

RESTful API Design: Volume 3 (API University Series)

Use ASP.NET Core 2 to create durable and cross-platform web APIs through a series of applied, practical scenarios. Examples in this book help you build APIs that are fast and scalable. You'll progress from the basics of the framework through to solving the complex problems encountered in implementing secure RESTful services. The book is packed full of examples showing how Microsoft's ground-up rewrite of ASP.NET Core 2 enables native cross-platform applications that are fast and modular, allowing your cloud-ready server applications to scale as your business grows. Major topics covered in the book include the fundamentals and core concepts of ASP.NET Core 2. You'll learn about building RESTful APIs with the MVC pattern using proven best practices and following the six principles of REST. Examples in the book help in learning to develop world-class web APIs and applications that can run on any platform, including Windows, Linux, and MacOS. You can even deploy to Microsoft Azure and automate your delivery by implementing Continuous Integration and Continuous Deployment pipelines. What You Will Learn Incorporate automated API tooling such as Swagger from the OpenAPI specification Standardize query and response formats using Facebook's GraphQL query language Implement security by applying authentication and authorization using ASP.NET Identity Ensure the safe storage of sensitive data using the data protection stack Create unit and integration tests to guarantee code quality Who This Book Is For Developers who build server applications such as web sites and web APIs that need to run fast and cross platform; programmers who want to implement practical solutions for real-world problems; those who want in-depth knowledge of the latest bits of ASP.NET Core 2.0

Maximize the impact of your assets and business services by providing APIs for developers and other users. The journey described in this book starts with identifying business assets. As part of the API team, you then need to identify and define the requirements of traffic management, security, mediation, and orchestration. You also must define metrics for the analytics to measure the success of the overall API program. API documentation and the ease of developer onboarding also determine the success of the APIs. Finally, monetization of these APIs leads to revenue generation for the enterprise. Author De — an expert in building and managing API solutions — provides enterprise architects, designers, and technologists with insight into the world of APIs and the various technical aspects of building and managing an effective API management solution. API Management: Developing and Managing APIs for your Organization: Introduces the basics of APIs and highlights their value Provides an overview of technologies for building an API management solution and defines the requirements, including how to build a RESTful API Offers design principles for building developer-friendly APIs Explains how to secure your APIs Shows how to use API analytics to measure the success of your APIs Demonstrates how to monetize APIs Finally, API Management touches on various technical nuances of creating, distributing, and managing an API. This book will not only help you learn how to design, build, deploy, and manage an API for an enterprise scale, but also generate revenue for your organization. What You'll Learn Discover the API life cycle Design and develop APIs Implement API security Test your APIs Deploy and monitor your APIs Who This Book Is For Enterprise architects, technology enthusiasts, security architects, and operations specialists. The basic rules of REST APIs - "many nouns, few verbs, stick with HTTP" - seem easy, but that simplicity and power require discipline to

work smoothly. This brief guide provides next steps for implementing complex projects on simple and extensible foundations. This book constitutes the proceedings of the 14th International Conference on Service-Oriented Computing, ICSOC 2016, held in Banff, AB, Canada, in October 2016. The 30 full papers presented together with 18 short papers and 8 industrial papers in this volume were carefully reviewed and selected from 137 submissions. The selected papers covered important topics in the area of service-oriented computing, including foundational issues on service discovery and service-systems design, business process modelling and management, economics of service-systems engineering, as well as services on the cloud, social networks, the Internet of Things (IoT), and data analytics. Develop RESTful web services using the Flask micro-framework and integrate them using MySQL. Use Flask to develop, deploy, and manage REST APIs with easy-to-read and understand Python code. Solve your problem from a choice of libraries. Learn to use MySQL as the web services database for your Flask API using SQLAlchemy ORM. Building REST APIs with Flask provides a primer on Flask, RESTful services, and working with pip to set up your virtual environment. The key differences between NoSQL and SQL are covered, and you are taught how to connect MySQL and Flask using SQLAlchemy. Author Kunal Relan presents best practices for creating REST APIs and guides you in structuring your app and testing REST endpoints. He teaches you how to set up authentication and render HTML using views. You learn how to write unit tests for your REST APIs, and understand mocks, assertions, and integration testing. You will know how to document your REST APIs, deploy your Flask application on all of the major cloud platforms, and debug and monitor your Flask application. What You'll Learn Use MySQL to create Flask REST APIs Test REST endpoints Create CRUD endpoints with Flask and MySQL Deploy Flask on all of the major cloud platforms Monitor your Flask application Who This Book Is For Python developers interested in REST API development using Flask and web developers with basic programming knowledge who want to learn how Python and REST APIs work together. Readers should be familiar with Python (command line, or at least pip) and MySQL.

RESTful Java with JAX-RS

Build APIs You Won't Hate

Design, Build and Integrate with REST, JSON, XML and JAX-RS

Confessions of a Java Framework Architect

RESTful Web Services

Modern API Design with ASP.NET Core 2

Design and Build Great Web APIs

Take advantage of JavaScript 's power to build robust web-scale or enterprise applications that are easy to extend and maintain. By applying the design patterns outlined in this practical book, experienced JavaScript developers will learn how to write flexible and resilient code that 's easier—yes, easier—to work with as your code base grows. JavaScript may be the most essential web programming language, but in the real world, JavaScript applications often break when you make changes. With this book, author Eric Elliott shows you how to add client- and server-side features to a large JavaScript application without negatively affecting the rest of your code. Examine the anatomy of a large-scale JavaScript application Build modern web apps with the capabilities of desktop applications Learn best practices for code organization, modularity, and reuse Separate your application into

different layers of responsibility Build efficient, self-describing hypermedia APIs with Node.js Test, integrate, and deploy software updates in rapid cycles Control resource access with user authentication and authorization Expand your application 's reach through internationalization

Want to build APIs like Facebook? Since Facebook's framework for building APIs, GraphQL, has become publicly available, this ambition seems to be within reach for many companies. And that is great. But first, let's learn what GraphQL really is and - maybe even more importantly - let's figure out how to apply GraphQL to build APIs that consumers love. Do you like to learn hands-on? In this book, we take a hands-on approach to learning GraphQL. We first explore the concepts of the two GraphQL languages using examples. Then we start writing some code for our first GraphQL API. We develop this API step by step, from creating a schema and resolving queries, over mocking data and connecting data sources all the way to developing mutations and setting up event subscriptions. Are your API consumers important to you? This book shows you how to apply a consumer-oriented design process for GraphQL APIs, so you can deliver what your consumers really want: an API that solves their problems and offers a great developer experience. Do you want to enable the API consumers so they can build great apps? This book explains the GraphQL query language, which allows the API consumers to retrieve data, write data and get notified when data changes. More importantly, you let them decide, which data they really need from the API. Do you want to make your API easy and intuitive to use? This book shows you how to use the GraphQL schema language to define a type system for your API, which serves as a reference documentation and helps your API consumers write queries that are syntactically correct. Do you want to profit from what has worked for others? This book provides a collection of best practices for GraphQL that have worked for other companies, e.g. regarding pagination, authentication and caching. REST vs. GraphQL: Which one is better? GraphQL and REST are competing philosophies for building APIs. It is not in the scope of this book to compare or discuss the two approaches. The focus of this book is on a hands-on approach for learning GraphQL.

APIs are transforming the business world at an increasing pace. Gain the essential skills needed to quickly design, build, and deploy quality web APIs that are robust, reliable, and resilient. Go from initial design through prototyping and implementation to deployment of mission-critical APIs for your organization. Test, secure, and deploy your API with confidence and avoid the "release into production" panic. Tackle just about any API challenge with more than a dozen open-source utilities and common programming patterns you can apply right away. Good API design means starting with the API-First principle - understanding who is using the API and what they want to do with it - and applying basic design skills to match customers' needs while solving business-critical problems. Use the Sketch-Design-Build method to create reliable and scalable web APIs quickly and easily without a lot of risk to the day-to-day business operations. Create clear sequence diagrams, accurate specifications, and machine-readable API descriptions all reviewed, tested, and ready to turn into fully-functional NodeJS code. Create reliable test collections with Postman and implement proper identity and access control security with AuthO-without added cost or risk to the company. Deploy all of this to Heroku using a continuous delivery approach that pushes secure, well-tested code to your public servers ready for use by both internal and external developers. From design to code to test to deployment, unlock hidden business value and release stable and scalable web APIs that meet customer needs and solve important business problems in a consistent and reliable manner.

Looking for Best Practices for RESTful APIs? This book is for you! Why? Because this book is packed with practical experience on what works best for RESTful API Design. You want to design APIs like a Pro? Use API description languages to both design APIs and develop APIs efficiently. The book

introduces the two most common API description languages RAML, OpenAPI, and Swagger. Your company cares about its customers? Learn API product management with a customer-centric design and development approach for APIs. Learn how to manage APIs as a product and how to follow an API-first approach. Build APIs your customers love! You want to manage the complete API lifecycle? An API development methodology is proposed to guide you through the lifecycle: API inception, API design, API development, API publication, API evolution, and maintenance. You want to build APIs right? This book shows best practices for REST design, such as the correct use of resources, URIs, representations, content types, data formats, parameters, HTTP status codes, and HTTP methods. Your APIs connect to legacy systems? The book shows best practices for connecting APIs to existing backend systems. Your APIs connect to a mesh of microservices? The book shows the principles for designing APIs for scalable, autonomous microservices. You expect lots of traffic on your API? The book shows you how to achieve high performance, availability and maintainability. You want to build APIs that last for decades? We study API versioning, API evolution, backward- and forward-compatibility and show API design patterns for versioning. The API-University Series is a modular series of books on API-related topics. Each book focuses on a particular API topic, so you can select the topics within APIs, which are relevant for you.

"Every developer working with the Web needs to read this book." -- David Heinemeier Hansson, creator of the Rails framework "RESTful Web Services finally provides a practical roadmap for constructing services that embrace the Web, instead of trying to route around it." -- Adam Trachtenberg, PHP author and EBay Web Services Evangelist You've built web sites that can be used by humans. But can you also build web sites that are usable by machines? That's where the future lies, and that's what RESTful Web Services shows you how to do. The World Wide Web is the most popular distributed application in history, and Web services and mashups have turned it into a powerful distributed computing platform. But today's web service technologies have lost sight of the simplicity that made the Web successful. They don't work like the Web, and they're missing out on its advantages. This book puts the "Web" back into web services. It shows how you can connect to the programmable web with the technologies you already use every day. The key is REST, the architectural style that drives the Web. This book: Emphasizes the power of basic Web technologies -- the HTTP application protocol, the URI naming standard, and the XML markup language Introduces the Resource-Oriented Architecture (ROA), a common-sense set of rules for designing RESTful web services Shows how a RESTful design is simpler, more versatile, and more scalable than a design based on Remote Procedure Calls (RPC) Includes real-world examples of RESTful web services, like Amazon's Simple Storage Service and the Atom Publishing Protocol Discusses web service clients for popular programming languages Shows how to implement RESTful services in three popular frameworks -- Ruby on Rails, Restlet (for Java), and Django (for Python) Focuses on practical issues: how to design and implement RESTful web services and clients This is the first book that applies the REST design philosophy to real web services. It sets down the best practices you need to make your design a success, and the techniques you need to turn your design into working code. You can harness the power of the Web for programmable applications: you just have to work with the Web instead of against it. This book shows you how.

API Architecture

Lightweight Django

RESTful Web Clients

Hands-On RESTful API Design Patterns and Best Practices

A Guide to Designing the Perfect API

Practical API Design

Hands-On RESTful Web Services with ASP.NET Core 3

Powerful web-based REST and hypermedia-style APIs are becoming more common every day, but instead of applying the same techniques and patterns to hypermedia clients, many developers rely on custom client code. With this practical guide, you'll learn how to move from one-off implementations to general-purpose client apps that are stable, flexible, and reusable. Author Mike Amundsen provides extensive background, easy-to-follow examples, illustrative dialogues, and clear recommendations for building effective hypermedia-based client applications. Along the way, you'll learn how to harness many of the basic principles that underpin the Web. Convert HTML-only web apps into a JSON API service Overcome the challenges of maintaining plain JSON-style client apps Decouple the output format from the internal object model with the representor pattern Explore client apps built with HAL—Hypertext Application Language Tackle reusable clients with the Request, Parse, Wait Loop (RPW) pattern Learn the pros and cons of building client apps with the Siren content type Deal with API versioning by adopting a change-over-time aesthetic Compare how JSON, HAL, Siren, and Collection+JSON clients handle the Objects/Addresses/Actions Challenge Craft a single client application that can consume multiple services

A developer's guide to designing, testing, and securing production-ready modern APIs with the help of practical ideas to improve your application's functionality Key Features Build resilient software for your enterprises and customers by understanding the complete API development life cycle Overcome the challenges of traditional API design by adapting to a new and evolving culture of modern API development Use Spring and Spring Boot to develop future-proof scalable APIs Book Description The philosophy of API development has evolved over the years to serve the modern needs of enterprise architecture, and developers need to know how to adapt to these modern API design principles. Apps are now developed with APIs that enable ease of integration for the cloud environment and distributed systems. With this Spring book, you'll discover various kinds of production-ready API implementation using REST APIs and explore async using the reactive paradigm, gRPC, and GraphQL. You'll learn how to design evolving REST-based APIs supported by HATEOAS and ETAGs and develop reactive, async, non-blocking APIs. After that, you'll see how to secure REST APIs using Spring Security and find out how the APIs that you develop are consumed by the app's UI. The book then takes you through the process of testing, deploying, logging, and monitoring your APIs. You'll also explore API development using gRPC and GraphQL and design modern scalable architecture with microservices. The book helps you gain practical knowledge of modern API implementation using a sample e-commerce app. By the end of this Spring book, you'll be able to develop, test, and deploy highly scalable, maintainable, and developer-friendly APIs to help your customers to transform their business. What you will learn Understand RESTful API development, its design paradigm, and its best practices Become well versed in Spring's core components for implementing RESTful web services Implement reactive APIs and explore async API development Apply Spring Security for authentication using JWT and

authorization of requests Develop a React-based UI to consume APIs Implement gRPC inter-service communication Design GraphQL-based APIs by understanding workflows and tooling Gain insights into how you can secure, test, monitor, and deploy your APIs Who this book is for This book is for inexperienced Java programmers, comp science, or coding boot camp graduates who have knowledge of basic programming constructs, data structures, and algorithms in Java but lack the practical web development skills necessary to start working as a developer. Professionals who've recently joined a startup or a company and are tasked with creating real-world web APIs and services will also find this book helpful. This book is also a good resource for Java developers who are looking for a career move into web development to get started with the basics of web service development.

The popularity of REST in recent years has led to tremendous growth in almost-RESTful APIs that don't include many of the architecture's benefits. With this practical guide, you'll learn what it takes to design usable REST APIs that evolve over time. By focusing on solutions that cross a variety of domains, this book shows you how to create powerful and secure applications, using the tools designed for the world's most successful distributed computing system: the World Wide Web. You'll explore the concepts behind REST, learn different strategies for creating hypermedia-based APIs, and then put everything together with a step-by-step guide to designing a RESTful Web API. Examine API design strategies, including the collection pattern and pure hypermedia Understand how hypermedia ties representations together into a coherent API Discover how XMDP and ALPS profile formats can help you meet the Web API "semantic challenge" Learn close to two-dozen standardized hypermedia data formats Apply best practices for using HTTP in API implementations Create Web APIs with the JSON-LD standard and other the Linked Data approaches Understand the CoAP protocol for using REST in embedded systems

Do you want to know how OpenID Connect works? This book is for you! Exploring how OpenID Connect works in detail is the subject of this book. We take a bottom-up approach and first study all the elements (actors, endpoints, and tokens) of OpenID Connect. This puts us in an excellent position for the second step: to understand the various OpenID Connect Flows - how the actors, endpoints, and tokens are put together to transmit identity claims securely. Do you wonder why there are several OpenID Connect Flows? Whether we use OpenID Connect from a mobile app, a script in a browser or from a secure backend server, there is an appropriate OpenID Connect Flow with the right tradeoffs in security, functionality, and convenience for each of these scenarios. This book helps you to choose the right one. Do you think that these OpenID Connect Flows are confusing? You are not alone; the OpenID Connect Flows tend to get confusing. However, with this book, we make it clear and easy to understand: We visualize these flows and show how to choose the flow that is appropriate for a given scenario. A picture says more than a 1000 words - that is why we explain the OpenID Connect Flows using easy to understand sequence diagrams. Do you want to understand how JWT works? This book explains what a JSON Web Token (JWT) is, how it is used in OpenID Connect, how it is constructed, what data it contains, how to read it, and how to protect its contents. Do you wonder why there are so many tokens in OpenID Connect and how to use them? There are JWT, JWS, JWE, access tokens, refresh

tokens, identity tokens, and authorization codes. This book helps you to make sense of them all. Using examples, we explore how the tokens are used, constructed, signed, and encrypted. Why is OpenID Connect so popular? If used in the right way, OpenID Connect is powerful, and everyone loves it: End-users don't need to sign up and remember a new password Business owners enjoy high conversion rates Developers don't get any grey hair over securely storing credentials Do you want to increase the conversion rate of your app? Signup and login to a new app become so smooth and convenient that end-users are much more likely to try a new app. It is supported, e.g. by Google, Yahoo, or Microsoft. Would you like to manage no credentials but still have authenticated users? For us developers of web and mobile apps, these signup and login features are attractive, too: we do not need to manage user credentials, and we get a higher conversion rate resulting in more new customers. In effect, this means cutting costs and increasing the number of new customers for our apps. Which programming language do you use in the book? This is not a programming book, don't expect implementations with a specific programming language or library. Instead, we focus on understanding OpenID Connect on a conceptual level, so we can design and architect apps that work with OpenID Connect. And OpenID Connect is the standard behind creating smooth login and signup experiences, increasing the customer signup rate, and creating highly converting apps.

Got RESTful APIs? Great. API consumers love them. But today, such RESTful APIs are not enough for the evolving expectations of API consumers. Their apps need to be responsive, event-based and react to changes in near real-time. This results in a new set of requirements for the APIs, which power the apps. APIs now need to provide concepts such as events, notifications, triggers, and subscriptions. These concepts are not natively supported by the REST architectural style. In this book we show how to engineer RESTful APIs that support events with a webhook infrastructure. What are the alternatives to webhooks? We study several approaches for realizing events, such as Polling, Long Polling, Webhooks, HTTP Streaming, Server-Sent Events, WebSockets, WebSub and GraphQL Subscriptions. All of these approaches have their advantages and disadvantages. Can webhooks communicate in real-time? We study the non-functional requirements of a webhooks infrastructure, in areas such as security, reliability and developer experience. How do well-known API providers design webhooks? We examine the webhook infrastructure provided by GitHub, BitBucket, Stripe, Slack, and Intercom. With the best practices, case studies, and design templates provided in this book, we want to help you extend your API portfolio with a modern webhook infrastructure. So you can offer both APIs and events that developers love to use.

Services for a Changing World

Solutions for Improving Scalability and Simplicity

Design highly scalable and maintainable APIs with REST, gRPC, GraphQL, and the reactive paradigm

Delivering Value with APIs and Microservices

API Management

Service-Oriented Computing

RESTful Web Services Cookbook

The Web is slowly but surely changing from a model in which a human reader browses content on web pages to a model in which services and clients (not necessarily humans) exchange information. And because of this, author Silvia Puglisi explains, it makes more sense to build platforms instead of just products or applications. Platforms are like ecosystems interconnecting different applications, services, users, developers, and partners, and offer many benefits. In this book, you'll learn how to design and develop Representational State Transfer (REST) platforms in Rails. You'll begin with an introduction to Ruby on Rails, and then move quickly through new concepts. At the end of each chapter, you'll have learned something new about building and organically extending a multi-service platform spanning different devices—and will have had some fun in the process. By the end of the book you'll know how to build an architecture composed of different services accessing shared resources through a set of collaborating APIs and applications. Explore the basics of REST and HTTP, including REST architecture and the role of hypermedia Get to know Rails and Ruby on Rails Learn about API development and create an API Take a thorough look at REST, including Asynchronous REST and testing RESTful services Work with data streams as you map them onto an application UI and integrate external APIs in your application Learn about device-independent development Use data analytics to recognize important events, develop key metrics, and track them Explore various tools you can use to build your own data analytic platform Learn how to scale a Rails application successfully Examine privacy and security issues and the implications of handling and collecting user data

Get up to speed with the latest features of C# 8, ASP.NET Core 3 and .NET Core 3.1 LTS to create robust and maintainable web services Key FeaturesApply design patterns and techniques to achieve a reactive, scalable web serviceDocument your web services using the OpenAPI standard and test them using PostmanExplore mechanisms to implement a secure web service using client-side SSL and token authenticationBook Description In recent times, web services have evolved to play a prominent role in web development. Applications are now designed to be compatible with any device and platform, and web services help us keep their logic and UI separate. Given its simplicity and effectiveness in creating web services, the RESTful approach has gained popularity, and this book will help you build RESTful web services using ASP.NET Core. This REST book begins by introducing you to the basics of the REST philosophy, where you'll study the different stages of designing and implementing enterprise-grade RESTful web services. You'll also gain a thorough understanding of ASP.NET Core's middleware approach and learn how to customize it. The book will later guide you through

improving API resilience, securing your service, and applying different design patterns and techniques to achieve a scalable web service. In addition to this, you'll learn advanced techniques for caching, monitoring, and logging, along with implementing unit and integration testing strategies. In later chapters, you will deploy your REST web services on Azure and document APIs using Swagger and external tools such as Postman. By the end of this book, you will have learned how to design RESTful web services confidently using ASP.NET Core with a focus on code testability and maintainability. What you will learn

- Gain a comprehensive working knowledge of ASP.NET Core
- Integrate third-party tools and frameworks to build maintainable and efficient services
- Implement patterns using dependency injection to reduce boilerplate code and improve flexibility
- Use ASP.NET Core's out-of-the-box tools to test your applications
- Use Docker to run your ASP.NET Core web service in an isolated and self-contained environment
- Secure your information using HTTPS and token-based authentication
- Integrate multiple web services using resiliency patterns and messaging techniques

Who this book is for This book is for anyone who wants to learn how to build RESTful web services with the ASP.NET Core framework to improve the scalability and performance of their applications. Basic knowledge of C# and .NET Core will help you make the best use of the code samples included in the book.

Looking for the big picture of building APIs? This book is for you! Building APIs that consumers love should certainly be the goal of any API initiative. However, it is easier said than done. It requires getting the architecture for your APIs right. This book equips you with both foundations and best practices for API architecture. This book is for you if you want to understand the big picture of API design and development, you want to define an API architecture, establish a platform for APIs or simply want to build APIs your consumers love. This book is NOT for you, if you are looking for a step-by step guide for building APIs, focusing on every detail of the correct application of REST principles. In this case I recommend the book "API Design" of the API-University Series.

What is API architecture? Architecture spans the bigger picture of APIs and can be seen from several perspectives: API architecture may refer to the architecture of the complete solution consisting not only of the API itself, but also of an API client such as a mobile app and several other components. API solution architecture explains the components and their relations within the software solution. API architecture may refer to the technical architecture of the API platform. When building, running and exposing not only one, but several APIs, it becomes clear that certain building blocks of the API, runtime functionality and management functionality for the API need to be used over and over again. An API platform provides an infrastructure for developing, running and managing APIs. API architecture may refer to the architecture of the API portfolio. The

API portfolio contains all APIs of the enterprise and needs to be managed like a product. API portfolio architecture analyzes the functionality of the API and organizes, manages and reuses the APIs. API architecture may refer to the design decisions for a particular API proxy. To document the design decisions, API description languages are used. We explain the use of API description languages (RAML and Swagger) on many examples. This book covers all of the above perspectives on API architecture. However, to become useful, the architecture needs to be put into practice. This is why this book covers an API methodology for design and development. An API methodology provides practical guidelines for putting API architecture into practice. It explains how to develop an API architecture into an API that consumers love. A lot of the information on APIs is available on the web. Most of it is published by vendors of API products. I am always a bit suspicious of technical information pushed by product vendors. This book is different. In this book, a product-independent view on API architecture is presented. The API-University Series is a modular series of books on API-related topics. Each book focuses on a particular API topic, so you can select the topics within APIs, which are relevant for you.

API Security in Action teaches you how to create secure APIs for any situation. By following this hands-on guide you'll build a social network API while mastering techniques for flexible multi-user security, cloud key management, and lightweight cryptography. Summary A web API is an efficient way to communicate with an application or service. However, this convenience opens your systems to new security risks. API Security in Action gives you the skills to build strong, safe APIs you can confidently expose to the world. Inside, you'll learn to construct secure and scalable REST APIs, deliver machine-to-machine interaction in a microservices architecture, and provide protection in resource-constrained IoT (Internet of Things) environments. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology APIs control data sharing in every service, server, data store, and web client. Modern data-centric designs—including microservices and cloud-native applications—demand a comprehensive, multi-layered approach to security for both private and public-facing APIs. About the book API Security in Action teaches you how to create secure APIs for any situation. By following this hands-on guide you'll build a social network API while mastering techniques for flexible multi-user security, cloud key management, and lightweight cryptography. When you're done, you'll be able to create APIs that stand up to complex threat models and hostile environments. What's inside Authentication Authorization Audit logging Rate limiting Encryption About the reader For developers with experience building RESTful APIs. Examples are in Java. About the author Neil Madden has in-depth knowledge of applied cryptography, application security, and current API security

technologies. He holds a Ph.D. in Computer Science. Table of Contents PART 1 - FOUNDATIONS 1 What is API security? 2 Secure API development 3 Securing the Natter API PART 2 - TOKEN-BASED AUTHENTICATION 4 Session cookie authentication 5 Modern token-based authentication 6 Self-contained tokens and JWTs PART 3 - AUTHORIZATION 7 OAuth2 and OpenID Connect 8 Identity-based access control 9 Capability-based security and macaroons PART 4 - MICROSERVICE APIS IN KUBERNETES 10 Microservice APIs in Kubernetes 11 Securing service-to-service APIs PART 5 - APIS FOR THE INTERNET OF THINGS 12 Securing IoT communications 13 Securing IoT APIs

REST continues to gain momentum as the best method for building Web services, and this down-to-earth book delivers techniques and examples that show how to design and implement integration solutions using the REST architectural style.

Building Open Applications and Services

Designing APIs with Swagger and OpenAPI

Hypermedia and Systems Architecture

Building APIs That Developers Love

Create Python Web Services with MySQL

RESTful Java Web Services

Design production-ready, testable, and flexible RESTful APIs for web applications and microservices

RESTful API Design API-University Press

"A concept-rich book on API design patterns. Deeply engrossing and fun to read." - Satej Sahu, Honeywell API Design Patterns lays out a design principles for building internal and public-facing APIs. In API Design Patterns you will learn: Guiding principles for API patterns Fundamentals of resource layout and naming Handling data types for any programming language Standard methods that ensure predictability Field masks for targeted partial updates Authentication and validation methods for secure APIs Collective operations for moving, managing, deleting data Advanced patterns for special interactions and data transformations API Design Patterns reveals best practices for building user-friendly APIs. These design patterns can be applied to solve common API problems and flexibly altered to fit specific needs. Hands-on examples and relevant cases illustrate patterns for API fundamentals, advanced functionalities, and uncommon scenarios. Purchase of the book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology APIs are contracts that define how applications, services, and components communicate. API design patterns provide a shared set of best practices, specifications and standards that ensure APIs are reliable and simple for other developers. This book collects and explains the most important patterns from both the design community and the experts at Google. About the book API Design Patterns lays out a set of principles for building internal and public-facing APIs. Google API expert JJ Geewax presents patterns that ensure your APIs are consistent, scalable, and flexible. You'll improve the design of the most common APIs, plus discover techniques for tricky edge cases. Precise illustrations, relevant examples, and detailed so

make every pattern clear and easy to understand. What's inside Guiding principles for API patterns Fundamentals of resource layout and Advanced patterns for special interactions and data transformations A detailed case-study on building an API and adding features About reader For developers building web and internal APIs in any language. About the author JJ Geewax is a software engineer at Google, focus Google Cloud Platform, API design, and real-time payment systems. He is also the author of Manning's Google Cloud Platform in Action. Table of Contents PART 1 INTRODUCTION 1 Introduction to APIs 2 Introduction to API design patterns PART 2 DESIGN PRINCIPLES 3 Naming 4 Resource scope and hierarchy 5 Data types and defaults PART 3 FUNDAMENTALS 6 Resource identification 7 Standard methods 8 Partial updates and retrievals 9 Custom methods 10 Long-running operations 11 Rerunnable jobs PART 4 RESOURCE RELATIONSHIPS 12 Singleton sub-resources 13 Cross references 14 Association resources 15 Add and remove custom methods 16 Polymorphism PART 5 COLLECTIVE OPERATIONS 17 Copy and move 18 Batch operations 19 Criteria-based deletion 20 Anonymous writes 21 Pagination 22 Filtering 23 Importing and exporting PART 6 SAFETY AND SECURITY 24 Versioning and compatibility 25 Soft deletion 26 Request deduplication 27 Request validation 28 Resource revisions 29 Request retrial 30 Request authentication

API Design for C++ provides a comprehensive discussion of Application Programming Interface (API) development, from initial design through implementation, testing, documentation, release, versioning, maintenance, and deprecation. It is the only book that teaches the strategies of C++ API development, including interface design, versioning, scripting, and plug-in extensibility. Drawing from the author's experience on large collaborative software projects, the text offers practical techniques of API design that produce robust code for the long term. It presents concepts and practices that provide real value to individual developers as well as organizations. API Design for C++ explores often overlooked issues, both technical and non-technical, contributing to successful design decisions that produce high quality, robust, and long-lived APIs. It focuses on various API styles and patterns that will allow you to produce elegant and durable libraries. A discussion on testing strategies concentrates on automated API testing techniques rather than attempting to include end-user application testing techniques such as GUI testing, system manual testing. Each concept is illustrated with extensive C++ code examples, and fully functional examples and working source code for experimentation are available online. This book will be helpful to new programmers who understand the fundamentals of C++ and who want to advance their design skills, as well as to senior engineers and software architects seeking to gain new expertise to complement their existing skills. Three specific groups of readers are targeted: practicing software engineers and architects, technical managers, and students and educators. This is the only book that teaches the strategies of C++ API development, including design, versioning, documentation, testing, scripting, and extensibility. Extensive code examples illustrate each concept, with fully functional examples and working source code for experimentation available online. Covers various API styles and patterns with a focus on practical and efficient designs for large-scale long-term projects.

Master core REST concepts and create RESTful web services in Java About This Book* Build efficient and secure RESTful web APIs in Java Design solutions to produce, consume and visualize RESTful web services using WADL, RAML, and Swagger* Familiarize the role of RESTful APIs usage in emerging technology trends like Cloud, IoT, Social Media. Who This Book Is For If you are a web developer with a basic understanding of the REST concepts and envisage to get acquainted with the idea of designing and developing RESTful web services, this book is for you. As all the code samples for the book are written in Java, proficiency in Java is a must. What You Will Learn* Introduce your applications to the RESTful software architectural style and the REST API design principles* Make use of the JSR 353 API, JSR 374 API, JSR 367 API and Jackson API for JSON processing* Build portable RESTful web APIs, making use of the JAX-RS 2.1 API* Simplify API development using the Jersey and RESTEasy extension APIs* Secure your RESTful web services with various authentication and authorization mechanisms* Get started with

grips with the various metadata solutions to describe, produce, and consume RESTful web services* Understand the design and coding g to build well-performing RESTful APIs* See how the role of RESTful web services changes with emerging technologies and trendsIn DetailRepresentational State Transfer (REST) is a simple yet powerful software architecture style to create lightweight and scalable web The RESTful web services use HTTP as the transport protocol and can use any message formats, including XML, JSON(widely used), CSV, many more, which makes it easily inter-operable across different languages and platforms.This successful book is currently in its 3rd edi has been used by thousands of developers. It serves as an excellent guide for developing RESTful web services in Java.This book attempt familiarize the reader with the concepts of REST. It is a pragmatic guide for designing and developing web services using Java APIs for re use cases following best practices and for learning to secure REST APIs using OAuth and JWT. Finally, you will learn the role of RESTful v services for future technological advances, be it cloud, IoT or social media.By the end of this book, you will be able to efficiently build ro scalable, and secure RESTful web services using Java APIs.Style and approachStep-by-step guide to designing and developing robust REST web services. Each topic is explained in a simple and easy-to-understand manner with lots of real-life use-cases and their solutions. You might think more than enough design books exist in the programming world already. In fact, there are so many that it makes sense why you would read yet another. Is there really a need for yet another design book? In fact, there is a greater need than ever before, an API Design: Confessions of a Java Framework Architect fills that need! Teaches you how to write an API that will stand the test of time by the designer of the NetBeans API at Sun Technologies Based on best practices, scalability, and API design patterns Robust Web Architecture with Node, HTML5, and Modern JS Libraries

RESTful API Design

Designing Web APIs

Microservice APIs in Python

Enabling Reuse Through Hypermedia

Building REST APIs with Flask

Using a web API to provide services to application developers is one of the more satisfying endeavors that software engineers undertake. But building a popular API with a thriving developer ecosystem is also one of the most challenging. With this practical guide, developers, architects, and tech leads will learn how to navigate complex decisions for designing, scaling, marketing, and evolving interoperable APIs. Authors Brenda Jin, Saurabh Sahni, and Amir Shevat explain API design theory and provide hands-on exercises for building your web API and managing its operation in production. You'll also learn how to build and maintain a following of app developers. This book includes expert advice, worksheets, checklists, and case studies from companies including Slack, Stripe, Facebook, Microsoft, Cloudinary, Oracle, and GitHub. Get an overview of request-response and event-driven API design paradigms Learn best practices for designing an API that meets the needs of your users Use a template to create an API design process Scale your web API to support a growing number of API calls and use cases Regularly adapt the API to reflect changes to your product or business Provide developer resources that include API

documentation, samples, and tools

Web APIs are everywhere, giving developers an efficient way to interact with applications, services, and data. Well-designed APIs are a joy to use; poorly-designed APIs are cumbersome, confusing, and frustrating. The Design of Web APIs is a practical, example packed guide to crafting extraordinary web APIs. Author Arnaud Lauret demonstrates fantastic design principles and techniques you can apply to both public and private web APIs. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Learn how to design and develop distributed web services in Java using RESTful architectural principals and the JAX-RS specification in Java EE 6. With this hands-on reference, you'll focus on implementation rather than theory, and discover why the RESTful method is far better than technologies like CORBA and SOAP. It's easy to get started with services based on the REST architecture. RESTful Java with JAX-RS includes a technical guide that explains REST and JAX-RS, how they work, and when to use them. With the RESTEasy workbook that follows, you get step-by-step instructions for installing, configuring, and running several working JAX-RS examples using the JBoss RESTEasy implementation of JAX-RS. Work on the design of a distributed RESTful interface, and develop it in Java as a JAX-RS service Dispatch HTTP requests in JAX-RS, and learn how to extract information from them Deploy your web services within Java Enterprise Edition using the Application class, Default Component Model, EJB Integration, Spring Integration, and JPA Discover several options for securing your web services Learn how to implement RESTful design patterns using JAX-RS Write RESTful clients in Java using libraries and frameworks such as java.net.URL, Apache HTTP Client, and RESTEasy Proxy

REST architecture (style) is a pivot of distributed systems, simplify data integration amongst modern and legacy applications leverages through the RESTful paradigm. This book is fully loaded with many RESTful API patterns, samples, hands-on implementations and also discuss the capabilities of many REST API frameworks for Java, Scala, Python and Go

While the REST design philosophy has captured the imagination of web and enterprise developers alike, using this approach to develop real web services is no picnic. This cookbook includes more than 100 recipes to help you take advantage of REST, HTTP, and the infrastructure of the Web. You'll learn ways to design RESTful web services for client and server applications that meet performance, scalability, reliability, and security goals, no matter what programming language and development framework you use. Each recipe includes one or two problem statements, with easy-to-follow, step-by-step instructions for solving them, as well as examples using HTTP requests and responses, and XML, JSON, and Atom snippets. You'll also get implementation guidelines, and a discussion of the pros, cons, and trade-offs that come with each solution. Learn how to design resources to meet various application scenarios Successfully design representations and URIs Implement the hypertext constraint using links and link headers

Understand when and how to use Atom and AtomPub Know what and what not to do to support caching Learn how to implement concurrency control Deal with advanced use cases involving copying, merging, transactions, batch processing, and partial updates Secure web services and support OAuth RESTful Web APIs

Webhooks – Events for RESTful APIs

Principles of Web API Design

RESTful Web API Design with Node.js

API Design Patterns

API Design for C++

OpenID Connect & JWT

Design and implement efficient RESTful solutions with this practical hands-on guide About This Book Create a fully featured RESTful API solution from scratch. Learn how to leverage Node.JS, Express, MongoDB and NoSQL datastores to give an extra edge to your REST API design. Use this practical guide to integrate MongoDB in your Node.js application. Who This Book Is For The ideal target audience for this book is web developers who have some experience with RESTful services. Familiarity with basic JavaScript programming techniques is required. No prior experience with Node.JS or Express.js is required. What You Will Learn Install, develop, and test your own Node.js user modules Comprehend the differences between an HTTP and a RESTful application Optimize RESTful service URI routing with best practices Eliminate third-party dependencies in your tests with mocking Learn about NoSQL data stores and integrate MongoDB in your Node.js application with Mongoose Secure your services with NoSQL database integration within Node.js applications Enrich your development skills to create scalable, server-side, RESTful applications based on the Node.js platform In Detail In this era of cloud computing, every data provisioning solution is built in a scalable and fail-safe way. Thus, when building RESTful services, the right choice for the underlying platform is vital. Node.js, with its asynchronous, event-driven architecture, is exactly the right choice to build RESTful APIs. This book will help you enrich your development skills to create scalable, server-side, RESTful applications based on the Node.js platform. Starting with the fundamentals of REST, you will understand why RESTful web services are better data provisioning solution than other technologies. You will start setting up a development environment by installing Node.js, Express.js, and other modules. Next, you will write a simple HTTP request handler and create and test Node.js modules using automated tests and mock objects. You will then have to choose the most appropriate data storage type, having options between a key/value or document data store, and also you will implement automated tests for it. This module will evolve chapter by chapter until it turns into a full-fledged and secure Restful service. Style and approach Create state of the art RESTful API solutions leveraging Node.JS 4.x.

Principles of Web API Design is a comprehensive, start-to-finish guide to the processes required for effective API design. Unlike other books, it covers the entire lifecycle. Leading API and microservices consultant James Higginbotham shows how API developers can successfully integrate processes that occur before, during, and after API design, to scale API development far beyond single individuals or small teams. Higginbotham addresses REST in depth while also fully covering RPC and graph-based API design, as well as messaging, streaming, and event-based async APIs. Coverage includes: The art of API design, and an overview of the API design process Crafting job stories, conducting EventStorming sessions, and modeling API capabilities Designing APIs that can easily evolve Implementing APIs, and moving to microservices Improving API quality through effective testing, documentation, and protection mechanisms Establishing and maturing your API program: leveraging program

and data management techniques that scale

Master core REST concepts and create RESTful web services in Java About This Book Build efficient and secure RESTful web APIs in Java.. Design solutions to produce, consume and visualize RESTful web services using WADL, RAML, and Swagger Familiarize the role of RESTful APIs usage in emerging technology trends like Cloud, IoT, Social Media. Who This Book Is For If you are a web developer with a basic understanding of the REST concepts and envisage to get acquainted with the idea of designing and developing RESTful web services, this is the book for you. As all the code samples for the book are written in Java, proficiency in Java is a must. What You Will Learn Introduce yourself to the RESTful software architectural style and the REST API design principles Make use of the JSR 353 API, JSR 374 API, JSR 367 API and Jackson API for JSON processing Build portable RESTful web APIs, making use of the JAX-RS 2.1 API Simplify API development using the Jersey and RESTEasy extension APIs Secure your RESTful web services with various authentication and authorization mechanisms Get to grips with the various metadata solutions to describe, produce, and consume RESTful web services Understand the design and coding guidelines to build well-performing RESTful APIs See how the role of RESTful web services changes with emerging technologies and trends In Detail

Representational State Transfer (REST) is a simple yet powerful software architecture style to create lightweight and scalable web services. The RESTful web services use HTTP as the transport protocol and can use any message formats, including XML, JSON(widely used), CSV, and many more, which makes it easily inter-operable across different languages and platforms. This successful book is currently in its 3rd edition and has been used by thousands of developers. It serves as an excellent guide for developing RESTful web services in Java. This book attempts to familiarize the reader with the concepts of REST. It is a pragmatic guide for designing and developing web services using Java APIs for real-life use cases following best practices and for learning to secure REST APIs using OAuth and JWT. Finally, you will learn the role of RESTful web services for future technological advances, be it cloud, IoT or social media. By the end of this book, you will be able to efficiently build robust, scalable, and secure RESTful web services using Java APIs. Style and approach Step-by-step guide to designing and developing robust RESTful web services. Each topic is explained in a simple and easy-to-understand manner with lots of real-life use-cases and their solutions. Manage and understand the full capabilities of successful REST development. REST API development is a hot topic in the programming world, but not many resources exist for developers to really understand how you can leverage the advantages. This completely updated second edition provides a brief background on REST and the tools it provides (well known and not so well known), then explains how there is more to REST than just JSON and URLs. You will learn about the maintained modules currently available in the npm community, including Express, Restify, Vatican, and Swagger. Finally you will code an example API from start to finish, using a subset of the tools covered. The Node community is currently flooded with modules; some of them are published once and never updated again - cluttering the entire universe of packages. Pro REST API Development with Node.js shines light into that black hole of modules for the developers trying to create an API. Understand REST API development with Node.js using this book today. What You'll Learn Understand how REST and API development mix up with Node.js Create a scalable, technology agnostic, and uniform interface Prepare your services to be consumed by your clients Test and deploy your API Review troubleshooting techniques Who This Book Is For Any Node.js developer who wants to fully understand REST API development. Beginner and Intermediate Node.js developers who are looking to fully understand how to create RESTful microservices.

Spring REST is a practical guide for designing and developing RESTful APIs using the Spring Framework. This book walks you through the process of designing and building a REST application while taking a deep dive into design principles and best practices for versioning, security, documentation, error handling, paging, and sorting. This book provides a brief introduction to REST, HTTP, and web infrastructure. You will

learn about several Spring projects such as Spring Boot, Spring MVC, Spring Data JPA, and Spring Security and the role they play in simplifying REST application development. You will learn how to build clients that consume REST services. Finally, you will learn how to use the Spring MVC test framework to unit test and integration test your REST API. After reading this book, you will come away with all the skills to build sophisticated REST applications using Spring technologies.

REST in Practice

14th International Conference, ICSOC 2016, Banff, AB, Canada, October 10-13, 2016, Proceedings

Design, develop, and deploy highly adaptable, scalable, and secure RESTful web APIs

REST API Development with Node.js

Building Cross-Platform Back-End Systems

The Design of Web APIs

An Architect's Guide to Developing and Managing APIs for Your Organization

How can you take advantage of the Django framework to integrate complex client-side interactions and real-time features into your web applications? Through a series of rapid application development projects, this hands-on book shows experienced Django developers how to include REST APIs, WebSockets, and client-side MVC frameworks such as Backbone.js into new or existing projects.

Learn how to make the most of Django's decoupled design by choosing the components you need to build the lightweight applications you want. Once you finish this book, you'll know how to build single-page applications that respond to interactions in real time. If you're familiar with Python and JavaScript, you're good to go. Learn a lightweight approach for starting a new Django project Break reusable applications into smaller services that communicate with one another Create a static, rapid prototyping site as a scaffold for websites and applications Build a REST API with django-rest-framework Learn how to use Django with the Backbone.js MVC framework Create a single-page web application on top of your REST API Integrate real-time features with WebSockets and the Tornado networking library Use the book's code-driven examples in your own projects

Tips, best practices, and handy Python features for designing better microservices architecture and streamlining API integrations. Microservice APIs in Python shares successful strategies and techniques for designing Microservices systems, with a particular emphasis on creating easy-to-consume APIs. This practical guide focuses on implementation over philosophizing and has just enough theory to get you started. You'll quickly go hands on designing the architecture for a microservices platform, produce standard specifications for REST and GraphQL APIs, and bake in authentication features to keep your APIs secure. Written in a framework-agnostic manner, its universal principles of API and microservices design can easily be applied to your favorite stack and

toolset. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Believe it or not, building an API is the easy part. What is far more challenging is to put together a design that will stand the test of time, while also meeting your developers' needs. After all, no matter how well written your code may be, without a strong foundation, you will find your API quickly failing. Undisturbed REST works to tackle this issue through the use of modern design techniques and technology, showing how to carefully design your API with your users and longevity in-mind, taking advantage of a design-first approach- while incorporating best practices and hard lessons learned. After reading Undisturbed REST, you'll have a strong understanding of APIs, best practices, and available tooling for designing, prototyping, sharing, documenting, and generating tooling (such as SDKs) around your API. More importantly, you'll be equipped to design and build an API not just for today, but one that can stand the test of time and lead your application into tomorrow.

Discover the RESTful technologies, including REST, JSON, XML, JAX-RS web services, SOAP and more, for building today's microservices, big data applications, and web service applications. This book is based on a course the Oracle-based author is teaching for UC Santa Cruz Silicon Valley which covers architecture, design best practices and coding labs. Pro RESTful APIs: Design gives you all the fundamentals from the top down: from the top (architecture) through the middle (design) to the bottom (coding). This book is a must have for any microservices or web services developer building applications and services. What You'll Learn Discover the key RESTful APIs, including REST, JSON, XML, JAX, SOAP and more Use these for web services and data exchange, especially in today's big data context Harness XML, JSON, REST, and JAX-RS in examples and case studies Apply best practices to your solutions' architecture Who This Book Is For Experienced web programmers and developers. API development is becoming increasingly common for server-side developers thanks to the rise of front-end JavaScript frameworks, iPhone applications, and API-centric architectures. It might seem like grabbing stuff from a data source and shoving it out as JSON would be easy, but surviving changes in business logic, database schema updates, new features, or deprecated endpoints can be a nightmare. After finding many of the existing resources for API development to be lacking, Phil learned a lot of things the hard way through years of trial and error. This book aims to condense that experience, taking examples and explanations further than the trivial apples and pears nonsense tutorials often provide. By passing on some best practices and general good advice you can hit the ground running with API development, combined with some horror stories and how they were

overcome/avoided/averted. This book will discuss the theory of designing and building APIs in any language or framework, with this theory applied in PHP-based examples.

API Security in Action

Pro RESTful APIs

Programming JavaScript Applications

Manage and Understand the Full Capabilities of Successful REST Development

A pragmatic guide to designing and building RESTful APIs using Java

RESTful Java Web Services - Third Edition

Spring REST

Follow real-world API projects from concept to production, and learn hands-on how to describe and design APIs using OpenAPI. In *Designing APIs with Swagger and OpenAPI* you will learn how to: Understand OpenAPI syntax and structure Use Swagger and other tooling to create OpenAPI definitions Design authentication and authorization Turn an OpenAPI description into online documentation Automate processes and generating code Iterate an API design with user stories Build a frontend against a mock server Generate backend code with Swagger Codegen Versioning an API and dodging breaking changes Work with cross-functional teams *Designing APIs with Swagger and OpenAPI* is a comprehensive guide to designing and describing your first RESTful API using the most widely adopted standards. Following expert instruction from Swagger core contributor Josh Ponelat and API consultant Lukas Rosenstock, you'll spend each chapter progressively expanding the kind of APIs you'll want to build in the real world. You'll utilize OpenAPI and Swagger to help automate your workflow, and free up your time to work on more exciting features. Learn the syntax and structure of OpenAPI definitions, create and iterate on an API design with common tools, and release your API to the public. About the technology Create web APIs that customers and developers will love! Using Swagger, a collection of tools for defining and documenting REST APIs, you will build safe, controlled access to your software. And because Swagger implements the vendor-neutral OpenAPI specification, you'll be building to the same standards adopted by Google, Microsoft, and Amazon. About the book *Designing APIs with Swagger and OpenAPI* introduces a design-first approach. Written for developers new to API design, it follows the lifecycle of an API project from concept to production. You'll explore the dos and don'ts of APIs through progressively complete examples. You'll get hands-on experience designing APIs for specific business needs, using open source tools to generate documentation, and building developer-friendly components like mocks and client SDKs. What's inside OpenAPI syntax and structure Using Swagger to create OpenAPI definitions Automating processes and generating code Working with cross-functional teams About the reader For web developers. No prior knowledge of Swagger or OpenAPI required. About the author Josh Ponelat is the Swagger Open Source lead at SmartBear. Lukas Rosenstock is an independent software developer and API consultant.

Everyone and Their Dog Wants an API, So You Should Probably Learn How to Build Them

GraphQL API Design

RESTful Rails Development

Modern API Development with Spring and Spring Boot

Undisturbed Rest

REST API Design Rulebook