storage, and networking, while also responding quickly to change. Networking plays an essential role in enabling infrastructures for smarter data centers. In dynamic environments with virtualized IT resources, the network must do more than just carry traffic and support the provisioning of new IT services. It must also have the built-in flexibility and capability to adapt quickly while maintaining comprehensive security, visibility, and management. IBM® Flex System™ build-to-order (BTO) and Juniper Networks QFabric are key building blocks for a smarter data center infrastructure. They are reliable, resilient, and energy efficient resources that seamlessly integrate to provide the capabilities and flexibility needed now and in the future. This IBM Redpaper™ publication discusses how to build a smarter data center infrastructure with IBM Flex System BTO and Juniper Networks QFabric. It discusses key client use cases that address today's data center challenges: Business continuity and disaster recovery  
Multitenancy Virtual machine mobility This paper is intended for IT management, IT architects, network planners and integrators, and technical specialists.

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This IBM® Redbooks® publication is intended for business leaders and IT architects who are responsible for building and extending their data warehouse and Business Intelligence infrastructure. It provides an overview of powerful new capabilities of Information Server in the areas of big data, statistical models, data governance and data quality. The book also provides key technical details that IT professionals can use in solution planning, design, and implementation.

Provides the foundations and principles needed for addressing the various challenges of developing smart cities Smart cities are emerging as a priority for research and development across the world. They open up significant opportunities in several areas, such as economic growth, health, wellness, energy efficiency, and transportation, to promote the sustainable development of cities. This book provides the basics of smart cities, and it examines the possible future trends of this technology. Smart Cities: Foundations, Principles, and Applications provides a systems science perspective in presenting the foundations and principles that span multiple disciplines for the development of smart cities. Divided into three parts—foundations, principles, and applications—Smart Cities addresses the various challenges and opportunities of creating smart cities and all that they have to offer. It also covers smart city theory modeling and simulation, and examines case studies of existing smart cities from all around the world. In addition, the book: Addresses how to develop a smart city and how to present the state of the art and practice of them all over the world Focuses on the foundations and principles needed for advancing the science, engineering, and technology of smart cities—including system design, system verification, real-time control and adaptation, Internet of Things, and test beds Covers applications of smart cities as they relate to smart

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transportation/connected vehicle (CV) and Intelligent Transportation Systems (ITS) for improved mobility, safety, and environmental protection Smart Cities: Foundations, Principles, and Applications is a welcome reference for the many researchers and professionals working on the development of smart cities and smart city-related industries.

Boost your Big Data IQ! Gain insight into how to govern and consume IBM's unique in-motion and at-rest Big Data analytic capabilities Big Data represents a new era of computing—an inflection point of opportunity where data in any format may be explored and utilized for breakthrough insights—whether that data is in-place, in-motion, or at-rest. IBM is uniquely positioned to help clients navigate this transformation. This book reveals how IBM is infusing open source Big Data technologies with IBM innovation that manifest in a platform capable of "changing the game." The four defining characteristics of Big Data—volume, variety, velocity, and veracity—are discussed. You'll understand how IBM is fully committed to Hadoop and integrating it into the enterprise. Hear about how organizations are taking inventories of their existing Big Data assets, with search capabilities that help organizations discover what they could already know, and extend their reach into new data territories for unprecedented model accuracy and discovery. In this book you will also learn not just about the technologies that make up the IBM Big Data platform, but when to leverage its purpose-built engines for analytics on data in-motion and data at-rest. And you'll gain an understanding of how and when to govern Big Data, and how IBM's industry-leading InfoSphere integration and governance portfolio helps you understand, govern, and effectively utilize Big Data. Industry use cases are also included in this practical guide.

Big data is certainly one of the biggest buzz phrases in IT today. Combined with virtualization

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and cloud computing, big data is a technological capability that will force data centers to significantly transform and evolve within the next five years. Similar to virtualization, big data infrastructure is unique and can create an architectural upheaval in the way systems, storage, and software infrastructure are connected and managed. Unlike previous business analytics solutions, the real-time capability of new big data solutions can provide mission critical business intelligence that can change the shape and speed of enterprise decision making forever. Hence, the way in which IT infrastructure is connected and distributed warrants a fresh and critical analysis.

Gain a competitive edge with IBM Streams Turn data-in-motion into solid business opportunities with IBM Streams and let Streaming Analytics with IBM Streams show you how. This comprehensive guide starts out with a brief overview of different technologies used for big data processing and explanations on how data-in-motion can be utilized for business advantages. You will learn how to apply big data analytics and how they benefit from data-in-motion. Discover all about Streams starting with the main components then dive further with Stream installation, and upgrade and management capabilities including tools used for production. Through a solid understanding of big in motion, detailed illustrations, Endnotes that provide additional learning resources, and end of chapter summaries with helpful insight, data analysts and professionals looking to get more from their data will benefit from expert insight on: Data-in-motion processing and how it can be applied to generate new business opportunities The three approaches to processing data in motion and pros and cons of each The main components of Streams from runtime to installation and administration Multiple purposes of the Text Analytics toolkit The evolving Streams ecosystem A detailed roadmap for

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programmers to quickly become fluent with Streams Data-in-motion is rapidly becoming a business tool used to discover more about customers and opportunities, however it is only valuable if you have the tools and knowledge to analyze and apply. This is an expert guide to IBM Streams and how you can harness this powerful tool to gain a competitive business edge. A comprehensive guide to Fog and Edge applications, architectures, and technologies Recent years have seen the explosive growth of the Internet of Things (IoT): the internet-connected network of devices that includes everything from personal electronics and home appliances to automobiles and industrial machinery. Responding to the ever-increasing bandwidth demands of the IoT, Fog and Edge computing concepts have developed to collect, analyze, and process data more efficiently than traditional cloud architecture. Fog and Edge Computing: Principles and Paradigms provides a comprehensive overview of the state-of-the-art applications and architectures driving this dynamic field of computing while highlighting potential research directions and emerging technologies. Exploring topics such as developing scalable architectures, moving from closed systems to open systems, and ethical issues rising from data sensing, this timely book addresses both the challenges and opportunities that Fog and Edge computing presents. Contributions from leading IoT experts discuss federating Edge resources, middleware design issues, data management and predictive analysis, smart transportation and surveillance applications, and more. A coordinated and integrated presentation of topics helps readers gain thorough knowledge of the foundations, applications, and issues that are central to Fog and Edge computing. This valuable resource: Provides insights on transitioning from current Cloud-centric and 4G/5G wireless environments to Fog Computing Examines methods to optimize virtualized, pooled, and shared resources Identifies

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potential technical challenges and offers suggestions for possible solutions Discusses major components of Fog and Edge computing architectures such as middleware, interaction protocols, and autonomic management Includes access to a website portal for advanced online resources Fog and Edge Computing: Principles and Paradigms is an essential source of up-to-date information for systems architects, developers, researchers, and advanced undergraduate and graduate students in fields of computer science and engineering.

Big Data is the processing and analysis of large amounts of data, the size of which makes it impossible to handle with conventional database and analytical tools. The proliferation of websites, image and video applications, social networks, mobile devices, apps, sensors and other modern devices capable of generating huge amounts of data have made it necessary to develop Big Data tools for their analysis. As for Big Data tools, there is a growing development. Oracle uses Exadata for these purposes, SAS uses Visual Analytics and other tools, Microsoft uses Windows Azure, IBM uses Modeler and other tools based in Hadoop. Oracle includes Hadoop in Oracle Big Data Appliance, Oracle Big Data Connectors and Oracle Loader for Hadoop. SAS incorporates Hadoop in its applications (SAS Base, SAS Data Integration, SAS Enterprise Guide, SAS Enterprise Miner, SAS Visual Analytics, SAS Visual Statistics and others). IBM works with Hadoop in its IBM InfoSphere BigInsights platform (BigInsights) and Microsoft incorporates Hadoop in the Windows Azure platform with its Big Data applications (HDInsight, Polybase and others).

Building on the business intelligence (BI) framework and capabilities that are outlined in InfoSphere Warehouse: A Robust Infrastructure for Business Intelligence, SG24-7813, this IBM® Redbooks® publication focuses on the new business insight challenges that

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have arisen in the last few years and the new technologies in IBM DB2® 10 for Linux, UNIX, and Windows that provide powerful analytic capabilities to meet those challenges. This book is organized in to two parts. The first part provides an overview of data warehouse infrastructure and DB2 Warehouse, and outlines the planning and design process for building your data warehouse. The second part covers the major technologies that are available in DB2 10 for Linux, UNIX, and Windows. We focus on functions that help you get the most value and performance from your data warehouse. These technologies include database partitioning, intrapartition parallelism, compression, multidimensional clustering, range (table) partitioning, data movement utilities, database monitoring interfaces, infrastructures for high availability, DB2 workload management, data mining, and relational OLAP capabilities. A chapter on BLU Acceleration gives you all of the details about this exciting DB2 10.5 innovation that simplifies and speeds up reporting and analytics. Easy to set up and self-optimizing, BLU Acceleration eliminates the need for indexes, aggregates, or time-consuming database tuning to achieve top performance and storage efficiency. No SQL or schema changes are required to take advantage of this breakthrough technology. This book is primarily intended for use by IBM employees, IBM clients, and IBM Business Partners.

This IBM® Redbooks® publication introduces users to the concepts of the IBM PureApplication™ System V1.0. This book covers the most common problems,

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solutions, best practices, and use cases about adopting the IBM PureApplication System V1.0. The target audience for this book is anyone from the IT industry who wants to acquire a better understanding of IBM PureApplication System, including technical consultants, business partners, and independent software vendors who are considering migrating to a cloud computing solution. This book also is applicable to system administrators, middleware specialists, and software engineers who need a more in-depth approach to PureApplication System features and capabilities.

This book presents a detailed review of high-performance computing infrastructures for next-generation big data and fast data analytics. Features: includes case studies and learning activities throughout the book and self-study exercises in every chapter; presents detailed case studies on social media analytics for intelligent businesses and on big data analytics (BDA) in the healthcare sector; describes the network infrastructure requirements for effective transfer of big data, and the storage infrastructure requirements of applications which generate big data; examines real-time analytics solutions; introduces in-database processing and in-memory analytics techniques for data mining; discusses the use of mainframes for handling real-time big data and the latest types of data management systems for BDA; provides information on the use of cluster, grid and cloud computing systems for BDA; reviews the peer-to-peer techniques and tools and the common information visualization techniques, used in BDA.

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In a traditional deployment model, software is installed on a physical server, and it is configured for the particular data center environment. The cloud deployment model requires that the dependency on a specific hardware configuration is severed. This IBM® Redbooks® publication guides you through the transition from the traditional application deployment model to the cloud-friendly deployment model. It explains how to achieve these goals by packaging the software stacks into industry standard virtual appliances. A key part of this transition involves using the IBM Image Construction and Composition Tool. This tool is the IBM tool for creating virtualized workloads that target several private cloud deployment platforms, including platforms from IBM and not from IBM. In fact, this tool is unique in its ability to support such a wide range of cloud offerings. It is also the only tool in the marketplace that can create virtual appliances for both x86 and IBM Power hardware architectures. This book provides an in-depth look at the capabilities and internal workings of Image Construction and Composition Tool. It focuses on the capabilities of this tool, which target the virtualization and cloud offerings of IBM Systems and Technology Group. These offerings include IBM Systems Director VMControl™, IBM SmartCloud® Entry, and IBM PureFlex™ System with IBM Flex System Manager™ appliance. The Image Construction and Composition Tool also has a much richer set of capabilities. Specifically, it supports IBM Workload Deployer, IBM PureApplication™ Systems, and IBM SmartCloud Provisioning. This publication targets software architects, cloud solutions architects, and cloud administrators. Its goal

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is to provide you with the expert-level skills required to package the existing and newly created applications into self-configurable, smart virtual appliances. Related publication: Smart Virtual Appliances Made Easy with IBM Image Construction and Composition Tool, TIPS1037

Big data is currently one of the most critical emerging technologies. Organizations around the world are looking to exploit the explosive growth of data to unlock previously hidden insights in the hope of creating new revenue streams, gaining operational efficiencies, and obtaining greater understanding of customer needs. It is important to think of big data and analytics together. Big data is the term used to describe the recent explosion of different types of data from disparate sources. Analytics is about examining data to derive interesting and relevant trends and patterns, which can be used to inform decisions, optimize processes, and even drive new business models. With today's deluge of data comes the problems of processing that data, obtaining the correct skills to manage and analyze that data, and establishing rules to govern the data's use and distribution. The big data technology stack is ever growing and sometimes confusing, even more so when we add the complexities of setting up big data environments with large up-front investments. Cloud computing seems to be a perfect vehicle for hosting big data workloads. However, working on big data in the cloud brings its own challenge of reconciling two contradictory design principles. Cloud computing is based on the concepts of consolidation and resource pooling, but big data

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systems (such as Hadoop) are built on the shared nothing principle, where each node is independent and self-sufficient. A solution architecture that can allow these mutually exclusive principles to coexist is required to truly exploit the elasticity and ease-of-use of cloud computing for big data environments. This IBM® Redpaper™ publication is aimed at chief architects, line-of-business executives, and CIOs to provide an understanding of the cloud-related challenges they face and give prescriptive guidance for how to realize the benefits of big data solutions quickly and cost-effectively.

A Deep Dive into NoSQL Databases: The Use Cases and Applications, Volume 109, the latest release in the Advances in Computers series first published in 1960, presents detailed coverage of innovations in computer hardware, software, theory, design and applications. In addition, it provides contributors with a medium in which they can explore their subjects in greater depth and breadth. This update includes sections on NoSQL and NewSQL databases for big data analytics and distributed computing, NewSQL databases and scalable in-memory analytics, NoSQL web crawler application, NoSQL Security, a Comparative Study of different In-Memory (No/New)SQL Databases, NoSQL Hands On-4 NoSQLs, the Hadoop Ecosystem, and more. Provides a very comprehensive, yet compact, book on the popular domain of NoSQL databases for IT professionals, practitioners and professors Articulates and accentuates big data analytics and how it gets simplified and streamlined by NoSQL database systems Sets a stimulating foundation with all the relevant details for NoSQL database researchers,

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developers and administrators

This timely text/reference presents a comprehensive review of the workflow scheduling algorithms and approaches that are rapidly becoming essential for a range of software applications, due to their ability to efficiently leverage diverse and distributed cloud resources. Particular emphasis is placed on how workflow-based automation in software-defined cloud centers and hybrid IT systems can significantly enhance resource utilization and optimize energy efficiency. Topics and features: describes dynamic workflow and task scheduling techniques that work across multiple (on-premise and off-premise) clouds; presents simulation-based case studies, and details of real-time test bed-based implementations; offers analyses and comparisons of a broad selection of static and dynamic workflow algorithms; examines the considerations for the main parameters in projects limited by budget and time constraints; covers workflow management systems, workflow modeling and simulation techniques, and machine learning approaches for predictive workflow analytics. This must-read work provides invaluable practical insights from three subject matter experts in the cloud paradigm, which will empower IT practitioners and industry professionals in their daily assignments. Researchers and students interested in next-generation software-defined cloud environments will also greatly benefit from the material in the book.

SAP is a market leader in enterprise business application software. SAP solutions provide a rich set of composable application modules, and configurable functional

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capabilities that are expected from a comprehensive enterprise business application software suite. In most cases, companies that adopt SAP software remain heterogeneous enterprises running both SAP and non-SAP systems to support their business processes. Regardless of the specific scenario, in heterogeneous enterprises most SAP implementations must be integrated with a variety of non-SAP enterprise systems: Portals Messaging infrastructure Business process management (BPM) tools Enterprise Content Management (ECM) methods and tools Business analytics (BA) and business intelligence (BI) technologies Security Systems of record Systems of engagement The tooling included with SAP software addresses many needs for creating SAP-centric environments. However, the classic approach to implementing SAP functionality generally leaves the business with a rigid solution that is difficult and expensive to change and enhance. When SAP software is used in a large, heterogeneous enterprise environment, SAP clients face the dilemma of selecting the correct set of tools and platforms to implement SAP functionality, and to integrate the SAP solutions with non-SAP systems. This IBM® Redbooks® publication explains the value of integrating IBM software with SAP solutions. It describes how to enhance and extend pre-built capabilities in SAP software with best-in-class IBM enterprise software, enabling clients to maximize return on investment (ROI) in their SAP investment and achieve a balanced enterprise architecture approach. This book describes IBM Reference Architecture for SAP, a prescriptive blueprint for using IBM software in SAP

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solutions. The reference architecture is focused on defining the use of IBM software with SAP, and is not intended to address the internal aspects of SAP components. The chapters of this book provide a specific reference architecture for many of the architectural domains that are each important for a large enterprise to establish common strategy, efficiency, and balance. The majority of the most important architectural domain topics, such as integration, process optimization, master data management, mobile access, Enterprise Content Management, business intelligence, DevOps, security, systems monitoring, and so on, are covered in the book. However, there are several other architectural domains which are not included in the book. This is not to imply that these other architectural domains are not important or are less important, or that IBM does not offer a solution to address them. It is only reflective of time constraints, available resources, and the complexity of assembling a book on an extremely broad topic. Although more content could have been added, the authors feel confident that the scope of architectural material that has been included should provide organizations with a fantastic head start in defining their own enterprise reference architecture for many of the important architectural domains, and it is hoped that this book provides great value to those reading it. This IBM Redbooks publication is targeted to the following audiences: Client decision makers and solution architects leading enterprise transformation projects and wanting to gain further insight so that they can benefit from the integration of IBM software in large-scale SAP projects. IT

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architects and consultants integrating IBM technology with SAP solutions. This book provides a concise overview of the current state of the art in cybersecurity and shares novel and exciting ideas and techniques, along with specific cases demonstrating their practical application. It gathers contributions by both academic and industrial researchers, covering all aspects of cybersecurity and addressing issues in secure information systems as well as other emerging areas. The content comprises high-quality research articles and reviews that promote a multidisciplinary approach and reflect the latest advances, challenges, requirements and methodologies. Thus, the book investigates e.g. security vulnerabilities, cybercrime, and privacy issues related to big data analysis, as well as advances in digital forensics, secure smart city services, and risk mitigation strategies for devices employing cyber-physical systems. Given its scope, the book offers a valuable resource for students, researchers, IT professionals and providers, citizens, consumers and policymakers involved or interested in the modern security procedures needed to protect our information and communication resources. Its goal is to foster a community committed to further research and education, and one that can also translate its findings into concrete practices. Big data solutions enable us to change how we do business by exploiting previously unused sources of information in ways that were not possible just a few years ago. In IBM® Smarter Planet® terms, big data helps us to change the way that the world works. The purpose of this IBM Redpaper™ publication is to

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consider the performance and capacity implications of big data solutions, which must be taken into account for them to be viable. This paper describes the benefits that big data approaches can provide. We then cover performance and capacity considerations for creating big data solutions. We conclude with what this means for big data solutions, both now and in the future. Intended readers for this paper include decision-makers, consultants, and IT architects.

Summary R in Action, Second Edition presents both the R language and the examples that make it so useful for business developers. Focusing on practical solutions, the book offers a crash course in statistics and covers elegant methods for dealing with messy and incomplete data that are difficult to analyze using traditional methods. You'll also master R's extensive graphical capabilities for exploring and presenting data visually. And this expanded second edition includes new chapters on time series analysis, cluster analysis, and classification methodologies, including decision trees, random forests, and support vector machines. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Business pros and researchers thrive on data, and R speaks the language of data analysis. R is a powerful programming language for statistical computing. Unlike general-purpose tools, R provides thousands of modules for solving just about any data-

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crunching or presentation challenge you're likely to face. R runs on all important platforms and is used by thousands of major corporations and institutions worldwide. About the Book R in Action, Second Edition teaches you how to use the R language by presenting examples relevant to scientific, technical, and business developers. Focusing on practical solutions, the book offers a crash course in statistics, including elegant methods for dealing with messy and incomplete data. You'll also master R's extensive graphical capabilities for exploring and presenting data visually. And this expanded second edition includes new chapters on forecasting, data mining, and dynamic report writing. What's Inside Complete R language tutorial Using R to manage, analyze, and visualize data Techniques for debugging programs and creating packages OOP in R Over 160 graphs About the Author Dr. Rob Kabacoff is a seasoned researcher and teacher who specializes in data analysis. He also maintains the popular Quick-R website at [statmethods.net](http://statmethods.net). Table of Contents PART 1 GETTING STARTED Introduction to R Creating a dataset Getting started with graphs Basic data management Advanced data management PART 2 BASIC METHODS Basic graphs Basic statistics PART 3 INTERMEDIATE METHODS Regression Analysis of variance Power analysis Intermediate graphs Resampling statistics and bootstrapping PART 4 ADVANCED METHODS Generalized linear

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models Principal components and factor analysis Time series Cluster analysis Classification Advanced methods for missing data PART 5 EXPANDING YOUR SKILLS Advanced graphics with ggplot2 Advanced programming Creating a package Creating dynamic reports Advanced graphics with the lattice package available online only from [manning.com/kabacoff2](http://manning.com/kabacoff2)

Clouds are being positioned as the next-generation consolidated, centralized, yet federated IT infrastructure for hosting all kinds of IT platforms and for deploying, maintaining, and managing a wider variety of personal, as well as professional applications and services. Handbook of Research on Cloud Infrastructures for Big Data Analytics focuses exclusively on the topic of cloud-sponsored big data analytics for creating flexible and futuristic organizations. This book helps researchers and practitioners, as well as business entrepreneurs, to make informed decisions and consider appropriate action to simplify and streamline the arduous journey towards smarter enterprises.

This IBM® Redbooks® publication describes how the IBM Big Data Platform provides the integrated capabilities that are required for the adoption of Information Governance in the big data landscape. As organizations embark on new use cases, such as Big Data Exploration, an enhanced 360 view of customers, or Data Warehouse modernization, and absorb ever growing volumes

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and variety of data with accelerating velocity, the principles and practices of Information Governance become ever more critical to ensure trust in data and help organizations overcome the inherent risks and achieve the wanted value. The introduction of big data changes the information landscape. Data arrives faster than humans can react to it, and issues can quickly escalate into significant events. The variety of data now poses new privacy and security risks. The high volume of information in all places makes it harder to find where these issues, risks, and even useful information to drive new value and revenue are.

Information Governance provides an organization with a framework that can align their wanted outcomes with their strategic management principles, the people who can implement those principles, and the architecture and platform that are needed to support the big data use cases. The IBM Big Data Platform, coupled with a framework for Information Governance, provides an approach to build, manage, and gain significant value from the big data landscape.

The IBM® DB2® Analytics Accelerator for IBM z/OS® is a high-performance appliance that integrates the IBM zEnterprise® infrastructure with IBM PureData™ for Analytics, powered by IBM Netezza® technology. With this integration, you can accelerate data-intensive and complex queries in a DB2 for z/OS highly secure and available environment. DB2 and the Analytics

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Accelerator appliance form a self-managing hybrid environment running online transaction processing and online transactional analytical processing concurrently and efficiently. These online transactions run together with business intelligence and online analytic processing workloads. DB2 Analytics Accelerator V4.1 expands the value of high-performance analytics. DB2 Analytics Accelerator V4.1 opens to static Structured Query Language (SQL) applications and row set processing, minimizes data movement, reduces latency, and improves availability. This IBM Redbooks® publication provides technical decision-makers with an understanding of the benefits of version 4.1 of the Analytics Accelerator with DB2 11 for z/OS. It describes the installation of the new functions, and the advantages to existing analytical processes as measured in our test environment. This book also introduces the DB2 Analytics Accelerator Loader V1.1, a tool that facilitates the data population of the DB2 Analytics Accelerator.

L'argomento trattato dal libro è il Database-as-a-Service (DBaaS) offerto dalla piattaforma Cloud di IBM, ovvero una tipologia di servizi cloud in rapida crescita e in grado di offrire, ai professionisti dei settori IT, notevoli vantaggi in termini di produttività, prestazioni, standardizzazione e sicurezza dei dati dei database. La scelta dell'argomento è stata determinata dalle caratteristiche di una delle più versatili e potenti piattaforme cloud creata e gestita da IBM, ovvero la stessa

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azienda produttrice di uno dei più popolari database relazionali, Db2. L'obiettivo principale del libro è quello di introdurre il lettore in questa tecnologia, descrivendone le opportunità e trattando gli argomenti inerenti alle soluzioni DBaaS offerte da IBM Cloud, consentendo la fruizione di informazioni dettagliate, in relazione all'utilizzo di questa piattaforma, favorendo il ciclo di sviluppo di soluzioni DBaaS in ambito aziendale e permettendo, agli addetti dei dipartimenti IT, di supportare gli utenti che necessitano di operare sui database in modo sicuro e coerente.

This IBM® Redbooks® publication highlights IBM Technical Computing as a flexible infrastructure for clients looking to reduce capital and operational expenditures, optimize energy usage, or re-use the infrastructure. This book strengthens IBM SmartCloud® solutions, in particular IBM Technical Computing clouds, with a well-defined and documented deployment model within an IBM System x® or an IBM Flex System™. This provides clients with a cost-effective, highly scalable, robust solution with a planned foundation for scaling, capacity, resilience, optimization, automation, and monitoring. This book is targeted toward technical professionals (consultants, technical support staff, IT Architects, and IT Specialists) responsible for providing cloud-computing solutions and support. The digital age has presented an exponential growth in the amount of data

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available to individuals looking to draw conclusions based on given or collected information across industries. Challenges associated with the analysis, security, sharing, storage, and visualization of large and complex data sets continue to plague data scientists and analysts alike as traditional data processing applications struggle to adequately manage big data. Big Data: Concepts, Methodologies, Tools, and Applications is a multi-volume compendium of research-based perspectives and solutions within the realm of large-scale and complex data sets. Taking a multidisciplinary approach, this publication presents exhaustive coverage of crucial topics in the field of big data including diverse applications, storage solutions, analysis techniques, and methods for searching and transferring large data sets, in addition to security issues. Emphasizing essential research in the field of data science, this publication is an ideal reference source for data analysts, IT professionals, researchers, and academics.

The Easy, Visual Introduction to IBM DB2 Version 10.5 for Linux, UNIX, and Windows Foreword by Judy Huber, Vice President, Distributed Data Servers and Data Warehousing; Director, IBM Canada Laboratory This book covers everything you need to get productive with the latest version of IBM DB2 and apply it to today's business challenges. It discusses key features introduced in

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DB2 Versions 10.5, 10.1, and 9.7, including improvements in manageability, integration, security, Big Data support, BLU Acceleration, and cloud computing. DB2 Essentials illuminates key concepts with examples drawn from the authors' extensive experience with DB2 in enterprise environments. Raul F. Chong and Clara Liu explain how DB2 has evolved, what's new, and how to choose the right products, editions, and tools. Next, they walk through installation, configuration, security, data access, remote connectivity, and day-to-day administration. Each chapter starts with an illustrative overview to introduce its key concepts using a big picture approach. Clearly explained figures are used extensively, and techniques are presented with intuitive screenshots, diagrams, charts, and tables. Case studies illustrate how "theory" is applied in real-life environments, and hundreds of review questions help you prepare for IBM's newest DB2 certification exams. Coverage includes

- Understanding the role of DB2 in Big Data
- Preparing for and executing a smooth installation or upgrade
- Understanding the DB2 environment, instances, and databases
- Configuring client and server connectivity
- Working with database objects
- Getting started with BLU Acceleration
- Implementing security: authentication and authorization
- Understanding concurrency and locking
- Maintaining, backing up, and recovering data
- Using basic SQL in DB2 environments
- Diagnosing and

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solving DB2 problems This book is for anyone who plans to work with DB2, including DBAs, system administrators, developers, and consultants. It will be a great resource whether you're upgrading from an older version of DB2, migrating from a competitive database, or learning your first database platform.

Regarding online transaction processing (OLTP) workloads, IBM® z Systems™ platform, with IBM DB2®, data sharing, Workload Manager (WLM), geoplex, and other high-end features, is the widely acknowledged leader. Most customers now integrate business analytics with OLTP by running, for example, scoring functions from transactional context for real-time analytics or by applying machine-learning algorithms on enterprise data that is kept on the mainframe. As a result, IBM adds investment so clients can keep the complete lifecycle for data analysis, modeling, and scoring on z Systems control in a cost-efficient way, keeping the qualities of services in availability, security, reliability that z Systems solutions offer. Because of the changed architecture and tighter integration, IBM has shown, in a customer proof-of-concept, that a particular client was able to achieve an orders-of-magnitude improvement in performance, allowing that client's data scientist to investigate the data in a more interactive process. Open technologies, such as Predictive Model Markup Language (PMML) can help customers update single components instead of being forced to replace everything at once. As a result, you have the possibility to combine your preferred tool for model generation (such as SAS Enterprise Miner or IBM SPSS® Modeler) with a different technology for model scoring (such as Zementis, a company focused on PMML scoring). IBM SPSS Modeler is a leading data mining workbench that can apply various algorithms in data preparation, cleansing,

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statistics, visualization, machine learning, and predictive analytics. It has over 20 years of experience and continued development, and is integrated with z Systems. With IBM DB2 Analytics Accelerator 5.1 and SPSS Modeler 17.1, the possibility exists to do the complete predictive model creation including data transformation within DB2 Analytics Accelerator. So, instead of moving the data to a distributed environment, algorithms can be pushed to the data, using cost-efficient DB2 Accelerator for the required resource-intensive operations. This IBM Redbooks® publication explains the overall z Systems architecture, how the components can be installed and customized, how the new IBM DB2 Analytics Accelerator loader can help efficient data loading for z Systems data and external data, how in-database transformation, in-database modeling, and in-transactional real-time scoring can be used, and what other related technologies are available. This book is intended for technical specialists and architects, and data scientists who want to use the technology on the z Systems platform. Most of the technologies described in this book require IBM DB2 for z/OS®. For acceleration of the data investigation, data transformation, and data modeling process, DB2 Analytics Accelerator is required. Most value can be achieved if most of the data already resides on z Systems platforms, although adding external data (like from social sources) poses no problem at all. Transforming data from operational data models to purpose-oriented data structures has been commonplace for the last decades. Data transformations are heavily used in all types of industries to provide information to various users at different levels. Depending on individual needs, the transformed data is stored in various different systems. Sending operational data to other systems for further processing is then required, and introduces much complexity to an existing information technology (IT) infrastructure. Although maintenance of additional

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hardware and software is one component, potential inconsistencies and individually managed refresh cycles are others. For decades, there was no simple and efficient way to perform data transformations on the source system of operational data. With IBM® DB2® Analytics Accelerator, DB2 for z/OS is now in a unique position to complete these transformations in an efficient and well-performing way. DB2 for z/OS completes these while connecting to the same platform as for operational transactions, helping you to minimize your efforts to manage existing IT infrastructure. Real-time analytics on incoming operational transactions is another demand. Creating a comprehensive scoring model to detect specific patterns inside your data can easily require multiple iterations and multiple hours to complete. By enabling a first set of analytical functionality in DB2 Analytics Accelerator, those dedicated mining algorithms can now be run on an accelerator to efficiently perform these modeling tasks. Given the speed of query processing on an accelerator, these modeling tasks can now be performed much quicker compared to traditional relational database management systems. This speed enables you to keep your scoring algorithms more up-to-date, and ultimately adapt more quickly to constantly changing customer behaviors. This IBM Redbooks® publication describes the new table type that is introduced with DB2 Analytics Accelerator V4.1 PTF5 that enables more efficient data transformations. These tables are called accelerator-only tables, and can exist on an accelerator only. The tables benefit from the accelerator performance characteristics, while maintaining access through existing DB2 for z/OS application programming interfaces (APIs). Additionally, we describe the newly introduced analytical capabilities with DB2 Analytics Accelerator V5.1, putting you in the position to efficiently perform data modeling for online analytical requirements in your DB2 for z/OS environment. This book is intended for technical

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decision-makers who want to get a broad understanding about the analytical capabilities and accelerator-only tables of DB2 Analytics Accelerator. In addition, you learn about how these capabilities can be used to accelerate in-database transformations and in-database analytics in various environments and scenarios, including the following scenarios: Multi-step processing and reporting in IBM DB2 Query Management Facility™, IBM Campaign, or Microstrategy environments In-database transformations using IBM InfoSphere® DataStage® Ad hoc data analysis for data scientists In-database analytics using IBM SPSS® Modeler

The IBM® DB2® Analytics Accelerator Version 3.1 for IBM z/OS® (simply called Accelerator in this book) is a union of the IBM System z® quality of service and IBM Netezza® technology to accelerate complex queries in a DB2 for z/OS highly secure and available environment.

Superior performance and scalability with rapid appliance deployment provide an ideal solution for complex analysis. In this IBM Redbooks® publication, we provide technical decision-makers with a broad understanding of the benefits of Version 3.1 of the Accelerator's major new functions. We describe their installation and the advantages to existing analytical processes as measured in our test environment. We also describe the IBM zEnterprise® Analytics System 9700, a hybrid System z solution offering that is surrounded by a complete set of optional packs to enable customers to custom tailor the system to their unique needs.. This book discusses the advanced databases for the cloud-based application known as NoSQL. It will explore the recent advancements in NoSQL database technology. Chapters on structured, unstructured and hybrid databases will be included to explore bigdata analytics, bigdata storage and processing. The book is likely to cover a wide range of topics such as cloud computing, social computing, bigdata and advanced databases processing techniques.

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This IBM® Redbooks® publication describes IBM PureApplication™ System preferred practices that are based on IBM client and Business Partner experience. It explains how PureApplication System enables industries to consolidate workloads, increase efficiency, automate routine processes, reduce costs, and become more agile to respond to continually changing business needs. This book is particularly useful to solution specialists, system or software architects, and the IT teams who implement PureApplication System cloud services.

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