Smart Grid Infrastructure Networking

Communication Networks for Smart GridsGrid Networks2nd Iberian Grid Infrastructure Conference Proceedings, IBERGRID, Porto, Portugal, May 12-14, 2008Networking and Information Technology Research and DevelopmentGrid ComputingOracle Exadata RecipesThe Handbook of Computer Networks, Distributed Networks, Network Planning, Control, Management, and New Trends and ApplicationsDeveloping Infrastructure for Interconnecting Transportation Network and Electric GridNetwork Architectures, Management, and ApplicationsSmart Grid Infrastructure & NetworkingGrid and Cloud ComputingSmart Grid SecurityA Networking Approach to Grid ComputingSecurity and Privacy in Smart GridsAmbient Intelligence, Wireless Networking, and Ubiquitous ComputingEuropean Renewable Distributed Generation Infrastructure Study : Lessons Learned from Electricity Markets in Germany and SpainOracle Database 11g Oracle Real Application Clusters Handbook, 2nd EditionOracle Database 12c Release 2 Real Application Clusters Handbook: Concepts, Administration, Tuning & TroubleshootingTowards a Network of Atmospheric Cherenkov Detectors VIICERN Courier Kenneth C. Budka Franco Travostino Fernando Silva National Science and Technology Council (U.S.). Interagency Working Group on Information Technology Research and Development Nikolaos P. Preve John Clarke Hossein Bidgoli Seok Kim Krzysztof Iniewski Katarina Stanoevska Gilbert N. Sorebo Daniel Minoli Yang Xiao Athanasios Vasilakos K Gopalakrishnan K. Gopalakrishnan Bernard Degrange European Organization for Nuclear Research

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this book presents an application centric approach to the development of smart grid communication architecture the coverage includes in depth reviews of such cutting edge applications as advanced metering infrastructure distribution automation demand response and synchrophasors features examines a range of exciting utility applications made possible through smart grid evolution describes the core edge network architecture for smart grids introducing the concept of wans and fans explains how the network design paradigm for smart grids differs from that for more established data networks and discusses network security in smart grids provides an overview of communication network technologies for wans and fans covering opgw plc and lte and mpls technology investigates secure data centric data management and data analytics for smart grids discusses the transformation of a network from conventional modes of utility operation to an integrated network based on the smart grid architecture framework

a book that bridges the gap between the communities of network and grid experts grid networks describes the convergence of advanced networking technologies and grid technologies with special focus on their symbiotic relationship and the resulting new opportunities grid technology is applicable to many implementations computational grids data grids service grids and instrumentation grids the authors cover a breadth of topics including recent research featuring both theoretical concepts and empirical results beginning with an overview of grid technologies an analysis of distinguishing use cases and architectural attributes and emerging standards travostino et al discuss new directions in multiple networking technologies that are enabling enhanced capabilities for grids an appendix also provides an overview of experimental research test beds and prototype implementations these topics will enable network experts to design networks to best match grid requirements while grid experts will learn how to effectively utilize network resources grid networks enabling grids with advanced communication technology bridges the gap between the communities of network and grid experts covers new network requirements posed by the grid and the paradigm shifts prompted by grid applications discusses basic architectural concepts and directions related to the integration of grid and networking technologies especially those that elevate network resources to first class entities within grid environments details new directions in networking technologies for the grid including network infrastructure management service provisioning high performance data transport performance monitoring reliability and network assisted service frameworks provides an overview of advanced research testbeds and innovative early implementations of emerging architecture and technology many communities will find this book an invaluable resource including engineers and product managers research scientists within academia industry

and government agencies advanced students and faculty in distributed systems courses network and systems architects cios administrators of advanced networks application developers and providers of next generation distributed services

ibergrid 2008 is the second edition of a series of iberian grid infrastructure conferences initiated in 2007 under the framework of the bilateral agreement for science and technology signed in november 2003 between portugal and spain aiming to leverage the construction of a common iberian grid infrastructure and to foster cooperation in the fields of grid computing and supercomputing this book is the final outcome of ibergrid 2008 the 2nd iberian grid infrastructure conference it is aimed at an audience of academics researchers students industry specialists and practitioners in all branches of knowledge sharing a common need that is powerful computing visualization and or storage resources this community will benefit from the iberian grid infrastructure being implemented as it will provide easy and secure access to a larger and more powerful set of distributed resources

this book presents research from many of the major projects involved in the emerging global grid infrastructure with a particular focus on the practical advantages and applications of grid computing including real case studies the book provides an in depth study of grid technology for a wide range of different needs topics examines a remote instrumentation infrastructure and a methodology to support e science applications on e infrastructures describes the gems storage system and pipeline workflows for optimizing end to end performance in wide area networks investigates semantic grid system architecture social grid agents and monitoring platforms designed for large scale distributed systems explores job control using service level agreements introduces the composable services architecture for dynamic service provisioning and the semantically driven communication middleware platform phoenix discusses the phylogrid application and a numerical simulation performed using grid computing

oracle exadata recipes takes an example based problem solution approach in showing how to size install configure manage monitor optimize and migrate oracle database workloads on and to the oracle exadata database machine whether you re an oracle database administrator unix linux administrator storage administrator network administrator or oracle developer oracle exadata recipes provides effective and proven solutions to accomplish a wide variety of tasks on the exadata database machine you can feel confident using the reliable solutions that are demonstrated in this book in your enterprise exadata environment managing oracle exadata is unlike managing a traditional oracle database oracle s exadata database machine is a pre configured engineered system comprised of hardware and software built to deliver extreme performance for oracle database workloads exadata delivers extreme performance by offering an optimally balanced hardware infrastructure with fast components at each layer of the engineered technology stack as well as a unique set of oracle software features designed to leverage

the high performing hardware infrastructure by reducing i o demands let oracle exadata recipes help you translate your existing oracle database knowledge into the exciting new growth area that is oracle exadata helps extend your oracle database skillset to the fast growing exadata platform presents information on managing exadata in a helpful example based format clearly explains unique exadata software and hardware features what you ll learn install and configure exadata manage your exadata hardware infrastructure monitor and troubleshoot performance issues manage smart scan and cell offload processing take advantage of hybrid columnar compression deploy smart flash cache and smart flash logging ensure the health of your exadata environment who this book is for oracle exadata recipes is for oracle database administrators unix linux administrators storage administrators backup administrators network administrators and oracle developers who want to quickly learn to develop effective and proven solutions without reading through a lengthy manual scrubbing for techniques readers in a hurry will appreciate the recipe format that sets up solutions to common tasks as the centerpiece of the book table of contents exadata hardware exadata software how oracle works on exadata workload qualification sizing exadata preparing for exadata administration and diagnostics utilities backup and recovery storage administration network administration patching and upgrades security monitoring exadata storage cells host and database performance monitoring smart scan and cell offload hybrid columnar compression i o resource management and instance caging smart flash cache and smart flash logging storage indexes post installation monitoring tasks post install database tasks

the handbook of computer networks is the third set of reference books from leading author and professor of management information systems at california state university bakersfield hossein bidgoli the handbook of computer networks is designed to arm researchers practitioners students and managers with in depth understanding of this important and fast growing field in its broadest scope and in an applied and functional framework each volume incorporates state of the art core information and networking topics practical applications and coverage of the emerging issues in the computer networking and data communications fields

a complete guide to smart grid networking and communications for energy engineers with contributions from more than 30 experts smart grid infrastructure networking describes cutting edge technologies for connecting the electrical power infrastructure to modern computerized communications networks the book offers essential information on standardization applications protocols automation architecture and management key topics such as bidirectional communication automation renewable energy integration wireless sensor networks and more are discussed in this practical comprehensive resource coverage includes demand side energy management the modernization of distribution automation featuring intelligent fdir and volt var optimization advanced asset management wide area early warning systems the integration of renewable energy sources into smart

grids the microgrid in the electric system transformation enhancing the integration of renewables in radial distribution networks through smart links voltage based control of dg units and active loads in smart microgrids electric vehicles in a smart grid environment low voltage dc grid powered led lighting system with smart ambient sensor control for energy conservation in green building multiple distributed smart microgrids with a self autonomous energy harvesting wireless sensor network wireless sensor networks for consumer applications in the smart grid zigbee based wireless monitoring and control system for smart grids

in today s dynamic business environment it departments are under permanent pressure to meet two divergent requirements to reduce costs and to support business agility with higher flexibility and responsiveness of the it infrastructure grid and cloud computing enable a new approach towards it they enable increased scalability and more efficient use of it based on virtualization of heterogeneous and distributed it resources this book provides a thorough understanding of the fundamentals of grids and clouds and of how companies can benefit from them a wide array of topics is covered e g business models and legal aspects the applicability of grids and clouds in companies is illustrated with four cases of real business experiments the experiments illustrate the technical solutions and the organizational and it governance challenges that arise with the introduction of grids and clouds practical guidelines on how to successfully introduce grids and clouds in companies are provided

the smart grid has the potential to revolutionize electricity delivery systems and the security of its infrastructure is a vital concern not only for cyber security practitioners engineers policy makers and utility executives but also for the media and consumers smart grid security an end to end view of security in the new electrical grid explores the important techniques challenges and forces that will shape how we achieve a secure twenty first century electric grid includes a foreword by michael assante president and ceo national board of information security examiners following an overview of the components of the smart grid the book delves into the evolution of security standards and regulations and examines ways in which the smart grid might be regulated the authors discuss the technical details about how metering technology is being implemented and the likely threats and vulnerabilities that utilities will face they address the home area network han and examine distribution and transmission the foundation for the delivery of electricity along with distributed generation micro grids and operations the book explores future concepts such as energy storage and the use of plug in electric vehicles pevs in addition to the concomitant risk for fraud and manipulation with stored energy consumer related issues are discussed as they pertain to emerging ways of receiving and generating energy the book examines dysfunctions ranging from inadvertent outages to cyber attack and presents recommendations on how to respond to these incidents it concludes with speculation of future cyber security challenges and discusses new ways that the grid can

be defended such as better key management and protection written in a style rigorous enough for the practitioner yet accessible to a broad audience this comprehensive volume covers a topic that is becoming more critical to industry and consumers everywhere

explores practical advantages of grid computing and what is needed by an organization to migrate to this new computing paradigm this self contained reference makes both the concepts and applications of grid computing clear and understandable to even non technical managers explains the underlying networking mechanism and answers such questions critical to the business enterprise as what is grid computing how widespread is its present potential penetration is it ready for prime time are there firm standards is it secure how do we bill this new product and how can we deploy it at a macro level

presenting the work of prominent researchers working on smart grids and related fields around the world security and privacy in smart grids identifies state of the art approaches and novel technologies for smart grid communication and security it investigates the fundamental aspects and applications of smart grid security and privacy and reports on the latest advances in the range of related areas making it an ideal reference for students researchers and engineers in these fields the book explains grid security development and deployment and introduces novel approaches for securing today s smart grids supplying an overview of recommendations for a technical smart grid infrastructure the book describes how to minimize power consumption and utility expenditure in data centers it also details the challenges of cybersecurity for smart grid communication infrastructures covers the regulations and standards relevant to smart grid security explains how to conduct vulnerability assessments for substation automation systems considers smart grid automation scada system security and smart grid security in the last mile the book s chapters work together to provide you with a framework for implementing effective security through this growing system numerous figures illustrations graphs and charts are included to aid in comprehension with coverage that includes direct attacks smart meters and attacks via networks this versatile reference presentsactionable suggestions you can put to use immediately to prevent such attacks

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