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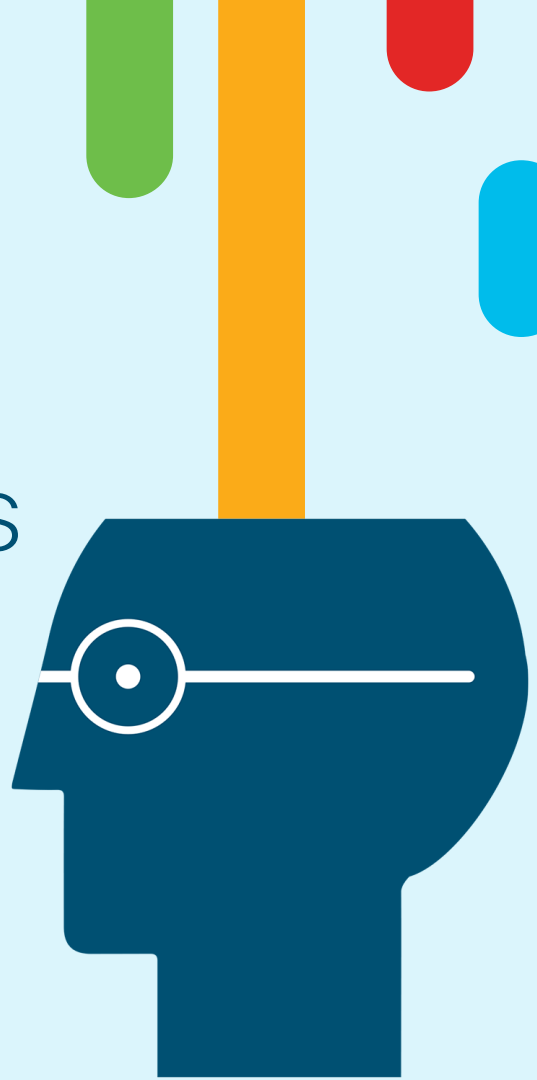
DevOps Friendly Doc Publishing for APIs & Microservices



Amanda Whaley
Dir. of Developer Experience
& Advocacy
Cisco DevNet
@mandywhaley
CloudNativeCon 2017

/me

@mandywhaley

"UNLESS SOMEONE LIKE YOU CARES A WHOLE AWFUL LOT, NOTHING IS GOING TO GET BETTER. IT'S NOT."

-THE LORAX

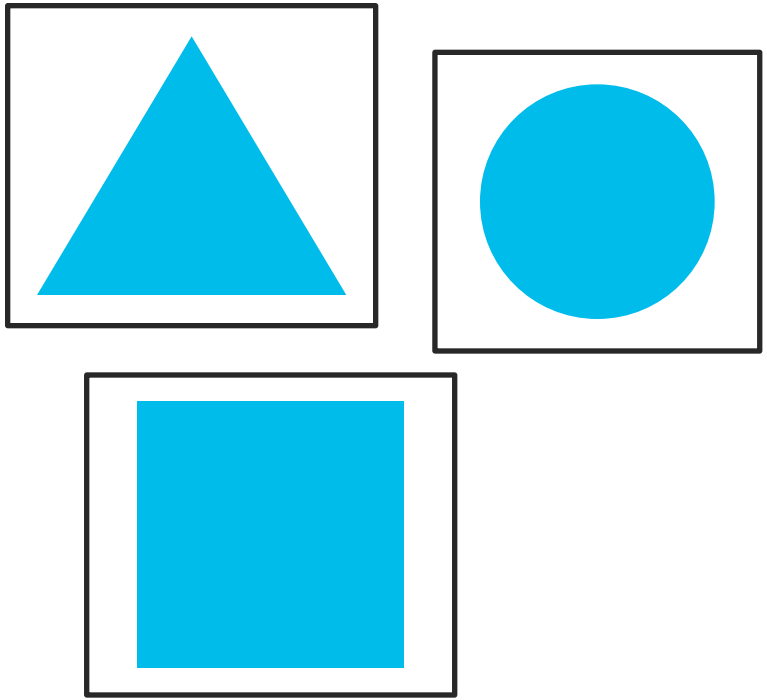
DevX

cisco DEVNET

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

DevOps Friendly Doc Publishing for APIs & Microservices

From Monolith to ...



Microservices

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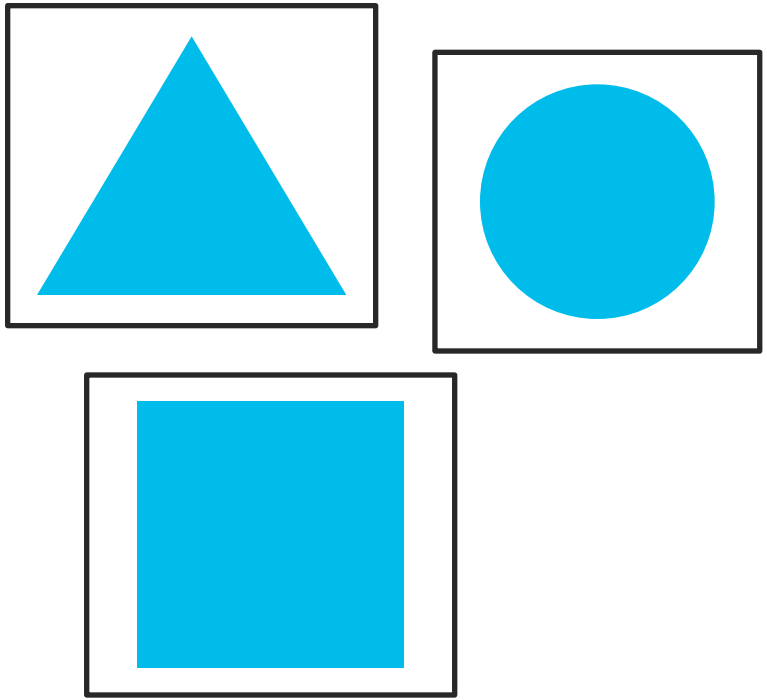
Microservices

- Small, easy to understand code base
- Easy to scale
- Easy to throw away
- Easy to deploy
- Ability to experiment with technology stacks
- Smaller teams
- System resilience



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"Microservice applications are composed of small, independently versioned, and scalable customer-focused services that communicate with each other over standard protocols with well-defined interfaces."

standard protocols with well-defined interfaces = APIs

I worry about developer experience.

What is Developer Experience?

"The sum of all interactions and events, both positive and negative, between a developer and a library, tool or API."

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Because developers are users too... even your internal developers

Why does DevX Matter?

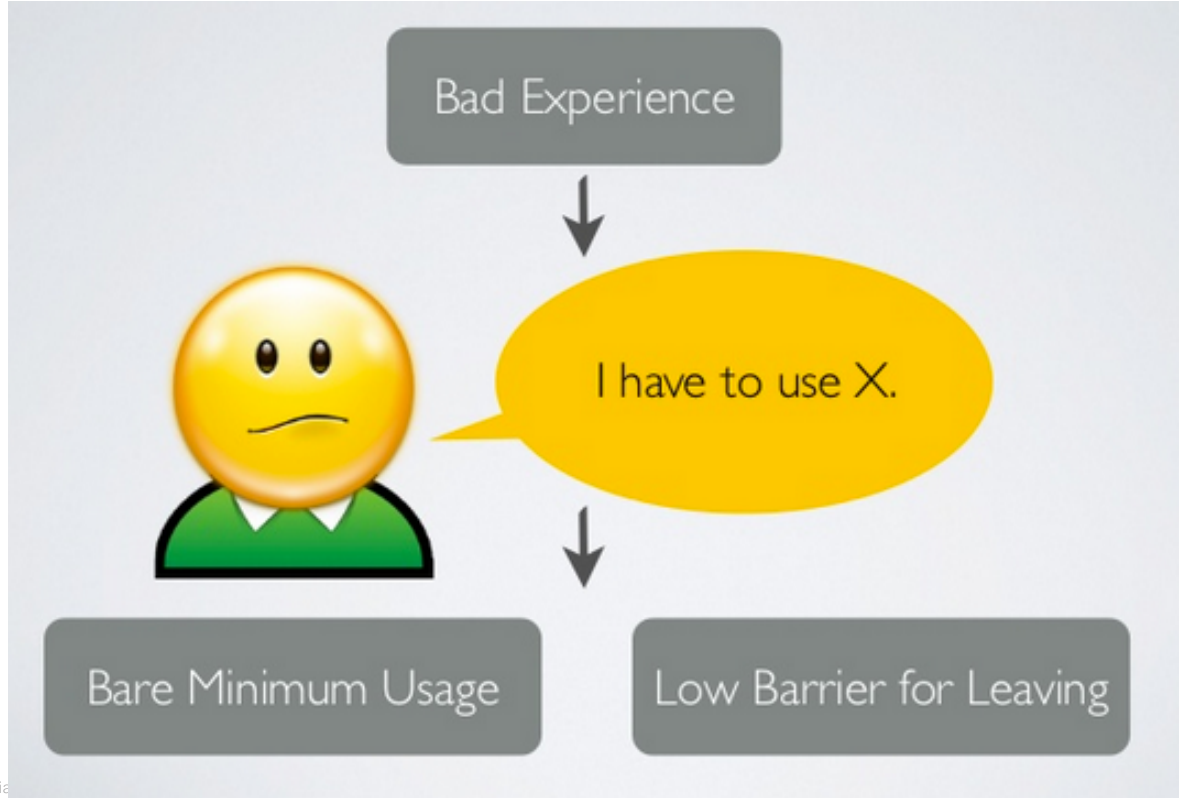

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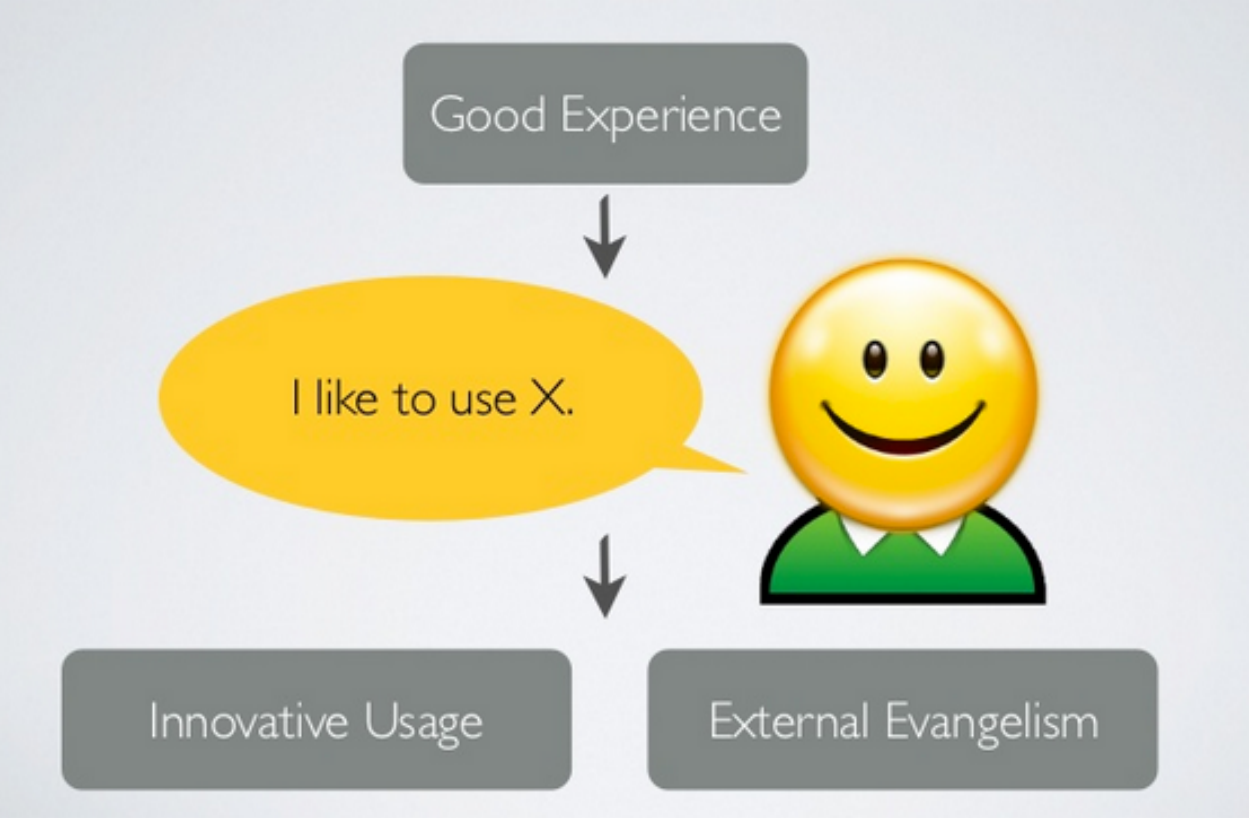
Image source: http://www.slideshare.net/wuzziwug/developer-experience

Why does DevX Matter?



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Developer Experience Best Practices

But are you applying these for internal APIs?

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n-to-n relationship between services = n to n relationship between developer using these APIs

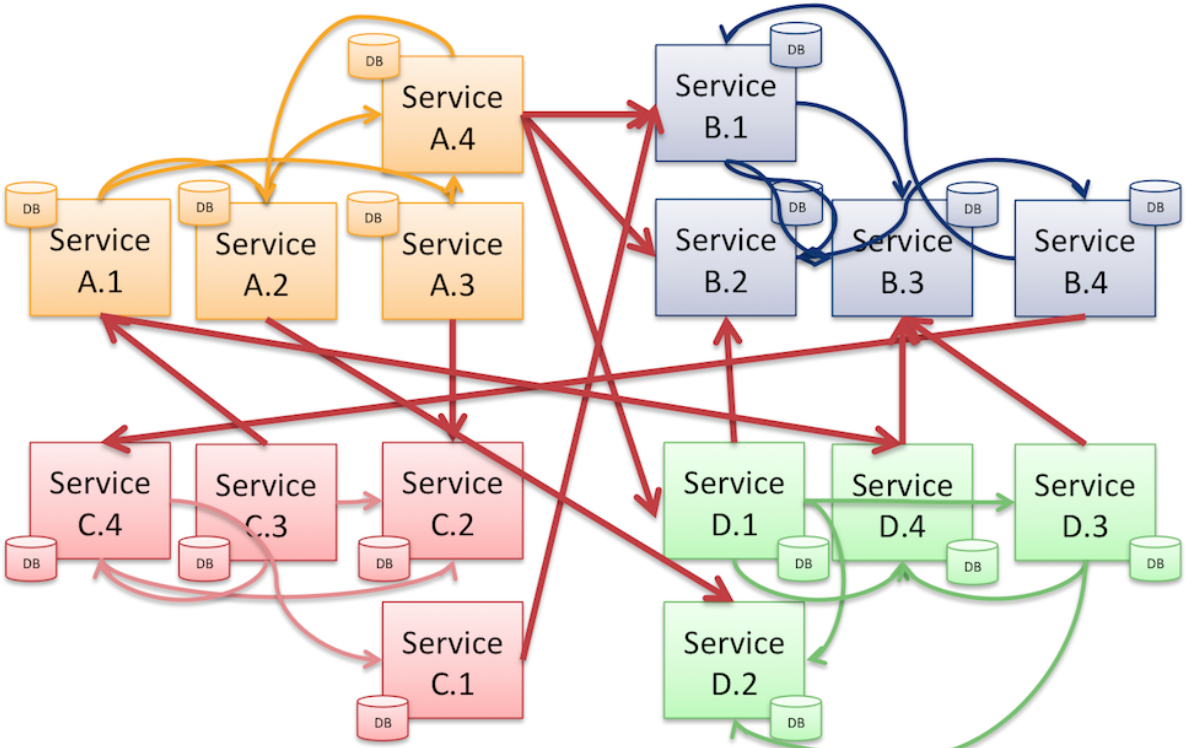

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Image credit: https://blog.appdynamics.com/devops/visualizing-and-tracking-your-microservices/

DevX is important for INTERNAL APIs too.

- Creating good API docs for EXTERNAL Usage is hard
- How will teams prioritize time to create good internal docs?
- How will teams keep the docs for so many internal APIs up to date and in sync with code?
- Good API docs will be essential to bridge across organizational boundaries

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You need:

API Reference Docs
- parameters, request, response etc.
- Error Codes
- Versioning

Long Form Docs
- Developer Guides
- Authentication

Sample Code

How to get help or report issues?

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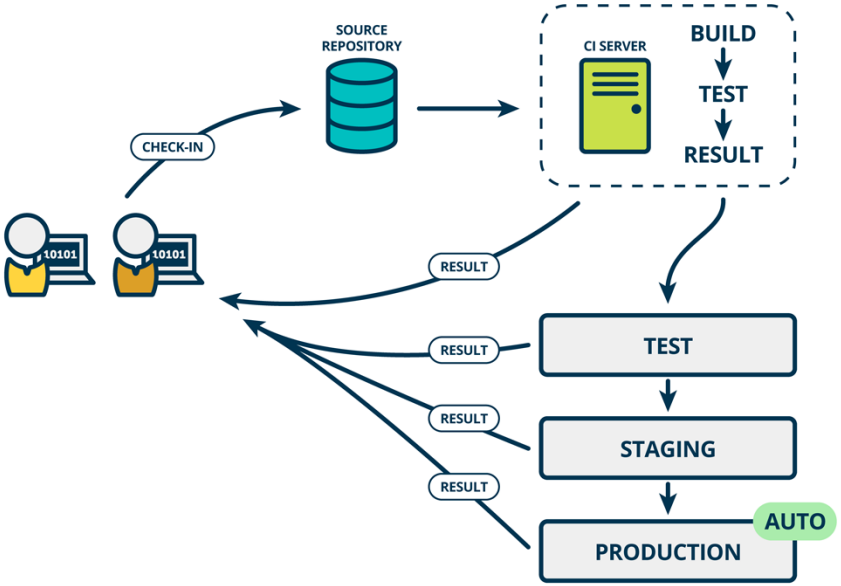
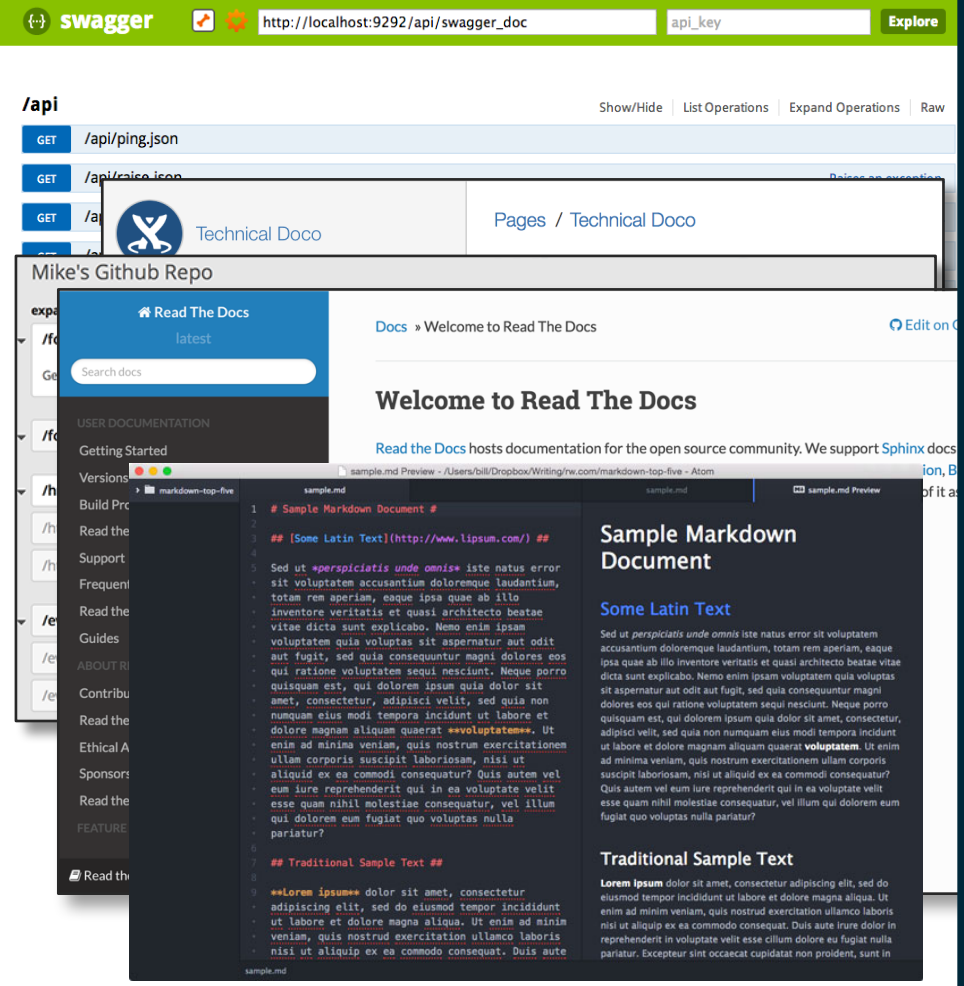
Docs must be tied to CI/CD pipeline



How are people doing this?



"We use Swagger."

Cool!

"Oh, and we have some "how-to" guides in a Wiki."

Oh. Anything else?

"That's it"

"And, there are few dev teams that use RAML."

Great!

"But that's it …"

Really?

"And the authentication guide is in Read The Docs

hmmm?

"Oh, yea.. And some teams use markdown

"And we have sample code snippets in Github."

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These are all great tools.
But…

- How do keep all of these in sync with code?
- Are they all tied into your CI/CD pipeline?
- Bewildering jungle of user experience
- Where did I put that link?
- No easy path to publishing externally, if API is opened up to public.

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API Reference

✔ Auto generate
✔ Automate

Long Form Docs

- Authentication Guide
- Getting Started
- Examples

✘ Can’t auto generate
✘ Hard to automate

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Can we build something that will help?

Yes

- CI/CD Friendly Publishing Flow
- Developer friendly authoring tools
- Central Location for internal API Docs
- Maintain team ability to pick best tool
- Easy migration path to externally publish docs
- Keep sample code in sync with docs

Accept multiple input formats → normalize the output for consistent experience

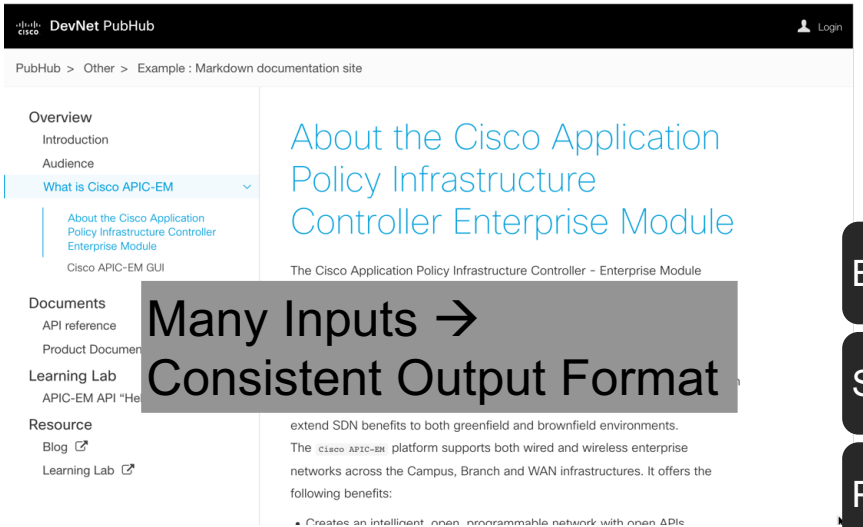
No

- Reinvent the Wheel
- Build something proprietary and closed
- Strictly enforce one approach or input format
- Drop key functionality like “Try it Now”

PubHub: DevOps Friendly Publishing for Documentation

Write docs in MD, Swagger, RAML + more

Commit, Tag, Push



Many Inputs → Consistent Output Format

Build

Stage

Publish

Notify

Cisco Spark

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Chrome File Edit View History Bookmarks People Window Help Fri 1:11 PM

pubhub-lnx.cisco.com Amanda

pubhub-lnx.cisco.com

DevNet PubHub My Projects Add New Project Need Help? Hello, Amanda Whaley | Report a bug | Logout

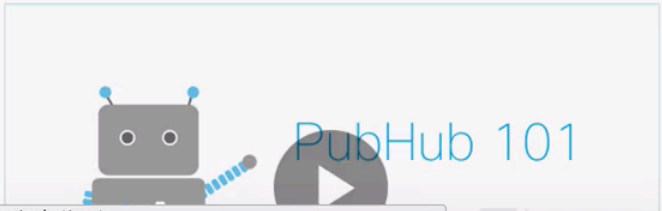
Welcome to PubHub

A documentation publishing workflow tool to easily publish docs on Cisco DevNet.

Learn More Create Project

See how it works

GET STARTED WITH PUBHUB



EXPLORE SAMPLE PROJECTS

The following docs are generated by PubHub.
See what happens behind the scene in GitLab!

Sample MarkDown Project

See Doc Repo Preview doc

pubhub-lnx.cisco.com/project/create

Markdown Docs
Static markdown file
Markdown file with images
Markdown file with embed video
Markdown file with code
Socket.IO Tutorial
Device setup
Get info
Response
Subscribe
Get data
Data message
Get position
Position message
Thing setup
Get info
Response
Subscribe
Get data
Data message
Get position
Position message
When device position changes
Set position
When a device has become near to a thing

Socket.IO Tutorial

This page explains how an app can use the Flare Socket.IO API to discover and interact with things in an environment.

The API tab gives generic examples of how you can exchange JSON messages with the server using a Socket.IO client library on your platform of choice.

The JavaScript, Swift and Java tabs give higher-level examples that show how you can use the Flare platform libraries to do the same thing.

Device setup

Get info

MARKDOWN JAVASCRIPT SWIFT JAVA

```
getDevice(environment_id, device_id, function(info) {
    device = info;
    document.title = device.name
    $("input#name").val(device.name);
    $("input#description").val(device.description);
});
```

Learn
Discover

Xmart docs

Getting Started with Cisco APIC-EM
What is Cisco APIC-EM?
Logging in to the Cisco APIC-EM Controller
Getting Information About Your Network
Managing Devices
APIC-EM REST API
Next Steps

RAML API

Single RAML File
RAML API with external resources

Swagger JSON API

Swagger JSON version 1.2
Swagger JSON version 2.0
Sample JSON

pet : Everything about your Pets

Show/Hide | List Operations | Expand Operations

POST /pet — Add a new pet to the store

Parameters

Parameter	Value	Description	Parameter Type	Data Type
body	`{ "id": 0, "category": { "id": 0, "name": "string" }, "name": "doggie",`	**Pet object that needs to be added to the store**	body	Model | Example Value

Parameter content type: application/json

```
{
  "id": 0,
  "category": {
    "id": 0,
    "name": "string"
  },
  "name": "doggie",
  "photoUrls": [
    "string"
  ],
  "tags": [
    {
```

Response Messages

HTTP Status Code	Reason	Response Model	Headers
405	Invalid input		

Try it out!

PUT /pet — Update an existing pet

GET /pet/findByStatus — Finds Pets by status

GET ~~/pet/findByTags~~ — Finds Pets by tags

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Swagger JSON API

Swagger JSON version 1.2
Swagger JSON version 2.0

RESOURCES

Collapse All

/api/v1

/api/v1/file

/api/v1/file/internalupload/{internalUploadId} POST

/api/v1/file/namespace GET

/api/v1/file/namespace/{nameSpace} GET

/api/v1/file/onetimedownload/{onetimeDownloadId} GET

/api/v1/file/temporary/{temporaryDownloadId} GET

/api/v1/file/{fileId} DELETE GET

/api/v1/file/{fileId}/checksum GET

/api/v1/file/{nameSpace} POST

/api/v1/file/{nameSpace}/{fileId} PUT

/api/v1/flow-analysis POST

Lessons Learned

... and still learning

User love

Long Form Docs + Reference solves a big problem

“Saves time. No cycles spent on formatting, but still proud to share.”

“Didn’t have to think about it. Could start documenting right from beginning”

Accepting multiple input formats is key for big organizations

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Developers

- Very happy with git based workflows
- Dev friendly tools make it more likely than internal APIs will have documentation
- Quality of information is better the more devs contribute
- APIs & Automation

Writers

- New to git
  - UI help with project creation
- Continuous delivery vs. continuous deployment
  - Approval Workflow
  - Git office hours for writers

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🤔 Thoughts

- You need good docs for your docs tool.
- Process for cross organization contributions
- Internal to External Path
- Measure Impact
- Internal DevX increasingly important
- Open Source Project

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Related work

http://docslikecode.com
https://www.docslikecode.com/articles/cisco-devnet-pubhub/
Excellent site exploring all kinds of ideas around treating docs like code and modern documentation strategies

https://justwriteclick.com
Excellent site about all kinds of DevX & doc topics by DevNet's own @annegentle

http://www.writethedocs.org/conf
Conference for all the people worried about docs and code

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DEVNET

https://developer.cisco.com/join

@mandywhaley @CiscoDevNet

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