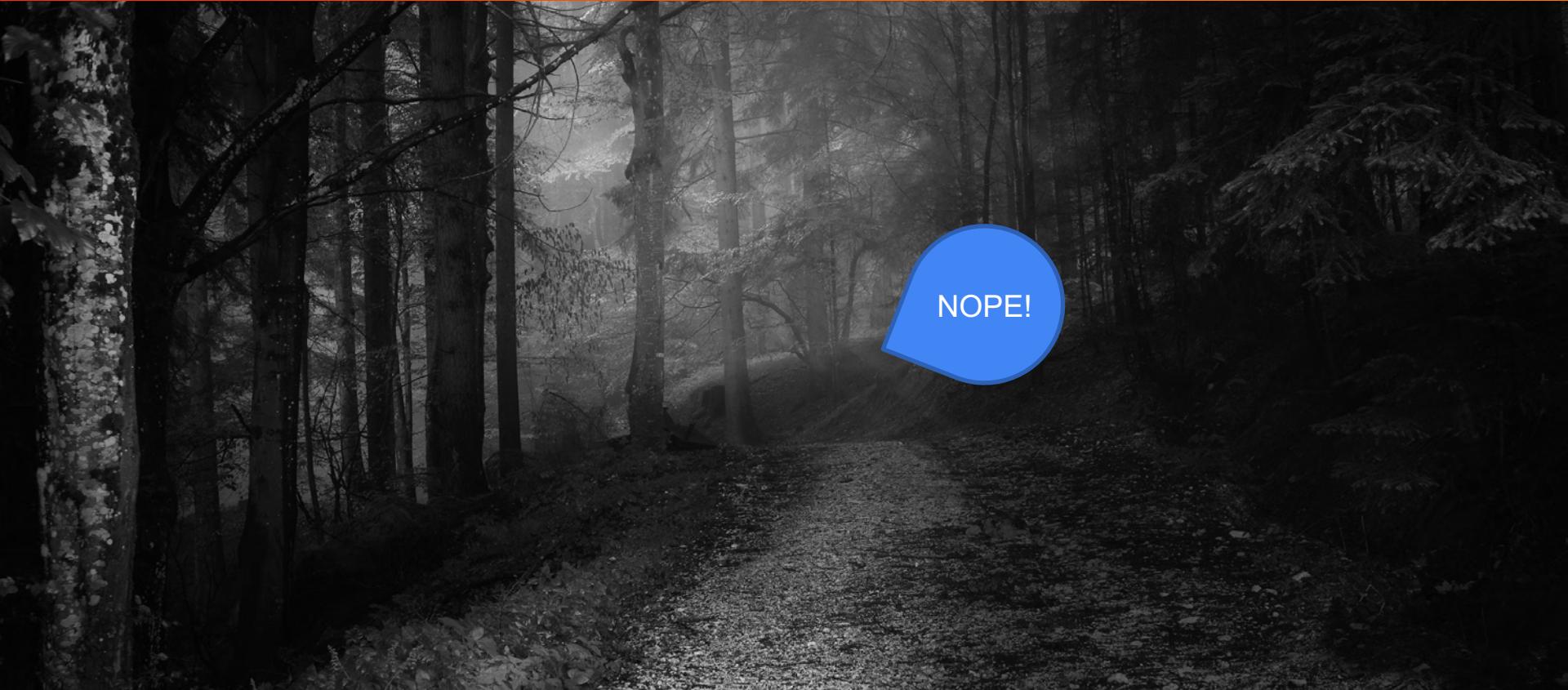




Deploying, Building and Observing SDKs as a Service



Why do devs prefer app dark themes?





DeveloperSteve Coochin Lumigo Senior Developer Advocate

Dev/Maker/Geek/Speaker/streamer/ruralite



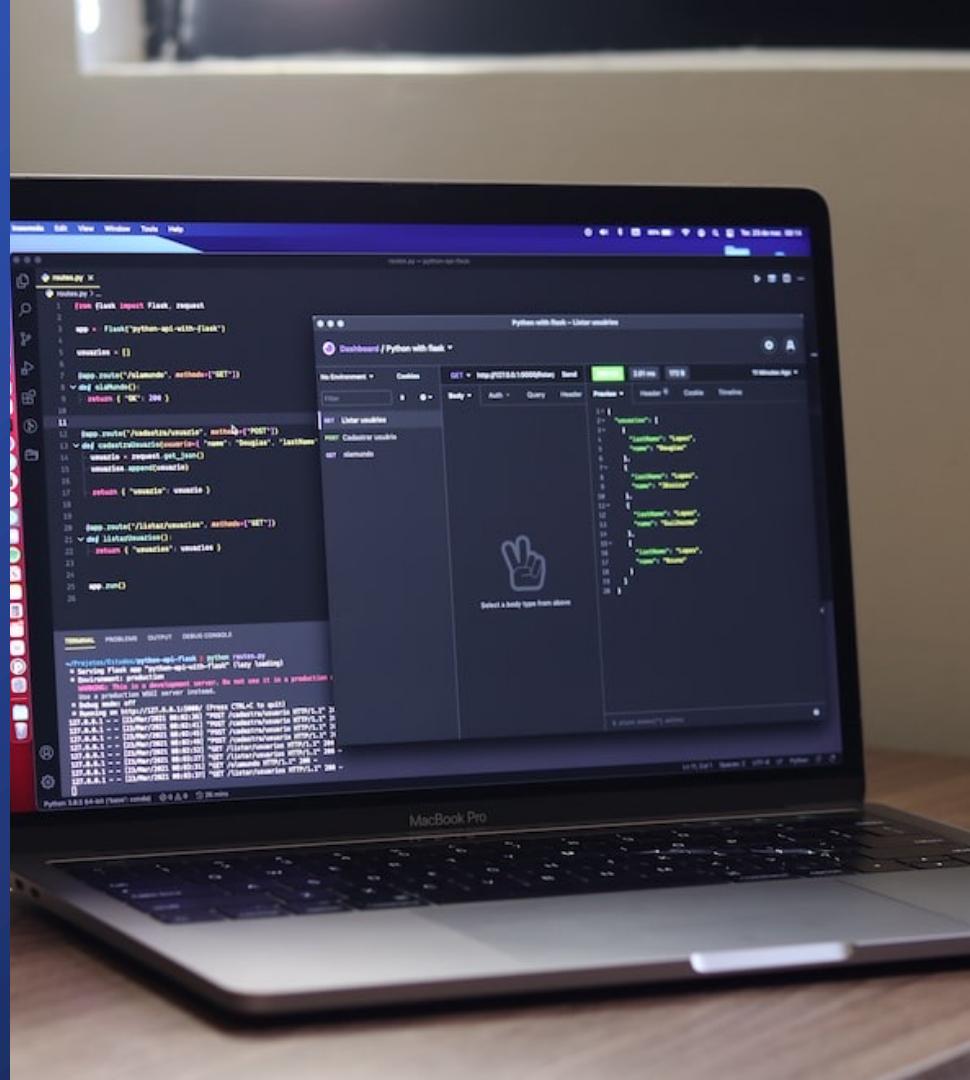
I <3 APIs

```
    - dependencies...
  - sources...
  - loading sdk-tools-linux-4333796.zip...
% Received % Xferd  Average Speed  Ti
                           Dload Upload To:   Mem:  Swap:
 100  147M    0      0  4682k      0  0:00
[ android-sdk.sh
[ android-sdk.csh
[ android-sdk.conf
[ license.html
[ signing source files with sha1sums...
[ sha1sums of zip ... Passed
```



A Good API needs to...

- Provide a Valid Service
- Be Well Documented
- Integration options
- SDKs



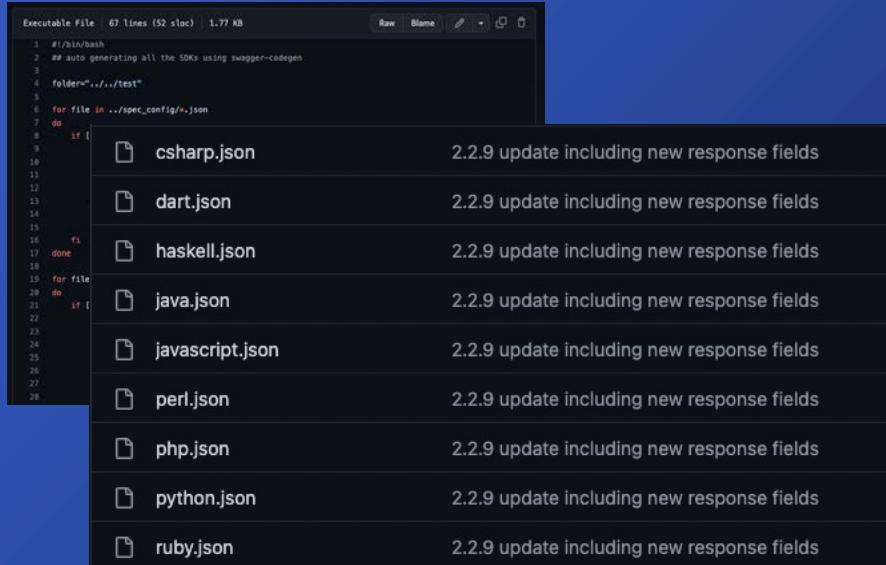
OpenAPI Generator

- Local CLI
- Deployable service
- OpenAPI & Swagger support
- 50+ different languages
- Customizable SDK templates
- OSS with a HUGE community

API clients	ActionScript, Ada, Apex, Bash, C, C# (.net 2.0, 3.5 or later, .NET Standard 1.3 - 2.1, .NET Core 3.1, .NET 5.0. Libraries: RestSharp, GenericHost, HttpClient), C++ (Arduino, cpp-restsdk, Qt5, Tizen, Unreal Engine 4), Clojure, Crystal, Dart, Elixir, Elm, Eiffel, Erlang, Go, Groovy, Haskell (http-client, Servant), Java (Apache HttpClient, Jersey1.x, Jersey2.x, OkHttp, Retrofit1.x, Retrofit2.x, Feign, RestTemplate, RESTEasy, Vertx, Google API Client Library for Java, Rest-assured, Spring 5 Web Client, MicroProfile Rest Client), k6, Kotlin, Lua, Nim, Node.js/JavaScript (ES5, ES6, AngularJS with Google Closure Compiler annotations, Flow types, Apollo GraphQL DataStore), Objective-C, OCaml, Perl, PHP, PowerShell, Python, R, Ruby, Rust (hyper, reqwest, rust-server), Scala (akka, http4s, scalaz, sttp, swagger-asynchronous-httpclient), Swift (2.x, 3.x, 4.x, 5.x), Typescript (AngularJS, Angular (2.x - 13.x), Aurelia, Axios, Fetch, Inversify, jQuery, Nestjs, Node, redux-query, Rxjs)
Server stubs	Ada, C# (ASP.NET Core, Azure Functions), C++ (Pistache, Restbed, Qt5 QHTTPEngine), Erlang, F# (Giraffe), Go (net/http, Gin, Echo), Haskell (Servant, Yesod), Java (MSF4J, Spring, Undertow, JAX-RS: CDI, CXF, Inflector, Jersey, RestEasy, Play Framework, PKMST, Vert.x, Apache Camel), Kotlin (Spring Boot, Ktor, Vertx), PHP (Laravel, Lumen, Mezzio (fka Zend Expressive), Slim, Silex, Symfony), Python (FastAPI, Flask), NodeJS, Ruby (Sinatra, Rails5), Rust (rust-server), Scala (Akka, Finch, Lagom, Play, Scalatra)

Generator CLI

- openapi-generator-cli generate -g go --additional-properties=prependFormOrBodyParameters=true \ -o out -i petstore.yaml



The image shows a terminal window with two parts. The top part is a bash script with the following content:

```
Executable File 67 lines (52 sloc) 1.77 KB
#!/bin/bash
# auto generating all the SDKs using swagger-codegen
folders="..../test"
for file in ..../spec_config/*.json
do
if [ ! -f $file ]
then
done
for file
do
if [ ! -f $file ]
then
csharp.json      2.2.9 update including new response fields
dart.json        2.2.9 update including new response fields
haskell.json     2.2.9 update including new response fields
java.json        2.2.9 update including new response fields
javascript.json  2.2.9 update including new response fields
perl.json         2.2.9 update including new response fields
php.json          2.2.9 update including new response fields
python.json       2.2.9 update including new response fields
ruby.json         2.2.9 update including new response fields
```

```
openapi-generator-cli help generate
NAME
  openapi-generator-cli generate - Generate code with the specified
  generator.

SYNOPSIS
  openapi-generator-cli generate
    [(-a <authorization> | --auth <authorization>)]
    [--api-name-suffix <api name suffix>] [--api-package <api package>]
    [--artifact-id <artifact id>] [--artifact-version <artifact version>]
    [(-c <configuration file> | --config <configuration file>)] [--dry-run]
    [(-e <templating engine> | --engine <templating engine>)]
    [--enable-post-process-file]
    [(-g <generator name> | --generator-name <generator name>)]
    [--generate-alias-as-model] [--git-host <git host>]
    [--git-repo-id <git repo id>] [--git-user-id <git user id>]
    [--global-property <global properties>...] [--group-id <group id>]
    [--http-user-agent <http user agent>]
    [(-i <spec file> | --input-spec <spec file>)]
    [--ignore-file-override <ignore file override location>]
    [--import-mappings <import mappings>...]
    [--instantiation-types <instantiation types>...]
    [--invoker-package <invoker package>]
    [--language-specific-primitives <language specific primitives>...]
    [--legacy-discriminator-behavior] [--library <library>]
    [--log-to-stderr] [--minimal-update]
    [--model-name-prefix <model name prefix>]
    [--model-name-suffix <model name suffix>]
    [--model-package <model package>]
    [(-o <output directory> | --output <output directory>)] [(-p <additional
properties> | --additional-properties <additional properties>...)
    [--package-name <package name>] [--release-note <release note>]
    [--remove-operation-id-prefix]
    [--reserved-words-mappings <reserved word mappings>...]
    [(-s | --skip-overwrite)] [--server-variables <server variables>...]
    [--skip-operation-example] [--skip-validate-spec]
    [--strict-spec <true/false strict behavior>]
    [(-t <template directory> | --template-dir <template directory>)]
    [--type-mappings <type mappings>...]
    [(-v | --verbose)]
```

SDK as a service

API



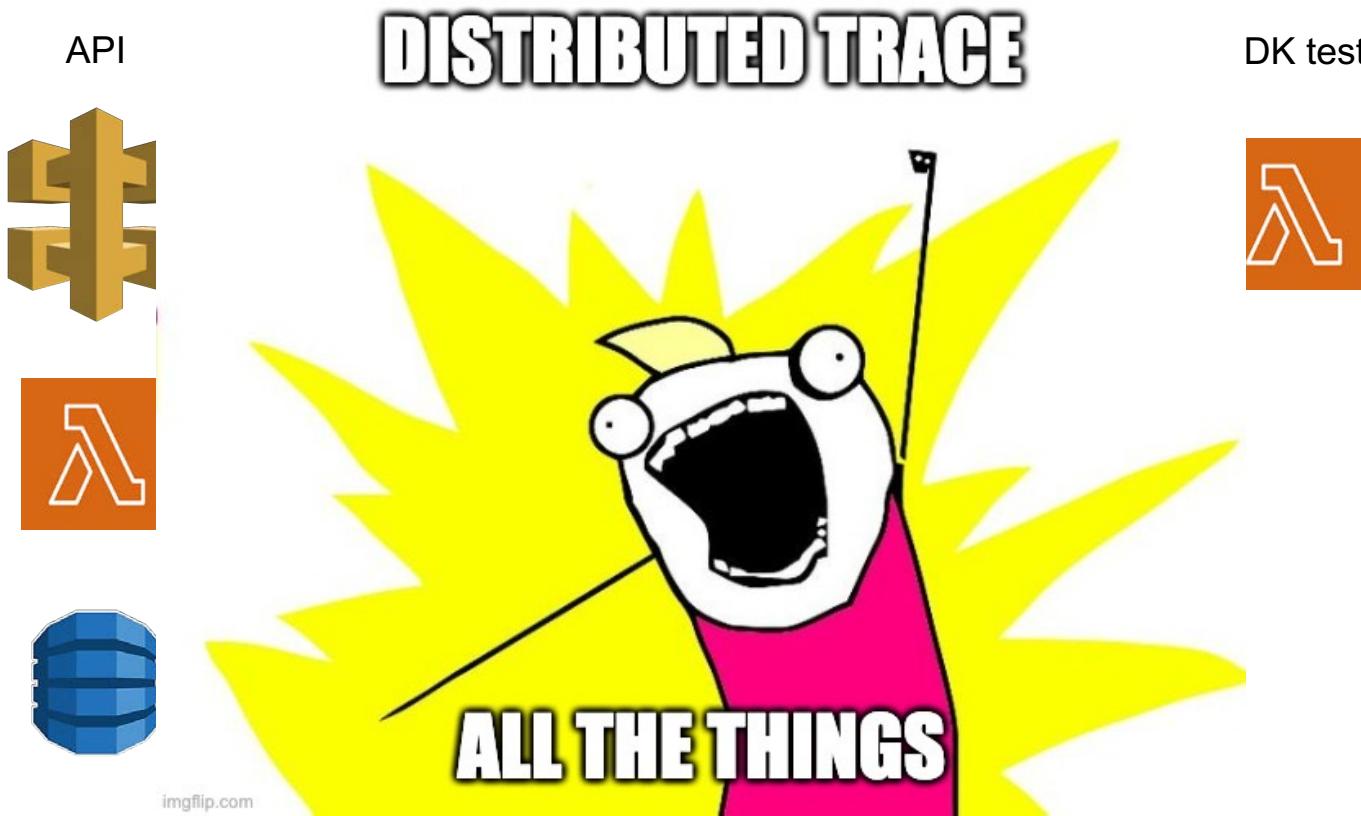
SDK gen



Lambda

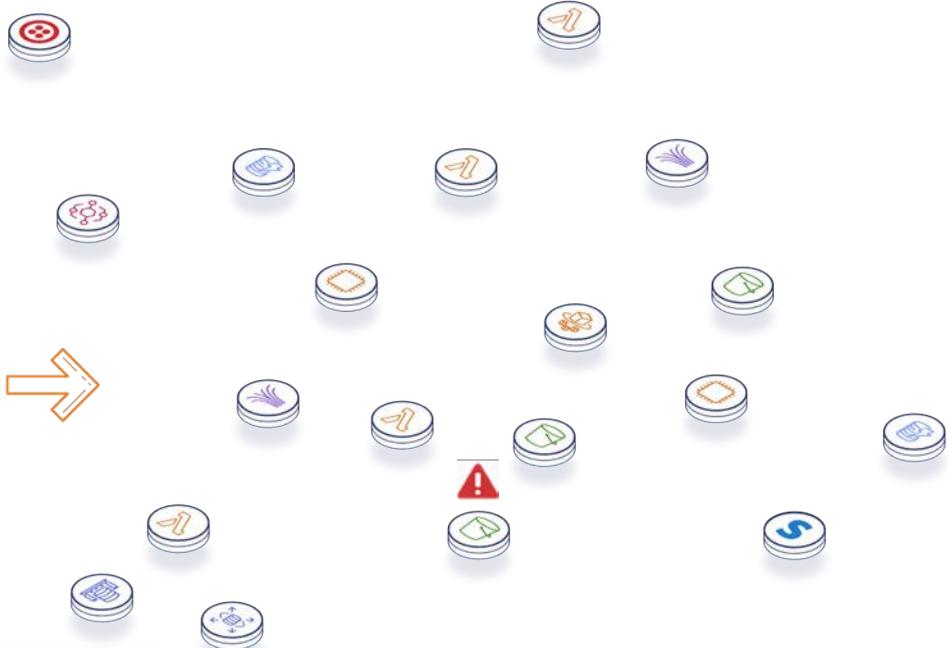
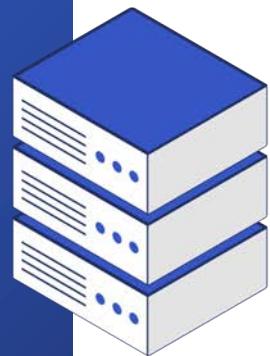


How Distributed Tracing can help



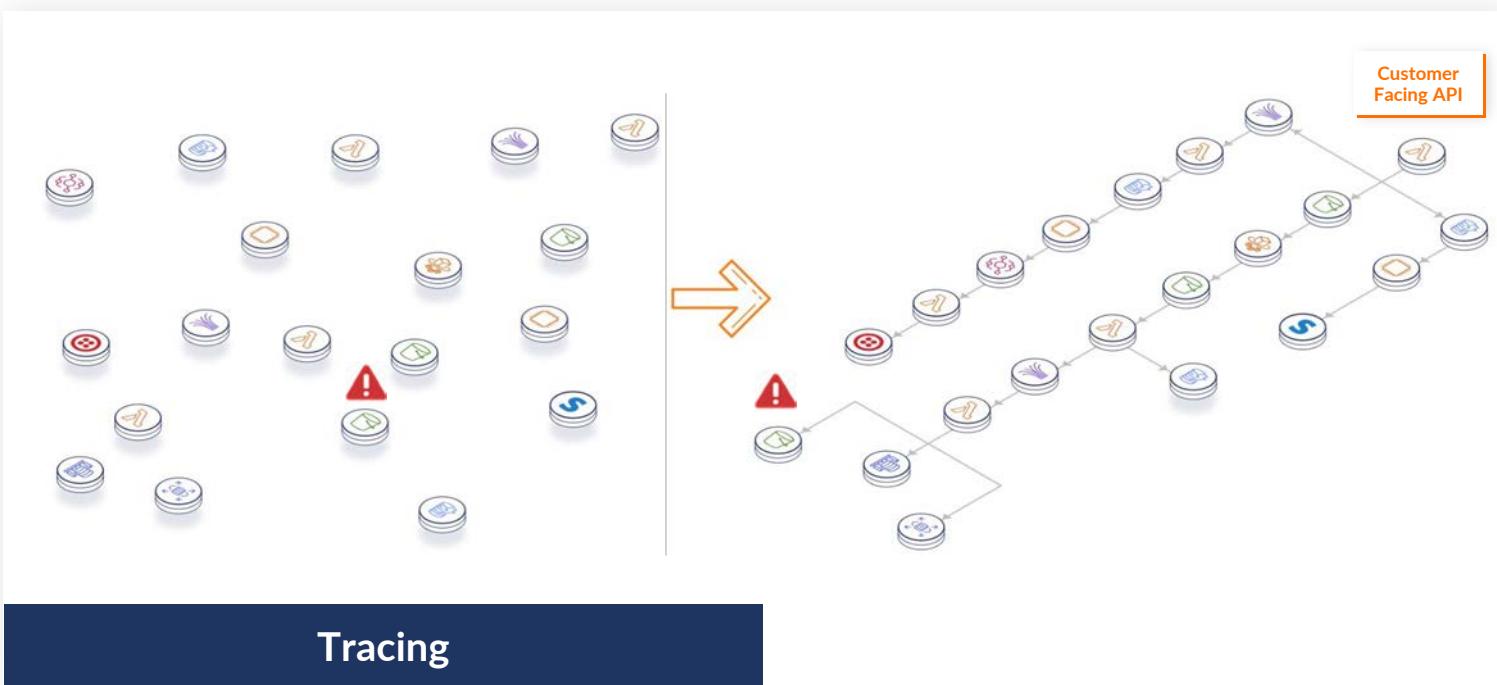
Cloud Native Applications

are highly distributed with hundreds of ever-changing components

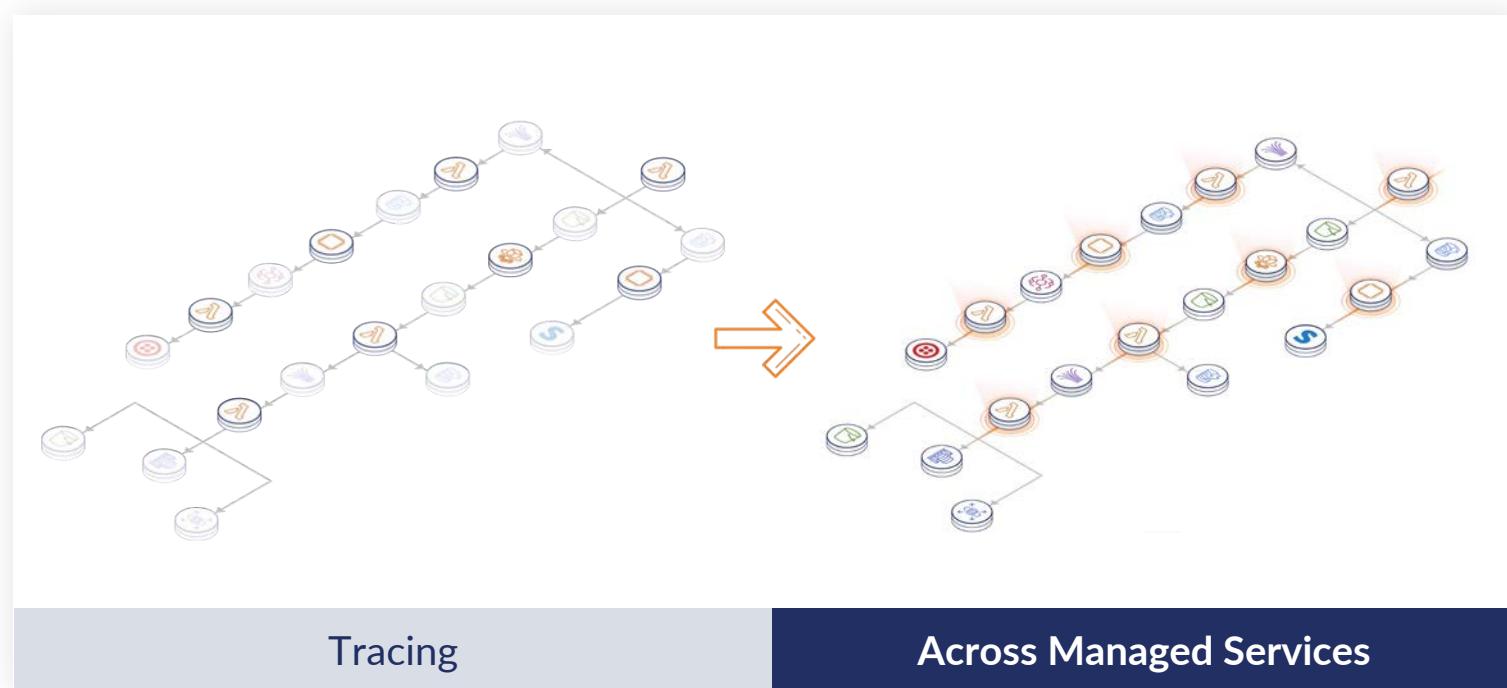


Hard to zoom-out and understand overall application health without understanding the context and connections between them

Distributed Tracing



Agentless Observability



Tracing

Across Managed Services

Full Circle Observability



ADLC Gateway Monitoring



Invocation

Dev-Env 4 ▾



Dashboard



Issues



Functions



ECS



Transactions



Live Tail



Explore



Resources



System Map

Request Id: ffc40a31-39e2-4d29-8cc1-27edc2d88f2d

Start Time	Duration	Cost	Region	Issues
11:41:24 AM	160 ms	< \$0.01	us-east-1	0

GRAPH **TIMELINE** **LOGS**

Timeline

Resources

0 10ms 20ms 30ms 40ms 50ms 60ms 70ms 80ms 90ms 100ms 110ms 120ms 130ms 140ms 150ms

devjokes

160 ms (* 149ms | 11ms)



Help

Dark Mo

030118/U-UU93-404...	11:41:32 AM	● SUCCESS	12 ms	-		-
ffc40a31-39e2-4d29...	11:41:24 AM	● Success	160 ms		-	



Dashboard

Issues

Functions

ECS

Transactions

Live Tail

Explore

Resources

System Map

Alerts

Settings
What's New
Help

OpenAPI us-east-1

Status ACTIVE Tasks Running: 1 Pending: 0

[Go To AWS Console](#)[See Traces](#)

SERVICES

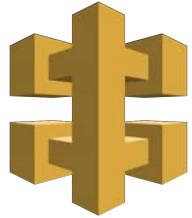
TASKS

Tasks (7)

Task ID		Type	Status	Started...	CPU Un...	Memory ...	
arn:aws:ecs:us-east-1:413854491361:task/OpenAPI/1...	Details	FARGATE	RUNNING	Aug 23, 2022, ...	256 vCPU	512 MB	See Traces
arn:aws:ecs:us-east-1:413854491361:task/OpenAPI/4...	Details	FARGATE	RUNNING	Yesterday, 12:...	256 vCPU	512 MB	See Traces
arn:aws:ecs:us-east-1:413854491361:task/OpenAPI/7...	Details	FARGATE	RUNNING	Yesterday, 12:...	256 vCPU	512 MB	See Traces
arn:aws:ecs:us-east-1:413854491361:task/OpenAPI/7...	Details	FARGATE	PENDING		256 vCPU	512 MB	See Traces
arn:aws:ecs:us-east-1:413854491361:task/OpenAPI/7...	Details	FARGATE	RUNNING	Yesterday, 1:0...	256 vCPU	512 MB	See Traces
arn:aws:ecs:us-east-1:413854491361:task/OpenAPI/e...	Details	FARGATE	PENDING		256 vCPU	512 MB	See Traces
arn:aws:ecs:us-east-1:413854491361:task/OpenAPI/f...	Details	FARGATE	RUNNING	Yesterday, 1:0...	256 vCPU	512 MB	See Traces

SDK Testing

SDK test



Invocations

Search request id



Select execution tag

Request Id

Start Time ↓

Result

Duration

5a88f644-3064-4a0c-b036-63a4...

3:35:04 PM

Success

184 ms

8baccf1e-c5ce-4aec-987b-311d...

3:35:04 PM

Success

719 ms

a15a54bd-d87f-4f17-a33f-6c9d0...

3:32:53 PM

Success

262 ms

d1825ce8-d68c-4e7c-8448-319c...

3:32:51 PM

Success

1,598 ms

Invocations

Search request id



Select execution tag

Request Id

Start Time ↓

Result

Duration

57b30eb5-076a-49f5-9347-b805...

3:41:36 PM

Success

76 ms

e2266667-cd13-4691-9368-466...

3:41:35 PM

Success

951 ms

See the full trace picture

Dashboard

Issues

Functions

ECS

Transactions

Live Tail

Explore

Resources

System Map

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Settings

What's New

Help

Dark Mode

Transaction ID: 3baf76c02001737530c4cb70

Start Time: 12:15:16 PM Duration: 434 ms Cost: < \$0.01 Region: us-east-1 Issues: 0

GRAPH TIMELINE LOGS

Expand

```
graph TD; In[GET /favicon.ico] --> FuncSNS((Func-SNS)); FuncSNS --> CloudWatchMetrics[CloudWatchMetrics]; CloudWatchMetrics --> MyLambda1[MyLambda]; CloudWatchMetrics --> APIGateway[APIGateway]; MyLambda1 --> ProcessQSSRecord[ProcessQSSRecord]; APIGateway --> ProcessQSSRecord;
```

Request id: 3dc7725a-cd97-47fe-a... Lumigo Tag: sqs Memory Limit: 128MB

Start Time: 12:15:16 PM Duration: 234 ms

Execution Tags: apigw-request-id 3dc7725a-cd97-47fe-ab60-83bc02712d3e, method GET, path /favicon.ico

Return Value:

```
{ "statusCode": 200, "body": "invoked" }
```

Event:

```
{ "version": 2.0, "routeKey": "Hidden Information", "rawPath": "/favicon.ico", "rawQueryString": "", "requestContext": { "2 props" }, "headers": { "3 props" }, "isBase64Encoded": false }
```

Take Aways

- Design APIs for Dev Consumption
- Rinse, Repeat and Refine
- Monitor and Trace Everything
 - APIs
 - SDKs
 - Deployed Code



Distributed Tracing made easy

Lumigo.io/blog



DeveloperSteve, Jan 18 2023

Monitoring AWS DynamoDB performance and latency

Amazon DynamoDB is a fully managed NoSQL database service provided by AWS and is tailor-made for serverless applications. As a...



DeveloperSteve, Jan 12 2023

Comparing Amazon ECS launch types: EC2 vs. Fargate

Amazon Elastic Container Service (ECS) is a fully managed container orchestration service that enables users to easily run, manage and...



Saar Tochner, Dec 22 2022

Zero-Friction AWS Lambda Instrumentation with external extensions

If you've been in the software business for some time, you've probably noticed that creating software isn't only about adding...



USE YOUR
TECH SUPER
POWERS
FOR GOOD



"Be excellent to each other"



Thank You