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# *Microsoft Azure Iot Cloud Platform Services*

Security concerns around the rapid growth and variety of devices that are controlled and managed over the Internet is an immediate potential threat to all who own or use them. This book examines the issues surrounding these problems, vulnerabilities, what can be done to solve the problems, investigating the roots of the problems and how programming and attention to good security practice can combat the threats today that are a result of lax security processes on the Internet of Things, cloud computing and

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social media.

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

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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

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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

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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 In the race to compete in today's fast-moving markets, large enterprises are busy adopting new technologies for creating new products, processes, and business models. But one obstacle on the road to digital transformation is

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placing too much emphasis on technology, and not enough on the types of processes technology enables. What if different lines of business could build their own services and applications—and decision-making was distributed rather than centralized? This report explores the concept of a digital business platform as a way of empowering individual business sectors to act on data in real time. Much innovation in a digital enterprise will increasingly happen at the edge, whether it involves business users (from marketers to data scientists) or IoT devices. To facilitate the process, your core IT team can provide these sectors with the digital tools they need to innovate quickly. This report explores: Key cultural and

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organizational changes for developing business capabilities through cross-functional product teams A platform for integrating applications, data sources, business partners, clients, mobile apps, social networks, and IoT devices Creating internal API programs for building innovative edge services in low-code or no-code environments Tools including Integration Platform as a Service, Application Platform as a Service, and Integration Software as a Service The challenge of integrating microservices and serverless architectures Event-driven architectures for processing and reacting to events in real time You'll also learn about a complete pervasive integration solution as a core component of a digital

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business platform to serve every audience in your organization.

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



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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

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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

Asp.Net Core and Azure with Raspberry Pi 4

Using Windows 10 IoT Core and Azure IoT Suite

Designing Distributed Systems

Build modern data warehouses with the combined power of analytics and Azure

Microsoft Azure Security Center

Real-time data processing for quick insights using Azure Stream Analytics

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## Microsoft Azure Security Infrastructure

Over 50 recipes to drive IoT innovation with Microsoft Azure Ab  
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 device  
Who This Book Is For If you are an application developer and wa  
to build robust and secure IoT solution for your organization usi  
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 f

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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 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-Q

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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.

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

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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 such as blockchain for massively decentralized applications. The full spectrum of technologies that are closely associated with the 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 technologies such as sensors, wireless sensor networks and radio-frequency identification (RFID) tags are covered. Machine learning, big data

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and security issues are also explored.

Get the definitive guide on designing applications on the Microsoft application platform—straight from the Microsoft patterns & practices team. Learn how to choose the most appropriate architecture and the best implementation technologies that the Microsoft application platform offers applications developers. Get critical design recommendations and guidelines organized by application type—from Web, mobile, and rich Internet applications to Office Business Applications. You™ll also get links to additional technical resources that can help with your application development.

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

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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



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accelerators and managed solutions Investigate new use cases are described and apply best practices in deployment strategies Integrate cutting-edge Azure deployments with existing legacy 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

A 360-Degree View of IoT Technologies

Implementing Hybrid Cloud with Azure Arc

Explore the new-generation hybrid cloud and learn how to build Azure Arc-enabled solutions

Extending the Cloud to the Intelligent Edge

A guide for architects and decision makers to craft complex solutions tailored to meet business needs

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Designing Internet of Things with Microsoft Azure  
Advancing IoT Platforms Interoperability

*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*

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*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*

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*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.*

*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*

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*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

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*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*

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*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.*

*Manage and control Internet-connected devices from Windows and Raspberry Pi. Master the Windows IoT Core application programming interface and feature*

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*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*



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*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*

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*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.*

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*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.*

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*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.*

*.Net Core Applications in Raspbian OS*

*Shaping the Future of ICT*

*Internet of Things from Hype to Reality*

*Data Acquisition and Analysis in the Real World*

*Mastering Cloud Development using Microsoft Azure*

*A Survey of Secure and Smart Industrial Solutions*

*Microsoft Application Architecture Guide*

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***NOW FULLY UPDATED: high-value Azure Security Center insights, tips, and operational solutions Reflecting updates through mid-2019, 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 help you apply Azure Security Center's robust protection, detection, and response capabilities in key operational scenarios. You'll walk through securing any Azure workload, and optimizing key facets of modern security, from policies and identity to incident response and risk management. Brand-new coverage includes single-click remediation, IoT, improved container security, Azure Sentinel, and more. Whatever your security role, you'll learn how to save hours, days, or even weeks by solving problems in the most efficient and reliable ways possible.***

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*Two of Microsoft's leading cloud security experts show how to: Implement a comprehensive new security paradigm designed specifically for cloud and hybrid environments Gain visibility and control to secure all key workloads Incorporate Azure Security Center into your security operations center, and integrate 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 fast with single-click remediation 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 Assess IoT device security with the Azure IoT Hub managed service Monitor user behavior*

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*and access, and investigate compromised or misused credentials Integrate Microsoft's new Azure Sentinel Security Information and Event Management (SIEM) platform Customize and perform operating system security baseline assessments About This Book For cloud architects, designers, implementers, operations professionals, and security specialists working in Microsoft Azure cloud or hybrid environments For all IT professionals and decision-makers concerned with the security of Azure environments 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*

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*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*



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*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*

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*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.*

*Your one stop guide to making the most out of Azure Cloud About This Book Get familiar with the different design patterns available in Microsoft Azure Develop Azure cloud architecture and a pipeline management system Get to know the security best practices for your Azure deployment Who This Book Is For If you are Cloud Architects, DevOps Engineers, or developers who want to learn key architectural aspects of the Azure Cloud platform, then this book is for you. Prior basic knowledge of the Azure Cloud platform is good to have. What You Will Learn Familiarize*

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*yourself with the components of the Azure Cloud platform Understand the cloud design patterns Use enterprise security guidelines for your Azure deployment Design and implement Serverless solutions See Cloud architecture and the deployment pipeline Understand cost management for Azure solutions In Detail Over the years, Azure cloud services has grown quickly, and the number of organizations adopting Azure for their cloud services is also gradually increasing. Leading industry giants are finding that Azure fulfills their extensive cloud requirements. This book will guide you through all the important and tough decision-making aspects involved in architecting a Azure public cloud for your organization. The book starts with an extensive introduction to all the categories of designs available with Azure. These design patterns focus on different aspects of cloud such as high*

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*availability, data management, and so on. Gradually, we move on to various aspects such as building your cloud structure and architecture. It will also include a brief description about different types of services provided by Azure, such as Azure functions and Azure Analytics, which can prove beneficial for an organization. This book will cover each and every aspect and function required to develop a Azure cloud based on your organizational requirements. By the end of this book, you will be in a position to develop a full-fledged Azure cloud. Style and approach This hands-on guide to the Azure Cloud platform covers different architectural concepts and implementations necessary for any enterprise scale deployment.*

*Gain a 360-degree view of Microsoft Power Platform and combine the benefits of Power Apps, Power BI, Power Automate, Azure,*

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*and Dynamics 365 to build an enterprise application platform for your organization*  
**Key Features**  
*Explore various Microsoft cloud components and find out how they can enhance your Power Platform solutions*  
**Get to grips with Microsoft Power Platform's security and extensibility, integration, and data migration models**  
*Discover architectural best practices for designing complex enterprise solutions*  
**Book 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*

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*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*

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*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*

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*understanding of Microsoft Power Platform will help you to get started with this book.*

*A practical guide to building distributed IoT solutions*

*Stream Analytics with Microsoft Azure*

*Internet of Things: Concepts and System Design*

*The Model Factory as the Key Enabler for the Future of Manufacturing*

*Microservices, IoT and Azure*

*Hands-On Azure Digital Twins*

*Trends in Information Technology, Communications Engineering, and Management*

**Collect and analyze sensor and usage data from Internet of Things applications with**



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**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.**

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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

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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

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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

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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

IoT Solutions in Microsoft's Azure IoT Suite  
Data Acquisition and Analysis in the Real World  
Apress

Build cool Internet of Things (IoT) projects using Microsoft Azure cloud services  
About This Video Explore, Microsoft Azure IoT, one of the most popular cloud based IoT platforms  
Build projects in IoT using Microsoft Azure

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**Cloud services Understand the security aspects of Microsoft Azure IoT In Detail**  
If you are looking for that one course that will help you gain the confidence to learn Microsoft Azure IoT, you have come to the right place. With numerous custom-made illustrations and animations, we have set the standard in terms of production quality so that you can have a terrific learning experience. This course is meant for anyone who wants to build real-world IoT applications using Microsoft Azure Cloud services. If you are an engineer who

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wants to start working with one of the most popular cloud based IoT platforms or a hobbyist looking to enter the world of the Internet of Things, you will find this course very useful. This is because we have tailored this course by giving equal importance to both the projects as well as the concepts.

This comprehensive overview of IoT systems architecture includes in-depth treatment of all key components: edge, communications, cloud, data processing, security, management, and uses. Internet

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**of Things: Concepts and System Design** provides a reference and foundation for students and practitioners that they can build upon to design IoT systems and to understand how the specific parts they are working on fit into and interact with the rest of the system. This is especially important since IoT is a multidisciplinary area that requires diverse skills and knowledge including: sensors, embedded systems, real-time systems, control systems, communications, protocols, Internet, cloud computing, large-scale



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distributed processing and storage systems, AI and ML, (preferably) coupled with domain experience in the area where it is to be applied, such as building or manufacturing automation. Written in a reader-minded approach that starts by describing the problem (why should I care?), placing it in context (what does this do and where/how does it fit in the great scheme of things?) and then describing salient features of solutions (how does it work?), this book covers the existing body of knowledge and design

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practices, but also offers the author's insights and articulation of common attributes and salient features of solutions such as IoT information modeling and platform characteristics.

**Programming for the Internet of Things  
Briggs**

**Design and develop IoT applications with edge analytical solutions including Azure IoT Edge**

**Leveraging DevOps and Microservice Architecture to deliver SaaS Solutions Architecture and Fundamentals**

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### **Microsoft Azure Essentials - Fundamentals of Azure**

#### **Introduction to Microsoft Azure IoT**

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,

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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

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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,

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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

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operations, incident response, and forensic investigation

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

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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



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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

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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

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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 from Microsoft

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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

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Management tools Business scenarios Watch Microsoft Press's blog and Twitter (@MicrosoftPress) to learn about other free ebooks in the "Microsoft Azure Essentials" series.

The International Conference on Communications, Management, and Information Technology (ICCMIT'16) provides a discussion forum for scientists, engineers, educators and students about the latest discoveries and realizations in the foundations, theory, models and applications of systems

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inspired on nature, using computational intelligence methodologies, as well as in emerging areas related to the three tracks of the conference: Communication Engineering, Knowledge, and Information Technology. The best 25 papers to be included in the book will be carefully reviewed and selected from numerous submissions, then revised and expanded to provide deeper insight into trends shaping future ICT.

25th EG-ICE International Workshop 2018,  
Lausanne, Switzerland, June 10-13, 2018,

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Proceedings, Part II

Build end-to-end IoT solutions using popular IoT platforms

Microsoft Power Platform Enterprise Architecture

Learn Microsoft Azure

Azure for Architects

Build, manage, and scale cloud applications using the Azure ecosystem

Intelligent Distributed Computing XIV

Guide to designing and developing cloud native applications in Azure Key Featuresa- Basics of Cloud

Native Applications a- Designing Microservicesa-

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Different cloud native options for developing Cloud Native Applications in Azure- BOTs, Web Apps, Mobile Apps, Logic Apps, Service Bus, Azure Functions- Azure IOT Applications- Azure Machine Learning Basics- Enterprise Digital Journeys

Description

The mainstreaming of the cloud-native architecture as an enterprise discipline is well underway. According to the Forbes report, in January 2018, 83% of enterprise workloads will be in the cloud by 2020, 41% of enterprise workloads will run on public cloud platforms while another 22% will be running on hybrid cloud platforms. Customers are embarking on enterprise digital transformation journeys. Adopting cloud, cloud-native



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architectures, and microservices is an important aspect of the journey. This book starts with a brief introduction to the basics of cloud-native applications and cloud-native application patterns. It covers cloud-native options available in Azure. The objective of the book is to provide practical guidelines to an architect/designer/consultant/developer who is part of the Cloud application definition team. The book articulates a methodology that the implementation team needs to follow in a systematic manner and adapt them to fulfill the requirements for enabling the cloud-native application. It emphasizes on the interpersonal skills and techniques for organizing and directing the cloud-native

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definition, leadership buy-in, and leading the transition from planning to implementation. It also highlights steps to be followed and the patterns for developing cloud-native applications, cloud-native options available in Azure, developing BOT, and microservices based on Azure. It also covers how to develop simple IoT applications, Machine learning-based applications, and the serverless architecture using Azure with a practical and pragmatic approach. This book embraces a structured approach around the following key themes that represent the typical phases an enterprise traverses during its cloud-native application journey. What will you learn This book aims to: a- Demonstrate the importance

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of cloud-native applications in elevating the effectiveness of organizational transformation programs and digital enterprise journeys using MS Azure.

a- Disseminate current advancements and thought leadership in the area of cloud-native architecture in the context of digital enterprises.

a- Provide initiatives with evidence-based, credible, field-tested and practical guidance in designing their respective architectures.

Who this book is for  
The book is intended for anyone looking for a career in Cloud technology, especially all aspiring Cloud Architects who want to learn cloud-native architectures, Microservices, IoT, BOT and Microsoft Azure platform.

Table of Contents

1. Basics of Cloud Native Applications
2. Cloud

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3. Cloud Native Options available in Azure - BOTs, Logic Apps, Service Bus, Azure Microservices, ML services  
4. Developing a Simple BOT using .NET Core  
5. Developing Cloud Native applications leveraging Microservices and Azure API Gateway  
6. Developing Integration capabilities using serverless architecture  
7. Developing a simple IoT application  
8. Developing a simple ML based application  
9. Different enterprise use cases which enable digital transformation using Cloud Native Applications  
Leverage the power of Azure to get efficient data insights from your big data in real time  
Key Features  
Explore the basics of cloud analytics using Azure Discover different

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ways to process and visualize your data easily Learn to use Azure Synapse Analytics (formerly known as Azure SQL Data Warehouse) to derive real-time customer insights Book Description With data being generated at an exponential speed, organizations all over the world are migrating their infrastructure to the cloud. Application management becomes much easier when you use a cloud platform to build, manage, and deploy your services and applications. Cloud Analytics with Microsoft Azure covers all that you need to extract useful insights from your data. You'll explore the power of data with big data analytics, the Internet of Things (IoT), machine learning, artificial intelligence, and DataOps. You'll also

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delve into data analytics by studying use cases that focus on creating actionable insights from near-real-time data. As you advance, you'll 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'll have developed a solid understanding of data analytics with Azure and its practical implementation. What you will learn

- Explore the concepts of modern data warehouses and data pipelines
- Discover different 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

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data analytics solutions Use Azure services to ingest, store and analyze data of any scale Who this book is for If you're planning to adopt the cloud analytics model for your business, this book will help you understand the design and business considerations that you must keep in mind. 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. 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

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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



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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.

The IoT European Platforms Initiative (IoT-EPI) projects are addressing the topic of Internet of Things and

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Platforms for Connected Smart Objects and aim to deliver an IoT extended into a web of platforms for connected devices and objects that supports smart environments, businesses, services and persons with dynamic and adaptive configuration capabilities. The specific areas of focus of the research activities are architectures and semantic interoperability, which reliably cover multiple use cases. The goal is to deliver dynamically-configured infrastructure and integration platforms for connected smart objects covering multiple technologies and multiple intelligent artefacts. The IoT-EPI ecosystem has been created with the objective of increasing the impact of the IoT-related European

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research and innovation, including seven European promising projects on IoT platforms: AGILE, BIG IoT, INTER-IoT, VICINITY, SymbloTe, bloTope, and TagItSmart. This white paper provides an insight regarding interoperability in the IoT platforms and ecosystems created and used by IoT-EPI. The scope of this document covers the interoperability aspects, challenges and approaches that cope with interoperability in the current existing IoT platforms and presents some insights regarding the future of interoperability in this context. It presents possible solutions, and a possible IoT interoperability platform architecture.

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Cloud Analytics with Microsoft Azure

Hands-On Edge Analytics with Azure IoT

Azure IoT Development Cookbook

Patterns and Paradigms for Scalable, Reliable Services

The Road to Digitization

Implementing Industry 4.0

Security Designs for the Cloud, IoT, and Social

Networking

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

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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-

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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.

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

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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.

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

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ArchiTect 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



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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

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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

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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. Explore various Azure services to build

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solutions that leverage effective design patterns Key Features Create, deploy, and host cloud applications on Azure Understand various Azure services that help you host serverless applications Explore practical examples to help you secure and troubleshoot your cloud environment Book 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

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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

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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

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Azure as their cloud platform and build cloud-based applications for their enterprises.

Azure Internet of Things Revealed

Windows 10 for the Internet of Things

Transform your business with the power of analytics in Azure, 2nd Edition

Learn Azure in a Month of Lunches, Second Edition

Developing Cloud Native Applications in Azure using .NET Core

Practical Java Programming for IoT, AI, and Blockchain

*Get to know your Raspberry Pi. Then take it further with*

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*Microsoft Azure resources and this book. We live in a world everything is connected. The future is leaning towards IoT. Running the Raspberry Pi with .Net core applications opens a world of possibilities. What if we add the power of Microsoft Azure to it? In this book, you'll learn how to set up your Raspberry Pi with .Net core and analyze the options Microsoft offers in Azure. Once the initial set up is complete, you'll move on to a real-world scenario—running your own application inside a Raspberry Pi. The book then explains how to develop an application that sends automated data to the Microsoft Azure IoT hub and how to retrieve and send the data to your Azure SignalR service with the help of Azure Function. What You'll Learn Set up Raspbian OS on the Raspberry Pi for use with Microsoft Azure Develop a .Net*



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*core background application Connect Azure resources to your application Who This Book Is For Programmers with a background in coding—especially knowledge in JavaScript, Angular, and C#. Working familiarity with Azure flow is helpful.*

*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*

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*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*

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*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 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*

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*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*

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*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*

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*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

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*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.*

*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*

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*Ontologies.*

*Beginning Azure IoT Edge Computing*

*Implementing cloud design, DevOps, IoT, and serverless solutions on your public cloud*

*IoT Solutions in Microsoft's Azure IoT Suite*

*Advanced Computing Strategies for Engineering*

*Enterprise Cloud epUB \_1*

*Enterprise Internet of Things Handbook*

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



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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

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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

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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

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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

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

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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.

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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-

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level understanding of the Azure IoT platform.

Build your own digital twin in no time! Key

FeaturesBuild and design simple to complex digital

twins solutionsCreate end-to-end solutions with Azure

Digital TwinsIntegrate the Azure Digital Twins service

with other Azure services to provide even richer

solutionsBook 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.

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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.



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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 services
- Monitor, troubleshoot, and secure digital twins
- Discover how to build, design, and integrate applications with various Azure services
- Explore real-life scenarios with Azure Digital Twins

Who this book is for  
This book is for Azure developers, Azure architects, and anyone who wants to learn more about

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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. 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

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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

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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