

Enterprise IoT



A Definitive Handbook

Navveen Balani

Enterprise Iot A Definitive Handbook

Nicole Radziwill



Enterprise Iot A Definitive Handbook:

Enterprise Iot Naveen Balani, 2016-03-07 The third edition of the Enterprise IoT book is out now Now learn how to build IoT applications using GE Predix Cloud platform The most comprehensive guide on understanding Enterprise IoT and how to implement IoT applications using IoT cloud offerings from Microsoft IBM Amazon GE Predix and open source software For complete details about the book visit <http://enterpriseiotbook.com> Internet of Things is a vision where every object in the world has the potential to connect to the Internet and provide their data so as to derive actionable insights on its own or through other connected objects The object can be anything a vehicle machinery airport city people phone or even a shoe From a connected vehicle solution you can understand the driver behaviour and vehicle usage patterns from a connected machines solution you can determine when do machines need servicing from a connected airport solution you can understand many things like how much time the passenger needs to wait for check in and security from an operating perspective it could help to optimize the passenger movement and ensure the right equipments are available at the right time to ensure quick serviceability and finally say from a connected footwear solution you can understand how much you have run so far and your app can automatically purchase a new pair of shoes based on the remaining shoe life As we can see it's not just about connectivity but how to use the connected data in context of your application or for that matter other connected solutions to derive insights which can't be uncovered before Today we are seeing data both structured and unstructured growing by leaps and bounds available through mediums like blogs social media transactional systems etc With advent of IoT you will see a large volume of raw data emitting from devices like sensors Such huge and complex set of data if not attended to can go wasted and opportunity lost in terms of building smart environment around us While focusing on issue of addressing this web of complexity often understanding the real benefit of IoT is lost and most importantly how to get started on IoT In this book our focus will be to provide a clear vision on Internet of Things and everything you should know to get started on applying and building Enterprise IoT applications in any industry The concepts listed down in the book are applicable across industries Till date it's difficult to find a single perspective of what does an Enterprise IoT stack actually mean and our intent is to provide an applicability guide that can be taken as reference for building any IoT application In the course of the book we would describe some of the key components of Internet of Things through our Enterprise IoT stack We would look at how to incrementally apply IoT transformations to build connected products in various industries At the end we would understand the technical strategy and how to build IoT applications using IoT cloud offerings from Microsoft IBM Amazon and Predix and even build one using open source technologies To summarize as part of the book we would cover the following A detailed overview of key components of Internet of Things and the most comprehensive view of an Enterprise IoT stack How to apply IoT in context of real world applications by covering detailed use cases on manufacturing automotive and home automation Understand the technical strategy and how to implement IoT applications using Microsoft IBM Amazon and

GE Predix IoT offerings and various open source technologies and map it to our Enterprise IoT stack **Artificial Intelligence and Internet of Things** Dr. A. V. K. Shanthi, Suryakant Swain, Naga Charan Nandigama, Dr. L. Thenmozhi, 2026-01-19 Artificial Intelligence and Internet of Things AIoT combine intelligent data processing with interconnected smart devices to create automated and adaptive systems IoT collects real time data from sensors and devices while AI analyzes this data to make predictions decisions and improvements This integration enables smart environments such as smart homes healthcare monitoring industrial automation and intelligent transportation AIoT enhances efficiency by enabling predictive maintenance energy optimization and personalized services Technologies like machine learning edge computing and cloud platforms support AIoT applications Overall AIoT plays a crucial role in building smart cities and digital ecosystems transforming traditional systems into intelligent networks *Smart Sensors Networks* Fatos Xhafa, Fang-Yie Leu, Li-Ling Hung, 2017-06-14 *Smart Sensors Networks Communication Technologies and Intelligent Applications* explores the latest sensor and sensor networks techniques and applications showing how networked wireless sensors are used to monitor and gather intelligence from our surrounding environment It provides a systematic look at the unique characteristics of wireless sensor networks through their usage in a broad range of areas including healthcare for the elderly energy consumption industrial automation intelligent transportation systems smart homes and cities and more The book shows how sensor networks work and how they are applied to monitor our surrounding environment It explores the most important aspects of modern sensors technologies providing insights on the newest technologies and the systems needed to operate them Readers will find the book to be an entry point for understanding the fundamental differences between the various sensor technologies and their use in for different scenarios Indexing The books of this series are submitted to EI Compendex and SCOPUS Presents numerous specific use cases throughout showing practical applications of concepts Contains contributions from leading experts around the globe Collects in one place the latest thinking on an emerging topic Addresses the security and privacy issues inherent in sensor deployment **Translational Bioinformatics Applications in Healthcare** Khalid Raza, Nilanjan Dey, 2021-04-19 Translational bioinformatics TBI involves development of storage analytics and advanced computational methods to harvest knowledge from voluminous biomedical and genomic data into 4P healthcare proactive predictive preventive and participatory Translational Bioinformatics Applications in Healthcare offers a detailed overview on concepts of TBI biological and clinical databases clinical informatics and pertinent real case applications It further illustrates recent advancements tools techniques and applications of TBI in healthcare including Internet of Things IoT potential toxin databases medical image analysis and telemedicine applications analytics of COVID 19 CT images viroinformatics and viral diseases and COVID 19 related research Covers recent technologies such as Blockchain IoT and Big data analytics in bioinformatics Presents the role of translational bioinformatic methods in the field of viroinformatics as well as in drug development and repurposing Includes translational healthcare and NGS for clinical

applications Illustrates translational medicine systems and their applications in better healthcare Explores medical image analysis with focus on CT images and novel coronavirus disease detection Aimed at researchers and graduate students in computational biology data mining and knowledge discovery algorithms and complexity and interdisciplinary fields of studies including bioinformatics health informatics biostatistics biomedical engineering and viroinformatics Khalid Raza is an Assistant Professor the Department of Computer Science Jamia Millia Islamia Central University New Delhi His research interests include translational bioinformatics computational intelligence methods and its applications in bioinformatics viroinformatics and health informatics Nilanjan Dey is an Associate Professor the Department of Computer Science and Engineering JIS University Kolkata India His research interests include medical imaging machine learning computer aided diagnosis and data mining

Communication: Innovation & Quality Miguel Túnnez-López, Valentín-Alejandro

Martínez-Fernández, Xosé López-García, Xosé Rúas-Araújo, Francisco Campos-Freire, 2018-07-10 This book explores the disruptive changes in the media ecosystem caused by convergence and digitization and analyses innovation processes in content production distribution and commercialisation It has been edited by Professors Miguel T ez L pez Universidade de Santiago de Compostela Spain Valent n Alejandro Mart nez Fern ndez Universidade da Coru a Spain Xos L pez Garc a Universidade de Santiago de Compostela Spain Xos R as Ara jo Universidade de Vigo Spain and Francisco Campos Freire Universidade de Santiago de Compostela Spain The book includes contributions from European and American experts who offer their views on the audiovisual sector journalism and cyberjournalism corporate and institutional communication and education It particularly highlights the role of new technologies the Internet and social media including the ethics and legal dimensions With 30 contributions grouped into diverse chapters on information preferences and uses in journalism as well as public audiovisual policies in the European Union related to governance funding accountability innovation quality and public service it provides a reliable media resource and presents lines of future development

Enterprise Internet of Things

Handbook Arvind Ravulavaru, 2018-04-30 Get familiar with the building blocks of IoT solutions using off the shelf IoT platforms Key Features Work with various trending IoT platforms such as AWS IoT Azure IoT Google IoT IBM Watson IoT and Kaa IoT Gain hands on knowledge working with Cloud based IoT platforms IoT Analytics and so on A practical guide that will help you build IoT strategies for your organization Book Description There is a lot of work that is being done in the IoT domain and according to Forbes the global IoT market will grow from 157B in 2016 to 457B by 2020 This is an amazing market both in terms technology advancement as well as money In this book we will be covering five popular IoT platforms namely AWS IoT Microsoft Azure IoT Google IoT Core IBM Watson IoT and Kaa IoT middleware You are going to build solutions that will use a Raspberry Pi 3 a DHT11 Temperature and humidity sensor and a dashboard to visualize the sensor data in real time Furthermore you will also explore various components of each of the platforms that are needed to achieve the desired solution Besides building solutions you will look at how Machine Learning and IoT go hand in hand and later

design a simple predictive web service based on this concept By the end of this book you will be in a position to implement an IoT strategy best fit for your organization What you will learn Connect a Temperature and Humidity sensor and see how these two can be managed from various platforms Explore the core components of AWS IoT such as AWS Kinesis and AWS IoT Rules Engine Build a simple analysis dashboard using Azure IoT and Power BI Understand the fundamentals of Google IoT and use Google core APIs to build your own dashboard Get started and work with the IBM Watson IoT platform Integrate Cassandra and Zeppelin with Kaa IoT dashboard Review some Machine Learning and AI and get to know more about their implementation in the IoT domain Who this book is for This book is targeted at IoT architects and engineers or any stakeholders working with IoT solutions in an organization This book will also help decision makers and professionals from small and medium sized enterprises build an IoT strategy for their venture

Handbook of Big Data Privacy Kim-Kwang Raymond Choo, Ali Dehghantanha, 2020-03-18 This handbook provides comprehensive knowledge and includes an overview of the current state of the art of Big Data Privacy with chapters written by international world leaders from academia and industry working in this field The first part of this book offers a review of security challenges in critical infrastructure and offers methods that utilize artificial intelligence AI techniques to overcome those issues It then focuses on big data security and privacy issues in relation to developments in the Industry 4.0 Internet of Things IoT devices are becoming a major source of security and privacy concern in big data platforms Multiple solutions that leverage machine learning for addressing security and privacy issues in IoT environments are also discussed this handbook The second part of this handbook is focused on privacy and security issues in different layers of big data systems It discusses about methods for evaluating security and privacy of big data systems on network application and physical layers This handbook elaborates on existing methods to use data analytic and AI techniques at different layers of big data platforms to identify privacy and security attacks The final part of this handbook is focused on analyzing cyber threats applicable to the big data environments It offers an in depth review of attacks applicable to big data platforms in smart grids smart farming FinTech and health sectors Multiple solutions are presented to detect prevent and analyze cyber attacks and assess the impact of malicious payloads to those environments This handbook provides information for security and privacy experts in most areas of big data including FinTech Industry 4.0 Internet of Things Smart Grids Smart Farming and more Experts working in big data privacy security forensics malware analysis machine learning and data analysts will find this handbook useful as a reference Researchers and advanced level computer science students focused on computer systems Internet of Things Smart Grid Smart Farming Industry 4.0 and network analysts will also find this handbook useful as a reference

6G Mobile Wireless Networks Yulei Wu, Sukhdeep Singh, Tarik Taleb, Abhishek Roy, Harpreet S. Dhillon, Madhan Raj Kanagarathinam, Aloknath De, 2021-08-24 This book is the world's first book on 6G Mobile Wireless Networks that aims to provide a comprehensive understanding of key drivers use cases research requirements challenges and open issues that are expected to drive 6G research In this book we have invited

world renowned experts from industry and academia to share their thoughts on different aspects of 6G research Specifically this book covers the following topics 6G Use Cases Requirements Metrics and Enabling Technologies PHY Technologies for 6G Wireless Reconfigurable Intelligent Surface for 6G Wireless Networks Millimeter wave and Terahertz Spectrum for 6G Wireless Challenges in Transport Layer for Tbit s Communications High capacity Backhaul Connectivity for 6G Wireless Cloud Native Approach for 6G Wireless Networks Machine Type Communications in 6G Edge Intelligence and Pervasive AI in 6G Blockchain Foundations and Role in 6G Role of Open source Platforms in 6G and Quantum Computing and 6G Wireless The overarching aim of this book is to explore the evolution from current 5G networks towards the future 6G networks from a service air interface and network perspective thereby laying out a vision for 6G networks This book not only discusses the potential 6G use cases requirements metrics and enabling technologies but also discusses the emerging technologies and topics such as 6G PHY technologies reconfigurable intelligent surface millimeter wave and THz communications visible light communications transport layer for Tbit s communications high capacity backhaul connectivity cloud native approach machine type communications edge intelligence and pervasive AI network security and blockchain and the role of open source platform in 6G This book provides a systematic treatment of the state of the art in these emerging topics and their role in supporting a wide variety of verticals in the future As such it provides a comprehensive overview of the expected applications of 6G with a detailed discussion of their requirements and possible enabling technologies This book also outlines the possible challenges and research directions to facilitate the future research and development of 6G mobile wireless networks

Enterprise IoT Rishi M. Bhatnagar. Jim Morrish. Frank Puhmann. Dirk Slama,2015 [Driving 5G Mobile Communications with Artificial Intelligence towards 6G](#) Dragorad A. Milovanovic,Zoran S. Bojkovic,Tulsi Pawan Fowdur,2023-04-06 Driving 5G Mobile Communications with Artificial Intelligence towards 6G presents current work and directions of continuous innovation and development in multimedia communications with a focus on services and users The fifth generation of mobile wireless networks achieved the first deployment by 2020 completed the first phase of evolution in 2022 and started transition phase of 5G Advanced toward the sixth generation Perhaps one of the most important innovations brought by 5G is the platform approach to connectivity i e a single standard that can adapt to the heterogeneous connectivity requirements of vastly different use cases 5G networks contain a list of different requirements standardized technical specifications and a range of implementation options with spectral efficiency latency and reliability as primary performance metrics Towards 6G machine learning ML and artificial intelligence AI methods have recently proposed new approaches to modeling designing optimizing and implementing systems They are now matured technologies that improve many research fields significantly The area of wireless multimedia communications has developed immensely generating a large number of concepts ideas technical specifications mobile standards patents and articles Identifying the basic ideas and their complex interconnections becomes increasingly important The book is divided into three major parts with each part containing four or

five chapters Advanced 5G communication Machine learning based communication and network automation Artificial Intelligence towards 6G The first part discusses three main scenarios and standard specification of 5G use cases eMBB URLLC mMTC vehicular systems beyond 5G and efficient edge architecture on NFV infrastructure In the second part different AI ML based methodologies and open research challenges are presented in introducing 5G AIoT artificial intelligence of things scheduling in 5G 6G communication systems application of DL techniques to modulation detection and channel coding as well as 5G Open Source tools for experimentations and testing The third part paved the way to deployment scenarios for different innovative services including technologies and applications of 5G 6G intelligent connectivity AI assisted eXtended Reality integrated 5G IoT architecture in next generation Smart Grid privacy requirements in a hyper connected world and evaluation of representative 6G use cases and technology trends The book is written by field experts from Europe and Mauritius who introduce a blend of scientific and engineering concepts covering this emerging wireless communication era It is a very good reference book for telecom professionals engineers and practitioner in various 5G vertical domains and finally a basis for student courses in 5G 6G wireless systems

Enterprise Blockchain Rajeev Hathi, Naveen Balani, 2017-10-30 Before we start with a formal introduction to blockchain let us take you for a moment to a possible future that should realize sooner than we expect You are on a vacation outside your home country at a shopping mall and receive a notification saying there is a sale on luxurious watches You haven't been to this store before You pick up a watch and you wonder if the watch is genuine and worth the price You start a mobile application and place it on the watch The application recognizes the watch and displays the complete lifecycle of the watch like where it was manufactured and the GPS coordinates where it was designed what is the warranty period how much custom duty you need to pay if any if you bring this watch back to your home country and even showing and comparing similar watches You purchase the watch based on these details and now feel even more connected to the watch brand and establish a trust with the shopping store for selling genuine products Let's consider a complex B2B process like an international trade finance which currently takes days to complete the trade process If the entire workflow is automated self regulated and equipped with enough consensus between various parties carrying out the trade it can provide a window of opportunity for new buyers and sellers to handshake implement and execute trade seamlessly with lot of trust and confidence In the above scenarios that we described earlier and possibly in all our future applications data would be a central point for businesses consumers and even system interaction Now in a data driven world you need to establish trust and compliance between parties you need governance regulation and accountability through automated workflow and digital contracts rather than central authority and finally a piece of technology that can enable to realize this goal Once these basic parameters are enabled it opens endless opportunities to move any value from services to digital assets across the network in a secure and transparent way The technology enabler that can aid in realizing this opportunity is blockchain We view blockchain as an enabler to provide

consensus on data The consensus can be between B2B B2C or C2C We call blockchain an enabler as blockchain alone will not lead to realizing the opportunities we talked about earlier The combinatorial power of blockchain smart contracts and technologies like IoT Artificial Intelligence would enable to deliver value driven intelligent applications While we described our vision we are probably at the first generation of blockchain implementation where technologies are still evolving and use cases are being realized Through this book we aim to provide a reference guide for building blockchain applications The book comprises of three chapters In Chapter 1 we will provide a neutral vision and architecture for blockchain without getting into vendor specific details In chapter 2 and 3 we will demonstrate the working of two widely used blockchain implementations Ethereum and IBM Hyperledger Fabric respectively To summarize as part of the book we will cover the following 1 A vendor neutral architecture for building any blockchain applications 2 A detailed introduction to Ethereum and its core components We will set up a local instance of Ethereum and build end to end application on Ethereum blockchain using a hands on approach At the end we would cover topics around extension to Ethereum blockchain integration with the external world and the future of smart contracts 3 A detailed introduction to IBM Hyperledger Fabric and its core components We would cover the enterprise capabilities provided by Fabric 1 0 At the end we would set up a local instance of Fabric and build an end to end application on Fabric using a hands on approach

Building Enterprise IoT Applications Chandrasekar

Vuppalapati,2019-12-12 McKinsey Global Institute predicts Internet of Things IoT could generate up to 11 1 trillion a year in economic value by 2025 Gartner Research Company expects 20 billion inter connected devices by 2020 and as per Gartner the IoT will have a significant impact on the economy by transforming many enterprises into digital businesses and facilitating new business models improving efficiency and increasing employee and customer engagement It s clear from above and our research that the IoT is a game changer and will have huge positive impact in foreseeable future In order to harvest the benefits of IoT revolution the traditional software development paradigms must be fully upgraded The mission of our book is to prepare current and future software engineering teams with the skills and tools to fully utilize IoT capabilities The book introduces essential IoT concepts from the perspectives of full scale software development with the emphasis on creating niche blue ocean products It also Outlines a fundamental full stack architecture for IoT Describes various development technologies in each IoT layer Explains IoT solution development from Product management perspective Extensively covers security and applicable threat models as part of IoT stack The book provides details of several IoT reference architectures with emphasis on data integration edge analytics cluster architectures and closed loop responses

Enterprise Blockchain Rajeev Hathi,Navveen Balani,2017-11-19 Before we start with a formal introduction to blockchain let us take you for a moment to a possible future that should realize sooner than we expect You are on a vacation outside your home country at a shopping mall and receive a notification saying there is a sale on luxurious watches You haven t been to this store before You pick up a watch and you wonder if the watch is genuine and worth the price You start a

mobile application and place it on the watch. The application recognizes the watch and displays the complete lifecycle of the watch like where it was manufactured and the GPS coordinates where it was designed, what is the warranty period, how much custom duty you need to pay if any if you bring this watch back to your home country and even showing and comparing similar watches. You purchase the watch based on these details and now feel even more connected to the watch brand and establish a trust with the shopping store for selling genuine products. Let's consider a complex B2B process like an international trade finance which currently takes days to complete the trade process. If the entire workflow is automated, self-regulated and equipped with enough consensus between various parties carrying out the trade, it can provide a window of opportunity for new buyers and sellers to handshake, implement and execute trade seamlessly with a lot of trust and confidence. In the above scenarios that we described earlier and possibly in all our future applications, data would be a central point for businesses, consumers and even system interaction. Now in a data-driven world, you need to establish trust and compliance between parties; you need governance, regulation and accountability through automated workflow and digital contracts rather than central authority and finally a piece of technology that can enable to realize this goal. Once these basic parameters are enabled, it opens endless opportunities to move any value from services to digital assets across the network in a secure and transparent way. The technology enabler that can aid in realizing this opportunity is blockchain. We view blockchain as an enabler to provide consensus on data. The consensus can be between B2B, B2C or C2C. We call blockchain an enabler as blockchain alone will not lead to realizing the opportunities we talked about earlier. The combinatorial power of blockchain, smart contracts and technologies like IoT, Artificial Intelligence would enable to deliver value-driven intelligent applications. While we described our vision, we are probably at the first generation of blockchain implementation where technologies are still evolving and use cases are being realized. Through this book, we aim to provide a reference guide for building blockchain applications. The book comprises of three chapters. In Chapter 1, we will provide a neutral vision and architecture for blockchain without getting into vendor-specific details. In chapter 2 and 3, we will demonstrate the working of two widely used blockchain implementations, Ethereum and IBM Hyperledger Fabric respectively. To summarize as part of the book, we will cover the following: 1. A vendor-neutral architecture for building any blockchain applications. 2. A detailed introduction to Ethereum and its core components. We will set up a local instance of Ethereum and build end-to-end application on Ethereum blockchain using a hands-on approach. At the end, we would cover topics around extension to Ethereum blockchain integration with the external world and the future of smart contracts. 3. A detailed introduction to IBM Hyperledger Fabric and its core components. We would cover the enterprise capabilities provided by Fabric 1.0. At the end, we would set up a local instance of Fabric and build an end-to-end application on Fabric using a hands-on approach.

Enterprise IoT Dirk Slama, Frank Puhlmann, Jim Morrish, Rishi M Bhatnagar, 2015-10-29. Current hype aside, the Internet of Things will ultimately become as fundamental as the Internet itself with lots of opportunities and trials along the way. To help you navigate these

choppy waters this practical guide introduces a dedicated methodology for businesses preparing to transition towards IoT based business models With a set of best practices based on case study analysis expert interviews and the authors own experience the Ignite IoT Methodology outlined in this book delivers actionable guidelines to assist you with IoT strategy management and project execution You ll also find a detailed case study of a project fully developed with this methodology This book consists of three parts Illustrative case studies of selected IoT domains including smart energy connected vehicles manufacturing and supply chain management and smart cities The Ignite IoT Methodology for defining IoT strategy preparing your organization for IoT adoption and planning and executing IoT projects A detailed case study of the IIC Track Trace testbed one of the first projects to be fully developed according to the Ignite IoT Methodology

Getting Started with Enterprise Internet of Things: Design Approaches and Software Architecture Models L. S. Jayashree,G. Selvakumar,2020-04-16 This novel textbook introduces Enterprise Internet of Things from technology management and business perspectives carefully examining enterprise environments through the lens of modernization with the Internet of Things IoT It also includes detailed case studies to offer meaningful insights for readers from various disciplines and areas The book analyzes the ways in which the technology could contribute to the enterprise world in terms of revenue and new business models and addresses the strategies and principles involved in developing IoT solutions with software engineering practices such as DevOps and Micro services architecture principles By doing so it offers readers a clear overview of the power of Internet of Things in building next generation enterprise use cases The book enables readers to understand the latest opportunities to create new business models in enterprises using the unprecedented level of device connectivity and the wealth of data generated and information exchange among these devices As such it appeals to various user groups such as engineers trying to solve problems in their own domains using Enterprise IoT academics interested in gaining a better understanding of applications of IoT in large scale enterprises and researchers wanting to contribute to the ever growing and complex area of IoT

Connected, Intelligent, Automated Nicole Radziwill,2020-02-01 Quality 4 0 is for all industries and this book is for anyone who wants to learn how Industry 4 0 and Quality 4 0 can help improve quality and performance in their team or company This comprehensive guide is the culmination of 25 years of research and practice exploring implementing and critically examining the quality and performance improvement aspects of Industry 4 0 technologies Navigate the connected intelligent and automated ecosystems of infrastructure people objects machines and data Sift through the noise around AI AR big data blockchain cybersecurity and other rising technologies and emerging issues to find the signals for your organization Discover the value proposition of Quality 4 0 and the leading role for quality professionals to drive successful digital transformation initiatives The changes ahead are powerful exciting and overwhelming and we can draw on the lessons from past work to mitigate the risks we face today Connected Intelligent Automated provides you with the techniques philosophies and broad overall knowledge you need to understand Quality 4 0 and helps you leverage those

things for the future success of your enterprise Chapter 1 Quality 4 0 and the Fourth Industrial Revolution Chapter 2 Connected Ecosystems Chapter 3 Intelligent Agents and Machine Learning Chapter 4 Automation From Manual Labor to Autonomy Chapter 5 Quality 4 0 Use Cases Across Industries Chapter 6 From Algorithms to Advanced Analytics Chapter 7 Delivering Value and Impact Through Data Science Chapter 8 Data Quality and Data Management Chapter 9 Software Applications Data Platforms Chapter 10 Blockchain Chapter 11 Performance Excellence Chapter 12 Environment Health Safety Quality EHSQ and Cybersecurity Chapter 13 Voice of the Customer VoC Chapter 14 Elements of a Quality 4 0 Strategy Chapter 15 Playbook for Transformation N M Radziwillspan is Senior VP of Quality and Strategy at Ultronauts a professional services firm specializing in quality assurance and quality engineering for software data science and digital transformation Radziwill is editor of the journal Software Quality Professional an ASQ fellow and an ASQ certified Six Sigma Black Belt Radziwill is one of ASQ s Influential Voices and blogs [Business Intelligence for Enterprise Internet of Things](#) Anandakumar Haldorai,Arulmurugan Ramu,Syed Abdul Rehman Khan,2020-06-09 This book discusses Internet of Things IoT as it relates to enterprise applications systems and infrastructures The authors discuss IoT and how it s disrupting industries such as enterprise manufacturing enterprise transportation enterprise smart market enterprise utilities and enterprise healthcare They cover how IoT in the enterprise will have a major impact on the lives of consumers and professionals around the world and how it will change the way we think about professional and consumer networks The book s topics include IoT enterprise system architecture IoT enabling enterprise technologies and IoT enterprise services and applications Examples include enterprise on demand market impacts and implications on smart technologies big data enterprise management and future enterprise Internet design for various IoT use cases such as share markets healthcare smart cities smart environments smart communications and smart homes [COMPREHENSIVE GUIDE TO ENTERPRISE INTERNET OF THINGS \(IoT\) SUCCESS](#) David Kohen,2019-11-17 The internet of things or IoT is a system of interrelated computing devices mechanical and digital machines objects animals or people that are provided with unique identifiers UIDs and the ability to transfer data over a network without requiring human to human or human to computer interaction A thing in the internet of things can be a person with a heart monitor implant a farm animal with a biochip transponder an automobile that has built in sensors to alert the driver when tire pressure is low or any other natural or man made object that can be assigned an IP address and is able to transfer data over a network Increasingly organizations in a variety of industries are using IoT to operate more efficiently better understand customers to deliver enhanced customer service improve decision making and increase the value of the business History of IoTKevin Ashton co founder of the Auto ID Center at MIT first mentioned the internet of things in a presentation he made to Procter Gamble P G in 1999 Wanting to bring radio frequency ID RFID to the attention of P G s senior management Ashton called his presentation Internet of Things to incorporate the cool new trend of 1999 the internet MIT professor Neil Gershenfeld s book When Things Start to Think also appearing in 1999 didn t use the exact term

but provided a clear vision of where IoT was headed IoT has evolved from the convergence of wireless technologies microelectromechanical systems MEMS micro services and the internet The convergence has helped tear down the silos between operational technology OT and information technology IT enabling unstructured machine generated data to be analysed for insights to drive improvements Although Ashton s was the first mention of the internet of things the idea of connected devices has been around since the 1970s under the monikers embedded internet and pervasive computing The first internet appliance for example was a Coke machine at Carnegie Mellon University in the early 1980s Using the web programmers could check the status of the machine and determine whether there would be a cold drink awaiting them should they decide to make the trip to the machine IoT evolved from machine to machine M2M communication i e machines connecting to each other via a network without human interaction M2M refers to connecting a device to the cloud managing it and collecting data Taking M2M to the next level IoT is a sensor network of billions of smart devices that connect people systems and other applications to collect and share data As its foundation M2M offers the connectivity that enables IoT The internet of things is also a natural extension of SCADA supervisory control and data acquisition a category of software application program for process control the gathering of data in real time from remote locations to control equipment and conditions SCADA systems include hardware and software components The hardware gathers and feeds data into a computer that has SCADA software installed where it is then processed and presented it in a timely manner The evolution of SCADA is such that late generation SCADA systems developed into first generation IoT systems The concept of the IoT ecosystem however didn t really come into its own until the middle of 2010 when in part the government of China said it would make IoT a strategic priority in its five year plan How IoT worksAn IoT ecosystem consists of web enabled smart devices that use embedded processors sensors and communication hardware to collect send and act on data they acquire from their environments IoT devices share the sensor data they collect by connecting to an IoT gateway or other edge device where data is either sent to the cloud to be analyzed or analyzed locally Thus these devices communicate with other related devices and act on the information they get from one another driving business intelligence

IoT and OT Security Handbook
Smita Jain,Vasantha Lakshmi,Dr Rohini Srivathsa,2023-03-30 Leverage Defender for IoT for understanding common attacks and achieving zero trust for IoT and OT devices Purchase of the print or Kindle book includes a free PDF eBook Key FeaturesIdentify and resolve cybersecurity challenges in the IoT and OT worldsFamiliarize yourself with common attack vectors in the IoT and OT domainsDive into Defender for IoT understand its capabilities and put it to practiceBook Description The Fourth Industrial Revolution or Industry 4 0 is all about digital transformation manufacturing and production The connected world we live in today including industries comes with several cybersecurity challenges that need immediate attention This book takes you through the basics of IoT and OT architecture and helps you understand and mitigate these security challenges The book begins with an overview of the challenges faced in managing and securing IoT and OT devices

in Industry 4.0 You'll then get to grips with the Purdue model of reference architecture which will help you explore common cyber attacks in IoT and OT environments As you progress you'll be introduced to Microsoft Defender for IoT and understand its capabilities in securing IoT and OT environments Finally you will discover best practices for achieving continuous monitoring and vulnerability management as well as threat monitoring and hunting and find out how to align your business model toward zero trust By the end of this security book you'll be equipped with the knowledge and skills to efficiently secure IoT and OT environments using Microsoft Defender for IoT What you will learn Discover security challenges faced in IoT and OT environments Understand the security issues in Industry 4.0 Explore Microsoft Defender for IoT and learn how it aids in securing the IoT/OT industry Find out how to deploy Microsoft Defender for IoT along with its prerequisites Understand the importance of continuous monitoring Get familiarized with vulnerability management in the IoT and OT worlds Dive into risk assessment as well as threat monitoring and hunting Achieve zero trust for IoT devices Who this book is for This book is for industrial security IoT security and IT security professionals Security engineers including pentesters security architects and ethical hackers who want to ensure the security of their organization's data when connected with the IoT will find this book useful

Internet of Things and Data Analytics Handbook Hwaiyu Geng, 2017-01-10 This book examines the Internet of Things IoT and Data Analytics from a technical application and business point of view *Internet of Things and Data Analytics Handbook* describes essential technical knowledge building blocks processes design principles implementation and marketing for IoT projects It provides readers with knowledge in planning designing and implementing IoT projects The book is written by experts on the subject matter including international experts from nine countries in the consumer and enterprise fields of IoT The text starts with an overview and anatomy of IoT ecosystem of IoT communication protocols networking and available hardware both present and future applications and transformations and business models The text also addresses big data analytics machine learning cloud computing and consideration of sustainability that are essential to be both socially responsible and successful Design and implementation processes are illustrated with best practices and case studies in action In addition the book Examines cloud computing data analytics and sustainability and how they relate to IoT over the scope of consumer government and enterprise applications Includes best practices business model and real world case studies Hwaiyu Geng P.E. is a consultant with Amica Research www.AmicaResearch.org Palo Alto California promoting green planning design and construction projects He has had over 40 years of manufacturing and management experience working with Westinghouse Applied Materials Hewlett Packard and Intel on multi million high tech projects He has written and presented numerous technical papers at international conferences Mr Geng a patent holder is also the editor author of *Data Center Handbook* Wiley 2015

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