

The background is a vibrant, abstract graphic. It features a central bright white light source from which numerous colorful rays emanate, creating a sunburst or starburst effect. The rays transition through a spectrum of colors including yellow, orange, red, and various shades of blue and green. Overlaid on this are several large, semi-transparent, wavy shapes in similar color tones, giving the overall image a sense of motion and energy.

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#CiscoLive



The bridge to possible

API Design First

Not Just Another Pretty Interface

David Staudt, DevNet Developer Advocate

@dstaudt@cisco

DEVNET-2092



#CiscoLive



Cisco Webex App

Questions?

Use Cisco Webex App to chat with the speaker after the session

How

- 1 Find this session in the Cisco Live Mobile App
- 2 Click “Join the Discussion”
- 3 Install the Webex App or go directly to the Webex space
- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until June 9, 2023.



<https://ciscolive.ciscoevents.com/ciscolivebot/#DEVNET-2092>



David Staudt

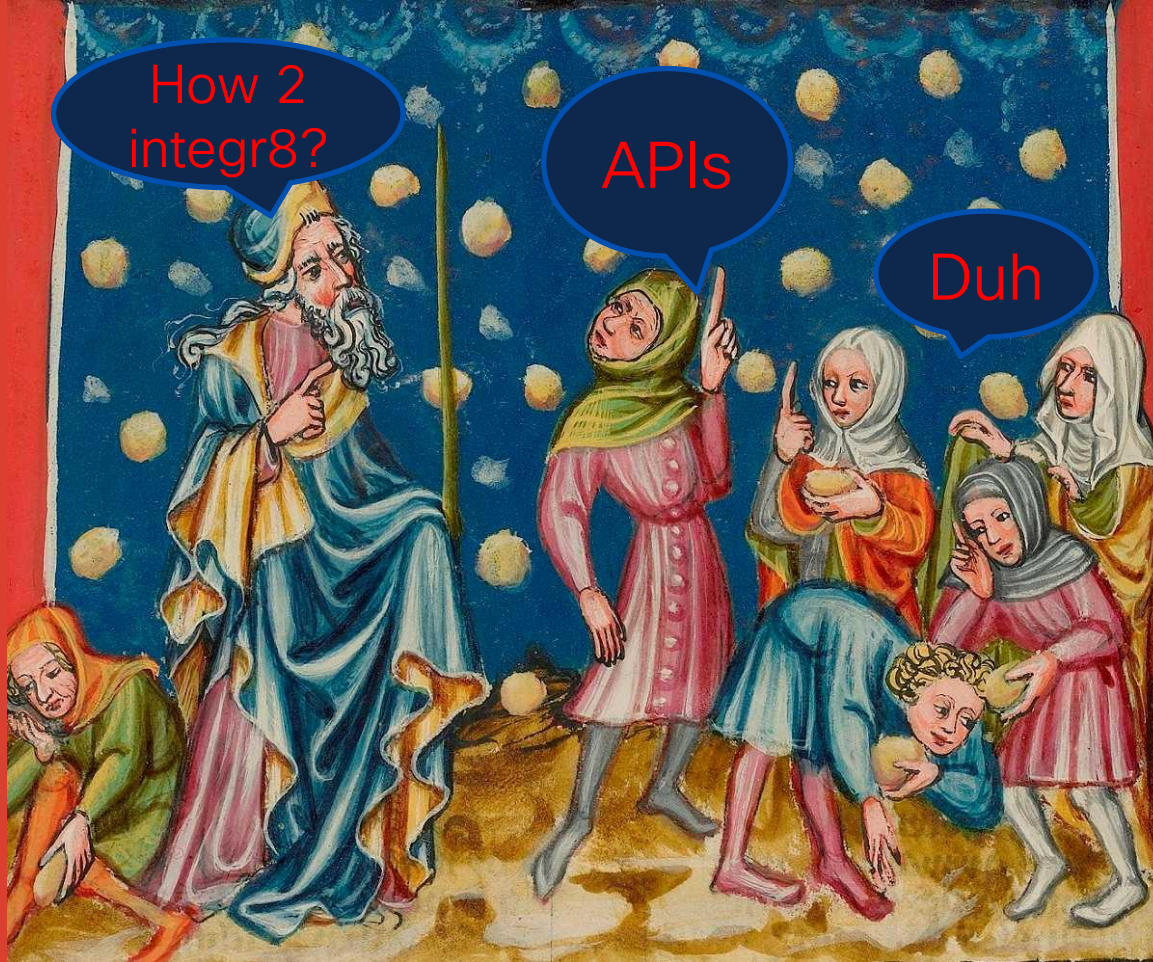
DevNet Developer Advocate
Cisco Systems Inc.

- Supporting and advocating on-behalf-of Cisco API developers for over 20 years
- Covering Security, Collaboration, and Customer Experience APIs

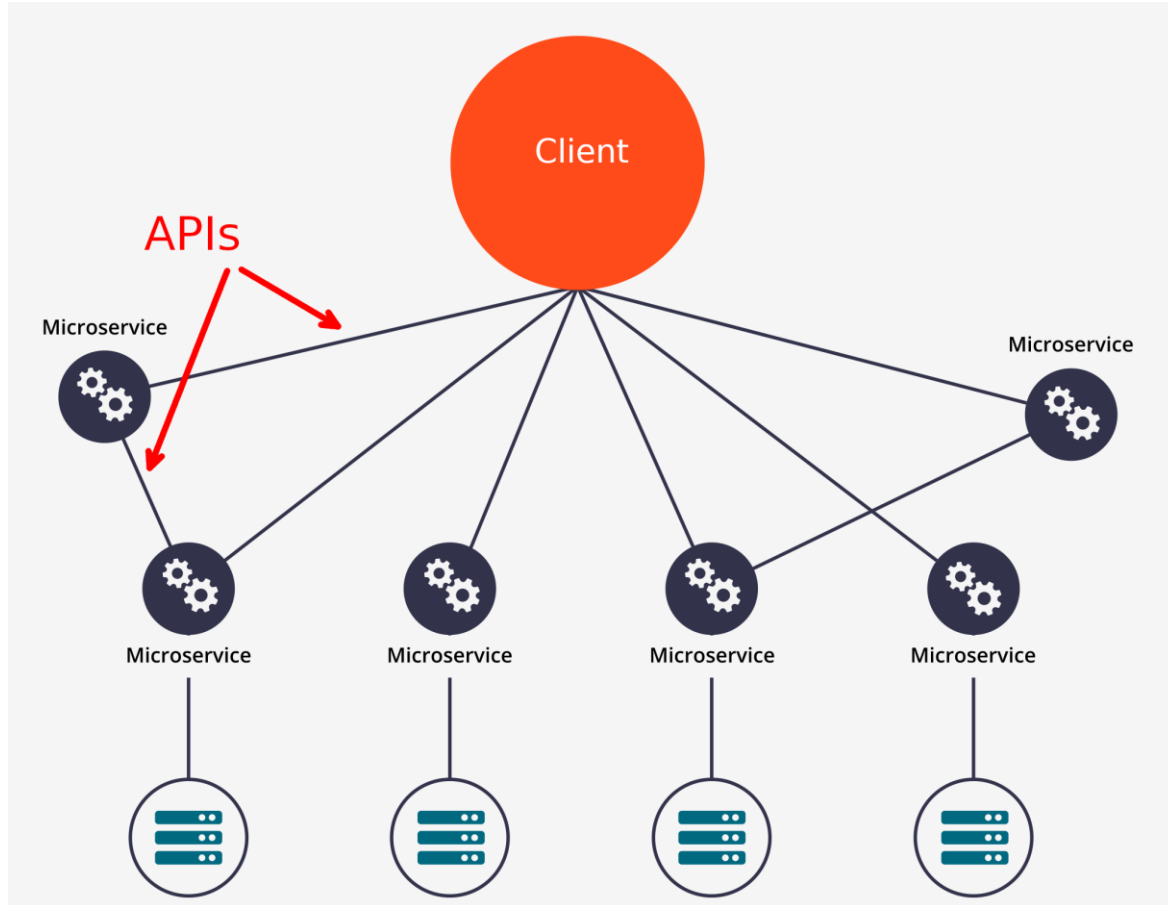
Agenda

- Why Design APIs?
- OpenAPI Specification
- Design Tools
- Documentation Auto-Generation
- SDK Auto-Generation
- Cisco's API Journey
- API Insights

Why Design APIs?



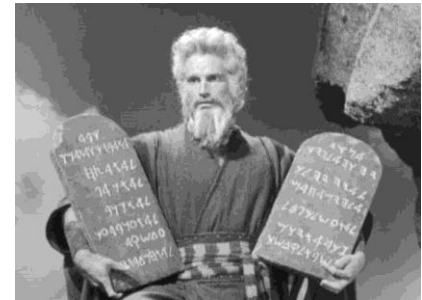
Microservices Architecture



Anonymous –

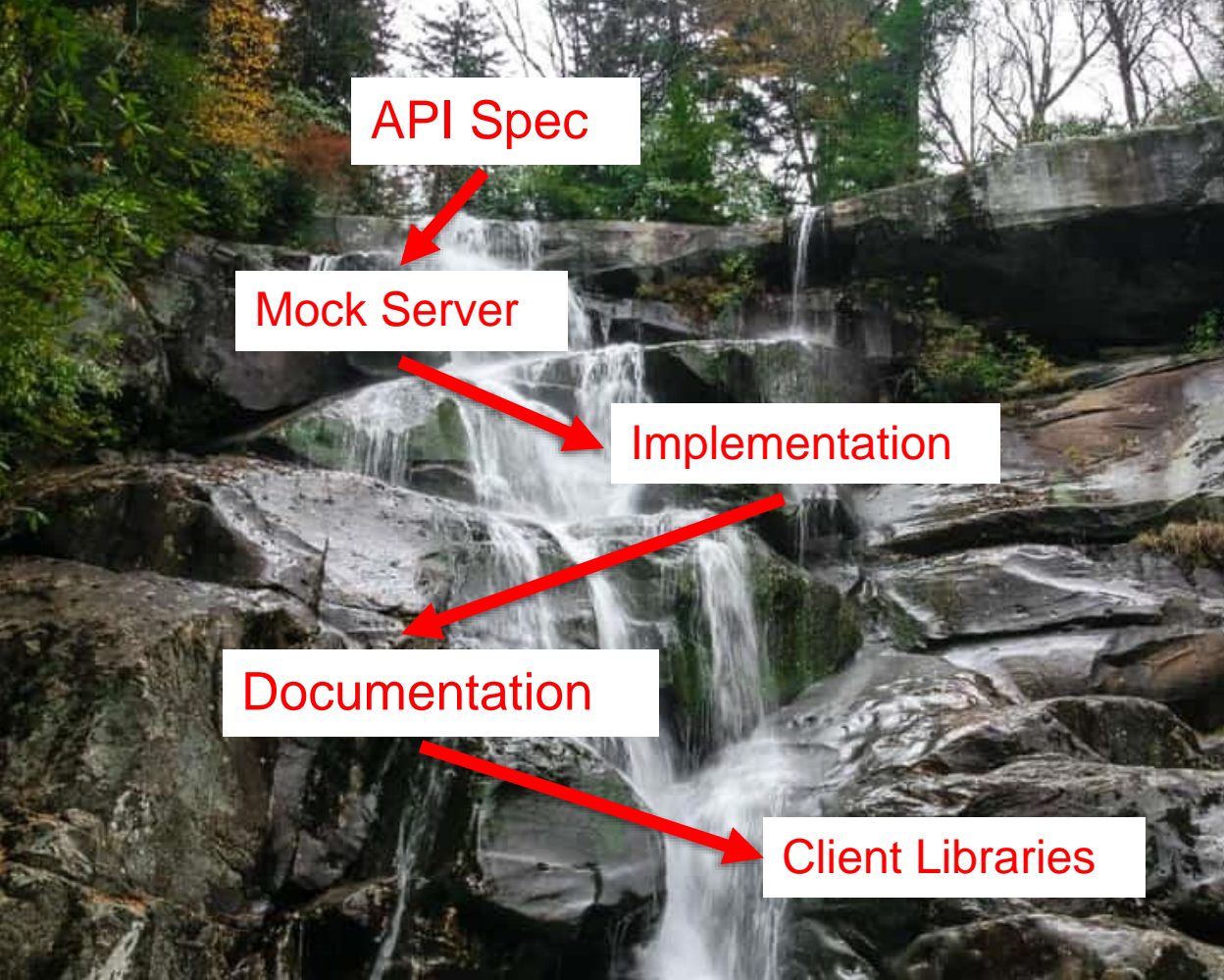
APIs baby!

- *All teams will henceforth expose their data and functionality through service interfaces.*
- *There will be no other form of interprocess communication allowed: no direct linking, no direct reads of another team's data store, no shared-memory model.*
- *All service interfaces must be designed from the ground up to be externalizable.*
- *Anyone who doesn't do this will be fired.*
- *Thank you; have a nice day!*



Why Design APIs *First?*





The OpenAPI Initiative Charter

<https://www.openapis.org/>



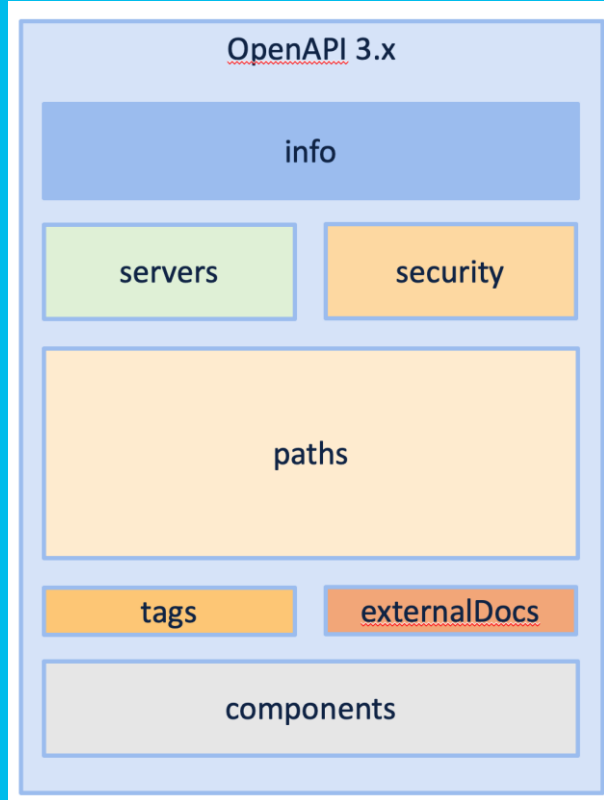
1. Mission of the OpenAPI Initiative

The OpenAPI Initiative (“OAI”) provides an open source community, within which industry participants may easily contribute to building vendor-neutral, portable and open specifications for providing technical metadata for APIs – such as the “OpenAPI Specification” (collectively, “Specifications”) – and supporting tooling for validating the integrity of the specifications or instantiations of it. The OAI is as such not intended to be a destination for community/consumer-focused tooling outside of the specification itself.

2. Membership

- The OpenAPI Initiative shall be composed of:
 - i. corporate members (OAI Members) that have executed an OAI Membership Agreement to sponsor the activities of the OAI Community
 - ii. a Business Governance Board (BGB);
 - iii. an open source, Technical Steering Committee (“TSC”), open to any participant, whether an OAI Member or not; and
 - iv. a Technical Oversight Board (“TOB”).

Elements of OAS

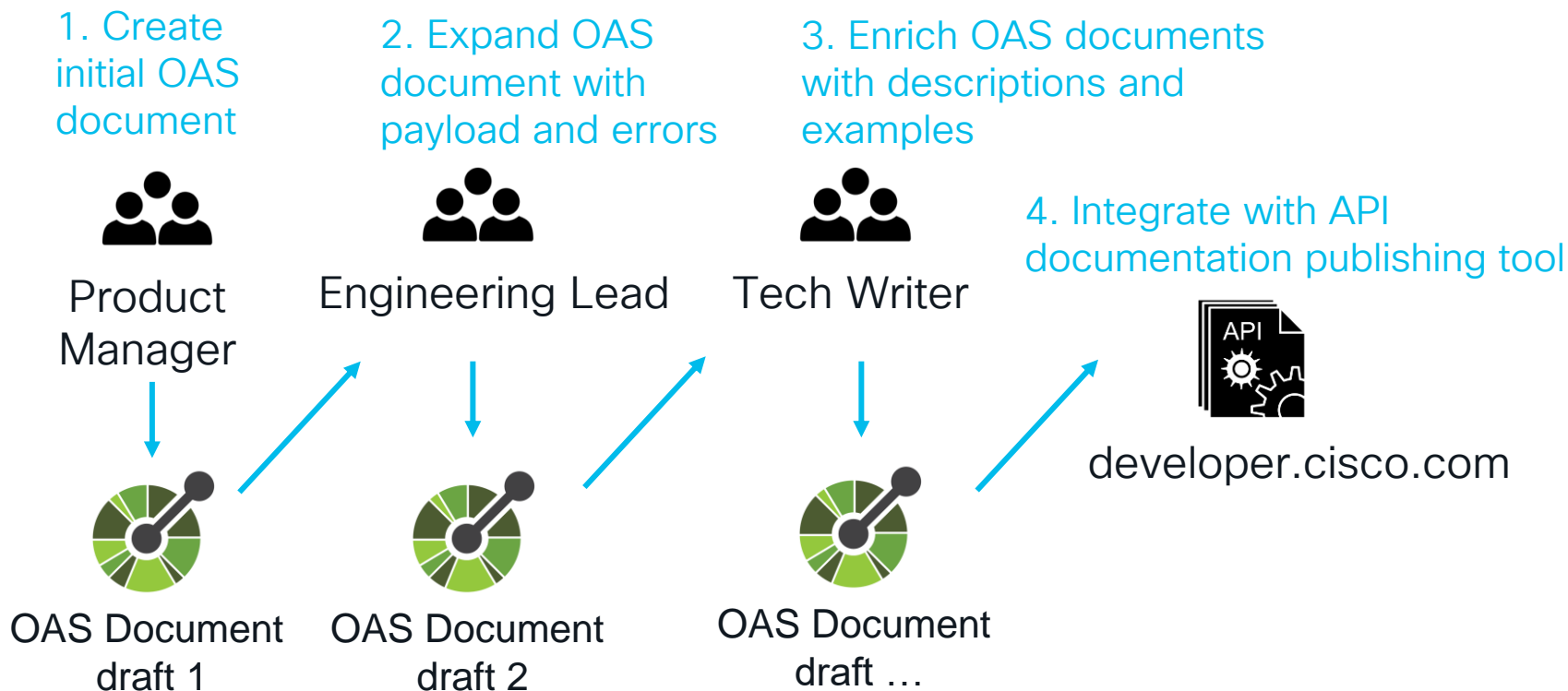


- **Info:** Provides details about the API, including a title and description
- **Security:** Specifies authorization. Required for interactive documentation
- **Paths:** What the API can do. Defined by a path + HTTP method (aka verb) + input parameters + one or more response details
- **Components:** Capture reusable elements that may be referenced within and across OAS files. Includes schema, headers, security details



Demo

OAS Document Lifecycle



Cisco's API Quality Journey

Cisco's API Quality Journey

- Past: (sometimes wildly) different APIs per team – acquisitions
- Present: Focus on REST / OAuth – compile API Guidelines
- Future: Consistent APIs / Docs / Tools (the dream)



Cisco's API Quality Journey

Working with Product Engineering Teams

Inception

DevRel creates Cisco API Advisory Group with 10 engineering members

Education

The Cisco API Style Guide is released between 2018-2019 based on feedback from 20 engineering teams

Advising

DevRel begins outreach to engineering teams providing guidance based on the Style Guide

DevRel API Experience Workshops

2016

2018

2020

Executive Prioritization

Exec Alignment

API Quality prioritized in DevRel Strategy. DevRel drove awareness of broadspanning API quality issues, alignment with Engineering leadership to prioritize

Implementing

Work begins with Cisco API Champions designated across BEs. Cisco API Guidelines (based on the Style Guide) used to drive quality standards.

2021

2022+

Cisco API Style Guide

Cisco API Guidelines

Cisco's API-first Strategy

Announced at Partner Summit

- Treat APIs as Product
- Versioned releases
- API Changelogs
- Backwards Compatibility
- Documentation
- Support

Backward compatible as of October 2022

- Meraki Dashboard API v1
- ISE API v1
- XDR ThreatResponse API v1
- Cloud Security Open APIs v2
- Webex API v1
- PX Cloud API v1

API Guidelines – Lessons Learned

- **APIs are real products** – plan for serviceability, training, support, management
- **Design deliberately** – simplicity, consistency, loose-coupling, evolve-ability
- **APIs are forever** – invest in making the 1.0 version the only version
- **Developer experience counts** – docs, training, tools, support, management
- **Security/Privacy are ‘must do’** – Guidelines now part of CPDM

API Analytics Tools

Open Source



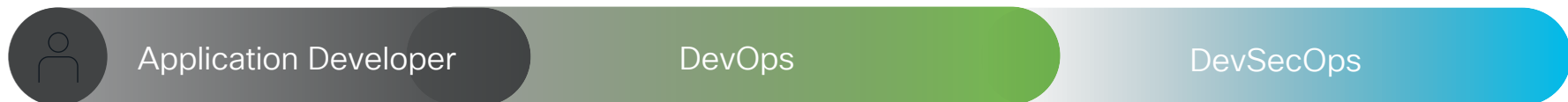
+

Open Source



+

SaaS



API Insights – Validate and Score APIs



Compliance

Drift

Analyzing spec v0.0 2

for compliance with ☒ Doc Completeness (Failed) ☒ REST Guidelines ☒ Inclusive Language

Recalculate

3 Error

10 Warning

1 Info

1 Hint




Analyzer	Severity	Findings	Recommendation
security	Error	No maximum number of items defined 4 items affected	Make sure all array definition include the maximum length.
security	Error	No type of the schema defined 2 items affected	Make sure that all object attribute specify a type or a well-defined object schema.
security	Error	Global 'security' field is not defined (Line 0)	Make sure all API operations have a security scheme associated and as a good practice add a global security scheme.
security	Hint	Property value is not an enum that the OpenAPI Specification allows for this property 3 items affected	Make sure the specification is fully valid and in line with the standard for mat.

developer.cisco.com/site/api-insights/

API Clarity- OAS vs. live traffic observations



3 Error 0 Warning 0 Info 0 Hint

Severity▼	Findings	Recommendation
 Error	General diff: a general diff has been detected 28 items affected ▼	Please update the spec accordingly.
 Error	Shadow: an undocumented API has been detected 11 items affected ▼	Please add the API in the spec.
 Error	Zombie: a deprecated API has been detected 11 items affected ▼	Please update clients to stop using deprecated APIs.

www.apiclarify.io

Panoptica – Cloud-native application security



INTERNAL APIS				EXTERNAL APIS				TOKENS			
Destination Service				Policy compliance				Clusters & Namespaces			
<input type="text"/>				Select...				Select...			
DESTINATION SERVICE	PORT	CLUSTER	NAMESPACE	SECURITY FINDINGS ▲						CLIENT WORKLOADS	TEST
front-end	443	Sock Shop	sock-shop	Total: 166	7	5	132	1	21	kong	● Test-rea
user	80	Sock Shop	sock-shop	Total: 164	7	4	131	1	21	front-end	● Test-rea
catalogue	80	Sock Shop	sock-shop	Total: 83	4	9	56	3	11	front-end	● Test-rea
carts	80	Sock Shop	sock-shop	Total: 69	4	7	44	1	13	front-end	● Comple
mongodb	3035	Finance	finance	Total: 0	0	0	0	0	0	billing api-gateway	● Not enal
billing-stage	3035	Finance	finance	Total: 0	0	0	0	0	0	billing api-gateway	● Not enal

www.panoptica.app

Links & Resources

- [Open API Specification](#)
- [Swagger Editor](#)
- [Swagger UI \(docs\)](#)
- [Swagger Codegen](#)
- [API Stylebook](#) (collection of API style guides)

Fill out your session surveys!



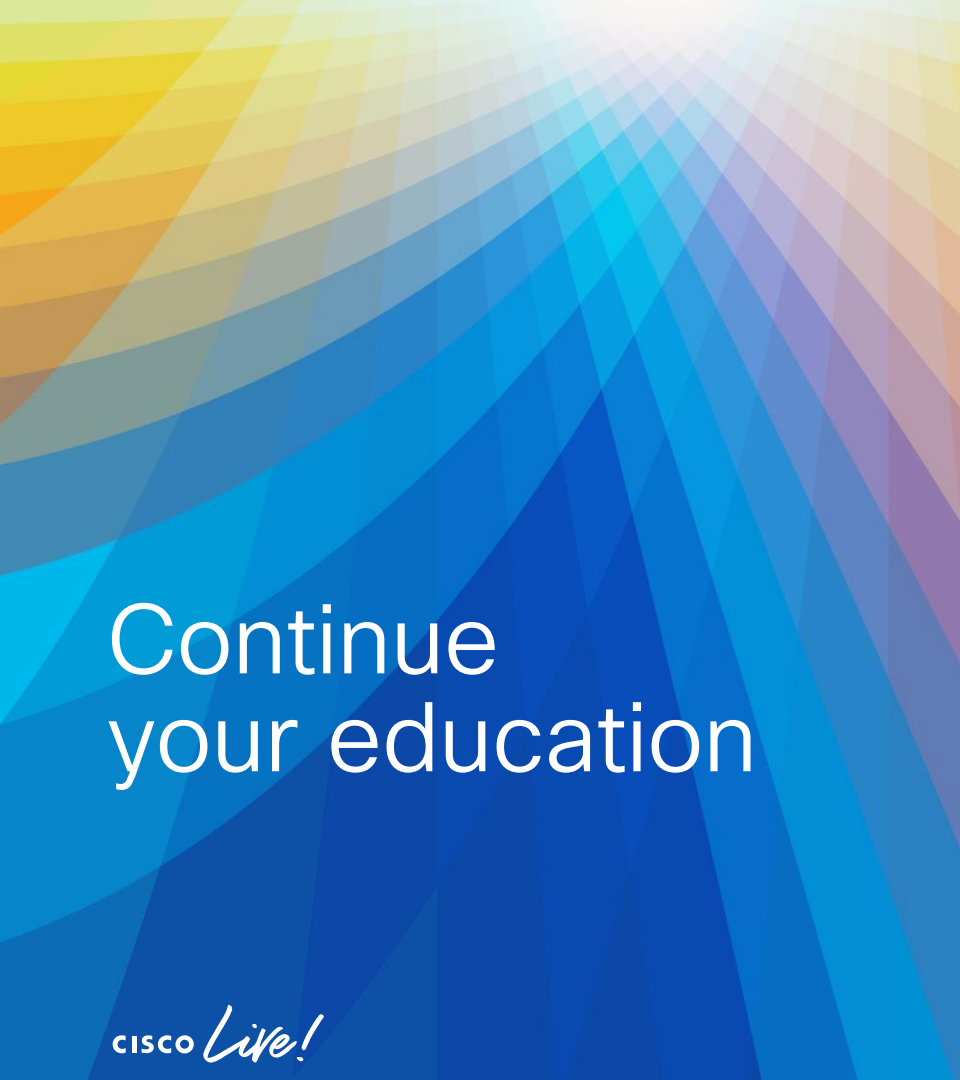
Attendees who fill out a minimum of four session surveys and the overall event survey will get **Cisco Live-branded socks** (while supplies last)!



Attendees will also earn 100 points in the **Cisco Live Challenge** for every survey completed.



These points help you get on the leaderboard and increase your chances of winning daily and grand prizes



Continue your education

- **BRKDEV-2249** *18 Facets of the OpenAPI Standard*
- **DEVNET 2158** *API Middle-Tier for Dummies*
- **DEWWKS-1017** *Improve OpenAPI Specs with API Insights*
- **DEWWKS-3002** *API Security with Panoptica*

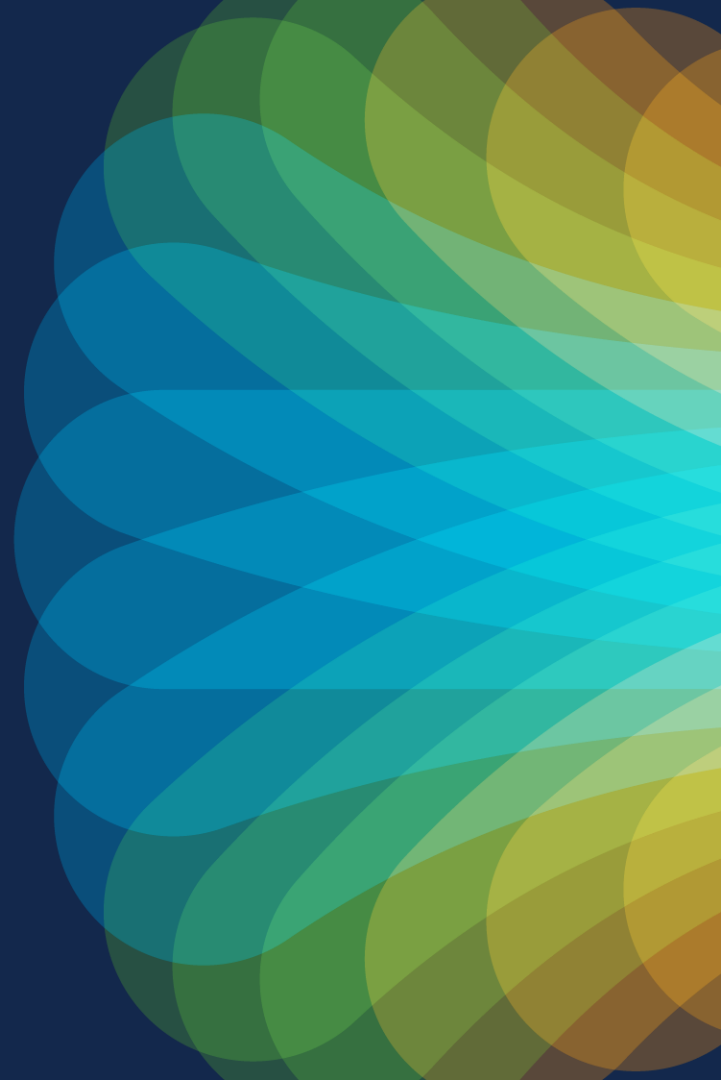


The bridge to possible

Thank you

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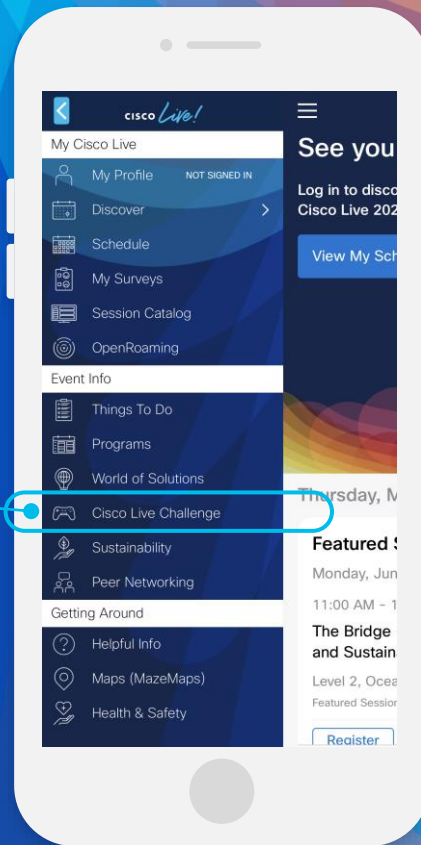


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- 1 Open the Cisco Events App.
- 2 Click on 'Cisco Live Challenge' in the side menu.
- 3 Click on View Your Badges at the top.
- 4 Click the + at the bottom of the screen and scan the QR code:



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