

The background features a vibrant, multi-colored abstract design. On the left, there are horizontal, wavy bands of color in shades of red, orange, yellow, and green. On the right, a bright white light source emits a series of sharp, triangular rays in various shades of blue and cyan, creating a starburst effect that spreads across the right half of the image.

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The bridge to possible

Maximizing Value with API-First Development & Smart Shift-Left in a Cloud Native World

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CCIE #5245
@eyepv6
DEVNET-2725



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Cisco Webex App

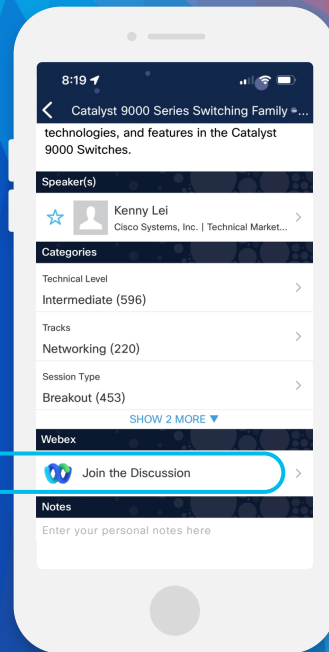
Questions?

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

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

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<https://ciscolive.ciscoevents.com/ciscolivebot/#DEVNET-2725>

Agenda

- API-First and Cloud Native Themes
- Developers and Shift-Left
- How to support API-First + Cloud Native While Avoiding Developer Exhaustion



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Applications & Developers Drive Business



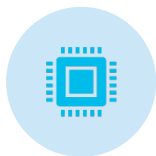
Without applications, all our networks do is send control plane traffic



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Developers Create APIs – We Use Them

API-First: Key Concepts



API Design as
a Priority



Clear
Specification



Flexibility and
Modularity



Collaboration



Agility and
Innovation



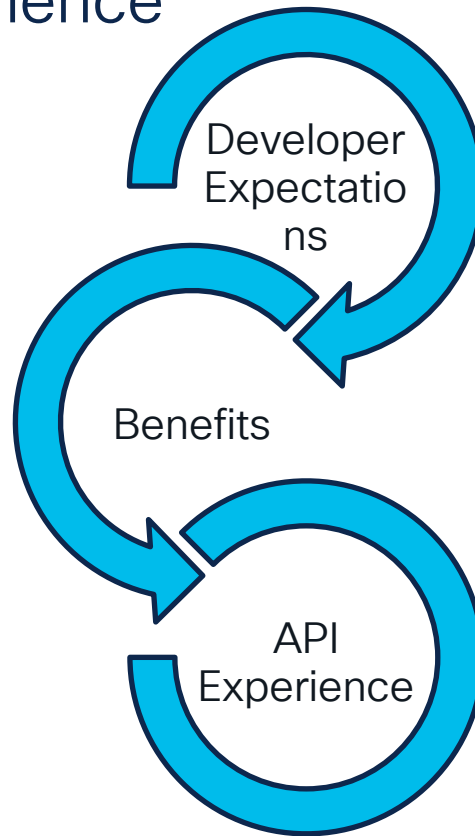
Testing,
Mocking and
Validation



Treat the API
like a Product

Expectations to Experience

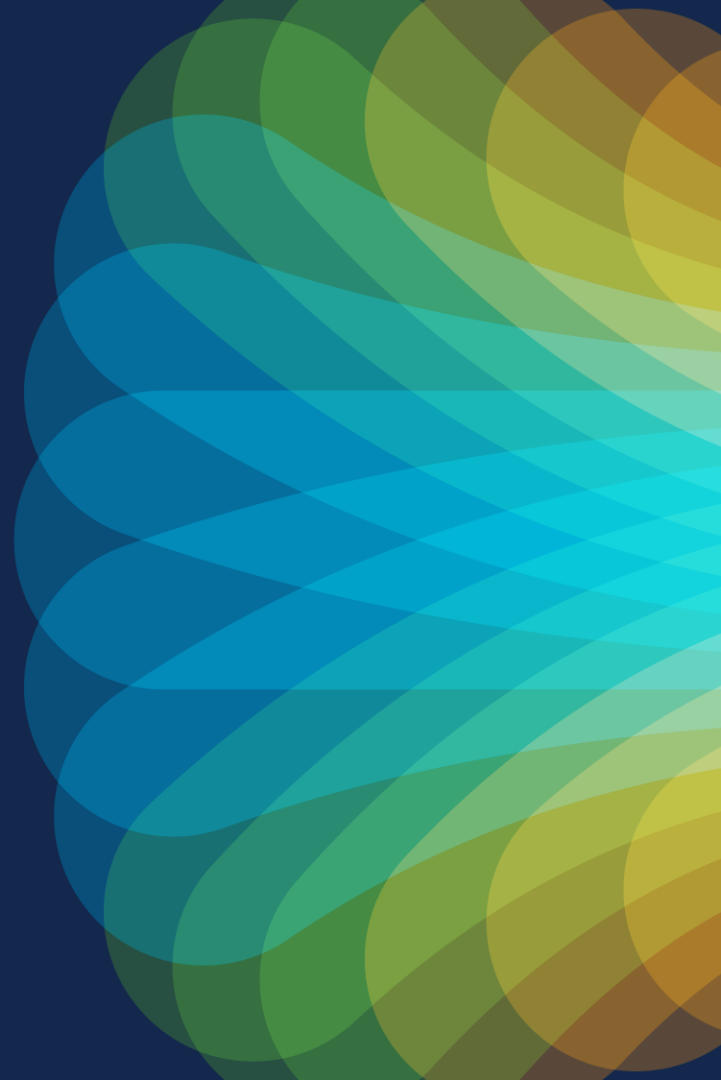
- Trustworthy APIs
- Creates a healthy ecosystem
- Reduces friction of adoption
- Meet de-facto industry standards



- Robust API contracts
- Well designed & documented APIs
- Backward compatibility
- Support
- API roadmaps

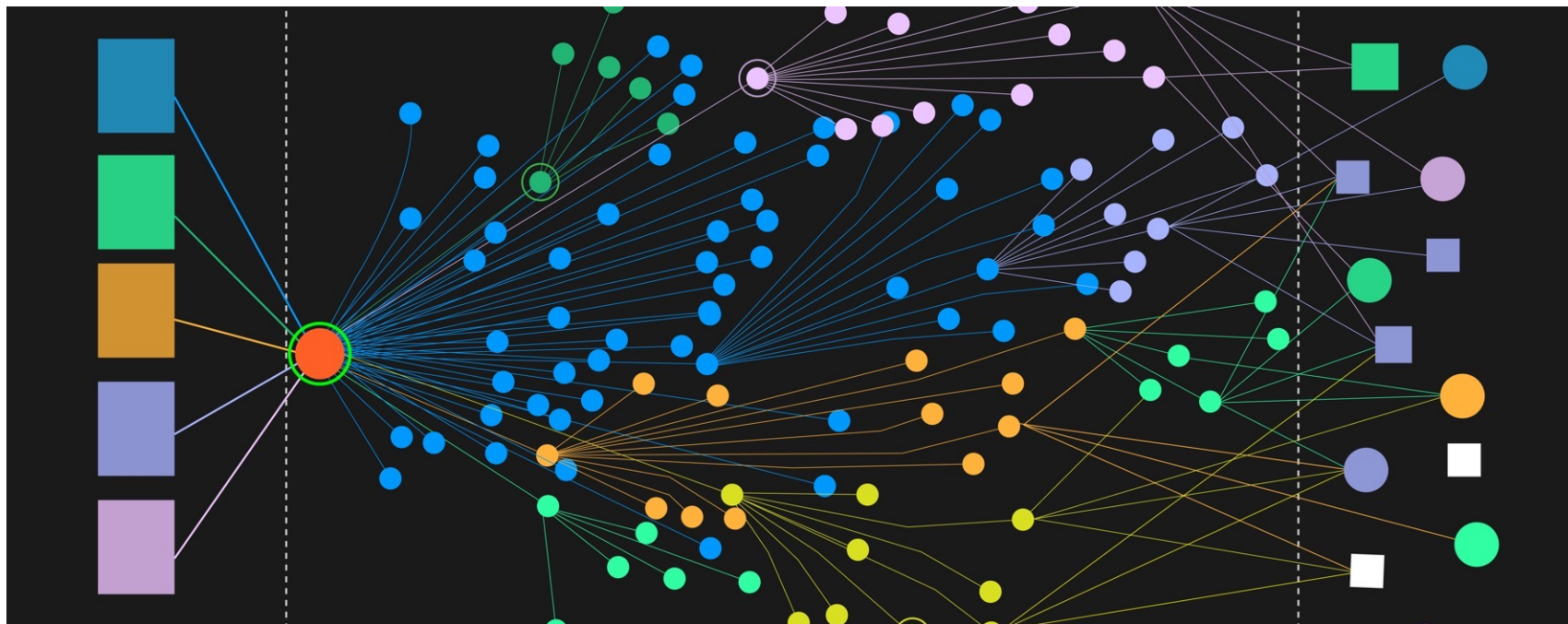
- Promotion of API standards
- Continuous quality & security checks
- Continuous feedback from all consumers/providers
- Reduced breakage

API + Cloud Native: Implications



Cloud Native – Everyone Gets a Microservice!

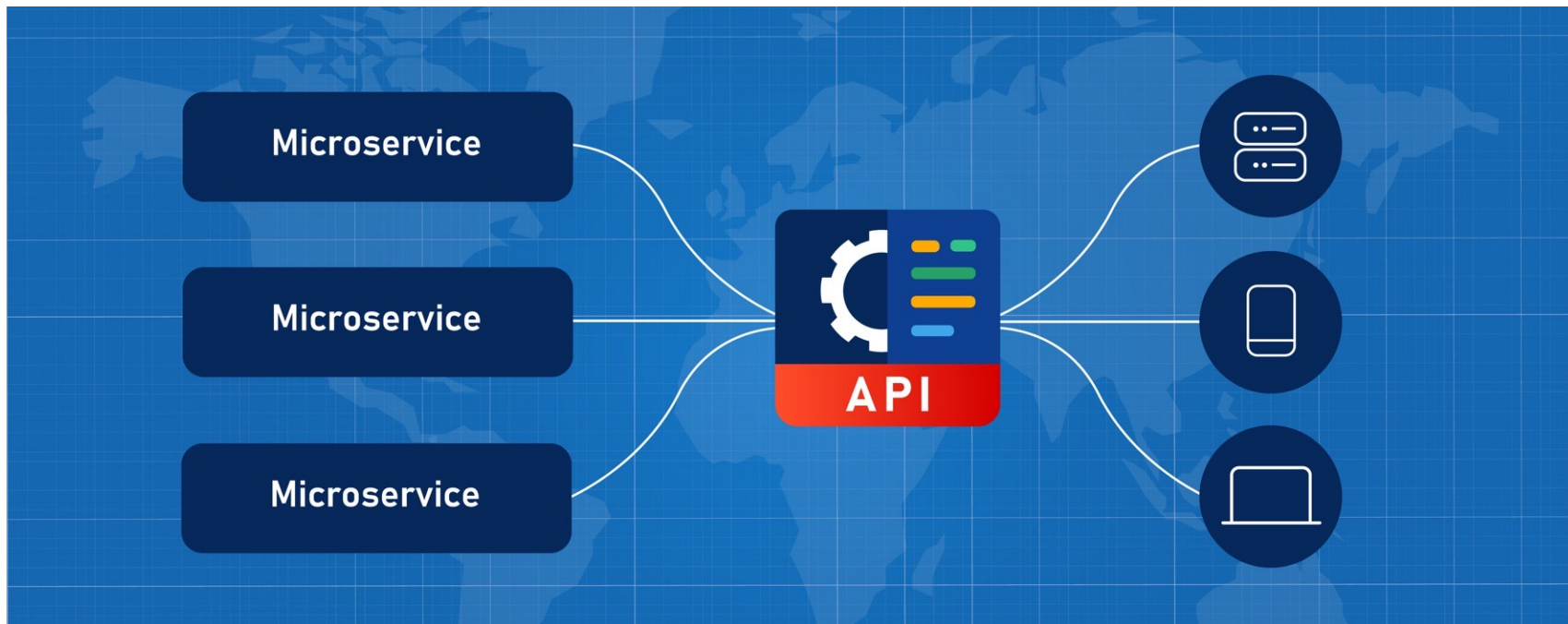
Service Sprawl



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Cloud Native – APIs per-Service?

API Sprawl



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API Security Challenges



Consistency



Scale



Visibility



AuthN/AuthZ

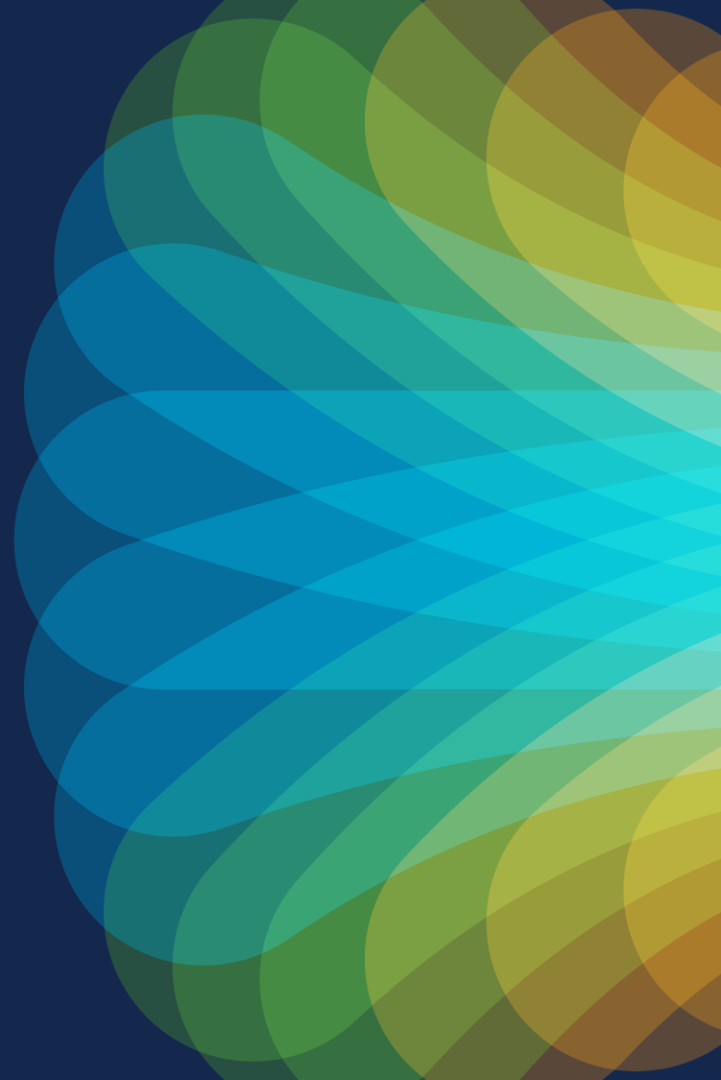


Granularity

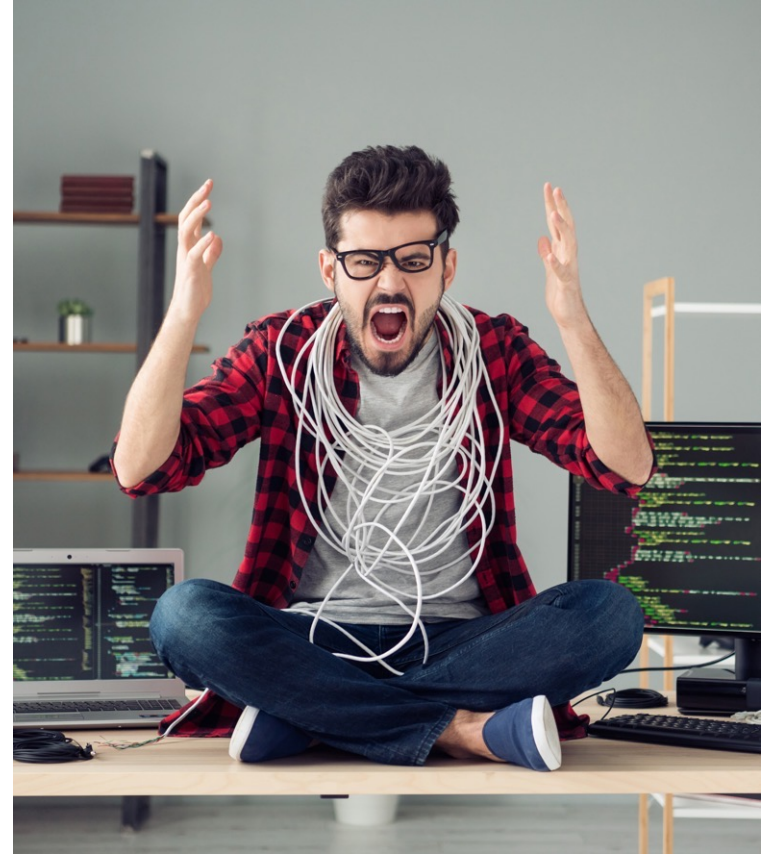


Operations

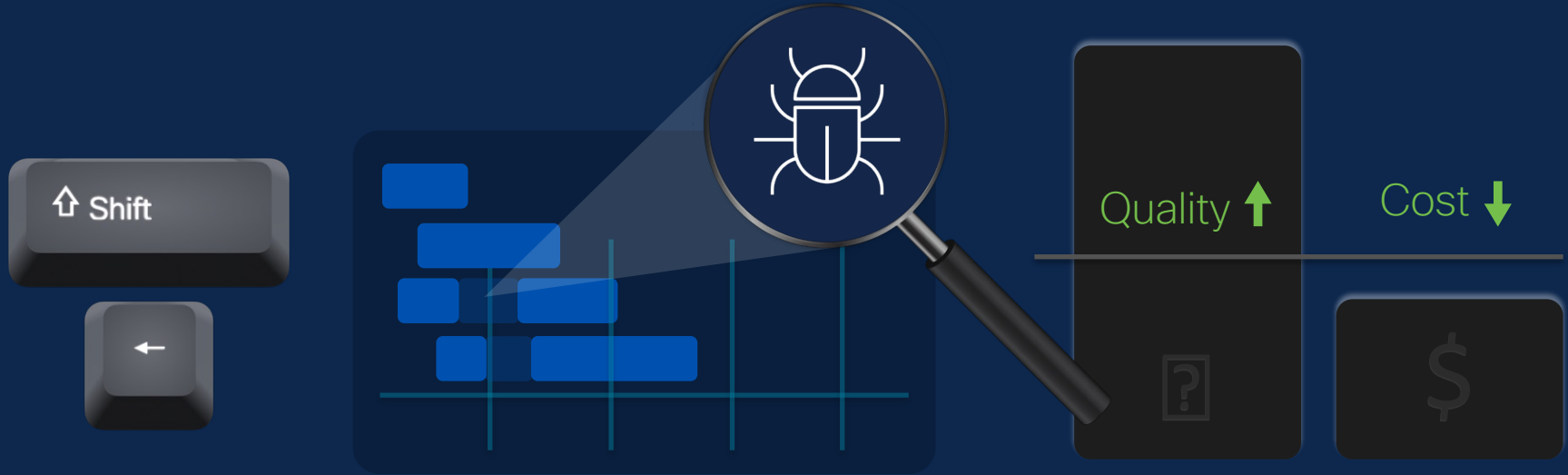
Developers & Shift-Left



Increased Responsibility and Required Knowledge

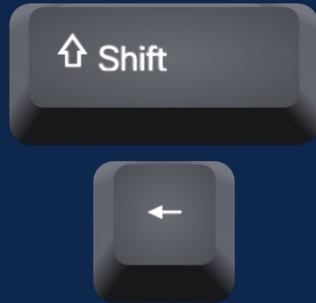


Shift Left – Test, Security, Observability & more



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Shift Left > Dump Left

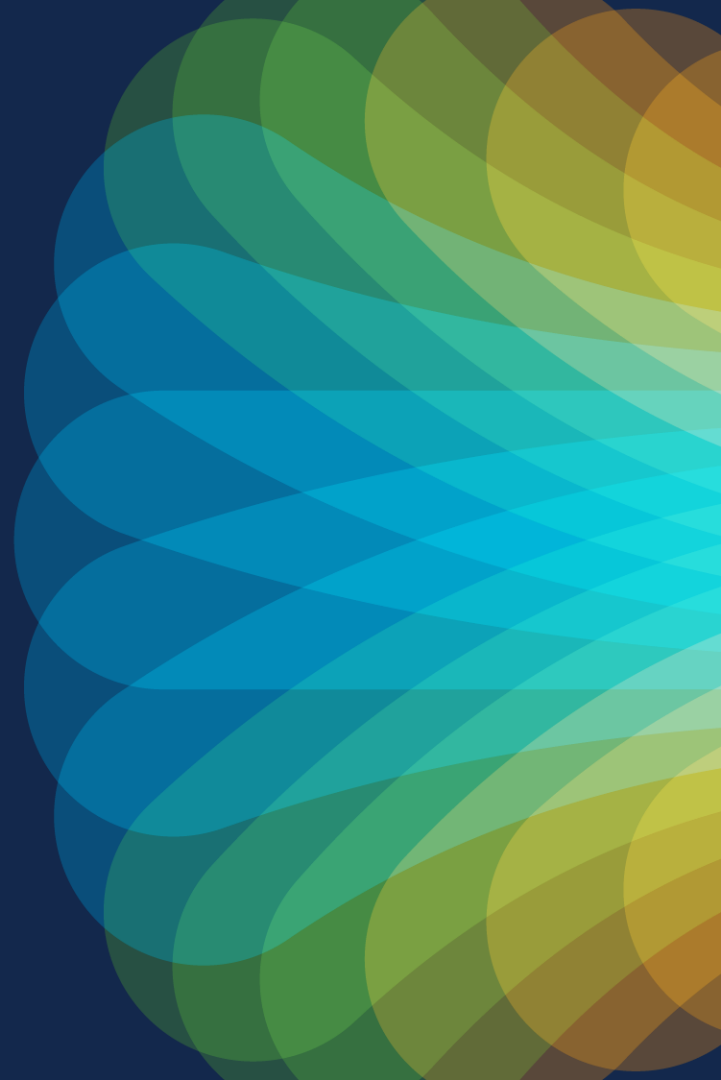


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Understanding the Pros / Cons of Shift-Left





Benefits

Code Quality

Security

Observability

Automation



Challenges

Collaboration

Infrastructure

Testing

Expertise



Benefits

Code Quality

Security

Observability

Automation



Challenges

Collaboration

Infrastructure

Testing

Expertise



I Am Developer

@iamdeveloper

"full-stack" now means you can:

build front-ends
write back-ends
handle devops
start a podcast
curate a newsletter
crack an egg with one hand
animate a Pixar movie
dunk

1:53 AM · Jun 5, 2019 · Twitter Web App

7,338 Retweets **672** Quote Tweets **26.9K** Likes

Negative Shift–Left Trends

- Companies are laying off QA/Test engineers
- Tool sprawl is real
 - Devs often use 20+ tools
 - Shift-left is adding even more
- Operators **can** feel **less** valued
- Devs **are** feeling **over** valued



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Recognizing the “Soft” Consequences of a Poor Shift-Left Model

- Increased workloads
- Burnout and mental well-being
- Reduced productivity
- Poor job satisfaction

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Recognizing the “Hard” Consequences of a Poor Shift-Left Model

- Delays in shipping code/applications
- Lower quality tooling and automation
- Increased security risks
- Increased likelihood of outages
- Poor customer satisfaction



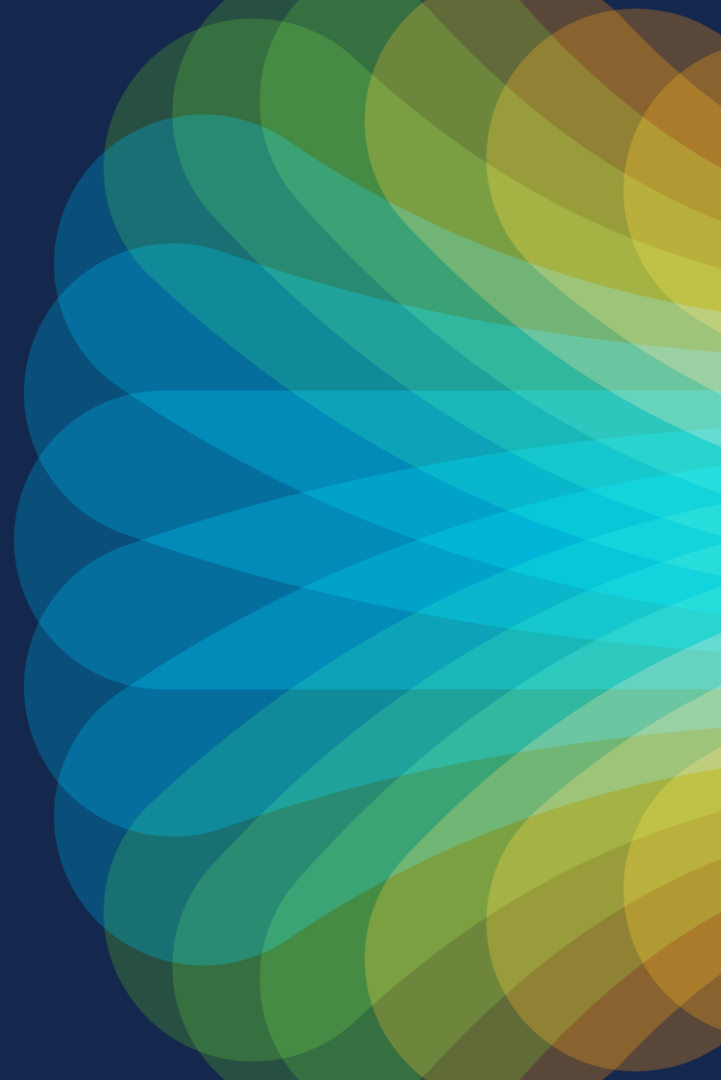
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Infrastructure & Ops Awareness Required



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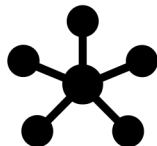
There's got to
be a Smarter
Way – Smart
Shift-Left



Security, Infrastructure and Observability



Security



Infrastructure



Observability

Lack of Resources and Consolidated Tooling



Time

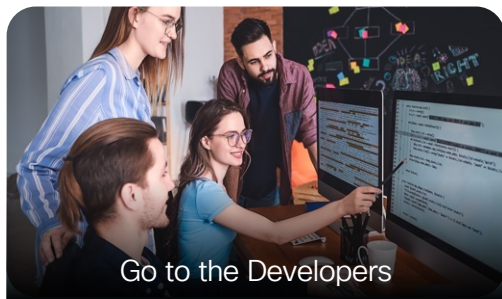


People



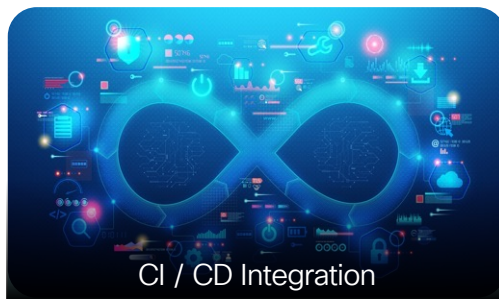
Tools

The Three Pillars Framework – The Need



Go to the Developers

- Provide value in their toolsets (IDE, automation, SDKs, frameworks)
- Engage with them where they are (Hackathons, Dev-centric events, Dev-centric forums)
- Reduce/Remove their toil (Smart Shift-Left, Cross-environment tools, Tech-specific code checks)



CI / CD Integration

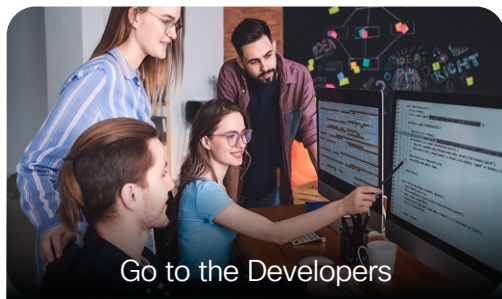
- Maintain consistency, security, observability and quality
- Add additional capability in the pipeline (external API checks, infra dependency checks)
- Add pipeline observability into the end-to-end observability roll-up
- Leverage AI/ML to augment code quality checks and remediation



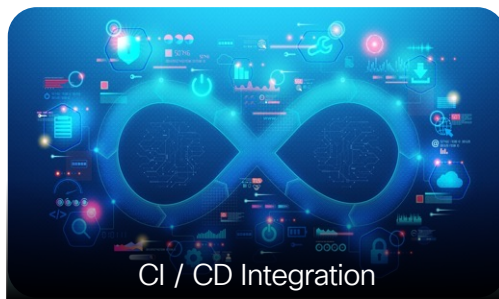
Derive Value from the Experience

- Maintain end-to-end observability while adding tech & business insights
- Insights + Policy to trigger action
- Multi-persona dashboards (Dev, Ops, Business)
- Circular improvement ('Value' & Missed 'Value' find their way back to the left for retrospective and improvements)

The Three Pillars Framework – The How



- SDKs and APIs: <http://cs.co/9002uYEgy>
- Application Integrations: Panoptica
 - JIRA, ServiceNow, API GW
- Live interactive test environments: NSO Developer Explorer – <http://cs.co/9001uY1KH>, NSO Developer Studio (IDE): <http://cs.co/9009uY11c>
- Learning: <https://developer.cisco.com/learning/>



- Consistency/Security Checks: CI/CD integration w/Panoptica & API Gateways: <http://cs.co/9006uYcWE>
- Observability: Include CI/CD and its impact on application delivery through – GitLab, Jenkins, Maven, Ansible, ArgoCD, etc. have OpenTelemetry extensions and plugins or AppD: <http://cs.co/9002uYc0E>
- Next-Gen: Leverage Predictive/GenAI to help with code consistency



- E2E Observability: Dev tooling via Cisco Metrics Search Engine (CMSE) <https://developer.cisco.com/cmse/>, and AppD
- Action: Broaden the 'action' workflow to include CI/CD pipelines
- Insights: Broaden the 'insights' view to include Dev-centric panels
- Next-Gen: AI/ML-based optimization recommendation engine learning and API generation

Strategies for Developer Workload Management

- Platform approach
- Optimize processes
- Streamline automation and API consumption strategy
- Improve collaboration between teams



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What is Cisco Doing to Help?

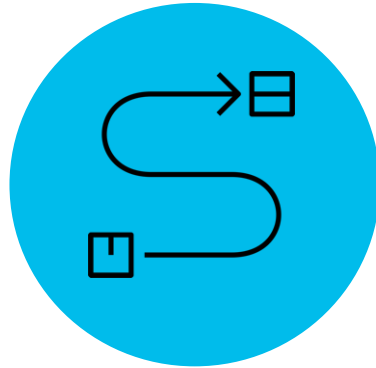
- We believe in the Power of the Platform:
 - Announcements on Cisco Network Cloud, Cisco Security Cloud at Cisco Live Las Vegas
 - Cisco Full-Stack Observability
- Using APIs and IaC to interact with complex infrastructure
- Cloud Native security and observability inside of CI/CD pipelines:
<https://www.panoptica.app/>
- Cisco API and IaC documentation, education and enablement through Cisco DevNet:
<https://developer.cisco.com/>



Manage APIs (and IaC) as a Product

API Development Lifecycle

- Define API as a Product Plan (Requirements, Priorities, Roadmap, etc.)
- Implement, document, mock and test APIs
- Rinse-n-repeat



Cisco API Product Management

- Policy definition and governance for
 - developer.cisco.com
 - Learning Labs
 - Code Exchange
 - Docs
 - Sandbox



panoptica

Code to Cloud Security from Development to Runtime



Code + Build Security

Tighten your full software development lifecycle.



Cloud Security Posture Management

Simplify compliance and secure your cloud assets.



Cloud Workload Protection

Continuous security for your VMs and microservices.



App + API Security

Monitor and secure your APIs.



Attack Path Analysis



Cisco DevNet

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

CISCO *Live!*

Cisco API
Experience

Developer Advocacy

Developer
Sandboxes

DevNet
Certifications

Cisco API
Documentation

Interactive
Learning Content

Education and
Enablement of Cisco
APIs, Automation,
and Programmability

Global Community of
Developers &
Operators

CISCO
DevNet

WE
ARE
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Continue to Learn, Code, and Build with Cisco DevNet

Get access to exclusive resources including API documentation, Code Exchange, self-paced learning labs, sandboxes, community forums and events!

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Thursday	9:30am – 4:00pm
Friday	10:30am – 1:30pm

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- Visit the On-Demand Library for more sessions at www.CiscoLive.com/on-demand

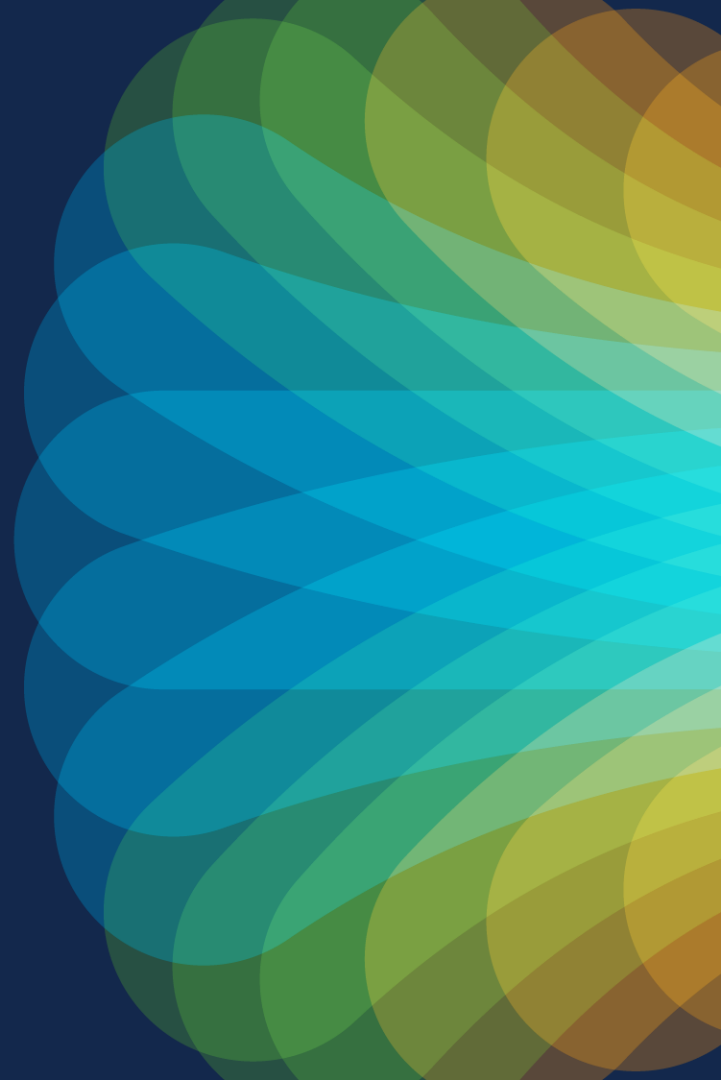


The bridge to possible

Thank you



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The background is a vibrant, abstract graphic featuring a spectrum of colors (red, orange, yellow, green, blue) arranged in a radial pattern that resembles a stylized sunburst or a rainbow. The colors transition smoothly from red on the left to blue on the right, with yellow and green in the center. The overall effect is bright and energetic.

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Let's go

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