



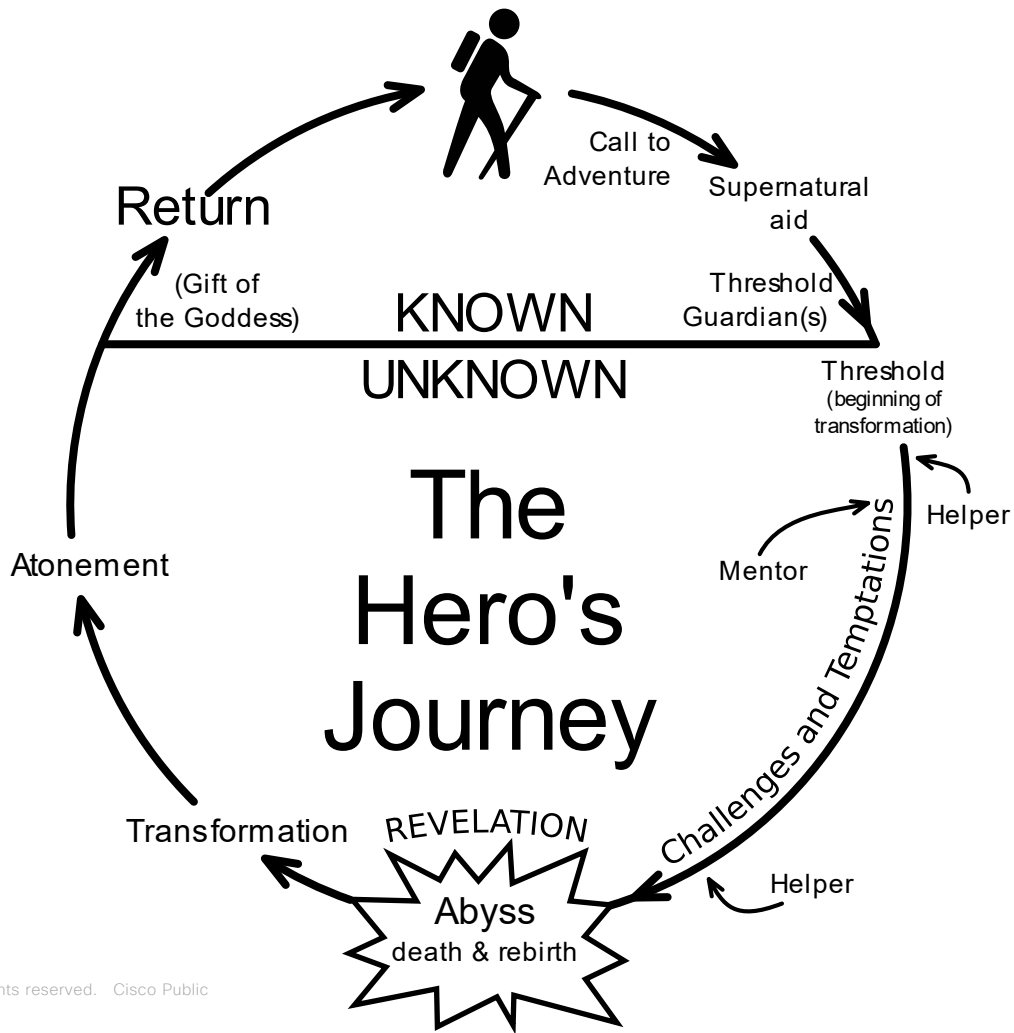
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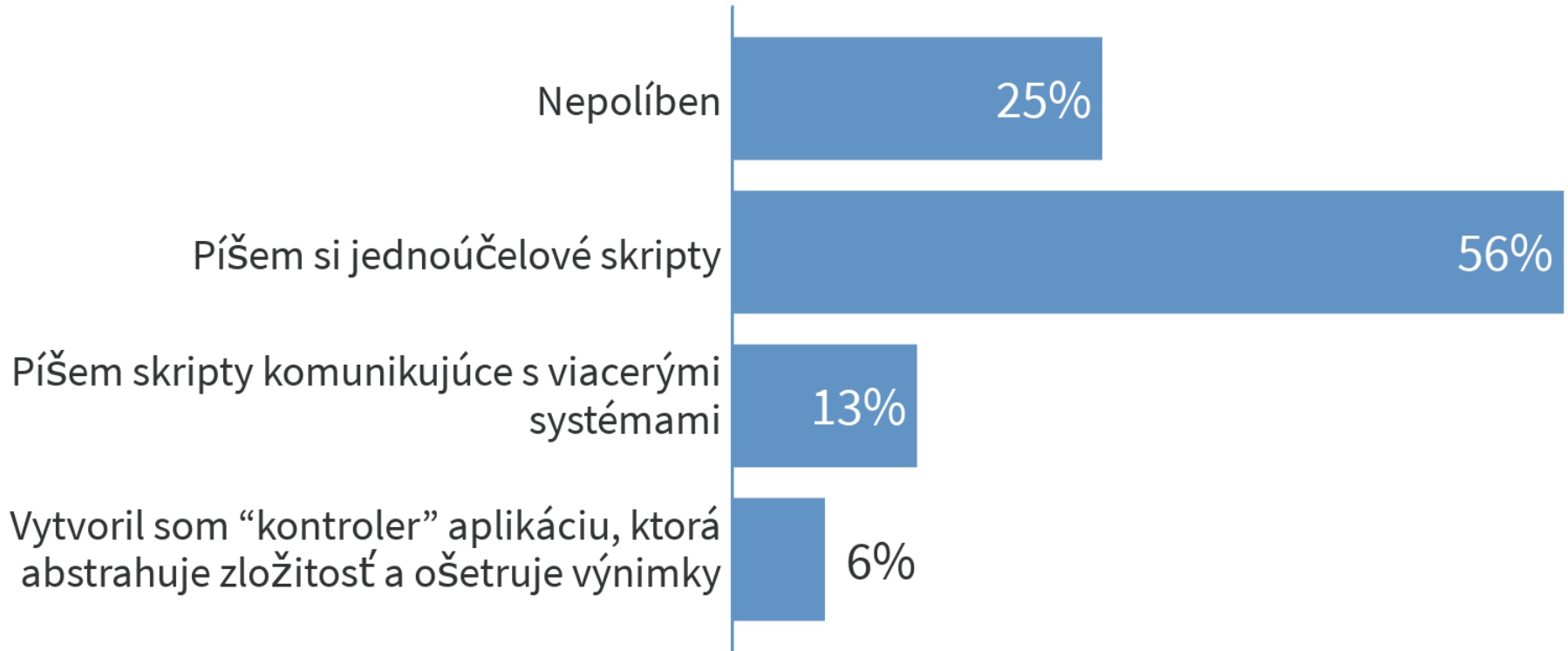
DevNet

Co se skrývá pod tímto názvem a jaký pro nás může mít přínos?

13. October 2020




Aký je váš vzťah k automatizácii?



DevNet Mission



Help Cisco's employees, customers and partners grow in the modern economy and API economy



Make innovation easy. Help developers build solutions with Cisco platforms and APIs

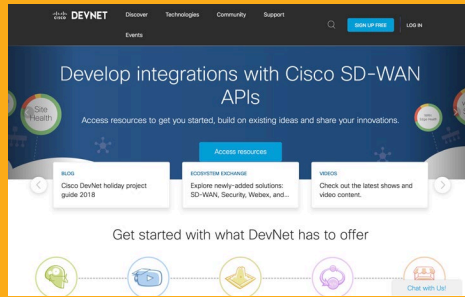


Make DevNet developers successful in their businesses and careers



DevNet is...

A website



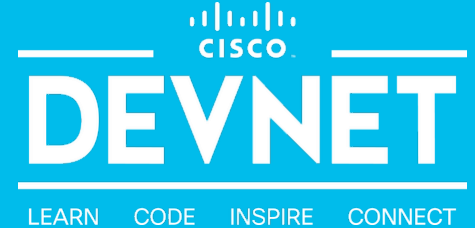
The DevNet website, developer.cisco.com, is free-to-use and provides learning & sandbox environments for those trying to learn coding and testing apps

A community



DevNet is now a community of **500,000+ developers**, leveraging code and sharing code to build better solutions.

A place to start



DevNet helps developers and IT professionals who want to **write applications and develop integrations** with Cisco products, platforms, and APIs.

The single resource for everything “developer” at Cisco.

Cisco platforms



IoT



Networking



Collaboration



Services



Data Center



Cloud



Open Source



Security



Mobility



Hey, Infrastructure Developers



Welcome, App Developers

DevNet tools and resources

developer.cisco.com

The screenshot shows the Cisco DevNet website homepage. At the top is a dark navigation bar with the Cisco DevNet logo and links for Discover, Technologies, Community, Support, Events, and New Announcement. There are also search and user action buttons: 'SIGN UP FREE' and 'LOG IN'. The main banner features the headline 'Cisco DevNet Certifications are here!' and a sub-headline 'Infusing traditional network engineering certifications with skills in automation and programmability, a brand-new suite of DevNet certifications.' A 'Read More' button is centered below the text. Below the banner is a carousel of three blog post cards. The first card is titled 'Business Continuity Planning Today' under the 'BLOG' category. The second card is titled 'Finding Code for Network Automation Is Easier Than Ever' also under 'BLOG'. The third card is titled 'DevNet provides shared repos for network automation & guides teams...' under the 'AUTOMATION EXCHANGE' category. Below the carousel is a large blue button that says 'Get started with what DevNet has to offer'. Underneath this button is a horizontal sequence of six icons, each with a label below it: a rocket icon for 'Start Now', a brain icon for 'Learning Tracks', a play button icon for 'Video course', a server rack icon for 'Sandbox', a code icon for 'Code Exchange', and a storefront icon for 'Ecosystem Exchange'.

DEVNET Discover Technologies Community Support Events New Announcement SIGN UP FREE LOG IN

Cisco DevNet Certifications are here!

Infusing traditional network engineering certifications with skills in automation and programmability, a brand-new suite of DevNet certifications.

Read More

BLOG Business Continuity Planning Today

BLOG Finding Code for Network Automation Is Easier Than Ever

AUTOMATION EXCHANGE DevNet provides shared repos for network automation & guides teams...

Get started with what DevNet has to offer

Start Now Learning Tracks Video course Sandbox Code Exchange Ecosystem Exchange

DevNet tools and resources

developer.cisco.com

The image shows a screenshot of the Cisco DevNet website. The main header includes the DevNet logo and navigation links: Discover, Technologies, Community, and Support. A prominent banner reads "Start with a curated list of learning content" and asks if the user is new to programming or wants to take their skills to the next level. Below this, a section titled "Expand your skills in technology areas below:" features a grid of learning tracks. Each track includes an icon, duration, number of labs, and a brief description. At the bottom, there are three navigation icons: "Start Now" (rocket), "Learning Tracks" (lightbulb), and "Video course" (play button). A secondary grid on the right side of the page shows more learning tracks, and a footer contains links for "Sandbox", "Code Exchange", and "Ecosystem Exchange".

Start with a curated list of learning content

Are you new to programming, or want to take your skills to the next level? Want guided hands-on learning with a Cisco technology or platform? You've come to the right place.

Expand your skills in technology areas below:

Track Name	Duration	Labs	Description
Coding & APIs	4 Hours	8 Labs	Coding for beginners, introduction to Python, understanding and using REST APIs.
Networking 101	2 Hours	3 Labs	Learn coding basics for Networking.
EN Networking	4 Hours	10 Labs	Build apps with Cisco DNA Center Platform Solutions.
DC Networking	6 Hours	14 Labs	Explore Application Centric Infrastructure (ACI) programmability options and explore data center APIs.
Meraki	3 Hours	6 Labs	Code on Meraki platforms using Python and explore various APIs available.
Webex	7 Hours	21 Labs	Create your own integrations with Cisco Webex Collaboration APIs.
IOT & Edge Computing	6 Hours	14 Labs	Learn ways to get started on building smart cities with IoT APIs available.
Contact Center	2 Hours	3 Labs	Customize your contact center with available Finesse gadgets and APIs.
Data Center Compute	7 Hours	14 Labs	Explore PowerShell, PowerTool and Python SDKs to create custom solutions for your Data Center needs.
Cloud & Containers	3 Hours	5 Labs	Learn how containers and microservices can simplify your Cisco cloud deployments.
Security	3 Hours	6 Labs	Explore Firepower APIs and learn about policy fundamentals using APIs.

Get started with what

Start Now Learning Tracks Video course

Sandbox Code Exchange Ecosystem Exchange

DevNet tools and resources

developer.cisco.com

DEVNET Discover Technologies Community Support Events New Announcement SIGN UP FREE LOG IN

DEVNET Learning Labs DevNet Express Tracks Modules Labs Challenges Help Feedback

DevNet Tracks
A Guided Learning Platform for Cisco Technology

DevNet Tracks provide you with a guided path to learn selected Cisco technologies. Based on DevNet Learning Labs, a track is made up of modules, which in turn are composed of learning labs. Some modules also focus on general knowledge in programming, networking, or other topics. Get started today!

Get Started by Selecting a Track Below

To get started with a track, just pick an area that you find interesting, such as network programmability, and then follow the pre-selected modules.

Cisco SD-WAN Programmability

Use this learning track to learn about all the great programmability options available to you with Cisco SD-WAN. You will learn and explore the vManage REST API initially using Postman and then using Python code and Ansible. Learn how to apply modern agile methods and tools to the deployment of Cisco SD-WAN and automate Day 0, Day 1 and Day 2 configurations. Then how to leverage Cisco SD-WAN REST APIs to integrate with DevNet tools like GitHub and Grafana for monitoring Cisco SD-WAN components.

4 Modules 11 Labs 6 Hours

Get Started with Network Services Orchestrator

Use this track to get started with Cisco Network Service Orchestrator (NSO). Begin with the module on the different user perspectives to get a sense for what NSO can do for you based on your role: Network Engineers, Operations, Provisioning team as well as Service developer. When you are ready to go from theory to practice, get started with the step-by-step walkthrough on network programmability and learn how to automate any vendor's network infrastructure at scale and see how NSO provides an incorporate API for legacy vManage and vProvisioning tools.

2 Modules 5 Labs 6 Hours

Automations are here!
DevNet provides shared repos for network automation & guides teams...

Get started with what DevNet has to offer

Start Now Learning Tracks Video course Sandbox Code Exchange Ecosystem Exchange

DevNet tools and resources

developer.cisco.com

The screenshot shows the DevNet website interface. At the top, there is a navigation bar with the DevNet logo and links for Discover, Technologies, Community, Support, Events, and New Announcement. There are also buttons for 'SIGN UP FREE' and 'LOG IN'. The main content area features a large banner with the text 'are here!' and 'jility, a brand-new suite of DevNet certifications.' Below this, there is a section titled 'Learn network programmability basics' with a 'Start learning now' button. A central modal window displays a video course preview for 'Start your network programmability journey'. The preview includes a video thumbnail, a table of contents for 'MODULE 1' and 'MODULE 2', and a 'Play module' button. Below the modal, there is a section titled 'Get started with what DevNet has to offer' with a horizontal timeline of six icons: Start Now, Learning Tracks, Video course, Sandbox, Code Exchange, and Ecosystem Exchange.

DEVNET Discover Technologies Community Support Events New Announcement SIGN UP FREE LOG IN

Learn network programmability basics

Jumpstart your journey into network programmability with this expert-led video course. We have 6 modules, each with lessons including API and code samples you can use on your computer to follow along with the videos.

Start learning now

are here!

jility, a brand-new suite of DevNet certifications.

Start your network programmability journey

MODULE 1

Carl's 3 Step Approach to Network Programmability

- Part 1: Introduction
- Part 2: Network Programmability
- Part 3: Network Programmability

Introduction

Learn what the Network Programmability Video Course is all about.

Play module

How to be a Network Engineer in a Programmable Age 16:04

MODULE 2

Get started with what DevNet has to offer

Start Now Learning Tracks Video course Sandbox Code Exchange Ecosystem Exchange

DevNet tools and resources

developer.cisco.com

DEVNET Discover Technologies Community Support Events New Announcement

Cisco DevNet

Infusing traditional network engineering certification

Looking for a development lab?

Dig in with DevNet Sandbox – technology packed Cisco labs – today! FREE with 24x7

Learn more Get started with Sandbox

EXPLORE TECHNOLOGIES

- Networking
- Data Center
- Cloud
- Security
- IoT
- Collaboration
- Analytics & Automation
- Open Source

developer.cisco.com/sandbox

- For Testing APIs
- For Development
- For Training
- For Hack-a-thons
- For Learning How to Configure a Product

Get started with what DevNet has to offer



Start Now



Learning Tracks



Video course



Sandbox



Code Exchange



Ecosystem Exchange

DevNet tools and resources

developer.cisco.com

The image displays a collage of screenshots from the Cisco DevNet website. The main screenshot shows the DevNet homepage with a navigation bar, a hero section for 'Cisco DevNet Certified' with the tagline 'Infusing traditional network engineering certifications with skills in automation', and a 'Get started with what DevNet has to offer' section with icons for Start Now, Learning Tracks, Video course, Sandbox, Code Exchange, and Ecosystem Exchange. Two smaller screenshots are overlaid: one for 'Cisco Code Exchange' which says 'Discover code repositories related to Cisco technologies' and features a search bar and 'Explore repos' button; the other for 'Automation Exchange' which says 'Make Network Automation simple with the community' and features 'View all use cases' and 'Share use case' buttons.

DevNet tools and resources

developer.cisco.com

The image shows a screenshot of the Cisco DevNet website. At the top, the navigation bar includes the Cisco DevNet logo and links for Discover, Technologies, Community, Support, Events, and New Announcement. There are also buttons for 'SIGN UP FREE' and 'LOG IN'. The main banner features the text 'Cisco DevNet Certifications' and 'Infusing traditional network engineering certifications with skills in automation and programming', with a 'Read More' button.

Below the banner, there are two blog post cards:

- BLOG**
Business Continuity Planning Today
- BLOG**
Finding Code for Network Automation Is Easier Than Ever

An inset window shows the 'Cisco Ecosystem Exchange' page, which includes a search bar with the text 'What listing are you looking for?' and a 'Browse all listings' button. Below the inset, the text reads 'Explore solution showcase' and 'Take a deep dive to see how Partners leveraged Cisco technologies to help their customers.'

At the bottom, the heading 'Get started with what DevNet has to offer' is followed by a horizontal sequence of icons and labels:

- Start Now (rocket icon)
- Learning Tracks (head with gear icon)
- Video course (play button icon)
- Sandbox (circuit board icon)
- Code Exchange (circular arrows icon)
- Ecosystem Exchange (storefront icon)

“We’re working on Automation skills and we want a direct path to earn those skills and way to show that we have them ...”

DevNet Certifications



Cisco's expanded certification portfolio

The Cisco Certification Program

Associate Level

Specialist Level

Professional Level

Expert Level

Engineering

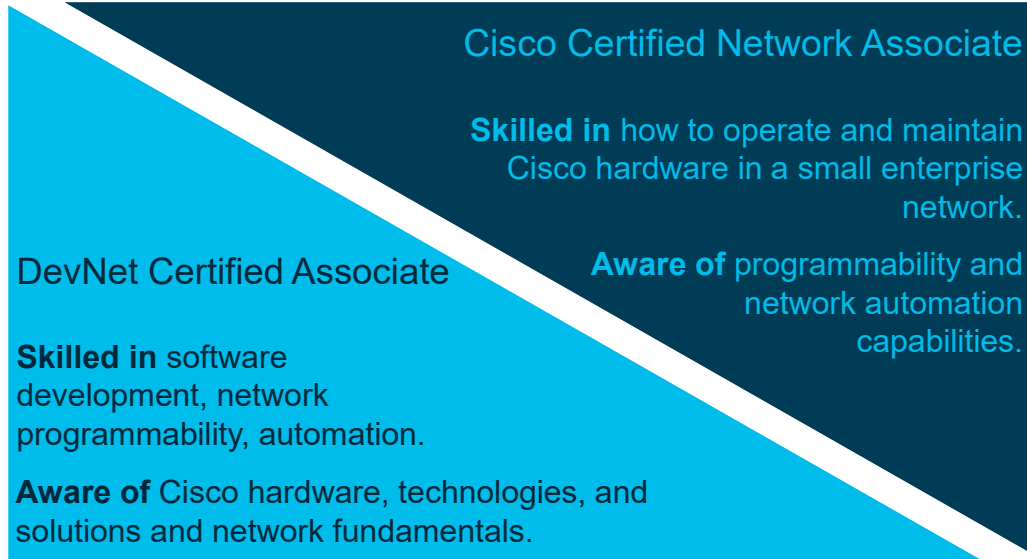


Software



Building teams with complementary skills

DevNet Certified Associate and the Cisco Certified Network Associate



Complementary balance and role alignment

How our program is evolving

Associate Level



One Exam

Specialist Level



One Exam:
Every written proctored exam (except CCNA) = Cisco Certified Specialist



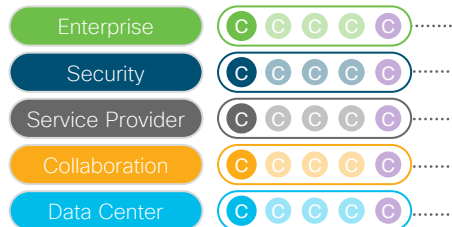
Professional Level



Two Exams:
1 concentration exam and 1 technology core in any order, but from the same track

Technology Core Exam

Concentration Exam

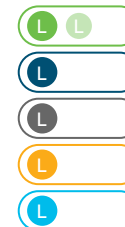


Automation and programmability cross functional course/exam option focused within technology track for CCNP certification

Expert Level



Lab Exam



1 technology core and 1 CCIE lab in same track



One Exam



One Exam:
Every DevNet written, proctored exam (except Cisco Certified DevNet Associate) = Cisco Certified DevNet Specialist



Two Exams:
1 DevNet core and 1 concentration exam in any order, but from the DevNet track

Technology Core exam

Concentration exam



Future offering

Cisco DevNet Track: Currently Composed of 10 exams



Entry: **Associate Level**

Next Step: **Professional Level**

Future Goal: **Expert**

Entry exam

DevNet concentration

DevNet lab

**Options: 1 technology core & 1 concentration exam
in any order, but from the same DevNet track**

**Options: 1 technology core &
1 lab in the same track**

DevNet Technology Core Exam

E DevNet Associate Exam

- C** **ENTERPRISE NETWORKING:** Automating and Programming Cisco Enterprise Solutions
- C** **SECURITY:** Automating and Programming Cisco Security Solutions
- C** **SERVICE PROVIDER:** Automating and Programming Cisco Service Provider Solutions
- C** **COLLABORATION:** Automating and Programming Cisco Collaboration Solutions
- C** **DATA CENTER:** Automating and Programming Cisco Data Center Solutions
- C** **DEVOPS:** Implementing DevOps Solutions and Practices using Cisco Platforms
- C** **IOT:** Developing Solutions using Cisco IoT & Edge Platforms
- C** **WEBEX:** Developing Applications for Cisco Webex and Webex Devices

L TBD

L TBD

L TBD

Training for new job roles

DevSecOps Engineer

Professional certification



CCNP Security

Technology concentrations



Cisco Specialist: Security

Automate security operations



Cisco DevNet Specialist: DevOps

Securely deploy applications



Cisco DevNet Specialist: Webex

Build chat bots for alerting and monitoring

Certification paths

Professional and Specialist certifications



Enterprise	Security	Service Provider	Collaboration	Data Center	DevNet
<ul style="list-style-type: none"> Implementing and Operating Cisco Enterprise Network Core Technologies Implementing Cisco Enterprise Advanced Routing and Services Designing Cisco Enterprise Wireless Networks Implementing Cisco Enterprise Wireless Networks Designing Cisco Enterprise Networks Implementing Cisco SD-WAN Solutions Automating and Programming Cisco Enterprise Solutions 	<ul style="list-style-type: none"> Implementing and Operating Cisco Security Core Technologies Securing Networks with Cisco Firepower Implementing Secure Solutions with Virtual Private Networks Securing Email with Cisco Security Appliances Securing the Web with Cisco Web Security Appliance Implementing and Configuring Cisco Identity Services Engine Automating and Programming Cisco Security Solutions 	<ul style="list-style-type: none"> Implementing and Operating Cisco Service Provider Network Core Technologies Implementing Cisco Service Provider Advanced Routing Solutions Implementing Cisco Service Provider VPN Services Automating and Programming Cisco Service Provider Solutions 	<ul style="list-style-type: none"> Implementing and Operating Cisco Collaboration Core Technologies Implementing Cisco Collaboration Applications Implementing Cisco Advanced Call Control and Mobility Services Implementing Cisco Collaboration Cloud and Edge Solutions Automating and Programming Cisco Collaboration Solutions 	<ul style="list-style-type: none"> Implementing and Operating Cisco Data Center Core Technologies Implementing Cisco Storage Area Networking Implementing Cisco Application Centric Infrastructure Designing Cisco Data Center Infrastructure Troubleshooting Cisco Data Center Infrastructure Automating and Programming Cisco Data Center Solutions 	<ul style="list-style-type: none"> Developing Applications using Cisco Core Platforms & APIs Implementing DevOps Solutions and Practices using Cisco Platforms Developing Solutions using Cisco IoT & Edge Platforms Developing Applications for Cisco Webex and Webex Devices Automating and Programming Cisco Enterprise Solutions Automating and Programming Cisco Security Solutions Automating and Programming Cisco Service Provider Solutions Automating and Programming Cisco Collaboration Solutions Automating and Programming Cisco Data Center Solutions

Updates to Recertification and Continuing Education

How our recertification policies changed

Previous Program

- Different recertification period depending on certification type
- Continuing education for CCIEs only
- Credits required for recertification:
 - CCIE: 100

New Program in Effect

- 3-year recertification period for all certified individuals, beginning at the recertifying event date
- Continuing education for all levels of certification
- Credits required for recertification:
 - CCNA: 30
 - Specialist: 40
 - CCNP: 80
 - CCIE: 120

How our CE policies changed

Previous Program

- CCIE CE credit requirement: 100
- Cisco Live activities: 70 points cap
- Item writing activities: 20 points cap
- Administrative Fee: \$300

New Program in Effect

- CCIE CE credit requirement: 120
- Cisco Live activities: No points cap
- Item writing activities: No points cap
- Administrative Fee: \$0

Recertification policy as implemented on February 24, 2020

Professional – 3 years	<ul style="list-style-type: none">• Pass one technology core exam• Pass any two professional concentration exams• Pass one CCIE lab exam	<ul style="list-style-type: none">• Pass any one professional concentration exam and earn 40 CE credits or;• Earn 80 CE credits
CCIE – 3 years	<ul style="list-style-type: none">• Pass any one expert-level certification exam• Pass any one CCIE lab exam• Pass any three professional concentration exams• Pass one technology core exam and pass any one professional concentration exam. (This is also a CCNP certification if done in the same track.)	<ul style="list-style-type: none">• Pass one technology core exam and earn 40 CE credits• Pass any two professional concentration exams and earn 40 CE credits• Pass any one professional concentration exam and earn 80 CE credits• Earn 120 CE credits
CCDE – 3 years	<ul style="list-style-type: none">• Pass any one expert-level certification exam• Pass any one CCIE lab exam• Pass the CCDE Practical Exam.• Pass the Cisco Certified Architect (CCAr) interview AND the CCAr board review.• Pass any three professional concentration exams	<ul style="list-style-type: none">• Pass one technology core exam and earn 40 CE credits• Pass any two professional concentration exams and earn 40 CE credits• Pass any one professional concentration exam and earn 80 CE credits

Next Steps and New DevNet Training and Tools

Find more information on DevNet, CLN, Cisco.com

Find learning lab and sandbox offerings to start learning journey

DevNet Associate Exam v1.0 (200-901)

DevNet Associate Exam v1.0 (DEVASC 200-901) is a 120-minute exam associated with the DevNet Associate – Developer Certification. This exam tests a candidate's knowledge of at the associate level in software development and design, understanding and using APIs, application deployment and security, and infrastructure and automation on Cisco platforms. The course, Developing Applications and Automating Workflows using Cisco Core Platforms, helps candidates to prepare for this exam.

[Sign up for updates](#)

Exam overview

15% 1.0 Software Development and Design

Exam Topics	Study Material
<ul style="list-style-type: none">1.1 Compare data formats (XML, JSON, YAML)1.2 Describe parsing of common data format (XML, JSON, YAML) to Python data structures1.3 Describe the concepts of test-driven development1.5 Explain the benefits of organizing code into methods/ functions, classes,1.5 Explain the benefits of organizing code into methods/ functions, classes, and modules1.6 Identify the advantages of common design patterns (MVC and Observer)1.7 Explain the advantages of version control1.8 Utilize common version control operations with Git:<ul style="list-style-type: none">1.8.a Clone1.8.b Add/remove1.8.c Commit	<p>These resources are meant to supplement your learning experience and exam preparation. They are NOT designed to serve as a complete self-study program, but intended only as a suggested starting point. Login to access these materials.</p> <ul style="list-style-type: none">• Setting up your Linux (Ubuntu) workstation as a development environment• Setting up your Windows workstation as a development environment• Setting up your macOS workstation as a development environment• What is a Development Environment and why do you need one?• A brief introduction to Git• Intro to Python Part 1• Intro to Python Part 2• Introduction to CI/CD• Coding 202: Parsing JSON using Python• Introduction to XML• Introduction to the Guest Shell

[Chat with Us!](#)

Exam Topics →

Learning Labs ←

developer.cisco.com/certification

cisco.com/nextlevel

Cisco DEVNET 500



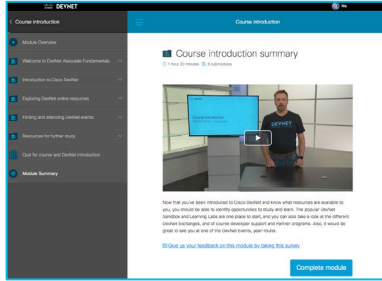
Achieved in 16 days

Cisco Authorized DevNet Certification Training Materials (ELT/ILT)

Certification	Associated Exam	Course Name	Type	Availability Methods
DevNet Associate	DEVASC	Developing Applications and Automating Workflows using Cisco Core Platforms	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)
DevNet Professional and DevNet Core Specialist	DEVCOR	Developing Applications using Cisco Core Platforms and APIs	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)
DevNet EN Automation Specialist	ENAUTO	Implementing Automation for Cisco Enterprise Solutions	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)
DevNet Data Center Automation Specialist	DCAUTO	Implementing Automation for Cisco Data Center Solutions	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)
DevNet Security Automation Specialist	SAUTO	Implementing Automation for Cisco Security Solutions	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)
DevNet Collaboration Automation Specialist	CLAUTO	Implementing Cisco Collaboration Automation Solutions	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)
DevNet Service Provider Automation Specialist	SPAUTO	Implementing Cisco Service Provider Automation Solutions	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)
DevNet DevOps Automation Specialist	DEVOPS	Implementing DevOps Solutions and Practices using Cisco Platforms	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)
DevNet IoT Specialist	DEVIOT	Developing Solutions Using Cisco IoT and Edge Platforms	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)
DevNet Webex Specialist	DEVWBX	Developing WebEx Solutions	ELT	CPLL & CLN Store (ELT)
		Introducing Automation for Cisco Solutions (*supporting Automation courses)	ILT/ELT	Cisco Learning Locator (ILT); CPLL & CLN Store (ELT)

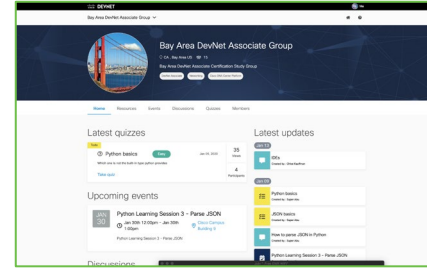
New DevNet tools to help you prepare

DevNet Associate Fundamentals Training



- Next generation learning experience
- Interactive all-in-one coding environment
- Built-in integrated labs

New DevNet Study Groups



- Online community platform
- Study group leaders and participants
- Curated content for Cisco technologies and certifications

developer.cisco.com/certification

Online Testing for Cisco Certification Exams

- Online, proctored testing is now available for Cisco Certification exams through Pearson VUE.
- Includes all written, proctored Cisco Certification exams except:
 - 100-110 ENU CCENT (Invitation Only)
 - 352-011 ENU Cisco Certified Design Expert Practical Exam
 - 352-001 ENU Cisco Certified Design Expert Qualification Exam
- Candidates must provide a quiet, private location, a computer with a webcam and reliable, high-speed internet access
- Online proctored tests can be delivered in most countries around the globe. There are country exceptions for standard restricted countries and China, Japan and Slovenia.



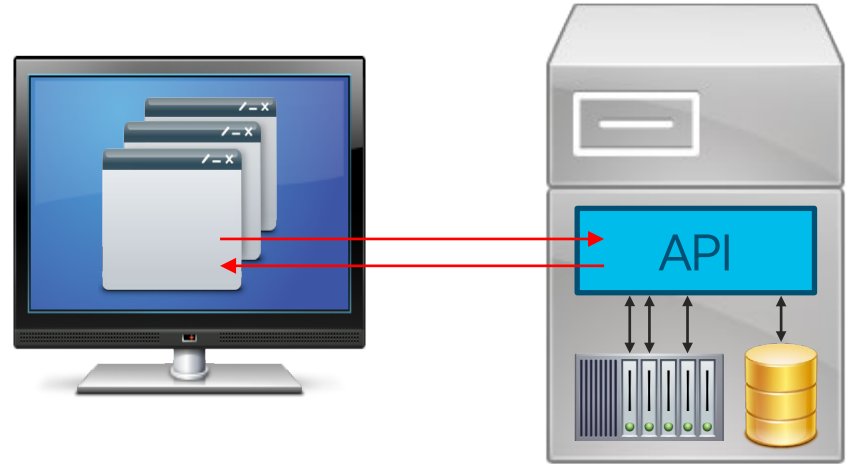
What is an API? REST

Application Programming Interface (API)

*“It’s a way for two applications
to talk to each other”*

What is an API?

- An interface that exposes selected data, services, and functionality of an application
- Set of requirements that govern how one application can talk to another
- Built to be consumed by another application that uses them programmatically



What is a REST API?

What is a REST Web Services API?

REpresentational **S**tate **T**ransfer (REST) is an **API architectural style**

- Adheres to the principles of the REST architectural style
- Communicate over HTTP protocol
- An interface for applications to send and receive data between each other
- Commonly known as REST API

GET

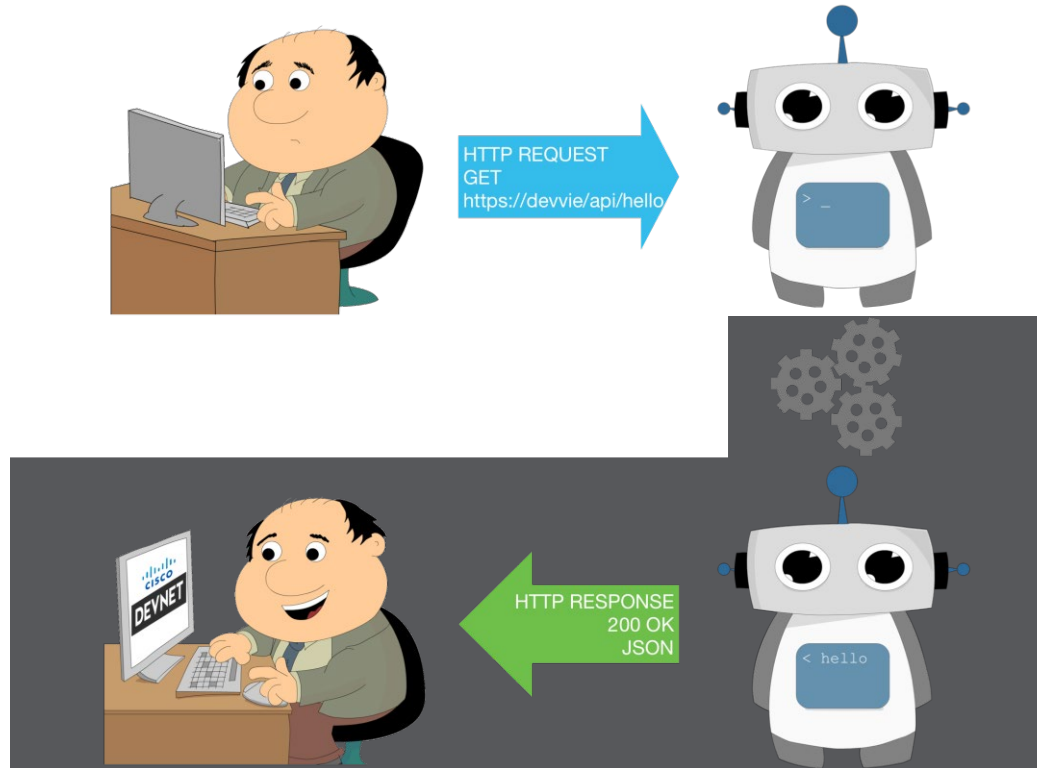
POST

PUT

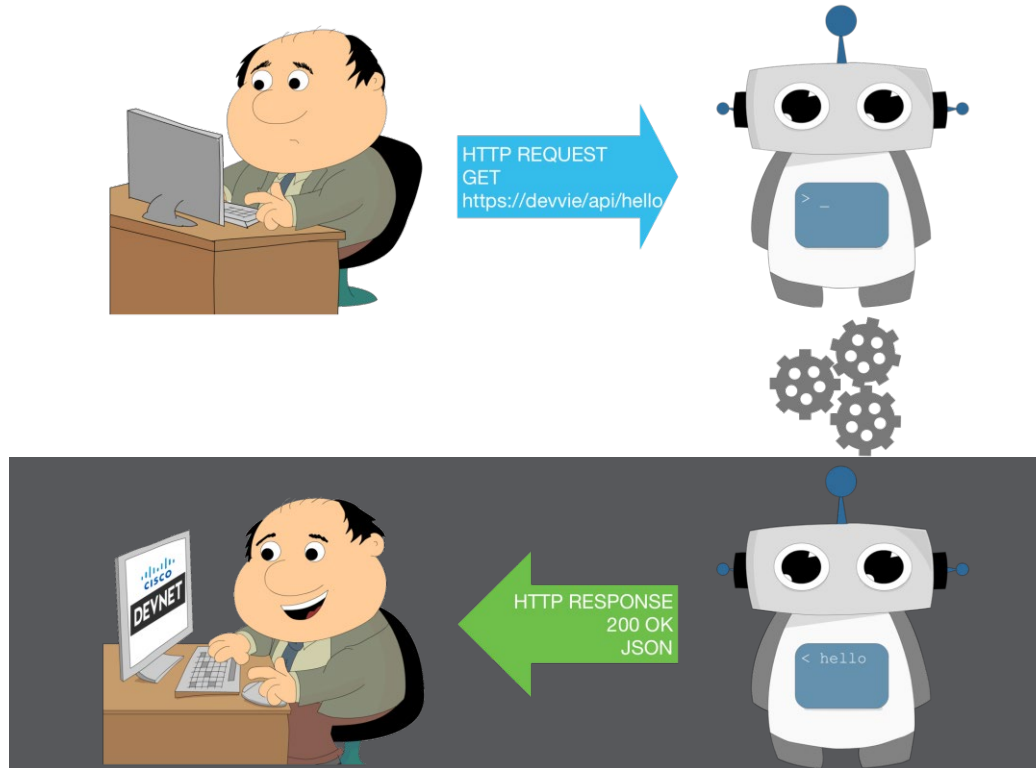
DELETE

{REST}

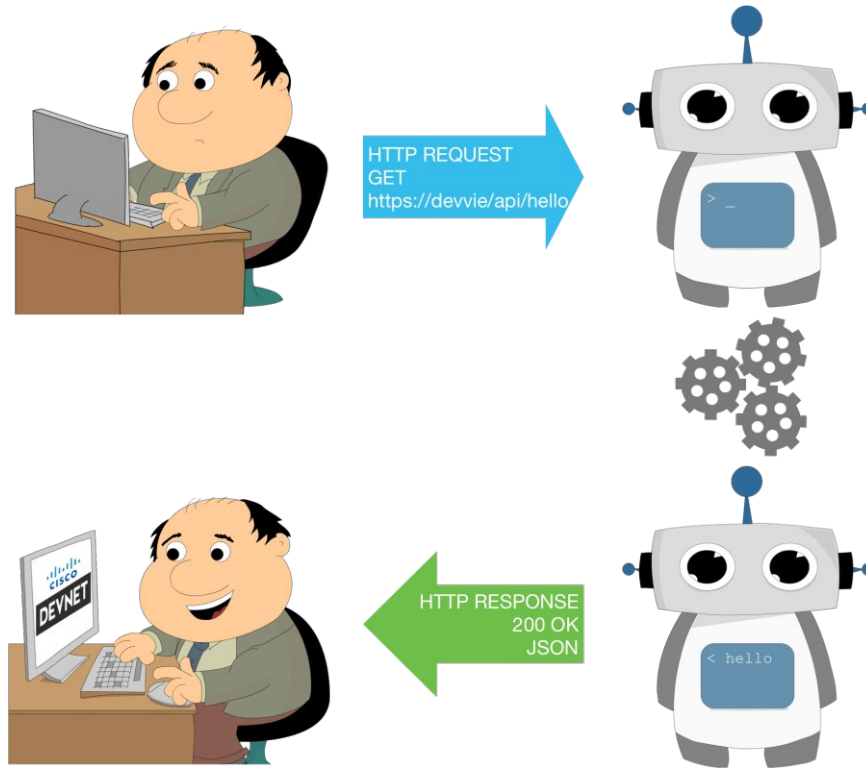
Requests and Response, the REST API Flow



Requests and Response, the REST API Flow



Requests and Response, the REST API Flow



Anatomy of a REST Request

Anatomy of a REST Request

- URI
- HTTP method
- Header
- Body – query parameters

URI: What are you requesting?



- **Protocol (`http://` or `https://`)**
 - Indicates whether the host is open (`http`) or secure (`https`)
- **Domain Name (Server or Host)**
 - Domain name that resolves to the IP and port of the server or host that is providing the web service
- **Resource Path**
 - The location of the data or object of interest on the server
- **Parameters**
 - Details to scope, filter, or clarify a request. Often optional.

URI: query string parameters

- GET requests cannot send a Body
- To access specific resources, you will use query parameters in the URI
- **?** followed by **&** for each additional parameter

https://deckofcardsapi.com/api/deck/new/shuffle/?deck_count=1

HTTP Methods: What to do?

HTTP Verb	Typical Purpose (CRUD)	Description
POST	Create	Used to create a new object or resource. Example: Add new book to the library
GET	Read	Retrieve resource details from the system. Example: Get a list of books from the library
PUT	Update	Typically used to replace or update an existing resource. Sometimes it is used to create a new object or resource. Example: Update the borrower details for a book
PATCH	Update	Used to modify some details about a resource. Example: Change the author of a book
DELETE	Delete	Remove a resource from the system. Example: Delete a book from the library.

Headers: What meta-data should I add?

Header	Example Value	Purpose
Content-Type	application/json application/xml	Specify the format of the data in the body
Accept	application/json	Specify the requested format for returned data
Authorization	Basic dmFncmFudDp2YWdyYW50	Provide credentials to authorize the request
Date	Tue, 25 Jul 2017 19:26:00 GMT	Date and time of the message

- Used to pass information between client and server
- APIs can use custom headers
- Included in both REQUEST and RESPONSE

Headers: Authentication Types

- **None (No Auth):** the web API resource is public; anybody can use it
- **HTTP Basic Authentication (Basic Auth):** a username and password are passed to the server in an encoded string.

Example: *Authorization: Basic ENCODEDSTRING*

- **Open Authorization (OAuth):** Standard framework for a flow to retrieve an access token from an Identity Provider.

Example: *Authorization: Bearer 8a9af9adadf0asdf0adfa0af*

- **API Keys:** Client-Server *secret* key. This is not an authorization type, but is often used for authentication. The API Key can be sent in a query string, in the header (using Authorization or a custom key) or in a cookie.
- Authorization can be short-lived and may require refreshing of tokens

Body: Sending Data – Request Body Parameters

- Contains the data the client wants to send to the server
- POST, PUT, PATCH requests typically include data
- Data type is specified in the Content-Type of the request header
 - JSON or XML are the typical data formats
 - APIs can accept multiple data types

```
PUT http://cisco.library.com/books/100
Authorization: Bearer MzQyODA5NDUtNDhhNC00ND
Content-Type: application/json
Body: {
  'title': 'Hamlet',
  'author': 'Shakespeare'
}
```

Anatomy of a REST Response



Anatomy of a REST Response

- HTTP Status Codes
- Headers
- Body

HTTP Status Codes

Status Code	Status Message	Meaning
200	OK	Request was successfully sent
201	Created	New resource created
202	Accepted	Request has been accepted for processing
400	Bad Request	Request was invalid due to malformed syntax
401	Unauthorized	Authentication missing or incorrect
403	Forbidden	Request was understood, but not allowed
404	Not Found	Resource not found
500	Internal Server Error	Something wrong with the server
503	Service Unavailable	Server is unable to complete request

Body: Receiving Data

- Contains the data the server wants to send to the client
- Data type is specified in the Content-Type of the response header
 - JSON or XML are the common data formats
- Content-Length of the response header specifies the size of the response body in 8-bit bytes.

```
HTTP/1.1 200 OK
Date: Mon, 27 May 2019 10:13:21 GMT
Server: Apache/1.3.29
Accept-Ranges: bytes
Content-Type: application/json
Content-Length: 60
Cache-Control: no-cache
Last-Modified: Sun, 26 May 2019 04:23:34 GMT
```

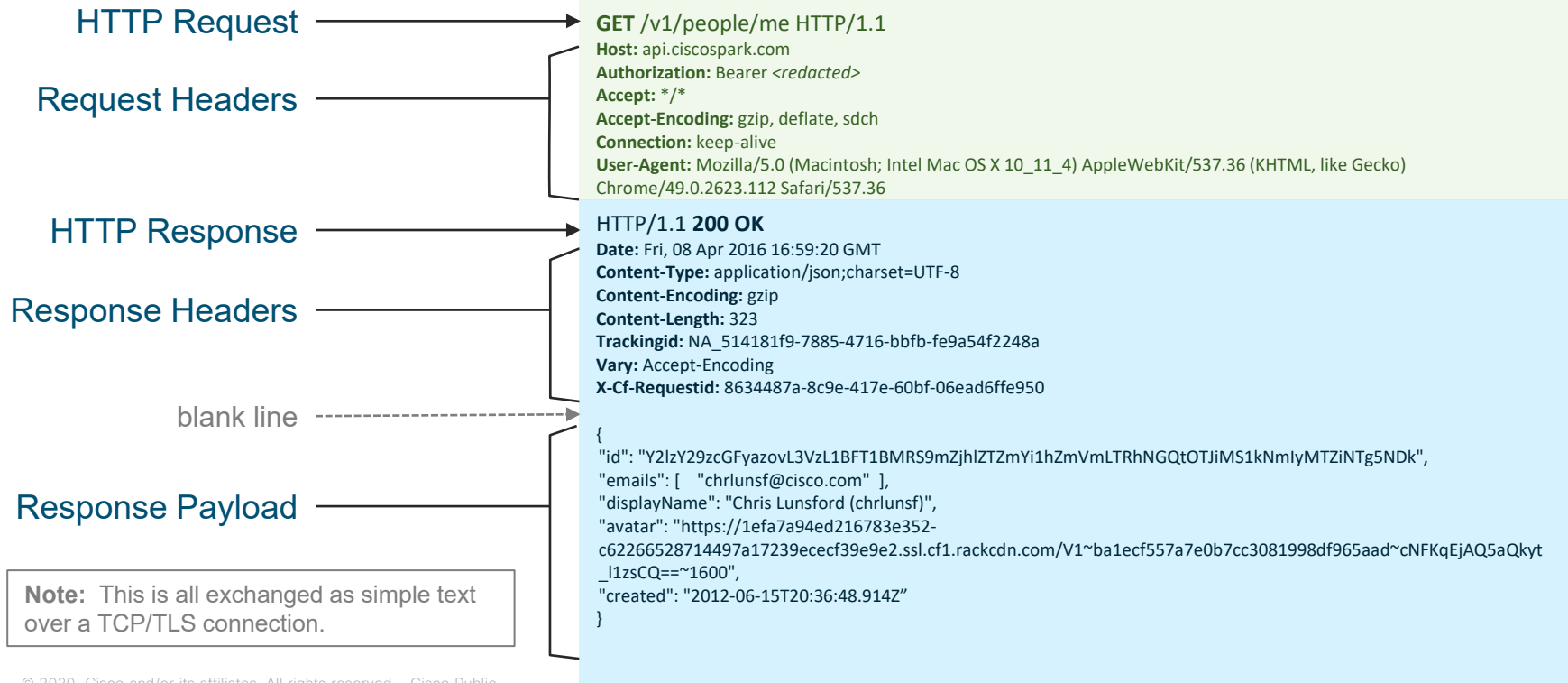
```
{
  'id': 100,
  'title': 'Hamlet',
  'author': 'Shakespeare'
}
```

REST API Example

Request-Response Cycle



Request/Response Details



Demo



<https://developer.cisco.com/devnetcreate>

DEVNET Create

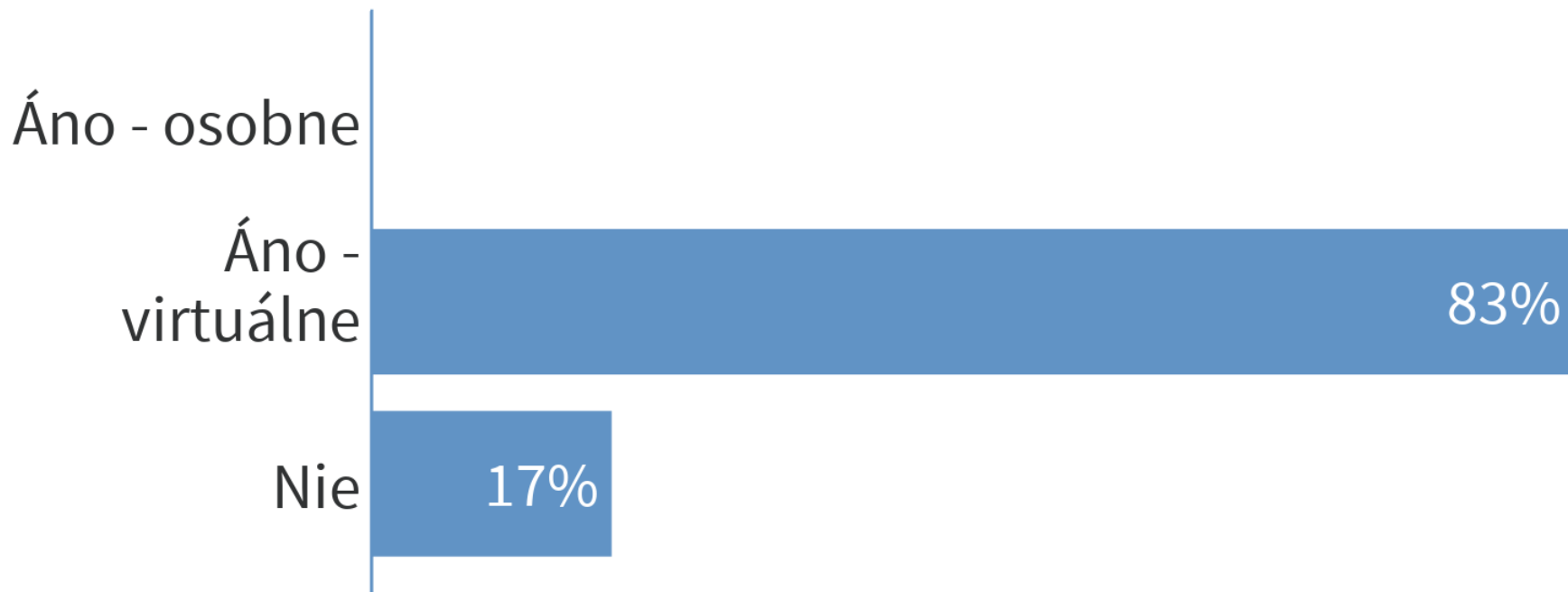
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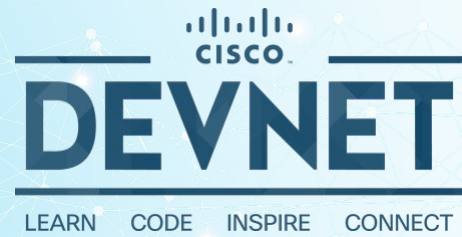
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Máte záujem o komunitné akcie, semináre so zameraním na automatizáciu?



Questions?



Next TechClub: 27.10.2020

Nové vlastnosti Cisco Webex Meetings

By Jaroslav Martan

Thank you for your time today.



