

Restful Api Design Volume 3 Api University Series

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

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.

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 scale, collaborative software projects, the text offers practical techniques of API design that produce robust code for the long term. It presents patterns 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 product 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 testing, or 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 talents. Three specific groups of readers are targeted: practicing software engineers and architects, technical managers, and students and educators. 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. 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.

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.

Implement application programming interface (API) usability, security, availability, reliability, and scalability to extend your company's market and potentially generate revenue. Businesses know they need to extend their markets into the digital world, and expose internal data to the Internet. This book shows how stakeholders within an organization can make it a successful journey. Stakeholder needs are not identical and departments experience difficulties discussing requirements with each other due to their different fundamental understanding of the process. The goal of this book is to introduce a common language for all business groups—developers, security experts, architects, product managers—around APIs and provide an overview of all aspects that need to be considered when exposing internal data. Most of the content in this

book is based on feedback from real-world enterprise customer questions, challenges, and business scenarios. Practical guidance is provided on the business value of APIs, the general requirements to know, and how to undertake an audience-based implementation. You will learn how to protect access to data, as well as API error handling, documentation, management, integration, and more. What You'll Learn Know the types of APIs and their business and technical requirements The main benefits of APIs, including business value, loose coupling, and frequent updates Protect access to APIs through role-based access, attribute-based access, and rate limiting Distinguish between OAuth and OpenID Connect, and know how they both work Manage API error handling, including what should and should not be handled Understand the distinction between runtime, dynamic data, and static data Leverage external APIs as part of your own APIs Who This Book Is For API developers, API security experts, software architects, product owners, and business owners

Explore the necessary concepts of REST API development by building few real world services from scratch. About This Book Follow best practices and explore techniques such as clustering and caching to achieve a reactive, scalable web service Leverage the Gin Framework to quickly implement RESTful endpoints Learn to implement a client library for a RESTful web service using Go Who This Book Is For This book is intended for those who want to learn to build RESTful web services with a framework like Gin. To make best use of the code samples included in the book, you should have a basic knowledge of Go programming. What You Will Learn Create HTTP handler and introspect the Gorilla Mux router OAuth 2 implementation with Go Build RESTful API with Gin Framework Create REST API with MongoDB and Go Build a working client library and unit test for REST API Debug, test, and profile RESTful APIs with each of the frameworks Optimize and scale REST API using microservices In Detail REST is an architectural style that tackles the challenges of building scalable web services and in today's connected world, APIs have taken a central role on the web. APIs provide the fabric through which systems interact, and REST has become synonymous with APIs. The depth, breadth, and ease of use of Go, makes it a breeze for developers to work with it to build robust Web APIs. This book takes you through the design of RESTful web services and leverages a framework like Gin to implement these services. The book starts with a brief introduction to REST API development and how it transformed the modern web. You will learn how to handle routing and authentication of web services along with working with middleware for internal service. The book explains how to use Go frameworks to build RESTful web services and work with MongoDB to create REST API. You will learn how to integrate Postgres SQL and JSON with a Go web service and build a client library in Go for consuming REST API. You will learn how to scale APIs using the microservice architecture and deploy the REST APIs using Nginx as a proxy server. Finally you will learn how to metricize a REST API using an API Gateway. By the end of the book you will be

proficient in building RESTful APIs in Go. Style and Approach This book is a step-by-step, hands-on guide to designing and building RESTful web services.

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 signup 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.

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.

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 all that's needed to build a fully functional web application from scratch. Key Features Delve deep into the principle behind RESTful API Learn how to build a scalable web application with the RESTful API architecture and Flask framework Know what are the exact tools and methodology to test your applications and how to use them Book Description Python is a flexible language that can be used for much more than just script development. By knowing the Python RESTful APIs work, you can build a powerful backend for web applications and mobile applications using Python. You'll take your first steps by building a simple API and learning how the frontend web interface can communicate with the backend. You'll also learn how to serialize and deserialize objects using the marshmallow library. Then, you'll learn how to authenticate and authorize users using Flask-JWT. You'll also learn how to enhance your APIs by adding useful features, such as email, image upload, searching, and pagination. You'll wrap up the whole book by deploying your APIs to the cloud. By the end of this book, you'll have the confidence and skill to leverage the power of RESTful APIs and Python to build efficient web applications. What you will learn Understand the concept of a RESTful API Build a RESTful API using Flask and the Flask-Restful extension Manipulate a database using Flask-SQLAlchemy and Flask-

Migrate Send out plaintext and HTML format emails using the Mailgun API Implement a pagination function using Flask-SQLAlchemy Use caching to improve API performance and efficiently obtain the latest information Deploy an application to Heroku and test it using Postman Who this book is for This book is ideal for aspiring software developers who have a basic-to-intermediate knowledge of Python programming and who want to develop web applications using Python. Knowledge of how web applications work will be beneficial but is not essential.

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.

While Kubernetes has greatly simplified the task of deploying containerized applications, managing this orchestration framework on a daily basis can still be a complex undertaking. With this practical book, site reliability and DevOps engineers will learn how to build, operate, manage, and upgrade a Kubernetes cluster—whether it resides on cloud infrastructure or on-premises. Brendan Burns, cofounder of Kubernetes, and Craig Tracey, staff field engineer at Heptio, dissect how Kubernetes works internally and demonstrate ways to maintain, adjust, and improve the cluster to suit your particular use case. You'll learn how to make architectural choices for designing a cluster, managing access control, monitoring and alerting, and upgrading Kubernetes. Dive in and discover how to take full advantage of this orchestration framework's capabilities. Learn how your cluster operates, how developers use it to deploy applications, and how Kubernetes can facilitate a developer's job Adjust, secure, and tune your cluster by understanding Kubernetes APIs and configuration options Detect cluster-level problems early and learn the steps necessary to respond and recover quickly Determine how and when to add libraries, tools, and platforms that build on, extend, or otherwise improve a Kubernetes cluster

You might think more than enough design books exist in the programming world already. In fact, there are so many that it makes sense to ask 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, and *Practical 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 Written by the designer of the NetBeans API at Sun Technologies Based on best practices, scalability, and API design patterns

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.

Design and implement scalable and maintainable RESTful solutions with Node.js 10 Key Features Create rich and scalable RESTful API solutions from scratch Explore the new features of Node.js 10, Express 4.0, and MongoDB Integrate MongoDB in your Node.js application to store and secure your data Book Description When building RESTful services, it is really important to choose the right framework. Node.js, with its asynchronous, event-driven architecture, is exactly the right choice for building RESTful APIs. This third edition of RESTful Web API Design with Node.js 10 will teach you to create scalable and rich RESTful applications based on the Node.js platform. You will be introduced to the latest NPM package handler and understand how to use it to customize your RESTful development process. You will begin by understanding the key principle that makes an HTTP application a RESTful-enabled application. After writing a simple HTTP request handler, you will create and test Node.js modules using automated tests and mock objects; explore using the NoSQL database, MongoDB, to store data; and get to grips with using self-descriptive URLs. You'll learn to set accurate HTTP status codes along with understanding how to keep your applications backward-compatible. Also, while implementing a full-fledged RESTful service, you will use Swagger to document the API and implement automation tests for a REST-enabled endpoint with Mocha. Lastly, you will explore some authentication techniques to secure your application. What you will learn Install, develop, and test your own Node.js user modules Understand the differences between HTTP and RESTful applications Use self-descriptive URLs and set accurate HTTP status codes Eliminate third-party

dependencies in your tests with mocking Implement automation tests for a REST-enabled endpoint with Mocha Secure your services with NoSQL database integration within Node.js applications Integrate a simple frontend using JavaScript libraries available on a CDN server Who this book is for If you are a web developer keen to enrich your development skills to create server-side RESTful applications based on the Node.js platform, this book is for you. Some knowledge of REST would be an added advantage, but is definitely not a necessity.

Design and build Web APIs for a broad range of clients—including browsers and mobile devices—that can adapt to change over time. This practical, hands-on guide takes you through the theory and tools you need to build evolvable HTTP services with Microsoft's ASP.NET Web API framework. In the process, you'll learn how design and implement a real-world Web API. Ideal for experienced .NET developers, this book's sections on basic Web API theory and design also apply to developers who work with other development stacks such as Java, Ruby, PHP, and Node. Dig into HTTP essentials, as well as API development concepts and styles Learn ASP.NET Web API fundamentals, including the lifecycle of a request as it travels through the framework Design the Issue Tracker API example, exploring topics such as hypermedia support with collection+json Use behavioral-driven development with ASP.NET Web API to implement and enhance the application Explore techniques for building clients that are resilient to change, and make it easy to consume hypermedia APIs Get a comprehensive reference on how ASP.NET Web API works under the hood, including security and testability

A catalog of solutions to commonly occurring design problems, presenting 23 patterns that allow designers to create flexible and reusable designs for object-oriented software. Describes the circumstances in which each pattern is applicable, and discusses the consequences and trade-offs of using the pattern within a larger design. Patterns are compiled from real systems, and include code for implementation in object-oriented programming languages like C++ and Smalltalk. Includes a bibliography. Annotation copyright by Book News, Inc., Portland, OR

"Creating channels with application programming interfaces"--Cover.

Building RESTful APIs? Great - API consumers love them if the right design decisions were made. And we need to make a lot of design decisions when building a new API. How do we capture these decisions, gain an overview, communicate the decisions and iterate on the design? To describe APIs in a precise manner, API designers typically use API description languages. They offer specialized language concepts to capture design decisions. Thus, API description languages can be called the power tools of the API designer. One of the most popular API description languages is Swagger and OpenAPI. In this quick guide, we will learn how Swagger/OpenAPI can be used to capture your RESTful API design decisions.

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.

Learn the business and technical importance of API design and architecture using the available cloud services from Azure and AWS. This book starts off with an introduction to APIs and the concept of API Economy from a business and organizational perspective. You'll decide on a sustainable API strategy and API architecture based on different case scenarios. You'll then look at actual examples on API development guidelines, providing a practical view and approach towards the API development and aligning teams in API development. This book walks you through the API gateway services available in Azure and AWS and reviews different approaches to API Security. This will prepare you for understanding the trade-off between security and the frictionless API experience. What You'll Learn Implement API Gateways to streamline API Development Examine Security Mapping with API gateways from Azure and AWS Apply API implementation using Serverless architecture Review evolving APIs for monitoring and changing business requirements Use code samples in API security implementations Who This Book Is For Developers and architects with .NET and web development experience who want to learn about API design.

A step-by-step guide that will help you design, develop, scale, and deploy RESTful APIs with TypeScript 3 and Node.js Key Features Gain in-depth knowledge of OpenAPI and Swagger to build scalable web services Explore a variety of test frameworks and test runners such as Stryker, Mocha, and Chai Create a pipeline by Dockerizing your environment using Travis CI, Google Cloud Platform, and GitHub Book Description In the world of web development, leveraging data is the key to developing comprehensive applications, and RESTful APIs help you to achieve this systematically. This book will guide you in designing and developing web services with the power of TypeScript 3 and Node.js. You'll design REST APIs using best practices for request handling, validation, authentication, and authorization. You'll also understand how to enhance the capabilities of your APIs with ODMs, databases, models and views, as well as asynchronous callbacks. This book will guide you in securing your environment by testing your services and initiating test automation with different testing approaches. Furthermore, you'll get to grips with developing secure, testable, and more efficient code, and be able to scale and deploy TypeScript 3 and Node.js-powered RESTful APIs on cloud platforms such as the Google Cloud Platform. Finally, the book will help you explore microservices and give you an overview of what GraphQL can allow you to do. By the end of this book, you will be able to use RESTful web services to create your APIs for mobile and web apps and other platforms. What you will learn Explore various methods to plan your services in a scalable way Understand how to handle different request types and the response status code Get to grips with securing web services Delve into error handling and logging your web services for improved debugging Uncover the microservices architecture and GraphQL Create automated CI/CD pipelines for release and deployment strategies Who this book is for If you're a developer who has a basic understanding of REST concepts and want to learn how to design and develop RESTful APIs, this book is for

you. Prior knowledge of TypeScript will help you make the most out of this book.

A strategy and implementation guide for building, deploying, and managing APIs
Key Features
Comprehensive, end-to-end guide to business-driven enterprise APIs
Distills years of experience with API and microservice strategies
Provides detailed guidance on implementing API-led architectures in any business
Book Description
APIs are the cornerstone of modern, agile enterprise systems. They enable access to enterprise services from a wide variety of devices, act as a platform for innovation, and open completely new revenue streams. Enterprise API Management shows how to define the right architecture, implement the right patterns, and define the right organization model for business-driven APIs. Drawing on his experience of developing API and microservice strategies for some of the world's largest companies, Luis Weir explains how APIs deliver value across an enterprise. The book explores the architectural decisions, implementation patterns, and management practices for successful enterprise APIs, as well as providing clear, actionable advice on choosing and executing the right API strategy in your enterprise. With a relentless focus on creating business value, Luis Weir reveals an effective method for planning, building, and running business products and services with APIs. What you will learn
Create API strategies to deliver business value
Monetize APIs, promoting them through public marketplaces and directories
Develop API-led architectures, applying best practice architecture patterns
Choose between REST, GraphQL, and gRPC-style API architectures
Manage APIs and microservices through the complete life cycle
Deploy APIs and business products, as well as Target Operating Models
Lead product-based organizations to embrace DevOps and focus on delivering business capabilities
Who this book is for
Architects, developers, and technology executives who want to deliver successful API strategies that bring business value.

Designing APIs with Swagger and OpenAPI introduces you to a design-first paradigm that will teach you the best practices for describing and designing RESTful APIs using OpenAPI and Swagger. Using standards like OpenAPI, you can provide reliable, easy-to-use interfaces that allow other developers safe, controlled access to your software.

Designing APIs with Swagger and OpenAPI is a hands-on primer to properly designing and describing your APIs using the most widely-adopted standard. Designing APIs with Swagger and OpenAPI introduces you to a design-first paradigm that will teach you the best practices for describing and designing RESTful APIs using OpenAPI and Swagger. You'll build upon progressively-enhanced examples as you learn to describe an API and then extend it in the kind of scenarios you'd encounter in the real world. As you go, you'll use the popular Open Source tools to define APIs, generate documentation, and build other developer-friendly components like mocks, server stubs, and client SDKs. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

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.

With this concise book, you'll learn the art of building hypermedia APIs that don't simply run on the Web, but that actually exist in the Web. You'll start with the general principles and technologies behind this architectural approach, and then dive hands-on into three fully-functional API examples. Too many APIs rely on concepts rooted in desktop and local area network patterns that don't scale well—costly solutions that are difficult to maintain over time. This book shows system architects and web developers how to design and implement human- and machine-readable web services that remain stable and flexible as they scale. Learn the H-Factors for representing application metadata across all media types and formats Understand the four basic design elements for authoring hypermedia types Convert a simple read-only XML-based media type into a successful API design Examine the challenges and advantages of designing a hypermedia type with JSON Use HTML5's rich set of hypermedia controls in the API design process Learn the details of documenting, publishing, and registering media type designs and link-relation types

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

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 Design Patterns lays out a set of design principles for building internal and public-facing APIs. Summary A collection of best practices and design standards for web and internal 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, and deleting data Advanced patterns for special interactions and data transformations API Design Patterns reveals best practices for building stable, user-friendly APIs. These design patterns can be applied to solve common API problems and flexibly altered to fit your specific needs. Hands-on examples and relevant use-cases illustrate patterns for API fundamentals, advanced functionalities, and even uncommon scenarios. Purchase of the print 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 to use. This book collects and explains the most important patterns from both the API design community and the experts at Google. About the book API Design Patterns lays out a set of design 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 scenarios make every pattern clear and easy to understand. What's inside Guiding principles for API patterns Fundamentals of resource layout and naming Advanced patterns for special interactions and data transformations A detailed case-study on building an API and adding features About the reader For developers building web and internal APIs in any language. About the author JJ Geewax is a software engineer at Google, focusing on 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

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

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.

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

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.

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

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

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

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. Describes ways to incorporate domain modeling into software development.

Highly available microservice-based web apps for Cloud with Java Key Features Take advantage of the simplicity of Spring to build a full-fledged application Let your applications run faster while generating smaller cloud service bills Integrate your application with various tools such as Docker and Elasticsearch and use specific tools in Azure and AWS Book Description Businesses today are evolving so rapidly that they are resorting to the elasticity of the cloud to provide a platform to build and deploy their highly scalable applications. This means developers now are faced with the challenge of building build applications that are native to the cloud. For this, they need to be aware of the environment, tools, and resources they're coding against. If you're a Java developer who wants to build secure, resilient, robust, and scalable applications that are targeted for cloud-based deployment, this is the book for you. It will be your one stop guide to building cloud-native applications in Java Spring that are hosted in On-prem or cloud providers - AWS and Azure The book begins by explaining the driving factors for cloud adoption and shows you how cloud deployment is different from regular application deployment on a standard data centre. You will learn about design patterns specific to applications running in the cloud and find out how you can build a microservice in Java Spring using REST APIs You will then take a deep dive into the lifecycle of building, testing, and deploying applications with maximum automation to reduce the deployment cycle time. Gradually, you will move on to configuring the AWS and Azure platforms and working with their APIs to deploy your application. Finally, you'll take a look at API design concerns and their best practices. You'll also learn how to migrate an existing monolithic application into distributed cloud native applications. By the end, you will understand how to build and monitor a scalable, resilient, and robust cloud native application that is always available and fault tolerant. What you will learn See the benefits of the cloud environment when it comes to variability, provisioning, and tooling support Understand the architecture patterns and considerations when developing on the cloud Find out how to perform cloud-native techniques/patterns for request routing, RESTful service creation, Event

Sourcing, and more Create Docker containers for microservices and set up continuous integration using Jenkins Monitor and troubleshoot an application deployed in the cloud environment Explore tools such as Docker and Kubernetes for containerization and the ELK stack for log aggregation and visualization Use AWS and Azure specific tools to design, develop, deploy, and manage applications Migrate from monolithic architectures to a cloud native deployment Who this book is for Java developers who want to build secure, resilient, robust and scalable applications that are targeted for cloud based deployment, will find this book helpful. Some knowledge of Java, Spring, web programming and public cloud providers (AWS, Azure) should be sufficient to get you through the book.

[Copyright: 97ffd9b3b15436a1627fe3947cd916ef](#)