

# Dod Architecture Framework 20 A Guide To Applying Systems Engineering To Develop Integrated Executable Architectures

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**Achieving Interoperability in Critical IT and Communication Systems** Robert I. Desourdis 2009 Supported by over 90 illustrations, this unique book provides a detailed examination of the subject, focusing on the use of voice, data, and video systems for public safety and emergency response. This practical resource makes in-depth recommendations spanning technical, planning, and procedural approaches to provide efficient public safety response performance. You find covered the many approaches used to achieve interoperability, including a synopsis of the enabling technologies and systems intended to provide radio interoperability. Featuring specific examples nationwide, the book takes you from strategy to proper implementation, using enterprise architecture, systems engineering, and systems integration planning.

**FISMA and the Risk Management Framework** Stephen D. Gantz 2012-12-31 FISMA and the Risk Management Framework: The New Practice of Federal Cyber Security deals with the Federal Information Security Management Act (FISMA), a law that provides the framework for securing information systems and managing risk associated with information resources in federal government agencies. Comprised of 17 chapters, the book explains the FISMA legislation and its provisions, strengths and limitations, as well as the expectations and obligations of federal agencies subject to FISMA. It also discusses the processes and activities necessary to implement effective information security management following the passage of FISMA, and it describes the National Institute of Standards and Technology's Risk Management Framework. The book looks at how information assurance, risk management, and information systems security is practiced in federal government agencies; the three primary documents that make up the security authorization package: system security plan, security assessment report, and plan of action and milestones; and federal information security-management requirements and initiatives not explicitly covered by FISMA. This book will be helpful to security officers, risk managers, system owners, IT managers, contractors, consultants, service providers, and others involved in securing, managing, or overseeing federal information systems, as well as the mission functions and business processes supported by those systems. Learn how to build a robust, near real-time risk management system and comply with FISMA Discover the changes to FISMA compliance and beyond Gain your systems the authorization they need

**Enterprise Architecture at Work** Marc Lankhorst 2017-03-10 Lankhorst and his co?authors present ArchiMate® 3.0, enterprise modelling language that captures the complexity of architectural domains and their relations and allows the construction of integrated enterprise architecture models. They provide architects with concrete instruments that improve their architectural practice. As this is not enough, they additionally present techniques and heuristics for communicating with all relevant stakeholders about these architectures. Since an architecture model is useful not only for providing insight into the current or future situation but can also be used to evaluate the transition from 'as?is' to 'to?be', the authors also describe analysis methods for assessing both the qualitative impact of changes to an architecture and the quantitative aspects of architectures, such as performance and cost issues. The modelling language presented has been proven in practice in many real?life case studies and has been adopted by The Open Group as an international standard. So this book is an ideal companion for enterprise IT or business architects in industry as well as for computer or management science students studying the field of enterprise architecture. This fourth edition of the book has been completely reworked to be compatible with ArchiMate® 3.0, and it includes a new chapter relating this new version to other standards. New sections on capability analysis, risk analysis, and business architecture in general have also been introduced.

**Emerging Trends in ICT Security** Babak Akhgar 2013-11-06 Emerging Trends in ICT Security, an edited volume, discusses the foundations and theoretical aspects of ICT security; covers trends, analytics, assessments and frameworks necessary for performance analysis and evaluation; and gives you the state-of-the-art knowledge needed for successful deployment of security solutions in many environments.

Application scenarios provide you with an insider's look at security solutions deployed in real-life scenarios, including but limited to smart devices, biometrics, social media, big data security, and crowd sourcing. Provides a multidisciplinary approach to security with coverage of communication systems, information mining, policy making, and management infrastructures Discusses deployment of numerous security solutions, including, cyber defense techniques and defense against malicious code and mobile attacks Addresses application of security solutions in real-life scenarios in several environments, such as social media, big data and crowd sourcing

**Scientific and Technical Aerospace Reports** 1995

**Systems Engineering in Context** Stephen Adams 2019-06-21 This volume chronicles the 16th Annual Conference on System Engineering Research (CSER) held on May 8-9, 2018 at the University of Virginia, Charlottesville, Virginia, USA. The CSER offers researchers in academia, industry, and government a common forum to present, discuss, and influence systems engineering research. It provides access to forward?looking research from across the globe, by renowned academicians as well as perspectives from senior industry and government representatives. Co?founded by the University of Southern California and Stevens Institute of Technology in 2003, CSER has become the preeminent event for researchers in systems engineering across the globe. Topics include though are not limited to the following: Systems in context: · Formative methods: requirements · Integration, deployment, assurance · Human Factors · Safety and Security Decisions/ Control & Design; Systems Modeling: · Optimization, Multiple Objectives, Synthesis · Risk and resiliency · Collaborative autonomy · Coordination and distributed decision-making Prediction: · Prescriptive modeling; state estimation · Stochastic approximation, stochastic optimization and control Integrative Data engineering: · Sensor Management · Design of Experiments

**Official (ISC)2 Guide to the ISSAP CBK (ISC)2 Corporate** 2017-01-06 Candidates for the CISSP-ISSAP professional certification need to not only demonstrate a thorough understanding of the six domains of the ISSAP CBK, but also need to have the ability to apply this in-depth knowledge to develop a detailed security architecture. Supplying an authoritative review of the key concepts and requirements of the ISSAP CBK, the Official (ISC)2® Guide to the ISSAP® CBK®, Second Edition provides the practical understanding required to implement the latest security protocols to improve productivity, profitability, security, and efficiency. Encompassing all of the knowledge elements needed to create secure architectures, the text covers the six domains: Access Control Systems and Methodology, Communications and Network Security, Cryptology, Security Architecture Analysis, BCP/DRP, and Physical Security Considerations. Newly Enhanced Design – This Guide Has It All! Only guide endorsed by (ISC)2 Most up-to-date CISSP-ISSAP CBK Evolving terminology and changing requirements for security professionals Practical examples that illustrate how to apply concepts in real-life situations Chapter outlines and objectives Review questions and answers References to free study resources Read It. Study It. Refer to It Often. Build your knowledge and improve your chance of achieving certification the first time around. Endorsed by (ISC)2 and compiled and reviewed by CISSP-ISSAPs and (ISC)2 members, this book provides unrivaled preparation for the certification exam and is a reference that will serve you well into your career. Earning your ISSAP is a deserving achievement that gives you a competitive advantage and makes you a member of an elite network of professionals worldwide.

**Service Science and Knowledge Innovation** Kecheng Liu 2014-04-28 This book constitutes the refereed proceedings of the 15th IFIP WG 8.1 International Conference on Informatics and Semiotics in Organisations, ICISO 2014, held in Shanghai, China, in May 2014. The 39 revised papers presented at the main conference were carefully reviewed and selected from 88 submissions. Additionally, 10 papers were selected for presentation at two workshops held in the framework of ICISO 2014. The papers have been organized in the following topical sections: organizational semiotics: theory and concepts; organizational semiotics and applications; finance and service science; enterprise architecture; modelling and simulation and decision making and knowledge management. The last two sections contain papers from the Workshop on e-Health, the New Frontier of Service Science Innovation and the International Workshop on Information Engineering and Management.

**Civil Aircraft Electrical Power System Safety Assessment** Peng Wang 2017-06-12 Civil Aircraft Electrical Power System Safety Assessment: Issues and Practices provides guidelines and methods for conducting a safety assessment process on civil airborne systems and equipment. As civil aircraft electrical systems become more complicated, electrical wiring failures have become a huge concern in industry and government—especially on aging platforms. There have been several accidents (most recently battery problems on the Boeing 777) with some of these having a relationship to wiring and power generation. Featuring a case study on the continuous safety assessment process of the civil airborne electrical power system, this book addresses problems, issues and troubleshooting techniques such as single event effects (SEE), the failure effects of electrical wiring interconnection systems (EWIS), formal theories and safety analysis methods in civil aircrafts. Introduces how to conduct assignment of development assurance levels for the electrical power system Includes safety assessments of aging platforms and their respective Electrical Wiring Interconnection System (EWIS) Features material on failure mechanisms for wiring systems and discussion of Failure Modes and Effects Analysis (FMEA) sustainment

**Information technology architecture needed to guide modernization of DOD's financial operations.**

**DOD business systems modernization important progress made in establishing foundational architecture products and investment management practices, but much work remains : report to congressional committees.**

**The SIM Guide to Enterprise Architecture** Leon Kappelman 2011-06-03 Enterprise architecture is leading IT's way to the executive boardroom, as CIOs are now taking their place at the management table. Organizations investing their time, money, and talent in enterprise architecture (EA) have realized significant process improvement and competitive advantage. However, as these organizations discovered, it is one thing to acquire a game-changing technology but quite another to discover ways to use it well. A project of the Society for Information Management's Enterprise Architecture Working Group and edited by Leon A. Kappelman, The SIM Guide to Enterprise Architecture provides insights from leading authorities on EA, including John Zachman, Larry DeBoever, George Paras, Jeanne Ross, and Randy Hite. The book supplies a solid understanding of key concepts for effectively leveraging EA to redesign business processes, integrate services, and become an Information Age enterprise. Beginning with a look at current theory and frameworks, the book discusses the practical application of enterprise architecture and includes a wealth of best practices, resources, and references. It contains the SIM survey of IT organizations' EA activities, which provides important metrics for evaluating progress and success. Successful businesses exploit synergy among business functions and push the boundaries of process design. IT's cross-functional position uniquely qualifies it to lead process innovation. EA lets CIOs integrate technology with business vision and is the roadmap for implementing new systems, changing behavior, and driving value. This book explores the vision, foundation, and enabling technology required to successfully transform organizations with enterprise architecture.

**Model-Driven-Configuration-Management** Sebastian Herden 2012-12-02 Sebastian Herden präsentiert das Konzept des Model-Driven-Configuration-Managements (MDCM) zur Schließung der identifizierten semantischen Lücke zwischen Unternehmensarchitektur und IT-Konfiguration. Die grundlegende Idee des vorgestellten MDCM-Konzepts zur nahtlosen Integration von Enterprise-Architecture-Management und IT-Konfigurationsmanagement im IT-Betrieb ist es, einen Model-Driven-Engineering-Ansatz zu entwickeln. Das Ziel des MDCM ist neben der Ausrichtung der resultierenden IT-Konfiguration an den Geschäftsprozessen eines Unternehmens und der nachvollziehbaren und transparenten Gestaltung die Unabhängigkeit der Qualität von individuellem Wissen.

**ICCSW 2018 13th International Conference on Cyber Warfare and Security** 2018-03-08 These proceedings represent the work of researchers participating in the 13th International Conference on Cyber Warfare and Security (ICCSW 2018) which is being hosted this year by the National Defense University in Washington DC, USA on 8-9 March 2018.

**Combat Identification Systems** United States. General Accounting Office 2001

**Information and Knowledge Management in Complex Systems** Kecheng Liu 2015-03-16 This book constitutes the refereed proceedings of the 16th IFIP WG 8.1 International Conference on Informatics and Semiotics in Organisations, ICISO 2015, held in Toulouse, France, in March 2015. The 21 revised papers presented were carefully reviewed and selected from 46 submissions. The papers are organized in the following topical sections: organisational semiotics: theory and concepts; organisational semiotics and applications; information systems and services; complex system modeling and simulation; and innovation and organisational learning.

**INCOSE Systems Engineering Handbook** INCOSE 2015-06-12 A detailed and thorough reference on the discipline and practice of systems engineering The objective of the International Council on Systems Engineering (INCOSE) Systems Engineering Handbook is to describe key process activities performed by systems engineers and other engineering professionals throughout the life cycle of a system. The book covers a wide range of fundamental system concepts that broaden the thinking of the systems engineering practitioner, such as system thinking, system science, life cycle management, specialty engineering, system of systems, and agile and iterative methods. This book also defines the discipline and practice of systems engineering for students and practicing professionals alike, providing an authoritative reference that is acknowledged worldwide. The latest edition of the INCOSE Systems Engineering Handbook: Is consistent with ISO/IEC/IEEE 15288:2015 Systems and software engineering—System life cycle processes and the Guide to the Systems Engineering Body of Knowledge (SEBoK) Has been updated to include the latest concepts of the INCOSE working groups Is the body of knowledge for the INCOSE Certification Process This book is ideal for any engineering professional who has an interest in or needs to apply systems engineering practices. This includes the experienced systems engineer who needs a convenient reference, a product engineer or engineer in another discipline who needs to perform systems engineering, a new systems engineer, or anyone interested in learning more about systems engineering.

**Building the FirstNet Public Safety Broadband Network** Robert I. Desourdis, Jr. 2015-03-01 This new resource explains the critical steps involved in planning, designing, implementing, and sustaining the FirstNet (public safety) LTE network. Wireless network planners, engineers, and managers are presented with emerging broadband technologies and their immediate impact on FirstNet planning, such as LTE access-class mechanisms and digital television datacasting in its complementary role to LTE.

**Financial management DOD improvement plan needs strategic focus.**

**Systems Engineering Principles and Practice** Alexander Kossiakoff 2020-07-28 A comprehensive and interdisciplinary guide to systems engineering Systems Engineering: Principles and Practice, 3rd Edition is the leading interdisciplinary reference for systems engineers. The up-to-date third edition provides readers with discussions of model-based systems engineering, requirements analysis, engineering design, and software design. Freshly updated governmental and commercial standards, architectures, and processes are covered in-depth. The book includes newly updated topics on: · Risk · Prototyping · Modeling and

simulation · Software/computer systems engineering Examples and exercises appear throughout the text, allowing the reader to gauge their level of retention and learning. Systems Engineering: Principles and Practice was and remains the standard textbook used worldwide for the study of traditional systems engineering. The material is organized in a manner that allows for quick absorption of industry best practices and methods. Throughout the book, best practices and relevant alternatives are discussed and compared, encouraging the reader to think through various methods like a practicing systems engineer.

Enterprise, Business-Process and Information Systems Modeling Selmin Nurcan 2020-05-28 This book contains the proceedings of two long-running events held along with the CAISE conference relating to the areas of enterprise, business-process and information systems modeling: \* the 21st International Conference on Business Process Modeling, Development and Support, BPMDS 2020, and \* the 25th International Conference on Exploring Modeling Methods for Systems Analysis and Development, EMMSAD 2020. The conferences were planned to take place in Grenoble, France, during June 8–9, 2020. They were held virtually due to the COVID-19 pandemic. For BPMDS 13 full papers and 1 short paper were carefully reviewed and selected for publication from a total of 30 submissions; for EMMSAD 11 full papers and 4 short papers were accepted from 29 submissions. The papers were organized in topical sections named as follows: BPMDS: Business process execution and monitoring, BPM applications in industry and practice, planning and scheduling in business processes, process mining, process models and visualizations EMMSAD: Requirements and method engineering, enterprise and business modeling, software-related modeling, domain-specific modeling, evaluation-related research.

Information Quality in Information Fusion and Decision Making Éloi Bossé 2019-04-02 This book presents a contemporary view of the role of information quality in information fusion and decision making, and provides a formal foundation and the implementation strategies required for dealing with insufficient information quality in building fusion systems for decision making. Information fusion is the process of gathering, processing, and combining large amounts of information from multiple and diverse sources, including physical sensors to human intelligence reports and social media. That data and information may be unreliable, of low fidelity, insufficient resolution, contradictory, fake and/or redundant. Sources may provide unverified reports obtained from other sources resulting in correlations and biases. The success of the fusion processing depends on how well knowledge produced by the processing chain represents reality, which in turn depends on how adequate data are, how good and adequate are the models used, and how accurate, appropriate or applicable prior and contextual knowledge is. By offering contributions by leading experts, this book provides an unparalleled understanding of the problem of information quality in information fusion and decision-making for researchers and professionals in the field.

Emerging Trends in ICT Security Logan O. Mailloux 2013-11-06 This chapter discusses the problematic intersection of risk management, mission assurance, security, and information systems through the illustrative example of the United States (US) Department of Defense (DoD). A concise history of systems security engineering (SSE) is provided with emphasis on recent revitalization efforts. Next, a review of established and emerging SSE methods, processes, and tools (MPT) frequently used to assess and manage critical shortfalls in the development and fielding of complex information-centric systems is provided. From this review, a common theme emerges—the need for a holistic multidisciplinary approach that addresses people, processes, and technologies to manage system complexity, while providing cost-effective security solutions through the use of established systems engineering techniques. Multiple cases and scenarios that promote the discovery and shared understanding of security solutions for complex systems by those trained in the art and science of systems engineering, information security, and risk management are demonstrated.

Research Challenges in Modeling and Simulation for Engineering Complex Systems Richard Fujimoto 2017-08-18 This illuminating text/reference presents a review of the key aspects of the modeling and simulation (M&S) life cycle, and examines the challenges of M&S in different application areas. The authoritative work offers valuable perspectives on the future of research in M&S, and its role in engineering complex systems. Topics and features: reviews the challenges of M&S for urban infrastructure, healthcare delivery, automated vehicle manufacturing, deep space missions, and acquisitions enterprise; outlines research issues relating to conceptual modeling, covering the development of explicit and unambiguous models, communication and decision-making, and architecture and services; considers key computational challenges in the execution of simulation models, in order to best exploit emerging computing platforms and technologies; examines efforts to understand and manage uncertainty inherent in M&S processes, and how these can be unified under a consistent theoretical and philosophical foundation; discusses the reuse of models and simulations to accelerate the simulation model development process. This thought-provoking volume offers important insights for all researchers involved in modeling and simulation across the full spectrum of disciplines and applications, defining a common research agenda to support the entire M&S research community.

Engineering Principles of Combat Modeling and Distributed Simulation Andreas Tolk 2012-02-14 Explore the military and combat applications of modeling and simulation Engineering Principles of Combat Modeling and Distributed Simulation is the first book of its kind to address the three perspectives that simulation engineers must master for successful military and defense related modeling: the operational view (what needs to be modeled); the conceptual view (how to do combat modeling); and the technical view (how to conduct distributed simulation). Through methods from the fields of operations research, computer science, and engineering, readers are guided through the history, current training practices, and modern methodology related to combat modeling and distributed simulation systems. Comprised of contributions from leading international researchers and practitioners, this book provides a comprehensive overview of the engineering principles and state-of-the-art methods needed to address the many facets of combat modeling and distributed simulation and features the following four sections: Foundations introduces relevant topics and recommended practices, providing the needed basis for understanding the challenges associated with combat modeling and distributed simulation. Combat Modeling focuses on the challenges in human, social, cultural, and behavioral modeling such as the core processes of "move, shoot, look, and communicate" within a synthetic environment and also equips readers with the knowledge to fully understand the related concepts and limitations. Distributed Simulation introduces the main challenges of advanced distributed simulation, outlines the basics of validation and verification, and exhibits how these systems can support the operational environment of the warfighter. Advanced Topics highlights new and developing special topic areas, including mathematical applications to combat modeling; combat modeling with high-level architecture and base object models; and virtual and interactive digital worlds. Featuring practical examples and applications relevant to industrial and government audiences, Engineering Principles of Combat Modeling and Distributed Simulation is an excellent resource for researchers and practitioners in the fields of operations research, military modeling, simulation, and computer science. Extensively classroom tested, the book is also ideal for courses on modeling and simulation; systems engineering; and combat modeling at the graduate level.

Complex Systems Design & Management Daniel Krob 2021-04-09 This book contains all refereed papers accepted during the fourth Asia-Pacific edition & twelve edition – which were merged this year – of the CSD&M conference that took place in Beijing, People's Republic of China by 2021. Mastering complex systems requires an integrated understanding of industrial practices as well as sophisticated theoretical techniques and tools. This explains the creation of an annual go-between European and Asian forum dedicated to academic researchers & industrial actors working on complex industrial systems architecting, modeling & engineering. These proceedings cover the most recent trends in the emerging field of complex systems, both from an academic and professional perspective. A special focus was put this year on "Digital Transformation in Complex Systems Engineering". CESAM Community The CSD&M series of conferences are organized under the guidance of CESAM Community, managed by CESAMES. CESAM Community aims in organizing the sharing of good practices in systems architecting and model-based systems engineering (MBSE) and certifying the level of knowledge and proficiency in this field through the CESAM certification. The CESAM systems architecting & model-based systems engineering (MBSE) certification is especially currently the most disseminated professional certification in the world in this domain through more than 1,000 real complex system development projects on which it was operationally deployed and around 10,000 engineers who were trained on the CESAM framework at international level.

Complex Engineering Service Systems Irene Ng 2011-07-02 For manufacturers of complex engineering equipment, the focus on service and achieving outcomes for customers is the key to growth. Yet, the capability to provide service for complex engineered products is less understood. Taking a trans-disciplinary approach, Complex Engineering Service Systems covers various aspects of service in complex engineering systems, with perspectives from engineering, management, design, operations research, strategy, marketing and operations management that are relevant to different disciplines, organisation functions, and geographic locations. The focus is on the many facets of complex engineering service systems around a core integrative framework of three value transformations – that of material/equipment, information and people. Complex Engineering Service Systems is the outcome of the EPSRC/BAE Systems S4T (Service Support Solutions: Strategy and Transition) research programme of 10 universities and 27 researchers, which examined how high-value manufacturers of complex engineering products adapt to a multi-partnered environment to design and deliver value in a service system. Complex Engineering Service Systems aims to be the main source of knowledge for academics and professionals in the research and practice of contracting, managing, designing, leading, and delivering complex engineering service systems. The book takes a value-based approach to integrating equipment and human factors into a total service provision. In doing so, it aims to advance the field of service systems and engineering.

Official (ISC)2® Guide to the CISSP®-ISSEP® CBK® Susan Hansche 2005-09-29 The Official (ISC)2 Guide to the CISSP-ISSEP CBK provides an inclusive analysis of all of the topics covered on the newly created CISSP-ISSEP Common Body of Knowledge. The first fully comprehensive guide to the CISSP-ISSEP CBK, this book promotes understanding of the four ISSEP domains: Information Systems Security Engineering (ISSE); Certification

DoD Architecture Framework 2.0 Steven H. Dam 2015-01-22 DoD Architecture Framework 2.0: A Guide to Applying System Engineering to Develop Integrated, Executable Architectures is designed to establish a clear understanding of the DoDAF and its purpose, and advance the readers' skills in applying systems engineering to the DoDAF. Readers will understand what tools, processes, and techniques make a good methodology. The author divided the book into two sections to give particular attention to both Theory and Practical Application. The Practical Application section of the book will allow readers to take their knowledge of the DoDAF and develop their ability to execute architectures.

Cloud Computing for Enterprise Architectures Zaigham Mahmood 2011-12-01 This important text provides a single point of reference for state-of-the-art cloud computing design and implementation techniques. The book examines cloud computing from the perspective of enterprise architecture, asking the question; how do we realize new business potential with our existing enterprises? Topics and features: with a Foreword by Thomas Erl; contains contributions from an international selection of preeminent experts; presents the state-of-the-art in enterprise architecture approaches with respect to cloud computing models, frameworks, technologies, and applications; discusses potential research directions, and technologies to facilitate the realization of emerging business models through enterprise architecture approaches; provides relevant theoretical frameworks, and the latest empirical research findings.

Designing Enterprise Architecture Frameworks Liviu Gabriel Cretu 2016-04-19 This book gathers together a critical body of knowledge on what enterprise architecture (EA) is and how it can be used to better organize the functions of systems across an enterprise for an effective business-IT alignment. The chapters provide a solid foundation for a cross-disciplinary professional practice.

Systems Engineering and Analysis of Electro-Optical and Infrared Systems William Wolfgang Arrasmith 2018-10-08 Electro-optical and infrared systems are fundamental in the military, medical, commercial, industrial, and private sectors. Systems Engineering and Analysis of Electro-Optical and Infrared Systems integrates solid fundamental systems engineering principles, methods, and techniques with the technical focus of contemporary electro-optical and infrared optics, imaging, and detection methodologies and systems. The book provides a running case study throughout that illustrates concepts and applies topics learned. It explores the benefits of a solid systems engineering-oriented approach focused on electro-optical and infrared systems. This book covers fundamental systems engineering principles as applied to optical systems, demonstrating how modern-day systems engineering methods, tools, and techniques can help you to optimally develop, support, and dispose of complex, optical systems. It introduces contemporary systems development paradigms such as model-based systems engineering, agile development, enterprise architecture methods, systems of systems, family of systems, rapid prototyping, and more. It focuses on the connection between the high-level systems engineering methodologies and detailed optical analytical methods to analyze, and understand optical systems performance capabilities.

Organized into three distinct sections, the book covers modern, fundamental, and general systems engineering principles, methods, and techniques needed throughout an optical system's development lifecycle (SDLC); optical systems building blocks that provide necessary optical systems analysis methods, techniques, and technical fundamentals; and an integrated case study that unites these two areas. It provides enough theory, analytical content, and technical depth that you will be able to analyze optical systems from both a systems and technical perspective.

Methodology of Complex Activity Mikhail V. Belov 2020-06-30 This book develops and describes a general methodology that can be applied to any complex human activity (activity with a non-trivial, multi-level internal structure). The structural components of complex activities are considered, and their logical, cause-and-effect, and process structures are functionally described. Considerable attention is paid to organization and management, uncertainties, and the lifecycles of activities, as well as the actors, subject matter, resources, knowledge, and methods involved. Several typical examples are used throughout the text to illustrate the implementation of common approaches involving the functioning of work groups, organizational units, projects, and organizations in general: a retail bank, an aircraft manufacturer, a fire department, and a nuclear power plant. In addition, the book employs a system of connected technical models, in order to ensure that the results are of practical applicability for both experts on the ground and scholars engaged in research on the general principles of how activities (practical, scientific, etc.) are organized or on the management of socio-technical systems.

Enterprise Architecture Frameworks Compendium Dirk Matthes 2011-03-19 In dem Band werden 50 Enterprise Architecture Frameworks (EAF) ausführlich behandelt und 45 weitere hinsichtlich ihrer Intention kurz und prägnant dargestellt. Die detaillierten Beschreibungen erlauben durch ein einheitliches Raster den Vergleich unterschiedlicher EAF. Sie enthalten Informationen zum Entwickler, zu Versionen, zur Marktrelevanz, zu Abhängigkeiten, Verfügbarkeit, unterstützenden Tools sowie Anschaffungskosten. Die Unterstützungsvielfalt, die Frameworks bieten, demonstriert der Autor anhand eines Anwendungsszenarios.

A Practical Guide to SysML Sanford Friedenthal 2011-10-31 Part I Introduction Systems Engineering Overview Model-Based Systems Engineering3 SysML Language Overview SysML Language Overview Part II Language Description SysML Language Architecture Organizing the Model with Packages Modeling Structure with Blocks Modeling Constraints with Parametrics Modeling Flow-Based Behavior with Activities Modeling Message-Based Behavior with Interactions Modeling Event-Based Behavior with State Machines Modeling Functionality with Use Cases Modeling Text-Based Requirements and their Relationship to Design Modeling Cross-Cutting Relationships with Allocations Customizing SysML for Specific Domains Part III Modeling Examples Water Distiller Example Using Functional Analysis Residential Security System Example Using the Object-Oriented Systems Engineering Method Part IV Transitioning to Model-Based Systems Engineering Integrating SysML into a Systems Development Environment Deploying SysML into an Organization APPENDIXES A-1 SysML Reference Guide A-2 Cross Ref ...

Netcentric System of Systems Engineering with DEVS Unified Process Saurabh Mittal 2018-09-03 In areas such as military, security, aerospace, and disaster management, the need for performance optimization and interoperability among heterogeneous systems is increasingly important. Model-driven engineering, a paradigm in which the model becomes the actual software, offers a promising approach toward systems of systems (SoS) engineering. However, model-driven engineering has largely been unachieved in complex dynamical systems and netcentric SoS, partly because modeling and simulation (M&S) frameworks are stove-piped and not designed for SoS composability. Addressing this gap, Netcentric System of Systems Engineering with DEVS Unified Process presents a methodology for realizing the model-driven engineering vision and netcentric SoS using DEVS Unified Process (DUNIP). The authors draw on their experience with Discrete Event Systems Specification (DEVS) formalism, System Entity Structure (SES) theory, and applying model-driven engineering in the context of a netcentric SoS. They describe formal model-driven engineering methods for netcentric M&S using standards-based approaches to develop and test complex dynamic models with DUNIP. The book is organized into five sections: Section I introduces undergraduate students and novices to the world of DEVS. It covers systems and SoS M&S as well as DEVS formalism, software, modeling language, and DUNIP. It also assesses DUNIP with the requirements of the Department of Defense's (DoD) Open Unified Technical Framework (OpenUTF) for netcentric Test and Evaluation (T&E). Section II delves into M&S-based systems engineering for graduate students, advanced practitioners, and industry professionals. It provides methodologies to apply M&S principles to SoS design and reviews the development of executable architectures based on a framework such as the Department of Defense Architecture Framework (DoDAF). It also describes an approach for building

netcentric knowledge-based contingency-driven systems. Section III guides graduate students, advanced DEVS users, and industry professionals who are interested in building DEVS virtual machines and netcentric SoS. It discusses modeling standardization, the deployment of models and simulators in a netcentric environment, event-driven architectures, and more. Section IV explores real-world case studies that realize many of the concepts defined in the previous chapters. Section V outlines the next steps and looks at how the modeling of netcentric complex adaptive systems can be attempted using DEVS concepts. It touches on the boundaries of DEVS formalism and the future work needed to utilize advanced concepts like weak and strong emergence, self-organization, scale-free systems, run-time modularity, and event interoperability. This groundbreaking work details how DUNIP offers a well-structured, platform-independent methodology for the modeling and simulation of netcentric system of systems.

**Enterprise, Business-Process and Information Systems Modeling** Terry Halpin 2011-06-17 This book contains the refereed proceedings of the 12th International Conference on Business Process Modeling, Development and Support (BPMDS 2011) and the 16th International Conference on Exploring Modeling Methods for Systems Analysis and Design (EMMSAD 2011), held together with the 23rd International Conference on Advanced Information Systems Engineering (CAiSE 2011) in London, UK, in June 2011. The 22 papers accepted for BPMDS were selected from 61 submissions and cover a wide spectrum of issues related to business processes development, modeling, and support. They are grouped into sections on BPMDS in practice, business process improvement, business process flexibility, declarative process models, variety of modeling paradigms, business process modeling and support systems development, and interoperability and mobility. The 16 papers accepted for EMMSAD were chosen from 31 submissions and focus on exploring, evaluating, and enhancing current information modeling methods and methodologies. They are grouped in sections on workflow and process modeling extensions, requirements analysis and information systems development, requirements evolution and information systems evolution, data modeling languages and business rules, conceptual modeling practice, and enterprise architecture.

**Enterprise Architecture**

**Network-Centric Service Oriented Enterprise** William Y. Chang 2007-10-16 There is a major effort underway in the area of network-centric operations that promises to redefine networking applications. These applications have the potential to raise Enterprise operational efficiency to a whole new level. Following the successful invention of TCP/IP and the Internet, which have tremendous economic impacts on our society, the Department of Defense (DoD) is initiating a new IT revolution, based on Global Information Grid (GIG) model, with a focus on performance outcomes of organizational adaptation, survival, and competence. To ignore this technological trend of converging business and process management would be to jeopardize our competitive edge. The emergence of Enterprise services has triggered a major paradigm shift in distributed computing: from Object-Oriented Architecture (OOA) to Service-Oriented Architecture (SOA). As the need grows to incorporate and exchange information across wire-line and wireless networks, so grows the necessity to establish an infrastructure for high-distribution communities in a timely and safe manner. Network-Centric Service-Oriented Enterprise (NSCOE) is seen as heralding the next generation of mainstream Enterprise-business information collaboration solution that can enforce information and decision superiority in the decentralized, loosely-coupled, and highly interoperable service environments. Network-Centric Service Oriented Enterprise establishes a system-of-systems (SoS) view of information technologies, offering a synergistic combination of data and information-processing capacity upon an innovative networked-management framework.

**FEAC Certified Enterprise Architect CEA Study Guide** Prakash Rao 2011-08-11 "The only official study guide to CEA--the #1 vendor-neutral enterprise architecture certification Written and authorized by the FEAC Institute, FEAC Certified Enterprise Architect CEA Study Guide offers complete coverage of all the material on the Certified Enterprise Architect exam. This book features hands-on projects using all major frameworks and methodologies and also serves as a highly practical resource for today's enterprise architect responsible for commissioning, overseeing, and performing architecture work in the federal, defense, and commercial sectors. FEAC Certified Enterprise Architect CEA Study Guide covers all objectives on the Certified Enterprise Architecture exam Includes CD-ROM with CEA-oriented Practicums and an e-book Helps you master the topics and skills required to pass the challenging CEA exam Serves as a comprehensive reference on all components of an enterprise architecture Covers the proprietary Department of Defense (DoD) Architecture Framework 2.0 Contains realistic models that can be applied immediately by a practitioner regardless of the type of organization (government, civilian, commercial, etc.) Demystifies U.S. federal documentation to provide actionable methodologies and best practices to create and maintain successful EAs In-depth coverage: EA Basic Concepts; Enterprise Architecting; Planning the EA; Implementing the EA; Disseminating the EA; Maintaining the EA; Governing the EA; Using the EA; EA Modeling; EA in Government (FEA and FSAM); EA in Defense (DoDAF and Variants); EA in the Commercial Sector; EA Tools and Repositories; Case Study: Civilian Airport"--