
Data Integration For Real Time Data Warehousing And Data

Principles of Data Integration

Data Integrity and Quality

Customer Data Integration

Third International Workshop, BIRTE 2009, Held at the 35th International Conference on Very Large Databases, VLDB 2009, Lyon, France, August 24, 2009, Revised Selected Papers

Real-time Linked Dataspaces

Fundamentals of Software Integration

Data Integration Blueprint and Modeling

Pentaho Kettle Solutions

Principles of Database Management

Designing, Building, and Deploying Messaging Solutions

Enterprise Integration Patterns

13th European Conference on Technology Enhanced Learning, EC-TEL 2018, Leeds, UK, September 3-5, 2018, Proceedings

Enabling Real-Time Business Intelligence

4th International Conference, DaWaK 2002, Aix-en-Provence, France, September 4-6, 2002. Proceedings

InfoSphere DataStage for Enterprise XML Data Integration

Big Data Integration

The Practical Real-Time Enterprise

I Heart Logs

Data Virtualization for Business Intelligence Systems

Data Integration Best Practice Techniques and Technologies

Reaching a Single Version of the Truth

BIG DATA ANALYTICS

I Heart Logs
Business Intelligence for the Real-Time Enterprise
Data Warehousing and Knowledge Discovery
Skills, Requirements, and Solutions for Designing Integrations
Building Open Source ETL Solutions with Pentaho Data Integration
Proceedings of the 2016 International Conference on Automotive Engineering, Mechanical and Electrical Engineering (AEMEE 2016),
Hong Kong, China, December 9-11, 2016
Simulation of a Real-Time Local Data Integration System Over East-Central Florida
Practical Real-time Data Processing and Analytics
Efficient Joins to Process Stream Data
Techniques for a Scalable and Sustainable Architecture
Business Intelligence Guidebook
Enterprise Information Portals and Knowledge Management
From Data Integration to Analytics
Handbook of Research on Cloud Infrastructures for Big Data Analytics
Second International Workshop, BIRTE 2008, Auckland, New Zealand, August 24, 2008, Revised Selected Papers
GB/T 50609-2010
4th International Conference, ICICA 2013, Singapore, August 16-18, 2013. Revised Selected Papers, Part II

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Real Time Data
Warehousing And Data* *Downloaded from
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CASSIUS MELENDEZ

Principles of Data Integration Jones &
Bartlett Publishers

XML is one of the most common standards
for the exchange of information. However,
organizations find challenges in how to

address the complexities of dealing with
hierarchical data types, particularly as
they scale to gigabytes and beyond. In this
IBM® Redbooks® publication, we discuss
and describe the new capabilities in IBM
InfoSphere® DataStage® 8.5. These
capabilities enable developers to more
easily manage the design and processing
requirements presented by the most
challenging XML sources. Developers can

use these capabilities to create powerful
hierarchical transformations and to parse
and compose XML data with high
performance and scalability. Spanning
both batch and real-time run times, these
capabilities can be used to solve a broad
range of business requirements. As part of
the IBM InfoSphere Information Server 8.5
release, InfoSphere DataStage was
enhanced with new hierarchical

transformation capabilities called . XML Stage provides native XML schema support and powerful XML transformation functionality. These capabilities are based on a unique state-of-the-art technology that allows you to parse and compose any complex XML structure from and to a relational form, as well as to a separate hierarchical form. This book is targeted at an audience of systems designers and developers who focus on implementing XML integration support in their environments.

Data Integrity and Quality IBM Redbooks

The 2016 International Conference on Automotive Engineering, Mechanical and Electrical Engineering (AEMEE 2016) was held December 9-11, 2016 in Hong Kong, China. AEMEE 2016 was a platform for presenting excellent results and new challenges facing the fields of automotive, mechanical and electrical engineering. Automotive, Mechanical and Electrical Engineering brings together a wide range of contributions from industry and governmental experts and academics, experienced in engineering, design and research. Papers have been categorized

under the following headings: Automotive Engineering and Rail Transit Engineering. Mechanical, Manufacturing, Process Engineering. Network, Communications and Applied Information Technologies. Technologies in Energy and Power, Cell, Engines, Generators, Electric Vehicles. System Test and Diagnosis, Monitoring and Identification, Video and Image Processing. Applied and Computational Mathematics, Methods, Algorithms and Optimization. Technologies in Electrical and Electronic, Control and Automation. Industrial Production, Manufacturing, Management and Logistics.

Customer Data Integration Routledge
What is your real-time data integration metadata? Does the technology support real-time data uploads, routine data uploads, and ad hoc data uploads? When do you use batch data integration versus real-time data integration in a big data project? Are there special issues associated with real-time data integration and data warehousing? Does the system allow for decentralized real-time data entry? Defining, designing, creating, and implementing a process to solve a challenge or meet an objective is the most

valuable role... In EVERY group, company, organization and department. Unless you are talking a one-time, single-use project, there should be a process. Whether that process is managed and implemented by humans, AI, or a combination of the two, it needs to be designed by someone with a complex enough perspective to ask the right questions. Someone capable of asking the right questions and step back and say, 'What are we really trying to accomplish here? And is there a different way to look at it?' This Self-Assessment empowers people to do just that - whether their title is entrepreneur, manager, consultant, (Vice-)President, CxO etc... - they are the people who rule the future. They are the person who asks the right questions to make Real-time data investments work better. This Real-time data All-Inclusive Self-Assessment enables You to be that person. All the tools you need to an in-depth Real-time data Self-Assessment. Featuring 962 new and updated case-based questions, organized into seven core areas of process design, this Self-Assessment will help you identify areas in which Real-time data improvements can be made. In using the

questions you will be better able to: - diagnose Real-time data projects, initiatives, organizations, businesses and processes using accepted diagnostic standards and practices - implement evidence-based best practice strategies aligned with overall goals - integrate recent advances in Real-time data and process design strategies into practice according to best practice guidelines Using a Self-Assessment tool known as the Real-time data Scorecard, you will develop a clear picture of which Real-time data areas need attention. Your purchase includes access details to the Real-time data self-assessment dashboard download which gives you your dynamically prioritized projects-ready tool and shows your organization exactly what to do next. You will receive the following contents with New and Updated specific criteria: - The latest quick edition of the book in PDF - The latest complete edition of the book in PDF, which criteria correspond to the criteria in... - The Self-Assessment Excel Dashboard - Example pre-filled Self-Assessment Excel Dashboard to get familiar with results generation - In-depth and specific Real-time data Checklists -

Project management checklists and templates to assist with implementation INCLUDES LIFETIME SELF ASSESSMENT UPDATES Every self assessment comes with Lifetime Updates and Lifetime Free Updated Books. Lifetime Updates is an industry-first feature which allows you to receive verified self assessment updates, ensuring you always have the most accurate information at your fingertips. Third International Workshop, BIRTE 2009, Held at the 35th International Conference on Very Large Databases, VLDB 2009, Lyon, France, August 24, 2009, Revised Selected Papers 5starcooks Data integrity is the quality, reliability, trustworthiness, and completeness of a data set, providing accuracy, consistency, and context. Data quality refers to the state of qualitative or quantitative pieces of information. Over five sections, this book discusses data integrity and data quality as well as their applications in various fields. *Real-time Linked Dataspaces* Springer Nature "Customers are the heart of any business. But we can't succeed if we develop only one talk addressed to the 'average

customer.' Instead we must know each customer and build our individual engagements with that knowledge. If Customer Relationship Management (CRM) is going to work, it calls for skills in Customer Data Integration (CDI). This is the best book that I have seen on the subject. Jill Dyché is to be complimented for her thoroughness in interviewing executives and presenting CDI." -Philip Kotler, S. C. Johnson Distinguished Professor of International Marketing Kellogg School of Management, Northwestern University "In this world of killer competition, hanging on to existing customers is critical to survival. Jill Dyché's new book makes that job a lot easier than it has been." -Jack Trout, author, Differentiate or Die "Jill and Evan have not only written the definitive work on Customer Data Integration, they've made the business case for it. This book offers sound advice to business people in search of innovative ways to bring data together about customers-their most important asset-while at the same time giving IT some practical tips for implementing CDI and MDM the right way." -Wayne Eckerson, The Data Warehousing Institute

author of Performance Dashboards: Measuring, Monitoring, and Managing Your Business Whatever business you're in, you're ultimately in the customer business. No matter what your product, customers pay the bills. But the strategic importance of customer relationships hasn't brought companies much closer to a single, authoritative view of their customers. Written from both business and technical perspectives, Customer Data Integration shows companies how to deliver an accurate, holistic, and long-term understanding of their customers through CDI.

Fundamentals of Software Integration
Springer

Making Data Integration Work: How to Systematically Reduce Cost, Improve Quality, and Enhance Effectiveness Today's enterprises are investing massive resources in data integration. Many possess thousands of point-to-point data integration applications that are costly, undocumented, and difficult to maintain. Data integration now accounts for a major part of the expense and risk of typical data warehousing and business intelligence projects--and, as businesses increasingly

rely on analytics, the need for a blueprint for data integration is increasing now more than ever. This book presents the solution: a clear, consistent approach to defining, designing, and building data integration components to reduce cost, simplify management, enhance quality, and improve effectiveness. Leading IBM data management expert Tony Giordano brings together best practices for architecture, design, and methodology, and shows how to do the disciplined work of getting data integration right. Mr. Giordano begins with an overview of the "patterns" of data integration, showing how to build blueprints that smoothly handle both operational and analytic data integration. Next, he walks through the entire project lifecycle, explaining each phase, activity, task, and deliverable through a complete case study. Finally, he shows how to integrate data integration with other information management disciplines, from data governance to metadata. The book's appendices bring together key principles, detailed models, and a complete data integration glossary. Coverage includes implementing repeatable, efficient, and well-documented processes for integrating

data Lowering costs and improving quality by eliminating unnecessary or duplicative data integrations Managing the high levels of complexity associated with integrating business and technical data Using intuitive graphical design techniques for more effective process and data integration modeling Building end-to-end data integration applications that bring together many complex data sources [Data Integration Blueprint and Modeling](#) "O'Reilly Media, Inc."

The Applied Meteorology Unit (AMU) simulated a real-time configuration of a Local Data Integration System (LDIS) using data from 15-28 February 1999. The objectives were to assess the utility of a simulated real-time LDIS, evaluate and extrapolate system performance to identify the hardware necessary to run a real-time LDIS, and determine the sensitivities of LDIS. The ultimate goal for running LDIS is to generate analysis products that enhance short-range (less than 6 h) weather forecasts issued in support of the 45th Weather Squadron, Spaceflight Meteorology Group, and Melbourne National Weather Service operational requirements. The simulation

used the Advanced Regional Prediction System (ARPS) Data Analysis System (ADAS) software on an IBM RS/6000 workstation with a 67-MHz processor. This configuration ran in real-time, but not sufficiently fast for operational requirements. Thus, the AMU recommends a workstation with a 200-MHz processor and 512 megabytes of memory to run the AMU's configuration of LDIS in real-time. This report presents results from two case studies and several data sensitivity experiments. ADAS demonstrates utility through its ability to depict high-resolution cloud and wind features in a variety of weather situations. The sensitivity experiments illustrate the influence of disparate data on the resulting ADAS analyses. Case, Jonathan Kennedy Space Center REAL TIME OPERATION; NUMERICAL WEATHER FORECASTING; DATA INTEGRATION; COMPUTERIZED SIMULATION; METEOROLOGY; SYSTEM EFFECTIVENESS; WIND VELOCITY; WORKSTATIONS; GOES 8; DATA PROCESSING; HARDWARE; MESOSCALE PHENOMENA; FLORIDA; SPACE FLIGHT Pentaho Kettle Solutions CRC Press Designed for the students of B.E./B.Tech

(Computer Science and Engineering/IT), M.Sc (Computer Science), MCA, and M.Sc (Data Science), this textbook mainly focuses on issues and solutions concerned with data explosion problems. Without the prior knowledge of database world, the reader of this book can easily understand the evolution of database technology in handling big data. With a focus on the analytical theory to handle high dimensional data, this text also presents illustrations using analytical tool R. The role of real-time system architecture and platforms, Hadoop ecosystem components and NoSQL database MongoDB to handle big data is also elaborated. Each chapter ends with exercise problems and multiple-choice questions, which will motivate the readers to further analyse the applicability of concepts. DISTINCTIVE FEATURES • Worked out coding using R and MongoDB and related questions using these platforms • Various analytical techniques with sample data (such as clustering, classification, rough set theory, association rules) • Basics of real-time processing, issues and remedies • Several types of data, including time-series data, correlations among data and remedial

techniques to handle the issues raised in the underlying domain • Case studies/examples for in-depth understanding among the students TARGET AUDIENCE • B.E./B.Tech (Computer Science and Engineering/IT) • M.Sc (Computer Science/Data Science) • MCA

Principles of Database Management 5starcooks

How do you approach answering queries when your data is stored in multiple databases that were designed independently by different people? This is first comprehensive book on data integration and is written by three of the most respected experts in the field. This book provides an extensive introduction to the theory and concepts underlying today's data integration techniques, with detailed, instruction for their application using concrete examples throughout to explain the concepts. Data integration is the problem of answering queries that span multiple data sources (e.g., databases, web pages). Data integration problems surface in multiple contexts, including enterprise information integration, query processing on the Web,

coordination between government agencies and collaboration between scientists. In some cases, data integration is the key bottleneck to making progress in a field. The authors provide a working knowledge of data integration concepts and techniques, giving you the tools you need to develop a complete and concise package of algorithms and applications. Offers a range of data integration solutions enabling you to focus on what is most relevant to the problem at hand Enables you to build your own algorithms and implement your own data integration applications

Designing, Building, and Deploying Messaging Solutions Apress

Would you like to use a consistent visual notation for drawing integration solutions? "Look inside the front cover." Do you want to harness the power of asynchronous systems without getting caught in the pitfalls? "See "Thinking Asynchronously" in the Introduction." Do you want to know which style of application integration is best for your purposes? "See Chapter 2, Integration Styles." Do you want to learn techniques for processing messages concurrently? "See Chapter 10, Competing

Consumers and Message Dispatcher." Do you want to learn how you can track asynchronous messages as they flow across distributed systems? "See Chapter 11, Message History and Message Store." Do you want to understand how a system designed using integration patterns can be implemented using Java Web services, .NET message queuing, and a TIBCO-based publish-subscribe architecture? "See Chapter 9, Interlude: Composed Messaging." Utilizing years of practical experience, seasoned experts Gregor Hohpe and Bobby Woolf show how asynchronous messaging has proven to be the best strategy for enterprise integration success. However, building and deploying messaging solutions presents a number of problems for developers. "Enterprise Integration Patterns" provides an invaluable catalog of sixty-five patterns, with real-world solutions that demonstrate the formidable of messaging and help you to design effective messaging solutions for your enterprise. The authors also include examples covering a variety of different integration technologies, such as JMS, MSMQ, TIBCO ActiveEnterprise, Microsoft BizTalk, SOAP, and XSL. A case study

describing a bond trading system illustrates the patterns in practice, and the book offers a look at emerging standards, as well as insights into what the future of enterprise integration might hold. This book provides a consistent vocabulary and visual notation framework to describe large-scale integration solutions across many technologies. It also explores in detail the advantages and limitations of asynchronous messaging architectures. The authors present practical advice on designing code that connects an application to a messaging system, and provide extensive information to help you determine when to send a message, how to route it to the proper destination, and how to monitor the health of a messaging system. If you want to know how to manage, monitor, and maintain a messaging system once it is in use, get this book. 0321200683B09122003 [Enterprise Integration Patterns](#) Morgan & Claypool Publishers
A practical guide to help you tackle different real-time data processing and analytics problems using the best tools for each scenario About This Book Learn about the various challenges in real-time

data processing and use the right tools to overcome them This book covers popular tools and frameworks such as Spark, Flink, and Apache Storm to solve all your distributed processing problems A practical guide filled with examples, tips, and tricks to help you perform efficient Big Data processing in real-time Who This Book Is For If you are a Java developer who would like to be equipped with all the tools required to devise an end-to-end practical solution on real-time data streaming, then this book is for you. Basic knowledge of real-time processing would be helpful, and knowing the fundamentals of Maven, Shell, and Eclipse would be great. What You Will Learn Get an introduction to the established real-time stack Understand the key integration of all the components Get a thorough understanding of the basic building blocks for real-time solution designing Garnish the search and visualization aspects for your real-time solution Get conceptually and practically acquainted with real-time analytics Be well equipped to apply the knowledge and create your own solutions In Detail With the rise of Big Data, there is an increasing need to process large

amounts of data continuously, with a shorter turnaround time. Real-time data processing involves continuous input, processing and output of data, with the condition that the time required for processing is as short as possible. This book covers the majority of the existing and evolving open source technology stack for real-time processing and analytics. You will get to know about all the real-time solution aspects, from the source to the presentation to persistence. Through this practical book, you'll be equipped with a clear understanding of how to solve challenges on your own. We'll cover topics such as how to set up components, basic executions, integrations, advanced use cases, alerts, and monitoring. You'll be exposed to the popular tools used in real-time processing today such as Apache Spark, Apache Flink, and Storm. Finally, you will put your knowledge to practical use by implementing all of the techniques in the form of a practical, real-world use case. By the end of this book, you will have a solid understanding of all the aspects of real-time data processing and analytics, and will know how to deploy the solutions in

production environments in the best possible manner. Style and Approach In this practical guide to real-time analytics, each chapter begins with a basic high-level concept of the topic, followed by a practical, hands-on implementation of each concept, where you can see the working and execution of it. The book is written in a DIY style, with plenty of practical use cases, well-explained code examples, and relevant screenshots and diagrams.

13th European Conference on Technology Enhanced Learning, EC-TEL 2018, Leeds, UK, September 3-5, 2018, Proceedings BEIJING BOOK CO. INC.

In today's competitive and highly dynamic environment, analyzing data to understand how the business is performing, to predict outcomes and trends, and to improve the effectiveness of business processes underlying business operations has become critical. The traditional approach to reporting is no longer adequate, users now demand easy-to-use intelligent platforms and applications capable of analyzing real-time business data to provide insight and

actionable information at the right time. The end goal is to improve the enterprise performance by better and timelier decision making, - abled by the availability of up-to-date, high-quality information. As a response, the notion of "real-time enterprise" has emerged and is beginning to be recognized in the industry. Gartner defines it as "using up-to-date information, getting rid of delays, and using speed for competitive advantage is what the real-time enterprise is all about. . . Indeed, the goal of the real-time enterprise is to act on events as they happen. " Although there has been progress in this direction and many com- nies are introducing products toward making this vision a reality, there is still a long way to go. In particular, the whole lifecycle of business intelligence requires new techniques and methodologies capable of dealing with the new requirements imposed by the real-time enterprise.

Enabling Real-Time Business

Intelligence Managing Data in MotionData Integration Best Practice Techniques and Technologies Cloud Enterprise Architecture examines enterprise architecture (EA) in the context

of the surging popularity of Cloud computing. It explains the different kinds of desired transformations the architectural blocks of EA undergo in light of this strategically significant convergence. Chapters cover each of the contributing architectures of EA—business, information, application, integration, security, and technology—illustrating the current and impending implications of the Cloud on each. Discussing the implications of the Cloud paradigm on EA, the book details the perceptible and positive changes that will affect EA design, governance, strategy, management, and sustenance. The author ties these topics together with chapters on Cloud integration and composition architecture. He also examines the Enterprise Cloud, Federated Clouds, and the vision to establish the InterCloud. Laying out a comprehensive strategy for planning and executing Cloud-inspired transformations, the book: Explains how the Cloud changes and affects enterprise architecture design, governance, strategy, management, and sustenance Presents helpful information on next-generation Cloud computing Describes additional architectural types

such as enterprise-scale integration, security, management, and governance architectures This book is an ideal resource for enterprise architects, Cloud evangelists and enthusiasts, and Cloud application and service architects. Cloud center administrators, Cloud business executives, managers, and analysts will also find the book helpful and inspirational while formulating appropriate mechanisms and schemes for sound modernization and migration of traditional applications to Cloud infrastructures and platforms. *4th International Conference, DaWaK 2002, Aix-en-Provence, France, September 4-6, 2002. Proceedings* Springer Find the right people with the right skills. This book clarifies best practices for creating high-functioning data integration teams, enabling you to understand the skills and requirements, documents, and solutions for planning, designing, and monitoring both one-time migration and daily integration systems. The growth of data is exploding. With multiple sources of information constantly arriving across enterprise systems, combining these systems into a single, cohesive, and documentable unit has become more

important than ever. But the approach toward integration is much different than in other software disciplines, requiring the ability to code, collaborate, and disentangle complex business rules into a scalable model. Data migrations and integrations can be complicated. In many cases, project teams save the actual migration for the last weekend of the project, and any issues can lead to missed deadlines or, at worst, corrupted data that needs to be reconciled post-deployment. This book details how to plan strategically to avoid these last-minute risks as well as how to build the right solutions for future integration projects. What You Will Learn Understand the "language" of integrations and how they relate in terms of priority and ownership Create valuable documents that lead your team from discovery to deployment Research the most important integration tools in the market today Monitor your error logs and see how the output increases the cycle of continuous improvement Market across the enterprise to provide valuable integration solutions Who This Book Is For The executive and integration team leaders who are building the corresponding practice. It is also for

integration architects, developers, and business analysts who need additional familiarity with ETL tools, integration processes, and associated project deliverables.
InfoSphere DataStage for Enterprise XML Data Integration IGI Global Managing Data in Motion describes techniques that have been developed for significantly reducing the complexity of managing system interfaces and enabling scalable architectures. Author April Reeve brings over two decades of experience to present a vendor-neutral approach to moving data between computing environments and systems. Readers will learn the techniques, technologies, and best practices for managing the passage of data between computer systems and integrating disparate data together in an enterprise environment. The average enterprise's computing environment is comprised of hundreds to thousands computer systems that have been built, purchased, and acquired over time. The data from these various systems needs to be integrated for reporting and analysis, shared for business transaction processing, and converted from one

format to another when old systems are replaced and new systems are acquired. The management of the "data in motion" in organizations is rapidly becoming one of the biggest concerns for business and IT management. Data warehousing and conversion, real-time data integration, and cloud and "big data" applications are just a few of the challenges facing organizations and businesses today. Managing Data in Motion tackles these and other topics in a style easily understood by business and IT managers as well as programmers and architects. Presents a vendor-neutral overview of the different technologies and techniques for moving data between computer systems including the emerging solutions for unstructured as well as structured data types Explains, in non-technical terms, the architecture and components required to perform data integration Describes how to reduce the complexity of managing system interfaces and enable a scalable data architecture that can handle the dimensions of "Big Data"
Big Data Integration John Wiley & Sons
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The Practical Real-Time Enterprise

Springer Nature

Volume is indexed by Thomson Reuters CPCI-S (WoS). This work on the topic of automatic manufacturing systems consists of 302 peer-reviewed papers. The papers are grouped into ten chapters: Virtual Manufacturing and Sustainable Manufacturing; Digital Manufacture and Quality Monitoring; Systems Analysis and Industrial Engineering; Supply Chain and E-Commerce Systems; Computer-Aided Manufacturing Engineering; Mechatronics; Transmission and Control of Fluid; Mechanical Control and Information Processing Technology; Micro-Electronic Packaging Technology and Equipment; Computer Application Technology.

I Heart Logs Createspace Independent Publishing Platform

Managing Data in MotionData Integration Best Practice Techniques and TechnologiesNewnes

Data Virtualization for Business

Intelligence Systems Packt Publishing Ltd

The Internet has redefined how maps are used. No longer restricted to paper, maps are now transmitted almost instantly and delivered to the user in a fraction of the time required to distribute maps on paper. They are viewed in a more timely fashion. The Internet presents the map user with both a faster method of map distribution and different forms of mapping. This book provides an international perspective on this growing area of information dissemination.

Springer Science & Business Media

As the second volume of the "Digital Oil & Gas Pipeline: Research and Practice" series of monographs, this book introduces the implementation strategies, examples and technical roadmaps of two important aspects of the Digital Oil & Gas Pipeline construction: pipeline real-time data integration and pipeline network virtual reality system. Two example of pipeline real-time data integration are elaborated: integration of pipeline WebGIS (Geographic Information System) and pipeline SCADA (Supervisory Control and

Data Acquisition) via OPC (OLE for Process Control) technology, integration of pipeline network virtual reality system and pipeline SCADA via OPC, JNI (Java Native Interface) and SAI (Scene Access Interface). The pipeline network virtual reality system aims for the pipeline virtual expression, interaction, and 3D visual management. It can be used for pipeline route visual design and plan, immersive pipeline industry training, remote visual supervision and control, etc. The implementation details of the pipeline network virtual reality system, including 3D pipeline and terrain modeling with X3D (Extensible 3D) technology, improving large-scene display performance and speed in the network environment using LOD (Level of Detail) technology, interaction of virtual pipeline scenes, and pipeline 3D visual monitoring, are also introduced. The knowledge and experience delivered by this book will provide useful reference for the readers from the industries of oil & gas pipeline, GIS, Virtual Reality, industrial control, etc.

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