

Microsoft Azure Iot Cloud Platform Services

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[Azure Internet of Things Revealed](#) - Robert Stackowiak 2019-11-09

Design, build, and justify an optimal Microsoft IoT footprint to meet your project needs. This book describes common Internet of Things components and architecture and then focuses on Microsoft's Azure components relevant in deploying these solutions. Microsoft-specific topics addressed include: deploying edge

devices and pushing intelligence to the edge; connecting IoT devices to Azure and landing data there, applying Azure Machine Learning, analytics, and Cognitive Services; roles for Microsoft solution accelerators and managed solutions; and integration of the Azure footprint with legacy infrastructure. The book concludes with a discussion of best practices in defining and developing solutions and creating a plan for

success. What You Will Learn Design the right IoT architecture to deliver solutions for a variety of project needs Connect IoT devices to Azure for data collection and delivery of services Use Azure Machine Learning and Cognitive Services to deliver intelligence in cloud-based solutions and at the edge Understand the benefits and tradeoffs of Microsoft's solution accelerators and managed solutions Investigate new use cases that are described and apply best practices in deployment strategies Integrate cutting-edge Azure deployments with existing legacy data sources Who This Book Is For Developers and architects new to IoT projects or new to Microsoft Azure IoT components as well as readers interested in best practices used in architecting IoT solutions that utilize the Azure platform

Beginning Azure IoT Edge Computing - David Jensen 2019-04-29

Use a step-by-step process to create and deploy your first Azure IoT Edge solution. Modern day

developers and architects in today's cloud-focused world must understand when it makes sense to leverage the cloud. Computing on the edge is a new paradigm for most people. The Azure IoT Edge platform uses many existing technologies that may be familiar to developers, but understanding how to leverage those technologies in an edge computing scenario can be challenging. Beginning Azure IoT Edge Computing demystifies computing on the edge and explains, through concrete examples and exercises, how and when to leverage the power of intelligent edge computing. It introduces the possibilities of intelligent edge computing using the Azure IoT Edge platform, and guides you through hands-on exercises to make edge computing approachable, understandable, and highly useful. Through user-friendly discussion you will not only understand how to build edge solutions, but also when to build them. By explaining some common solution patterns, the decision on when to use the cloud and when to

avoid the cloud will become much clearer. What You'll Learn Create and deploy Azure IoT Edge solutions Recognize when to leverage the intelligent edge pattern and when to avoid it Leverage the available developer tooling to develop and debug IoT Edge solutions Know which off-the-shelf edge computing modules are available Become familiar with some of the lesser-known device protocols used in conjunction with edge computing Understand how to securely deploy and bootstrap an IoT Edge device Explore related topics such as containers and secure device provisioning Who This Book Is For Developers or architects who want to understand edge computing and when and where to use it. Readers should be familiar with C# or Python and have a high-level understanding of the Azure IoT platform.

Cloud Computing - CLOUD 2018 - Min Luo
2018-06-19

This volume constitutes the proceedings of the 11th International Conference on Cloud

Computing, CLOUD 2018, held as part of the Services Conference Federation, SCF 2018, in Seattle, WA, USA, in June 2018. The 26 full papers presented together with 3 short papers were carefully reviewed and selected from 108 submissions. They are organized in topical sections such as cloud computing; client-server architectures; distributed systems organizing principles; storage virtualization; virtual machines; cloud based storage; distributed architectures; network services; and computing platforms.

Microservices, IoT and Azure - Bob Familiar
2015-11-07

This book provides practical guidance for adopting a high velocity, continuous delivery process to create reliable, scalable, Software-as-a-Service (SaaS) solutions that are designed and built using a microservice architecture, deployed to the Azure cloud, and managed through automation. Microservices, IoT, and Azure offers software developers, architects, and operations

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engineers' step-by-step directions for building SaaS applications—applications that are available 24x7, work on any device, scale elastically, and are resilient to change—through code, script, exercises, and a working reference implementation. The book provides a working definition of microservices and contrasts this approach with traditional monolithic Layered Architecture. A fictitious, homebiomedical startup is used to demonstrate microservice architecture and automation capabilities for cross-cutting and business services as well as connected device scenarios for Internet of Things (IoT). Several Azure PaaS services are detailed including Storage, SQL Database, DocumentDb, Redis Cache, Cloud Services, Web API's, API Management, IoT Hub, IoT Suite, Event Hub, and Stream Analytics. Finally the book looks to the future and examines Service Fabric to see how microservices are becoming the de facto approach to building reliable software in the cloud. In this book, you'll learn:

What microservices are and why are they're a compelling architecture pattern for SaaS applications How to design, develop, and deploy microservices using Visual Studio, PowerShell, and Azure Microservice patterns for cross-cutting concerns and business capabilities Microservice patterns for Internet of Things and big data analytics solutions using IoT Hub, Event Hub, and Stream Analytics Techniques for automating microservice provisioning, building, and deployment What Service Fabric is and how it's the future direction for microservices on Microsoft Azure

Stream Analytics with Microsoft Azure
Anandita Basak 2017-12-01

Develop and manage effective real-time streaming solutions by leveraging the power of Microsoft Azure About This Book Analyze your data from various sources using Microsoft Azure Stream Analytics Develop, manage and automate your stream analytics solution with Microsoft Azure A practical guide to real-time event

processing and performing analytics on the cloud Who This Book Is For If you are looking for a resource that teaches you how to process continuous streams of data in real-time, this book is what you need. A basic understanding of the concepts in analytics is all you need to get started with this book What You Will Learn Perform real-time event processing with Azure Stream Analysis Incorporate the features of Big Data Lambda architecture pattern in real-time data processing Design a streaming pipeline for storage and batch analysis Implement data transformation and computation activities over stream of events Automate your streaming pipeline using Powershell and the .NET SDK Integrate your streaming pipeline with popular Machine Learning and Predictive Analytics modelling algorithms Monitor and troubleshoot your Azure Streaming jobs effectively In Detail Microsoft Azure is a very popular cloud computing service used by many organizations around the world. Its latest analytics offering,

Stream Analytics, allows you to process and get actionable insights from different kinds of data in real-time. This book is your guide to understanding the basics of how Azure Stream Analytics works, and building your own analytics solution using its capabilities. You will start with understanding what Stream Analytics is, and why it is a popular choice for getting real-time insights from data. Then, you will be introduced to Azure Stream Analytics, and see how you can use the tools and functions in Azure to develop your own Streaming Analytics. Over the course of the book, you will be given comparative analytic guidance on using Azure Streaming with other Microsoft Data Platform resources such as Big Data Lambda Architecture integration for real time data analysis and differences of scenarios for architecture designing with Azure HDInsight Hadoop clusters with Storm or Stream Analytics. The book also shows you how you can manage, monitor, and scale your solution for optimal performance. By the end of

this book, you will be well-versed in using Azure Stream Analytics to develop an efficient analytics solution that can work with any type of data. Style and approach A comprehensive guidance on developing real-time event processing with Azure Stream Analysis

Practical Java Programming for IoT, AI, and Blockchain - Perry Xiao 2019-07-02

Learn practical uses for some of the hottest tech applications trending among technology professionals We are living in an era of digital revolution. On the horizon, many emerging digital technologies are being developed at a breathtaking speed. Whether we like it or not, whether we are ready or not, digital technologies are going to penetrate more and more, deeper and deeper, into every aspect of our lives. This is going to fundamentally change how we live, how we work, and how we socialize. Java, as a modern high-level programming language, is an excellent tool for helping us to learn these digital technologies, as well as to

develop digital applications, such as IoT, AI, Cybersecurity, Blockchain and more. Practical Java Programming uses Java as a tool to help you learn these new digital technologies and to be better prepared for the future changes. Gives you a brief overview for getting started with Java Programming Dives into how you can apply your new knowledge to some of the biggest trending applications today Helps you understand how to program Java to interact with operating systems, networking, and mobile applications Shows you how Java can be used in trending tech applications such as IoT (Internet of Things), AI (Artificial Intelligence), Cybersecurity, and Blockchain Get ready to find out firsthand how Java can be used for connected home devices, healthcare, the cloud, and all the hottest tech applications.

Windows 10 for the Internet of Things -

Charles Bell 2016-10-27

Manage and control Internet-connected devices from Windows and Raspberry Pi. Master the

Windows IoT Core application programming interface and feature set to develop Internet of Things applications on the Raspberry Pi using your Windows and .NET programming skills. Windows 10 for the Internet of Things presents a set of example projects covering a wide range of techniques designed specifically to jump start your own Internet of Things creativity. You'll learn everything you need to know about Windows IoT Core in order to develop Windows and IoT applications that run on the Pi. Microsoft's release of Windows IoT Core is groundbreaking in how it makes the Raspberry Pi and Internet of Things programming accessible to Windows developers. Now it's possible to develop for the Raspberry Pi using native Windows and all the related programming skills that Windows programmers have learned from developing desktop and mobile applications. Windows 10 becomes a gateway by which many can experience hardware and Internet of Things development who may never

have had the opportunity otherwise. However, even savvy Windows programmers require help to get started with hardware development. This book, Windows 10 for the Internet of Things, provides just the help you need to get started in putting your Windows skills to use in a burgeoning new world of development for small devices that are ubiquitously connected to the Internet. What You Will Learn Learn Windows 10 on the Raspberry Pi Read sensor data and control actuators Connect to and transmit data into the cloud Remotely control your devices from any web browser Develop IOT applications under Windows using C# and Python Store your IOT data in a database for later analysis Who This Book Is For Developers and enthusiasts wanting to take their skills in Windows development and jump on board one of the largest and fastest growing trends to hit the technology world in years - that of connecting everyday devices to the Internet. This book shows how to develop for Microsoft's operating-

system for devices, Windows 10 IoT Core.

Readers learn to develop in C# and Python using Visual Studio, for deployment on devices such as the Raspberry Pi and the Arduino.

Cloud Debugging and Profiling in Microsoft Azure - Jeffrey Chilberto 2020-04-11

Use this collection of best practices and tips for assessing the health of a solution. This book provides detailed techniques and instructions to quickly diagnose aspects of your Azure cloud solutions. The initial chapters of this book introduce you to the many facets of Microsoft Azure, explain why and how building for the cloud differs from on-premise development, and outline the need for a comprehensive strategy to debugging and profiling in Azure. You learn the major types of blades (FaaS, SaaS, PaaS, IaaS), how different views can be created for different scenarios, and you will become familiar with the Favorites section, Cost Management & Billing blade, support, and Cloud Shell. You also will know how to leverage Application Insights for

application performance management, in order to achieve a seamless cloud development experience. Application Insights, Log Analytics, and database storage topics are covered. The authors further guide you on identity security with Azure AD and continuous delivery with CI and CD covered in detail along with the capabilities of Azure DevOps. And you are exposed to external tooling and trouble shooting in a production environment. After reading this book, you will be able to apply methods to key Azure services, including App Service (Web Apps, Function Apps, and Logic Apps), Cloud Services, Azure Container Service, Azure Active Directory, Azure Storage, Azure SQL Database, Cosmos DB, Log Analytics, and many more. What You Will Learn Debug and manage the performance of your applications Leverage Application Insights for application performance management Extend and automate CI/CD with the help of various build tools, including Azure DevOps, TeamCity, and Cake bootstrapper Who

This Book Is For Application developers, designers, and DevOps personnel who want to find a one-stop shop in best practices for managing their application's performance in the cloud and for debugging the issues accordingly

IoT Solutions in Microsoft's Azure IoT Suite
Scott Klein 2017-04-20

Collect and analyze sensor and usage data from Internet of Things applications with Microsoft Azure IoT Suite. Internet connectivity to everyday devices such as light bulbs, thermostats, and even voice-command devices such as Google Home and Amazon.com's Alexa is exploding. These connected devices and their respective applications generate large amounts of data that can be mined to enhance user-friendliness and make predictions about what a user might be likely to do next. Microsoft's Azure IoT Suite is a cloud-based platform that is ideal for collecting data from connected devices. You'll learn in this book about data acquisition and analysis, including real-time analysis. Real-

world examples are provided to teach you to detect anomalous patterns in your data that might lead to business advantage. We live in a time when the amount of data being generated and stored is growing at an exponential rate. Understanding and getting real-time insight into these data is critical to business. *IoT Solutions in Microsoft's Azure IoT Suite* walks you through a complete, end-to-end journey of how to collect and store data from Internet-connected devices. You'll learn to analyze the data and to apply your results to solving real-world problems. Your customers will benefit from the increasingly capable and reliable applications that you'll be able to deploy to them. You and your business will benefit from the gains in insight and knowledge that can be applied to delight your customers and increase the value from their business. What You'll Learn Go through data generation, collection, and storage from sensors and devices, both relational and non-relational Understand, from end to end, Microsoft's

analytic services and where they fit into the analytical ecosystem Look at the Internet of your things and find ways to discover and draw on the insights your data can provide Understand Microsoft's IoT technologies and services, and stitch them together for business insight and advantage Who This Book Is For Developers and architects who plan on delivering IoT solutions, data scientists who want to understand how to get better insights into their data, and anyone needing or wanting to do real-time analysis of data from the Internet of Things

Implementing Industry 4.0 - Carlos Toro
2021-04-03

This book relates research being implemented in three main research areas: secure connectivity and intelligent systems, real-time analytics and manufacturing knowledge and virtual manufacturing. Manufacturing SMEs and MNCs want to see how Industry 4.0 is implemented. On the other hand, groundbreaking research on this topic is constantly growing. For the aforesaid

reason, the Singapore Agency for Science, Technology and Research (A*STAR), has created the model factory initiative. In the model factory, manufacturers, technology providers and the broader industry can (i) learn how I4.0 technologies are implemented on real-world manufacturing use-cases, (ii) test process improvements enabled by such technologies at the model factory facility, without disrupting their own operations, (iii) co-develop technology solutions and (iv) support the adoption of solutions at their everyday industrial operation. The book constitutes a clear base ground not only for inspiration of researchers, but also for companies who will want to adopt smart manufacturing approaches coming from Industry 4.0 in their pathway to digitization.

Programming for the Internet of Things David Borycki 2017-05-26

Rapidly implement Internet of Things solutions
Creating programs for the Internet of Things
offers you an opportunity to build and program

custom devices whose functionality is limited only by your imagination. This book teaches you to do exactly that, with solutions presented in a step-by-step format. When you read this book, you not only learn the fundamentals of device programming, you will also be ready to write code for revolutionizing devices and robots. You don't need to be an expert in low-level programming to benefit from this book. It explains basic concepts and programming techniques before diving into the more complicated topics. Each of the book's chapters and appendices contains a suitable level of detail to help you quickly master device programming. MCP Dawid Borycki shows you how to: Build Universal Windows Platform (UWP) applications that target interconnected embedded devices Design and implement background apps for seamless integration with hardware components Use intrinsic UWP functionality to detect and track human faces Build artificial auditory, visual, and learning systems Process audio

signals to blink LEDs to the rhythm of music Use OpenCV to develop custom image-processing algorithms Communicate with external devices by using serial, USB, Wi-Fi, and AllJoyn connectivity Design and implement applications to control DC, stepper, and servo motors for robotics Use Microsoft Cognitive Services to detect human emotions Build predictive analysis and preventive maintenance systems by using the Azure IoT Suite

Building Hybrid Clouds with Azure Stack -
Markus Klein 2017-08-28

Bring the power of Microsoft Azure Hybrid Cloud technology to your datacenter. About This Book Build and deploy software-defined infrastructures and deliver Azure-based IaaS and PaaS services in your datacenter Use Azure Stack to leverage your current infrastructure with Microsoft Hybrid Cloud and get the best of both worlds Unlock greater levels of performance and flexibility and save your organization money, time, and resources Who

This Book Is For The book is for administrators and architects who are planning to implement or administer a hybrid cloud infrastructure using Microsoft Cloud Technology. This book is ideal for those who are looking forward to implement and run a hybrid cloud infrastructure with PaaS, SaaS and IaaS services. What You Will Learn Gain a clear understanding of Azure Stack design Set up storage, network and compute services in Azure Stack Implement and run a hybrid cloud infrastructure with PaaS, SaaS, and IaaS services Get an overview of the automation options in Azure Stack Integrate Azure public services such as multi-factor authentication and Azure AD with Azure Stack Learn about the services available in the future In Detail Azure Stack is all about creating fewer gaps between on-premise and public cloud application deployment. Azure Stack is the next logical evolution of Microsoft Cloud Services to create a true Hybrid Cloud-ready application. This book provides an introduction to Microsoft Azure

Stack and the Cloud First Approach. Starting with an introduction to Microsoft Azure Stack Architecture, the book will help you plan and deploy your Microsoft Azure Stack. Next, you will learn about the Network and Storage option in Microsoft Azure Stack and you'll create your own private cloud solution. Finally, you will understand how to integrate Public Cloud Services with Microsoft Azure Stack and extend it using the 3rd Party Resource Provider. After reading the book, you will have a good understanding of an end-to-end process for designing, implementing, offering, and supporting cloud solutions for enterprises or service providers. Style and approach This book is a practical guide to help you unlock a hybrid cloud stack using Azure Stack. Using a straight forward and easy to implement approach, this book guides you through the basic planning for a hybrid cloud stack, describes the infrastructure technologies Azure Stack is based on, and explains how to deploy and administer an Azure

Stack-based infrastructure.

Hands-On Azure Digital Twins - Alexander Meijers 2022-03-03

Build your own digital twin in no time! Key Features Build and design simple to complex digital twins solutions Create end-to-end solutions with Azure Digital Twins Integrate the Azure Digital Twins service with other Azure services to provide even richer solutions Book Description In today's world, clients are using more and more IoT sensors to monitor their business processes and assets. Think about collecting information such as pressure in an engine, the temperature, or a light switch being turned on or off in a room. The data collected can be used to create smart solutions for predicting future trends, creating simulations, and drawing insights using visualizations. This makes it beneficial for organizations to make digital twins, which are digital replicas of the real environment, to support these smart solutions. This book will help you understand the

concept of digital twins and how it can be implemented using an Azure service called Azure Digital Twins. Starting with the requirements and installation of the Azure Digital Twins service, the book will explain the definition language used for modeling digital twins. From there, you'll go through each step of building digital twins using Azure Digital Twins and learn about the different SDKs and APIs and how to use them with several Azure services. Finally, you'll learn how digital twins can be used in practice with the help of several real-world scenarios. By the end of this book, you'll be confident in building and designing digital twins and integrating them with various Azure services. What you will learn Understand the concept and architecture of Azure Digital Twins Get to grips with installing and configuring the service and required tools Understand the Digital Twin Definition Language (DTDL) and digital twin models Explore the APIs and SDKs available to access the Azure Digital Twins

servicesMonitor, troubleshoot, and secure digital twinsDiscover how to build, design, and integrate applications with various Azure servicesExplore real-life scenarios with Azure Digital TwinsWho this book is for This book is for Azure developers, Azure architects, and anyone who wants to learn more about how to implement IoT solutions using Azure Digital Twins and additional Azure services. Prior experience using the Azure Portal and a clear understanding of building applications using .NET will be helpful.

IoT System Design Alice James 2021-09-25

This book presents a step by step design approach to develop and implement an IoT system starting from sensor, interfacing to embedded processor, wireless communication, uploading measured data to cloud including data visualization along with machine learnings and artificial intelligence. The book will be extremely useful towards a hands-on approach of designing and fabricating an IoT system especially for

upper undergraduate, master and PhD students, researchers, engineers and practitioners.

[Learn Microsoft Azure](#) - Mohamed Wali
2018-12-26

Explore various Azure services to build solutions that leverage effective design patterns Key FeaturesCreate, deploy, and host cloud applications on AzureUnderstand various Azure services that help you host serverless applicationsExplore practical examples to help you secure and troubleshoot your cloud environmentBook Description Azure is one of the leading public cloud service providers. Thanks to a number of Azure service updates, it continues to make advances in the realm of cloud computing. Learn Microsoft Azure starts with the fundamentals of cloud computing. You will learn to configure and set up the Azure infrastructure. As you make your way through the book, you'll explore Azure services, along with working on virtual memory systems (VMS) and deployment models. You will understand

various services in the Azure ecosystem, such as Azure IoT and Azure Analytics, among others. An easy-to-follow introduction to various cloud design patterns will also add to your efficiency in designing cloud solutions. In the concluding chapters, you'll secure your virtual networks using Network security groups and configure Azure Active Directory (Azure AD) to set a custom domain name and company profile. By the end of this book, you will have learned to secure and troubleshoot your Azure cloud environment and be fully aware of best practices for Azure cloud administration. What you will learn

Understand the cloud services offered by Azure
Design storage and networks in Azure for your Azure VM
Work with web apps and Azure SQL databases
Build your identity management solutions on Azure using Azure AD
Monitor, protect, and automate your Azure services using Operation Management Suite (OMS)
Implement OMS for Azure services
Who this book is for
Learn Microsoft Azure is for administrators,

cloud engineers, and developers who want to get started with using Azure as their cloud platform and build cloud-based applications for their enterprises.

Fundamentals of IoT and Wearable Technology Design - Haider Raad 2021-01-20

Explore this indispensable guide covering the fundamentals of IOT and wearable devices from a leading voice in the field *Fundamentals of IoT and Wearable Technology Design* delivers a comprehensive exploration of the foundations of the Internet of Things (IoT) and wearable technology. Throughout the textbook, the focus is on IoT and wearable technology and their applications, including mobile health, environment, home automation, and smart living. Readers will learn about the most recent developments in the design and prototyping of these devices. This interdisciplinary work combines technical concepts from electrical, mechanical, biomedical, computer, and industrial engineering, all of which are used in

the design and manufacture of IoT and wearable devices. Fundamentals of IoT and Wearable Technology Design thoroughly investigates the foundational characteristics, architectural aspects, and practical considerations, while offering readers detailed and systematic design and prototyping processes of typical use cases representing IoT and wearable technology. Later chapters discuss crucial issues, including PCB design, cloud and edge topologies, privacy and health concerns, and regulatory policies. Readers will also benefit from the inclusion of: A thorough introduction to the applications of IoT and wearable technology, including biomedicine and healthcare, fitness and wellbeing, sports, home automation, and more Discussions of wearable components and technologies, including microcontrollers and microprocessors, sensors, actuators and communication modules An exploration of the characteristics and basics of the communication protocols and technologies used in IoT and wearable devices An overview of

the most important security challenges, threats, attacks and vulnerabilities faced by IoT and wearable devices along with potential solutions Perfect for research and development scientists working in the wearable technology and Internet of Things spaces, Fundamentals of IoT and Wearable Technology Design will also earn a place in the libraries of undergraduate and graduate students studying wearable technology and IoT, as well as professors and practicing technologists in the area.

Mastering Cloud Development using Microsoft Azure - Roberto Freato 2016-06-28
Master the art of efficiently composing Azure services and implement them in real-world scenarios About This Book Build an effective development environment in Azure using the right set of technologies. Architect a full-stack solution in the cloud to choose the best service set A comprehensive guide full of real-life examples to help you take your developer skills up a notch Who This Book Is For If you are a

developer, a full-stack developer, or an architect with an intermediate level understanding of cloud computing and Microsoft Azure, and you want to take your skills up a notch, this book is for you. Prior knowledge and understanding of cloud development strategies is assumed. What You Will Learn Set up a development environment with VMs, ARM, and RemoteApp Connect with VPNs to manage security and backups Establish a front-end architecture with AppService, storage, search, and caching Implement identity solutions, integrate applications, and use data Integrate cross-platform mobile applications with the cloud Consistently build and manage an API layer for millions of users Work with messages in the enterprise Deploy your services as an IT expert with ARM templates In Detail Microsoft Azure is a cloud computing platform that supports many different programming languages, tools, and frameworks, including both Microsoft-specific and third-party software and systems. This book

starts by helping you set up a professional development environments in the cloud and integrating them with your local environment to achieve improved efficiency. You will move on to create front-end and back-end services, and then build cross-platform applications using Azure. Next you'll get to grips with advanced techniques used to analyze usage data and automate billing operations. Following on from that, you will gain knowledge of how you can extend your on-premise solution to the cloud and move data in a pipeline. In a nutshell, this book will show you how to build high-quality, end-to-end services using Microsoft Azure. By the end of this book, you will have the skillset needed to successfully set up, develop, and manage a full-stack Azure infrastructure. Style and Approach This comprehensive guide to Azure has both explorative parts and step-by-step ones. Each chapter defines a learning path to a specific scenario, mixing the appropriate technologies and building blocks efficiently.

Designing Internet of Things with Microsoft Azure - Nirnay Bansal 2020-11-16

Build a strong and efficient IoT solution at industrial and enterprise level by mastering industrial IoT using Microsoft Azure. This book focuses on the development of the industrial Internet of Things (IIoT) paradigm, discussing various architectures, as well as providing nine case studies employing IoT in common industrial domains including medical, supply chain, finance, and smart homes. The book starts by giving you an overview of the basic concepts of IoT, after which you will go through the various offerings of the Microsoft Azure IoT platform and its services. Next, you will get hands-on experience of IoT applications in various industries to give you a better picture of industrial solutions and how you should take your industry forward. As you progress through the chapters, you will learn real-time applications in IoT in agriculture, supply chain, financial services, retail, and transportation.

Towards the end, you will gain knowledge to identify and analyze IoT security and privacy risks along with a detailed sample project. The book fills an important gap in the learning of IoT and its practical use case in your industry.

Therefore, this is a practical guide that helps you discover the technologies and use cases for IIoT. By the end of this book, you will be able to build industrial IoT solution in Microsoft Azure with sensors, stream analytics, and serverless technologies. What You Will Learn Provision, configure, and connect devices with Microsoft Azure IoT hub Stream analytics using structural data and non-structural data such as images Use stream analytics, serverless technology, and IoT SaaS offerings Work with common sensors and IoT devices Who This Book Is For IoT architects, developers, and stakeholders working with the industrial Internet of Things.

IoT Solutions in Microsoft's Azure IoT Suite - Scott Klein 2017-05-13

Collect and analyze sensor and usage data from

Internet of Things applications with Microsoft Azure IoT Suite. Internet connectivity to everyday devices such as light bulbs, thermostats, and even voice-command devices such as Google Home and Amazon.com's Alexa is exploding. These connected devices and their respective applications generate large amounts of data that can be mined to enhance user-friendliness and make predictions about what a user might be likely to do next. Microsoft's Azure IoT Suite is a cloud-based platform that is ideal for collecting data from connected devices. You'll learn in this book about data acquisition and analysis, including real-time analysis. Real-world examples are provided to teach you to detect anomalous patterns in your data that might lead to business advantage. We live in a time when the amount of data being generated and stored is growing at an exponential rate. Understanding and getting real-time insight into these data is critical to business. IoT Solutions in Microsoft's Azure IoT Suite walks you through a

complete, end-to-end journey of how to collect and store data from Internet-connected devices. You'll learn to analyze the data and to apply your results to solving real-world problems. Your customers will benefit from the increasingly capable and reliable applications that you'll be able to deploy to them. You and your business will benefit from the gains in insight and knowledge that can be applied to delight your customers and increase the value from their business. What You'll Learn Go through data generation, collection, and storage from sensors and devices, both relational and non-relational Understand, from end to end, Microsoft's analytic services and where they fit into the analytical ecosystem Look at the Internet of your things and find ways to discover and draw on the insights your data can provide Understand Microsoft's IoT technologies and services, and stitch them together for business insight and advantage Who This Book Is For Developers and architects who plan on delivering IoT solutions,

data scientists who want to understand how to get better insights into their data, and anyone needing or wanting to do real-time analysis of data from the Internet of Things

Implementing Hybrid Cloud with Azure Arc -

Amit Malik 2021-07-16

Accelerate hybrid cloud innovation using Azure Arc with the help of real-world scenarios and examples Key Features Get to grips with setting up and working with Azure Arc Harness the power of Azure Arc and its integration with cutting-edge technologies such as Kubernetes and PaaS data services Manage, govern, and monitor your on-premises servers and applications with Azure Book Description With all the options available for deploying infrastructure on multi-cloud platforms and on-premises comes the complexity of managing it, which is adeptly handled by Azure Arc. This book will show you how you can manage environments across platforms without having to migrate workloads from on-premises or multi-cloud to Azure every

time. Implementing Hybrid Cloud with Azure Arc starts with an introduction to Azure Arc and hybrid cloud computing, covering use cases and various supported topologies. You'll learn to set up Windows and Linux servers as Arc-enabled machines and get to grips with deploying applications on Kubernetes clusters with Azure Arc and GitOps. The book then demonstrates how to onboard an on-premises SQL Server infrastructure as an Arc-enabled SQL Server and deploy and manage a hyperscale PostgreSQL infrastructure on-premises through Azure Arc. Along with deployment, the book also covers security, backup, migration, and data distribution aspects. Finally, it shows you how to deploy and manage Azure's data services on your own private cloud and explore multi-cloud solutions with Azure Arc. By the end of this book, you'll have a firm understanding of Azure Arc and how it interacts with various cutting-edge technologies such as Kubernetes and PaaS data services. What you will learn Set up a fully

functioning Azure Arc-managed environment Explore products and services from Azure that will help you to leverage Azure Arc Understand the new vision of working with on-premises infrastructure Deploy Azure's PaaS data services on-premises or on other cloud platforms Discover and learn about the technologies required to design a hybrid and multi-cloud strategy Implement best practices to govern your IT infrastructure in a scalable model Who this book is for This book is for Cloud IT professionals (Azure and/or AWS), system administrators, database administrators (DBAs), and architects looking to gain clarity about how Azure Arc works and how it can help them achieve business value. Anyone with basic Azure knowledge will benefit from this book.

A 360-Degree View of IoT Technologies -

John Soldatos 2020-12-31

This exciting book explores the past, present and future of IoT, presenting the most prominent technologies that comprise IoT applications,

including cloud computing, edge computing, embedded computing, Big Data, Artificial Intelligence (AI), blockchain and cybersecurity. A comprehensive description of the full range of the building blocks that comprise emerging IoT systems and applications is provided, while illustrating the evolution of IoT systems from the legacy small scale sensor systems and wireless sensor networks, to today's large scale IoT deployments that comprise millions of connected devices in the cloud and smart objects with (semi)autonomous behavior. It also provides an outlook for the future evolution of IoT systems, based on their blending with AI and the use of emerging technologies like blockchain for massively decentralized applications. The full spectrum of technologies that are closely associated with the term IoT since its introduction are explored. The book also highlights the main challenges that are associated with the development and deployment of IoT applications at scale,

including network connectivity, security, and interoperability challenges. First tech sensors, wireless sensor networks and radio-frequency identification (RFID) tags are covered. Machine learning, big data and security issues are also explored.

Microsoft Azure Security Infrastructure -
Yuri Diogenes 2016-08-19

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Implement maximum control, security, and compliance processes in Azure cloud environments In Microsoft Azure Security Infrastructure ,1/e three leading experts show how to plan, deploy, and operate Microsoft Azure with outstanding levels of control, security, and compliance. You'll learn how to prepare infrastructure with Microsoft's integrated tools, prebuilt templates, and managed services—and use these to help safely build and manage any enterprise, mobile, web,

or Internet of Things (IoT) system. The authors guide you through enforcing, managing, and verifying robust security at physical, network, host, application, and data layers. You'll learn best practices for security-aware deployment, operational management, threat mitigation, and continuous improvement—so you can help protect all your data, make services resilient to attack, and stay in control no matter how your cloud systems evolve. Three Microsoft Azure experts show you how to:

- Understand cloud security boundaries and responsibilities
- Plan for compliance, risk management, identity/access management, operational security, and endpoint and data protection
- Explore Azure's defense-in-depth security architecture
- Use Azure network security patterns and best practices
- Help safeguard data via encryption, storage redundancy, rights management, database security, and storage security
- Help protect virtual machines with Microsoft Antimalware for Azure Cloud Services and Virtual Machines
-

Use the Microsoft Azure Key Vault service to help secure cryptographic keys and other confidential information • Monitor and help protect Azure and on-premises resources with Azure Security Center and Operations Management Suite • Effectively model threats and plan protection for IoT systems • Use Azure security tools for operations, incident response, and forensic investigation

Microsoft Power Platform Enterprise

Architecture Robert Rybaric 2020-09-25

Gain a 360-degree view of Microsoft Power Platform and combine the benefits of Power Apps, Power BI, Power Automate, Azure, and Dynamics 365 to build an enterprise application platform for your organization

Key FeaturesExplore various Microsoft cloud components and find out how they can enhance your Power Platform solutionsGet to grips with Microsoft Power Platform's security and extensibility, integration, and data migration modelsDiscover architectural best practices for

designing complex enterprise solutionsBook Description For forward-looking architects and decision makers who want to craft complex solutions to serve growing business needs, Microsoft Power Platform Enterprise Architecture offers an array of architectural best practices and techniques. With this book, you'll learn how to design robust software using the tools available in the Power Platform suite and be able to integrate them seamlessly with various Microsoft 365 and Azure components. Unlike most other resources that are overwhelmingly long and unstructured, this book covers essential concepts using concise yet practical examples to help you save time. You'll develop the skills you need to architect, design, and manage a complex solution as you follow the journey of a fictitious enterprise customer as they enter the world of Power Platform. Throughout the book, you'll discover how to combine the functionality of Power Apps, Power Automate, Power BI, and Power Virtual Agents

with various methodologies to effectively address application lifecycle management, security, and extensibility. Finally, you'll learn how to overcome common challenges in migrating data to and from Microsoft Power Platform using proven techniques. By the end of this book, you'll have the strategic perspective of an enterprise architect to make accurate architectural decisions for your complex Power Platform projects. What you will learn

Understand various Dynamics 365 CRM, ERP, and AI modules for creating Power Platform solutions

Enhance Power Platform with Microsoft 365 and Azure

Find out which regions, staging environments, and user licensing groups need to be employed when creating enterprise solutions

Implement sophisticated security by using various authentication and authorization techniques

Extend Power Apps, Power BI, and Power Automate to create custom applications

Integrate your solution with various in-house Microsoft components or third-party

systems using integration patterns

Who this book is for This book is for enterprise architects and technical decision makers who want to craft complex solutions using Microsoft Power Platform to serve growing business needs and to stay competitive in the modern IT world. A basic understanding of Microsoft Power Platform will help you to get started with this book.

Microsoft Azure For Dummies - Jack A. Hyman
2023-01-12

The must-have reference for Azure newcomers

As Microsoft's Azure platform takes a larger stake in the cloud computing world, more tech pros need to know the ins-and-outs of this fast-growing platform. Microsoft Azure For Dummies is the essential guide for users who are new to the platform. Take your first steps into the world of Azure as you learn all about the core services—straight from a Microsoft expert. This book covers the Azure essentials you need to know, including building a virtual network on Azure, launching and scaling applications,

migrating existing services, and keeping everything secure. In classic Dummies style, you'll learn the fundamentals of Azure's core services and—when you're ready—how to move into more advanced services. Discover the basics of cloud computing with Microsoft Azure and learn what services you can access with Azure Build your cloud network with Azure and migrate an existing network to the platform Scale applications seamlessly and make sure your security is air-tight Updated to include expanded information on data resources, machine learning, artificial intelligence, and collaboration, Microsoft Azure For Dummies, 2nd Edition answers the call for an entry-level, comprehensive guide that provides a simple-to-understand primer on core Azure services. It's an invaluable resource for IT managers and others arriving at the platform for the first time.

Handbook of Research on Big Data and the IoT
Kaur, Gurjit 2019-03-29

The increase in connected devices in the

internet of things (IoT) is leading to an exponential increase in the data that an organization is required to manage. To successfully utilize IoT in businesses, big data analytics are necessary in order to efficiently sort through the increased data. The combination of big data and IoT can thus enable new monitoring services and powerful processing of sensory data streams. The Handbook of Research on Big Data and the IoT is a pivotal reference source that provides vital research on emerging trends and recent innovative applications of big data and IoT, challenges facing organizations and the implications of these technologies on society, and best practices for their implementation. While highlighting topics such as bootstrapping, data fusion, and graph mining, this publication is ideally designed for IT specialists, managers, policymakers, analysts, software engineers, academicians, and researchers.

Azure in Action Brian Prince 2010-10-21

Azure in Action is a fast-paced tutorial intended for architects and developers looking to develop cloud-based applications on the Windows Azure Platform. Written by two of Microsoft's leading Azure evangelists, it's designed both for readers new to cloud concepts and for those familiar with cloud development but new to Azure. Starting with core concepts, the book explores designing and scaling front-end and back-end services that run in the cloud, and more advanced scenarios in Windows Azure. Later chapters introduce the rest of the Azure Services Platform with a particular focus on SQL Azure Database.

Hands-On Edge Analytics with Azure IoT -

Colin Dow 2020-05-21

Design, secure, and protect the privacy of edge analytics applications using platforms and tools such as Microsoft's Azure IoT Edge, MicroPython, and Open Source Computer Vision (OpenCV) Key Features Become well-versed with best practices for implementing automated

analytical computations Discover real-world examples to extend cloud intelligence Develop your skills by understanding edge analytics and applying it to research activities Book Description Edge analytics has gained attention as the IoT model for connected devices rises in popularity. This guide will give you insights into edge analytics as a data analysis model, and help you understand why it's gaining momentum. You'll begin with the key concepts and components used in an edge analytics app. Moving ahead, you'll delve into communication protocols to understand how sensors send their data to computers or microcontrollers. Next, the book will demonstrate how to design modern edge analytics apps that take advantage of the processing power of modern single-board computers and microcontrollers. Later, you'll explore Microsoft Azure IoT Edge, MicroPython, and the OpenCV visual recognition library. As you progress, you'll cover techniques for processing AI functionalities from the server

side to the sensory side of IoT. You'll even get hands-on with designing a smart doorbell system using the technologies you've learned. To remove vulnerabilities in the overall edge analytics architecture, you'll discover ways to overcome security and privacy challenges. Finally, you'll use tools to audit and perform real-time monitoring of incoming data and generate alerts for the infrastructure. By the end of this book, you'll have learned how to use edge analytics programming techniques and be able to implement automated analytical computations. What you will learn Discover the key concepts and architectures used with edge analytics Understand how to use long-distance communication protocols for edge analytics Deploy Microsoft Azure IoT Edge to a Raspberry Pi Create Node-RED dashboards with MQTT and Text to Speech (TTS) Use MicroPython for developing edge analytics apps Explore various machine learning techniques and discover how machine learning

is related to edge analytics Use camera and vision recognition algorithms on the sensory side to design an edge analytics app Monitor and audit edge analytics apps Who this book is for If you are a data analyst, data architect, or data scientist who is interested in learning and practicing advanced automated analytical computations, then this book is for you. You will also find this book useful if you're looking to learn edge analytics from scratch. Basic knowledge of data analytics concepts is assumed to get the most out of this book.

IoT, AI, and Blockchain for .NET - Nishith Pathak
2018-08-14

Create applications using Industry 4.0. Discover how artificial intelligence (AI) and machine learning (ML) capabilities can be enhanced using the Internet of things (IoT) and secured using Blockchain, so your latest app can be not just smarter but also more connected and more secure than ever before. This book covers the latest easy-to-use APIs and services from

Microsoft, including Azure IoT, Cognitive Services APIs, Blockchain as a Service (BaaS), and Machine Learning Studio. As you work through the book, you'll get hands-on experience building an example solution that uses all of these technologies—an IoT suite for a smart healthcare facility. Hosted on Azure and networked using Azure IoT, the solution includes centralized patient monitoring, using Cognitive Services APIs for face detection, recognition, and tracking. Blockchain is used to create trust-based security and inventory management. Machine learning is used to create predictive solutions to proactively improve quality of life. By the end of the book, you'll be confident creating richer and smarter applications using these technologies. What You'll Learn Know the technologies underpinning Industry 4.0 and AI 2.0 Develop real-time solutions using IoT in Azure Bring the smart capabilities of AI 2.0 into your application using a simple API call Host and manage your solution on Azure Understand

Blockchain as a Service Capture and analyze data on the fly Make predictions using existing data Who This Book Is For Novice and intermediate .NET developers and architects who want to learn what it takes to create a modern or next-generation application

Cloud Analytics with Microsoft Azure - Has Altaiar 2021-01-28

Learn to extract actionable insights from your big data in real time using a range of Microsoft Azure features Key Features Updated with the latest features and new additions to Microsoft Azure Master the fundamentals of cloud analytics using Azure Learn to use Azure Synapse Analytics (formerly known as Azure SQL Data Warehouse) to derive real-time customer insights Book Description Cloud Analytics with Microsoft Azure serves as a comprehensive guide for big data analysis and processing using a range of Microsoft Azure features. This book covers everything you need to build your own data warehouse and learn numerous techniques

to gain useful insights by analyzing big data The book begins by introducing you to the power of data with big data analytics, the Internet of Things (IoT), machine learning, artificial intelligence, and DataOps. You will learn about cloud-scale analytics and the services Microsoft Azure offers to empower businesses to discover insights. You will also be introduced to the new features and functionalities added to the modern data warehouse. Finally, you will look at two real-world business use cases to demonstrate high-level solutions using Microsoft Azure. The aim of these use cases will be to illustrate how real-time data can be analyzed in Azure to derive meaningful insights and make business decisions. You will learn to build an end-to-end analytics pipeline on the cloud with machine learning and deep learning concepts. By the end of this book, you will be proficient in analyzing large amounts of data with Azure and using it effectively to benefit your organization. What you will learn Explore the concepts of modern

data warehouses and data pipelines Discover unique design considerations while applying a cloud analytics solution Design an end-to-end analytics pipeline on the cloud Differentiate between structured, semi-structured, and unstructured data Choose a cloud-based service for your data analytics solutions Use Azure services to ingest, store, and analyze data of any scale Who this book is for This book is designed to benefit software engineers, Azure developers, cloud consultants, and anyone who is keen to learn the process of deriving business insights from huge amounts of data using Azure. Though not necessary, a basic understanding of data analytics concepts such as data streaming, data types, the machine learning life cycle, and Docker containers will help you get the most out of the book.

[Microsoft Azure Essentials - Fundamentals of Azure](#) - Michael Collier 2015-01-29

Microsoft Azure Essentials from Microsoft Press is a series of free ebooks designed to help you

advance your technical skills with Microsoft Azure. The first ebook in the series, Microsoft Azure Essentials: Fundamentals of Azure, introduces developers and IT professionals to the wide range of capabilities in Azure. The authors - both Microsoft MVPs in Azure - present both conceptual and how-to content for key areas, including: Azure Websites and Azure Cloud Services Azure Virtual Machines Azure Storage Azure Virtual Networks Databases Azure Active Directory Management tools Business scenarios Watch Microsoft Press's blog and Twitter (@MicrosoftPress) to learn about other free ebooks in the "Microsoft Azure Essentials" series.

Microservices, IoT and Azure - Bob Familiar
2015-10-20

This book provides practical guidance for adopting a high velocity, continuous delivery process to create reliable, scalable, Software-as-a-Service (SaaS) solutions that are designed and built using a microservice architecture, deployed

to the Azure cloud, and managed through automation. Microservices, IoT, and Azure offers software developers, architects, and operations engineers' step-by-step directions for building SaaS applications—applications that are available 24x7, work on any device, scale elastically, and are resilient to change-through code, script, exercises, and a working reference implementation. The book provides a working definition of microservices and contrasts this approach with traditional monolithic Layered Architecture. A fictitious, homebiomedical startup is used to demonstrate microservice architecture and automation capabilities for cross-cutting and business services as well as connected device scenarios for Internet of Things (IoT). Several Azure PaaS services are detailed including Storage, SQL Database, DocumentDb, Redis Cache, Cloud Services, Web API's, API Management, IoT Hub, IoT Suite, Event Hub, and Stream Analytics. Finally the book looks to the future and examines Service

Fabric to see how microservices are becoming the de facto approach to building reliable software in the cloud. In this book, you'll learn: What microservices are and why are they're a compelling architecture pattern for SaaS applications How to design, develop, and deploy microservices using Visual Studio, PowerShell, and Azure Microservice patterns for cross-cutting concerns and business capabilities Microservice patterns for Internet of Things and big data analytics solutions using IoT Hub, Event Hub, and Stream Analytics Techniques for automating microservice provisioning, building, and deployment What Service Fabric is and how it's the future direction for microservices on Microsoft Azure

Learn Azure in a Month of Lunches, Second Edition Iain Foulds 2020-10-06

Learn Azure in a Month of Lunches, Second Edition, is a tutorial on writing, deploying, and running applications in Azure. In it, you'll work through 21 short lessons that give you real-

world experience. Each lesson includes a hands-on lab so you can try out and lock in your new skills. Summary You can be incredibly productive with Azure without mastering every feature, function, and service. Learn Azure in a Month of Lunches, Second Edition gets you up and running quickly, teaching you the most important concepts and tasks in 21 practical bite-sized lessons. As you explore the examples, exercises, and labs, you'll pick up valuable skills immediately and take your first steps to Azure mastery! This fully revised new edition covers core changes to the Azure UI, new Azure features, Azure containers, and the upgraded Azure Kubernetes Service. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Microsoft Azure is vast and powerful, offering virtual servers, application templates, and prebuilt services for everything from data storage to AI. To navigate it all, you need a trustworthy guide. In this book, Microsoft

engineer and Azure trainer Iain Foulds focuses on core skills for creating cloud-based applications. About the book Learn Azure in a Month of Lunches, Second Edition, is a tutorial on writing, deploying, and running applications in Azure. In it, you'll work through 21 short lessons that give you real-world experience. Each lesson includes a hands-on lab so you can try out and lock in your new skills. What's inside Understanding Azure beyond point-and-click Securing applications and data Automating your environment Azure services for machine learning, containers, and more About the reader This book is for readers who can write and deploy simple web or client/server applications. About the author Iain Foulds is an engineer and senior content developer with Microsoft. Table of Contents PART 1 - AZURE CORE SERVICES 1 Before you begin 2 Creating a virtual machine 3 Azure Web Apps 4 Introduction to Azure Storage 5 Azure Networking basics PART 2 - HIGH AVAILABILITY AND SCALE 6 Azure Resource

Manager 7 High availability and redundancy 8 Load-balancing applications 9 Applications that scale 10 Global databases with Cosmos DB 11 Managing network traffic and routing 12 Monitoring and troubleshooting PART 3 - SECURE BY DEFAULT 13 Backup, recovery, and replication 14 Data encryption 15 Securing information with Azure Key Vault 16 Azure Security Center and updates PART 4 - THE COOL STUFF 17 Machine learning and artificial intelligence 18 Azure Automation 19 Azure containers 20 Azure and the Internet of Things 21 Serverless computing
Briggs - Barry Briggs 2016-01-07
How do you start? How should you build a plan for cloud migration for your entire portfolio? How will your organization be affected by these changes? This book, based on real-world cloud experiences by enterprise IT teams, seeks to provide the answers to these questions. Here, you'll see what makes the cloud so compelling to enterprises; with which applications you should

start your cloud journey; how your organization will change, and how skill sets will evolve; how to measure progress; how to think about security, compliance, and business buy-in; and how to exploit the ever-growing feature set that the cloud offers to gain strategic and competitive advantage.

Learning Microsoft Azure - Jonah Andersson
2023

If your organization plans to modernize services and move to the cloud from legacy software or a private cloud on premises, this book is for you. Software developers, solution architects, cloud engineers, and anybody interested in cloud technologies will learn fundamental concepts for cloud computing, migration, transformation, and development using Microsoft Azure. Author and Microsoft MVP Jonah Carrio Andersson guides you through cloud computing concepts and deployment models, the wide range of modern cloud technologies, application development with Azure, team collaboration services, security

services, and cloud migration options in Microsoft Azure. You'll gain insight into the Microsoft Azure cloud services that you can apply in different business use cases, software development projects, and modern solutions in the cloud. You'll also become fluent with Azure cloud migration services, serverless computing technologies that help your development team work productively, Azure IoT, and Azure cognitive services that make your application smarter. This book also provides real-world advice and best practices based on the author's own Azure migration experience. Gain insight into which Azure cloud service best suits your company's particular needs Understand how to use Azure for different use cases and specific technical requirements Start developing cloud services, applications, and solutions in the Azure environment Learn how to migrate existing legacy applications to Microsoft Azure.

Azure IoT Development Cookbook - Yatish Patil
2017-08-11

Over 50 recipes to drive IoT innovation with Microsoft Azure About This Book Build secure and scalable IoT solutions with Azure IoT platform Learn techniques to build end to end IoT solutions leveraging the Azure IoT platform Filled with practical recipes to help you increase connectivity and automation across IoT devices Who This Book Is For If you are an application developer and want to build robust and secure IoT solution for your organization using Azure IoT, then this book is for you. What You Will Learn Build IoT Solutions using Azure IoT & Services Learn device configuration and communication protocols Understand IoT Suite and Pre-configured solutions Manage Secure Device communications Understand Device management, alerts Introduction with IoT Analytics, reference IoT Architectures Reference Architectures from Industry Pre-Configured IoT Suite solutions In Detail Microsoft's end-to-end IoT platform is the most complete IoT offering, empowering enterprises to build and realize

value from IoT solutions efficiently. It is important to develop robust and reliable solutions for your organization to leverage IoT services. This book focuses on how to start building custom solutions using the IoT hub or the preconfigured solution of Azure IoT suite. As a developer, you will be taught how to connect multiple devices to the Azure IoT hub, develop, manage the IoT hub service and integrate the hub with cloud. We will be covering REST APIs along with HTTP, MQTT and AMQP protocols. It also helps you learn Pre-Configured IoT Suite solution. Moving ahead we will be covering topics like:-Process device-to-cloud messages and cloud-to-device messages using .Net-Direct methods and device management-Query Language, Azure IoT SDK for .Net-Creating and managing, Securing IoT hub, IoT Suite and many more. We will be using windows 10 IoT core, Visual Studio, universal Windows platform. At the end, we will take you through IoT analytics and provide a demo of connecting real device

with Azure IoT. Style and approach A set of exciting recipes of using Microsoft Azure IoT more effectively.

Advanced Computing Strategies for Engineering

- Ian F. C. Smith 2018-06-09

This double volume set (LNAI 10863-10864) constitutes the refereed proceedings of the 25th International Workshop, EG-ICE 2018, held in Lausanne, Switzerland, in June 2018. The 58 papers presented in this volume were carefully reviewed and selected from 108 submissions. The papers are organized in topical sections on Advanced Computing in Engineering, Computer Supported Construction Management, Life-Cycle Design Support, Monitoring and Control Algorithms in Engineering, and BIM and Engineering Ontologies.

2020 8th International Symposium on Digital Forensics and Security (ISDFS)

2020-06

ISDFS provides a platform for researchers and experts in academia, industry and government to

exchange ideas and recent developments in digital forensics, cyber security, cryptography, artificial intelligence, data privacy, information security, robotics and other areas of the computer science After the seventh successful events, the eight ISDFS conference will continue to promote and disseminate knowledge concerning several topics and technologies related to Computer Science, Artificial Intelligence, Digital Forensics, Security, robotics, etc The symposium will be held by the Arab Open University in Beirut, Lebanon Special sessions, workshops, tutorials, keynotes, panel discussions, poster and oral presentations will be included in the symposium program All papers will be reviewed by at least three independent reviewers (single blinded review) Accepted full papers will be submitted for publication in the IEEE Xplore Digital Library *Microsoft Azure Security Center*

Discover high-value Azure security insights, tips,

and operational optimizations This book presents comprehensive Azure Security Center techniques for safeguarding cloud and hybrid environments. Leading Microsoft security and cloud experts Yuri Diogenes and Dr. Thomas Shinder show how to apply Azure Security Center's full spectrum of features and capabilities to address protection, detection, and response in key operational scenarios. You'll learn how to secure any Azure workload, and optimize virtually all facets of modern security, from policies and identity to incident response and risk management. Whatever your role in Azure security, you'll learn how to save hours, days, or even weeks by solving problems in most efficient, reliable ways possible. Two of Microsoft's leading cloud security experts show how to:

- Assess the impact of cloud and hybrid environments on security, compliance, operations, data protection, and risk management
- Master a new security paradigm for a world without traditional perimeters
- Gain

visibility and control to secure compute, network, storage, and application workloads

- Incorporate Azure Security Center into your security operations center
- Integrate Azure Security Center with Azure AD Identity Protection Center and third-party solutions
- Adapt Azure Security Center's built-in policies and definitions for your organization
- Perform security assessments and implement Azure Security Center recommendations
- Use incident response features to detect, investigate, and address threats
- Create high-fidelity fusion alerts to focus attention on your most urgent security issues
- Implement application whitelisting and just-in-time VM access
- Monitor user behavior and access, and investigate compromised or misused credentials
- Customize and perform operating system security baseline assessments
- Leverage integrated threat intelligence to identify known bad actors

Internet of Things from Hype to Reality

Rayes 2022

This revised textbook presents updated material on its core content: an end-to-end IoT architecture that is comprised of devices, network, compute, storage, platform, applications along with management and security components. As with the second edition, it is organized into six main parts: an IoT reference model; fog computing and the drivers; IoT management and applications; smart services in IoT; IoT standards; and case studies. This editions features include overhaul of the IoT Protocols (Chapter 5) to include an expanded treatment of low-power wide area networks including narrow band IoT (NB-IoT) protocol, updated IoT platforms and capabilities (Chapter 7) to include comparison of commercially available platforms (e.g. AWS IoT Platform, Google Cloud IoT Platform, Microsoft Azure IoT Platform, and PTC ThinkWorx), updated security (Chapter 8) to include approaches for securing IoT devices with examples of IoT devices used in

security attacks and associated solutions including MUD and DICE, and finally new Appendix B to include six IoT project detailed for students.

Recent Advancements in ICT Infrastructure and Applications - Manish Chaturvedi

2022-06-11

This book covers complete spectrum of the ICT infrastructure elements required to design, develop and deploy the ICT applications at large scale. Considering the focus of governments worldwide to develop smart cities with zero environmental footprint, the book is timely and enlightens the way forward to achieve the goal by addressing the technological aspects. In particular, the book provides an in depth discussion of the sensing infrastructure, communication protocols, computation frameworks, storage architectures, software frameworks, and data analytics. The book also presents the ICT application-related case studies in the domain of transportation, health care,

energy, and disaster management, to name a few. The book is used as a reference for design,

development, and large-scale deployment of ICT applications by practitioners, professionals, government officials, and engineering students.