Serverless: The future of cloud computing

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A Cloud Guru

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Serverlessconf

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Serverless Architectures on AWS

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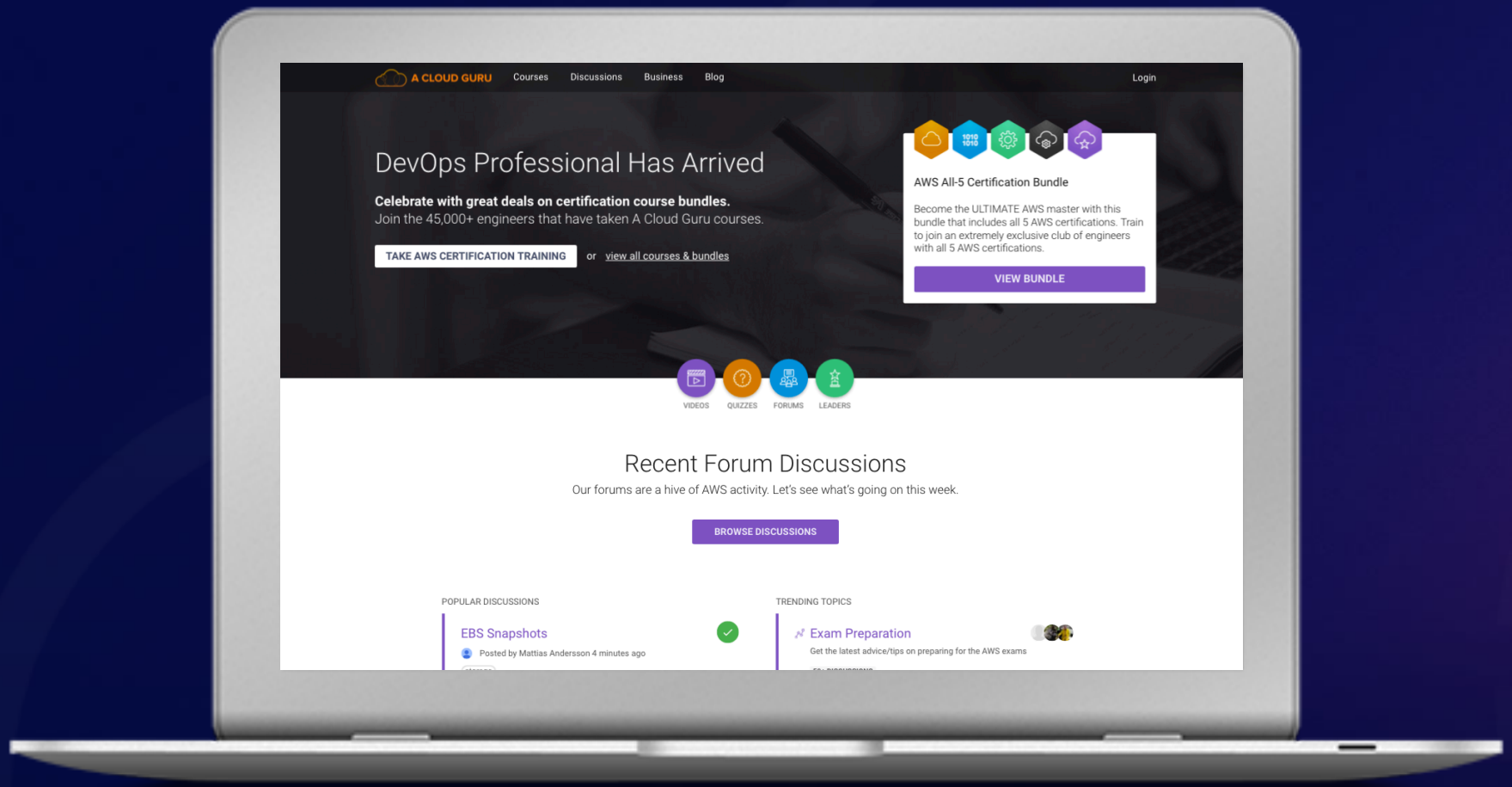
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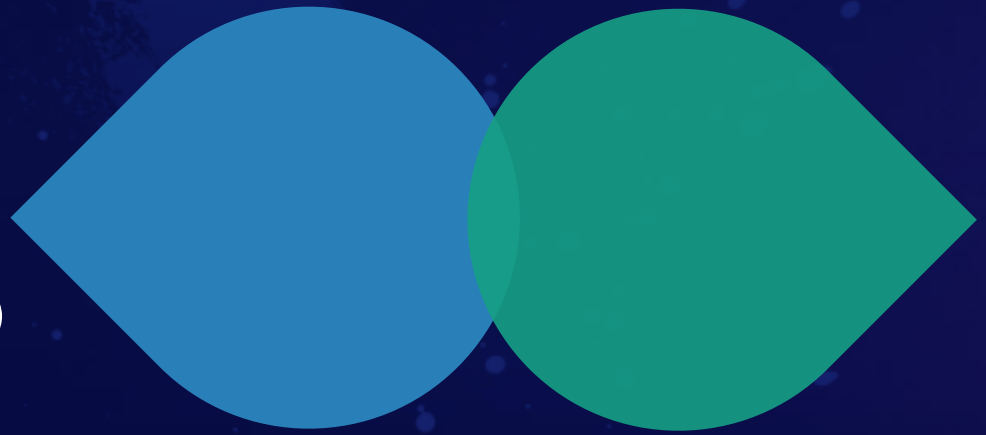
200,000+ engineers

Across 140 countries

And we don’t run a single server.

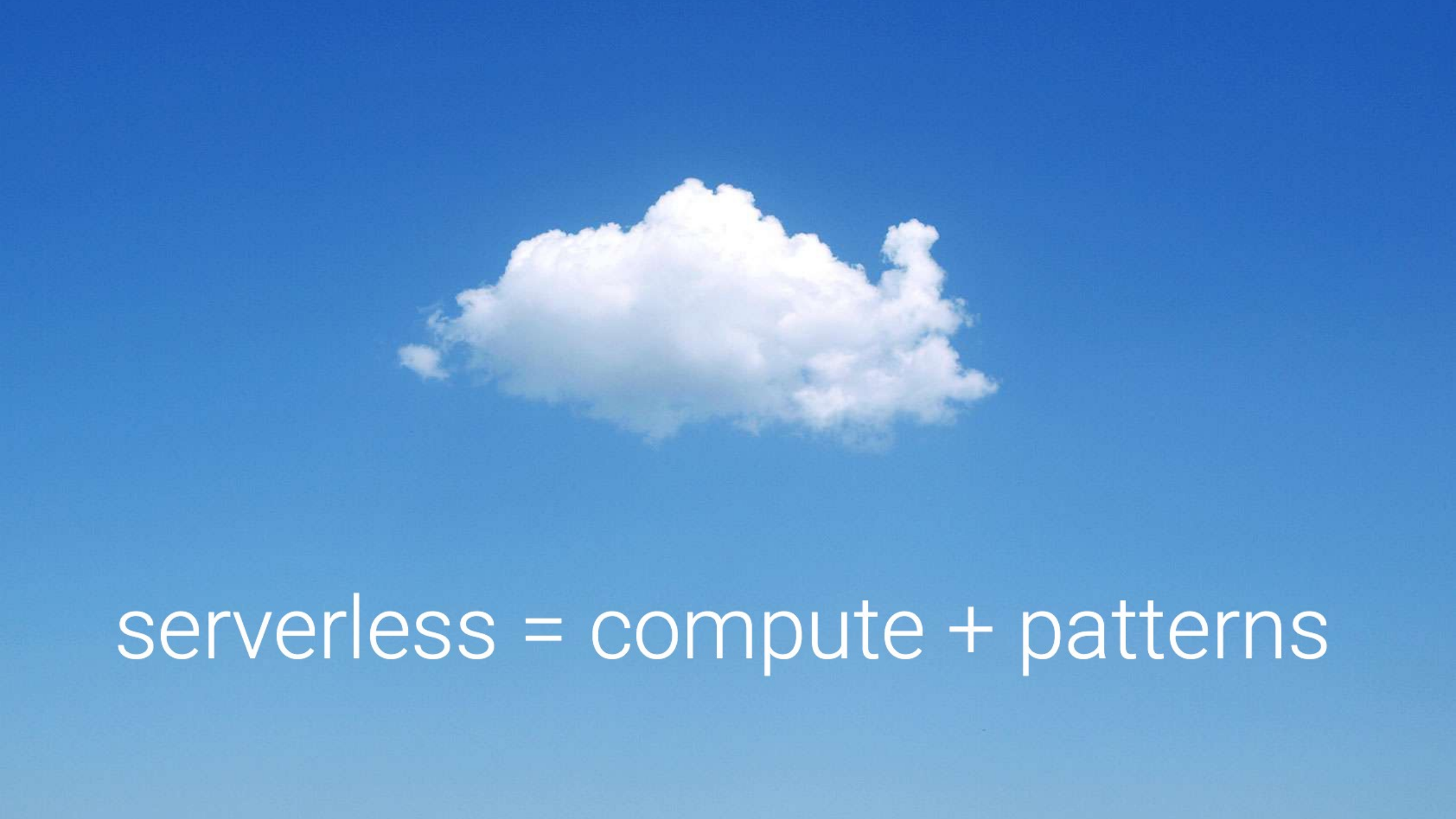
What is serverless?

Function as a Service
(execute your custom code)



Backend as a Service
(third-party services)

Serverless Architectures


serverless = compute + patterns

ThoughtWorks: Today's Technology Radar

ADOPT

1. Pipelines as code

TRIAL

2. APIs as a product
3. Decoupling secret management from source code new
4. Hosting PII data in the EU
5. Legacy in a box new
6. Lightweight Architecture Decision Records
7. Progressive Web Applications new
8. Prototyping with InVision and Sketch new
9. Serverless architecture

A **serverless architecture** approach replaces long-running virtual machines with ephemeral compute power that comes into existence on request and disappears immediately after use. Our teams like the serverless approach; it's working well for us and we consider it a valid architectural choice. Note that serverless doesn't have to be an all-or-nothing approach: some of our teams have deployed a new chunk of their systems using serverless while sticking to a traditional architectural approach for other pieces. Although AWS Lambda is almost synonymous with serverless, the other major cloud providers all have similar offerings, and we also recommend assessing niche players such as webtask.

AWS Lambda

Lambda is to compute, what S3 is to storage.

amazon
web services™
IBM
OpenWhisk
Microsoft
Google

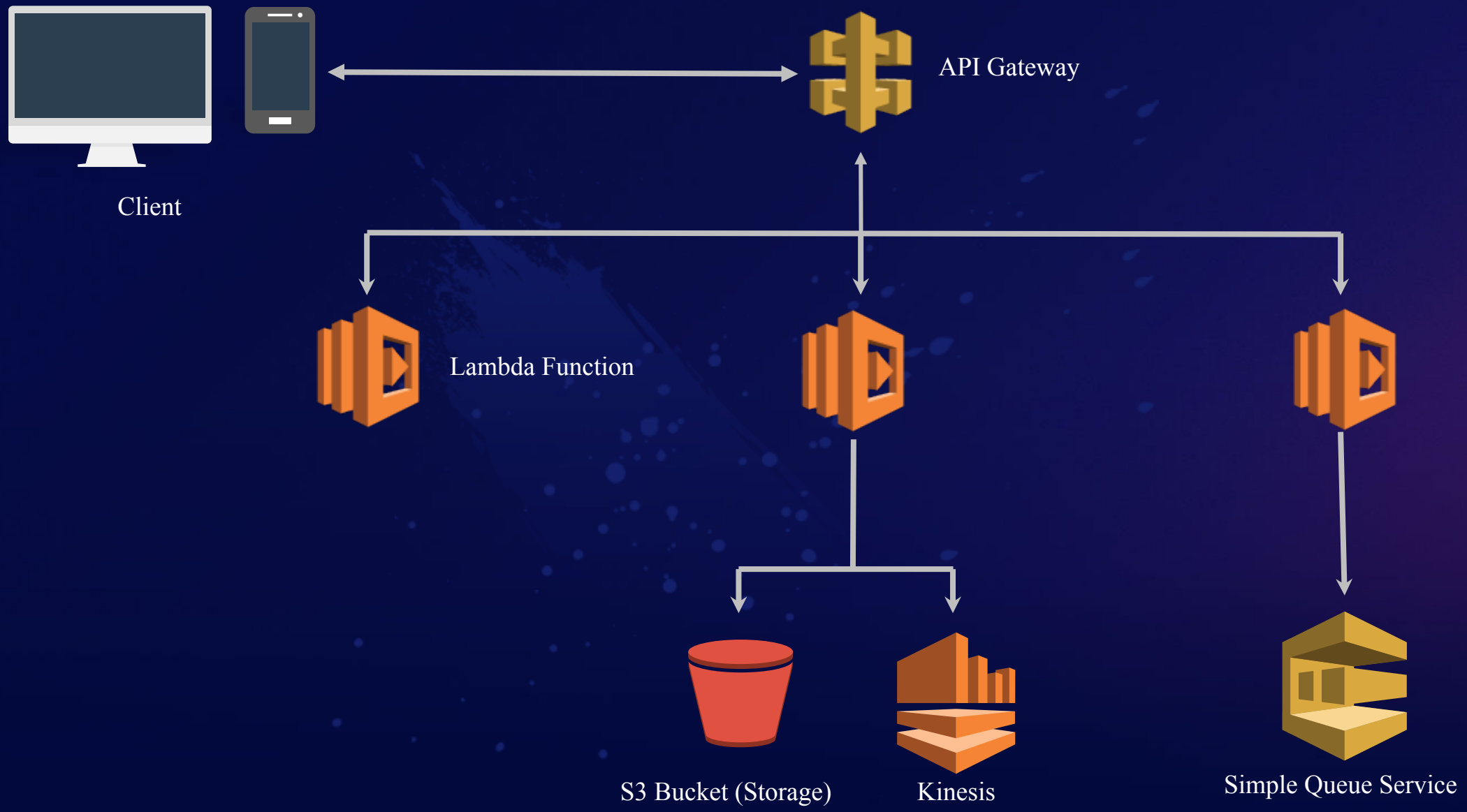
Principles of Serverless Architecture

- Use a code-execution compute service to run code on demand
- Write single-purpose stateless functions
- Design push-based, event-driven pipelines
- Create thicker, more powerful front ends
- Embrace third party services

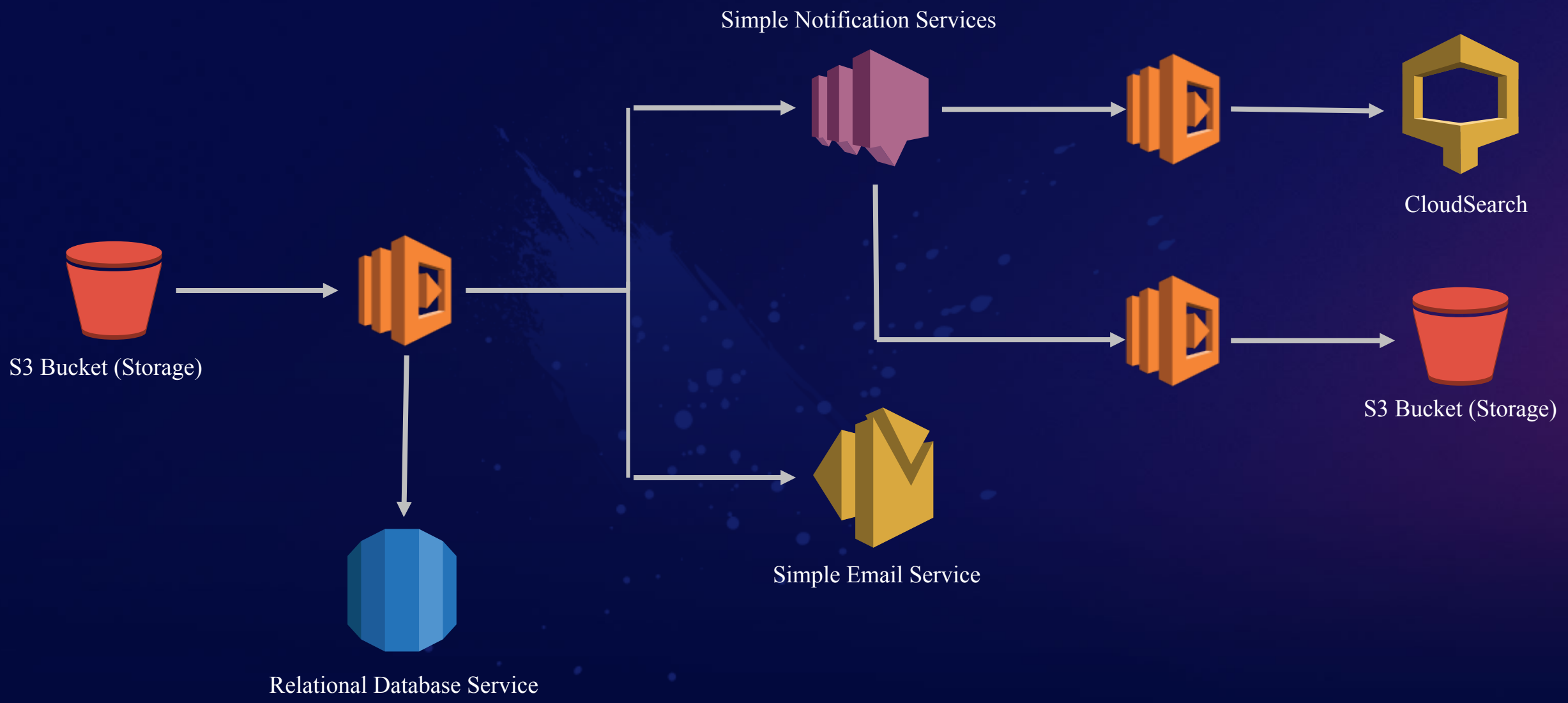
Illustrated with A Cloud Guru Examples

1. Use a compute service to execute code on demand (aka don’t run a server).

Compute as back end



Compute as glue



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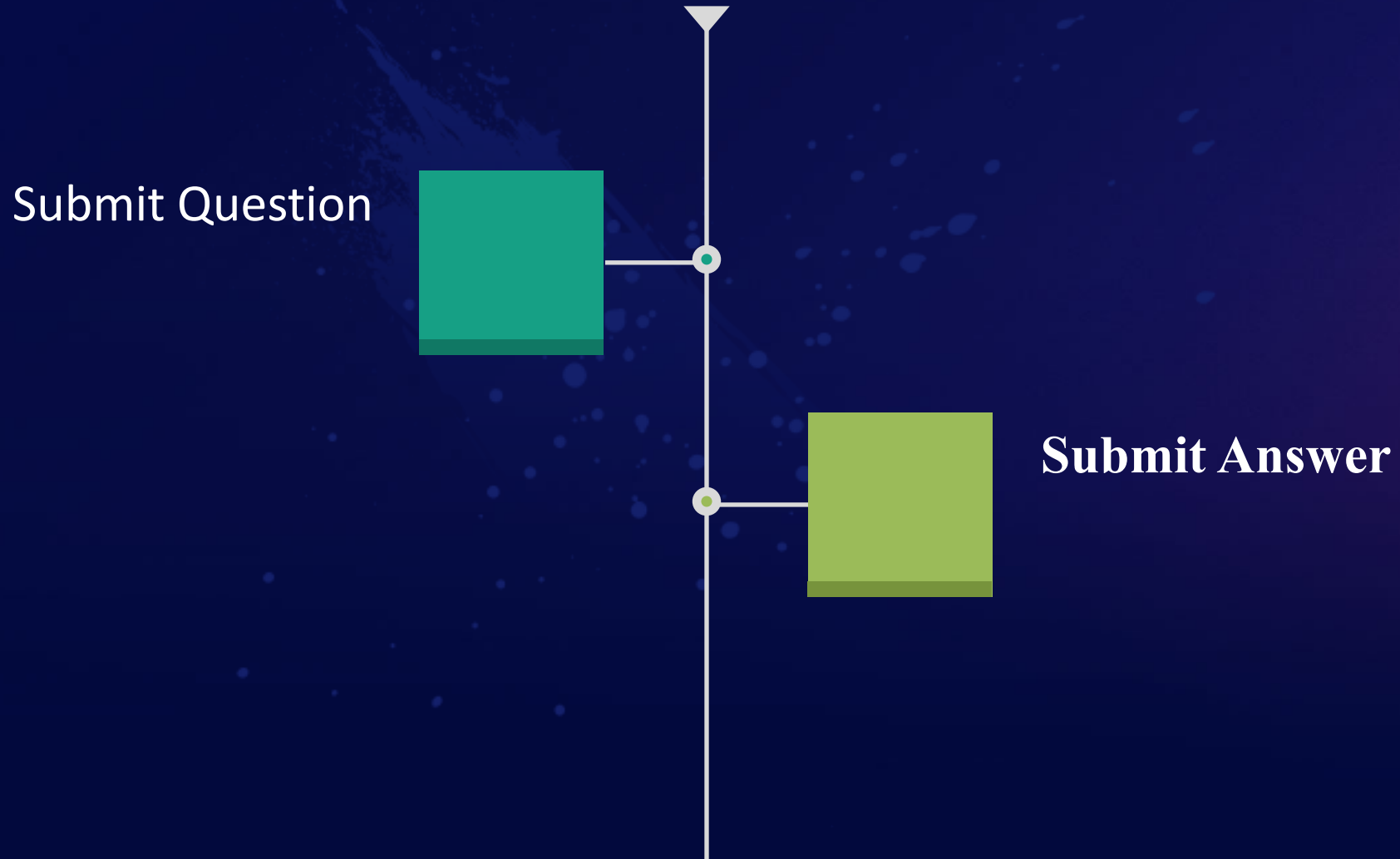
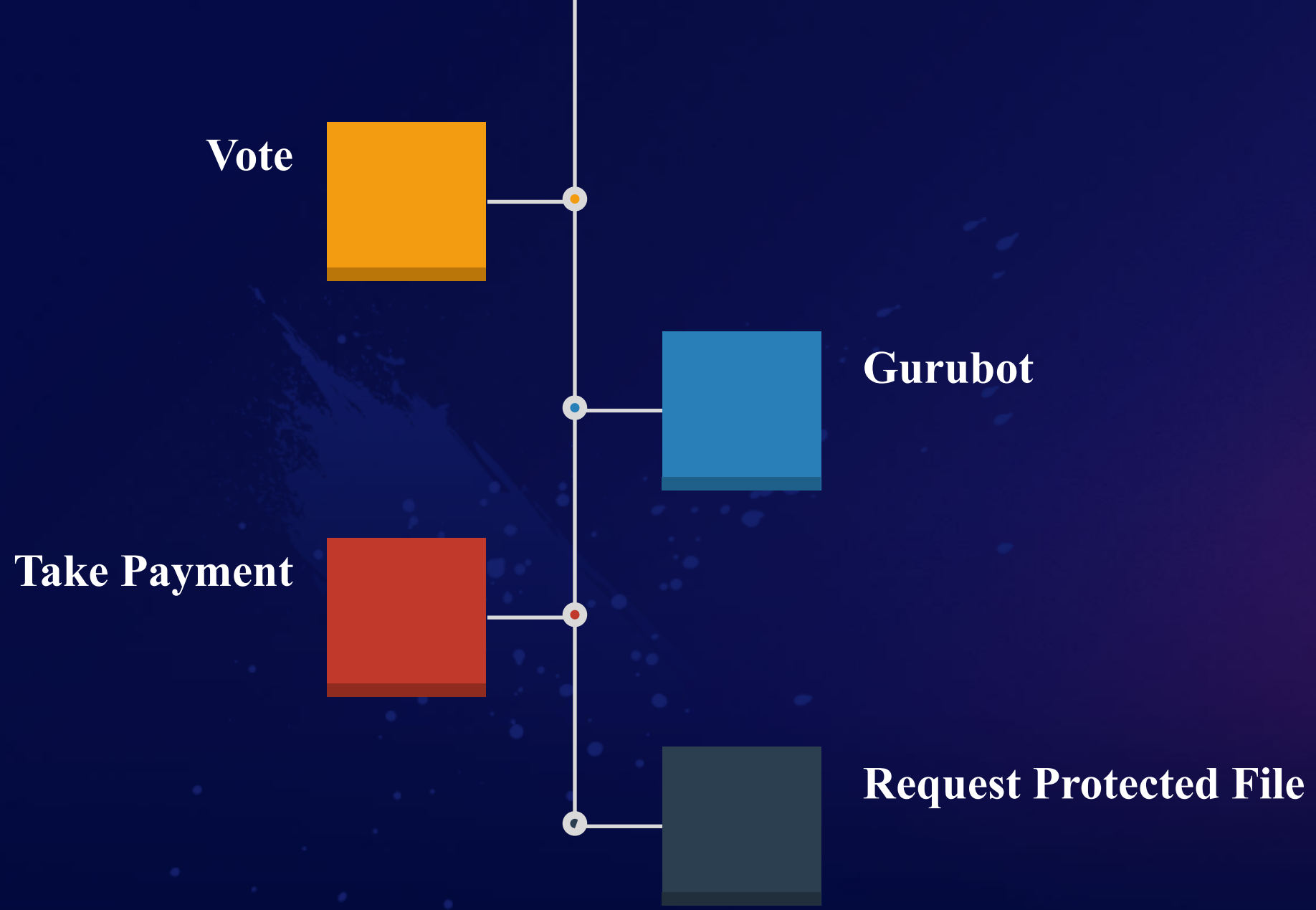
2. Write single-purpose stateless functions

Our Lambda Functions

A look at what we built




Vote
Gurubot
Take Payment
Request Protected File

3. Design push-based, event-driven pipelines

Forum Comment

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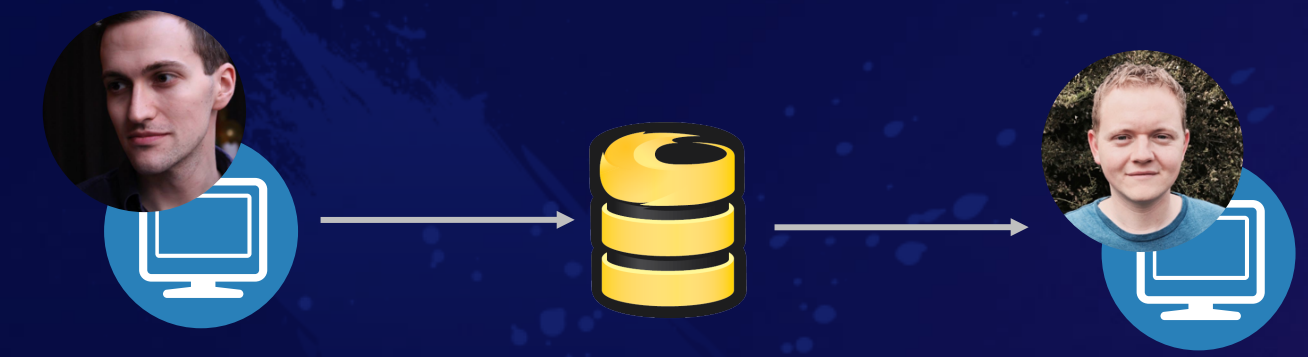
Comment is free



Search

Peter submits a question

API Gateway

Lambda

Firebase (Database)

CloudSearch

Sam runs a search

Firebase (Database)

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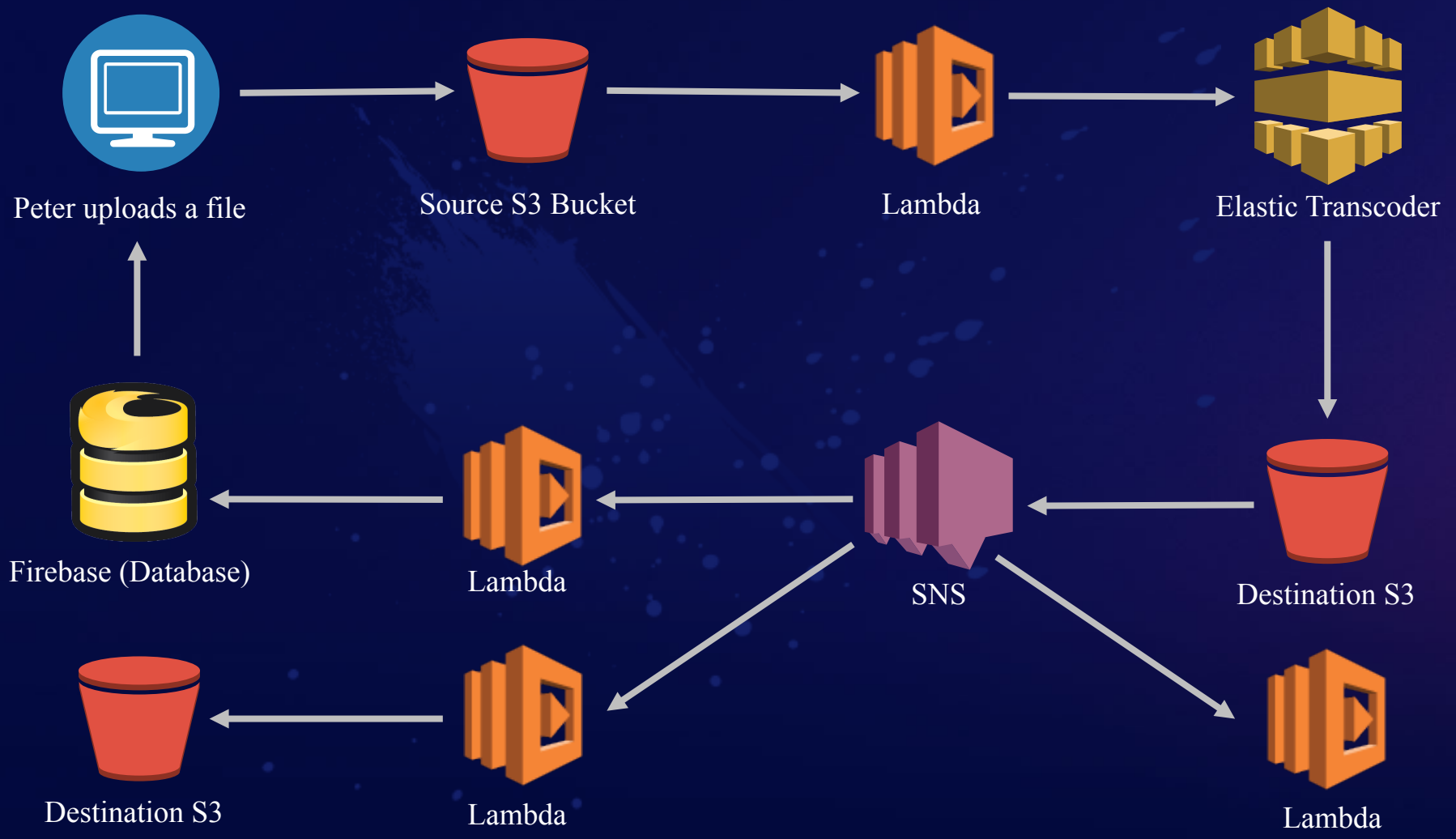
Encoding Media



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4. Create thicker, more powerful front ends

01	User Interface
02	Client Side Model Binding
03	Client Side Service Layer
04	Server Side Service Layer
05	Server Side Model Binding
06	Server Side DB Mapping
07	Database Storage

Angular JS App Running In The Browser Across All Devices

AWS CloudSearch

Auth0 Authentication Service

S3 for Large File Upload/Download

Firebase Real Time Streaming Database

stripe Credit Card Payments

Intercom Customer Analytics & Messaging

AWS API Gateway

Custom Functions Running in AWS Lambda

Campaign Monitor for generating and sending beautiful templated emails based on system events

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01 User Interface

02 Client Side Model Binding

03 Client Side Service Layer

04 Database Storage

05 Cloud Functions

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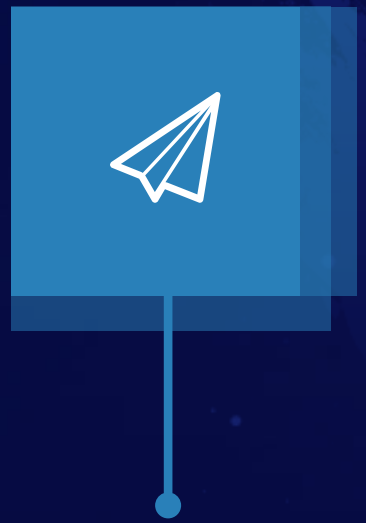
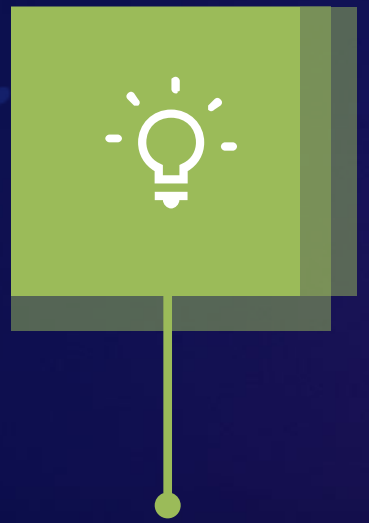
5. Use third party services

Benefits



Rapid Time To Market

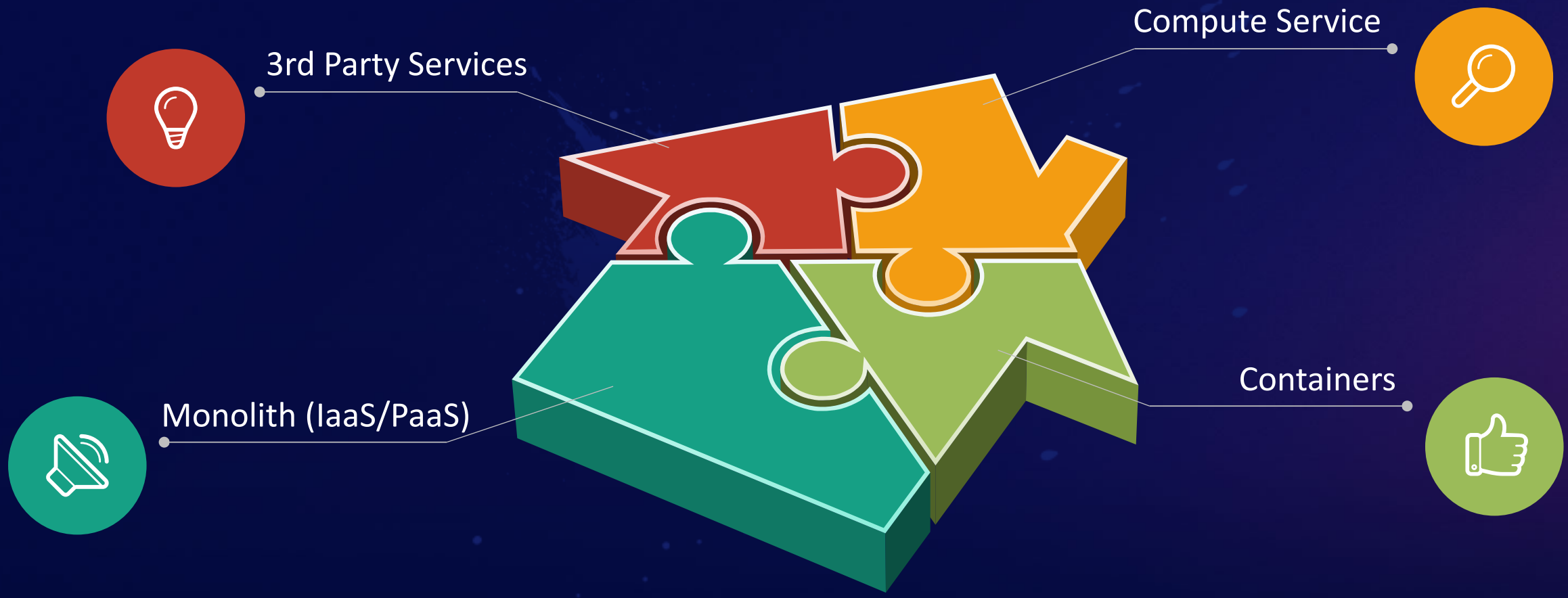
Scale Effortlessly



Disruptive Cost Model

New platforms vs migrations

Moving from a monolith piece by piece



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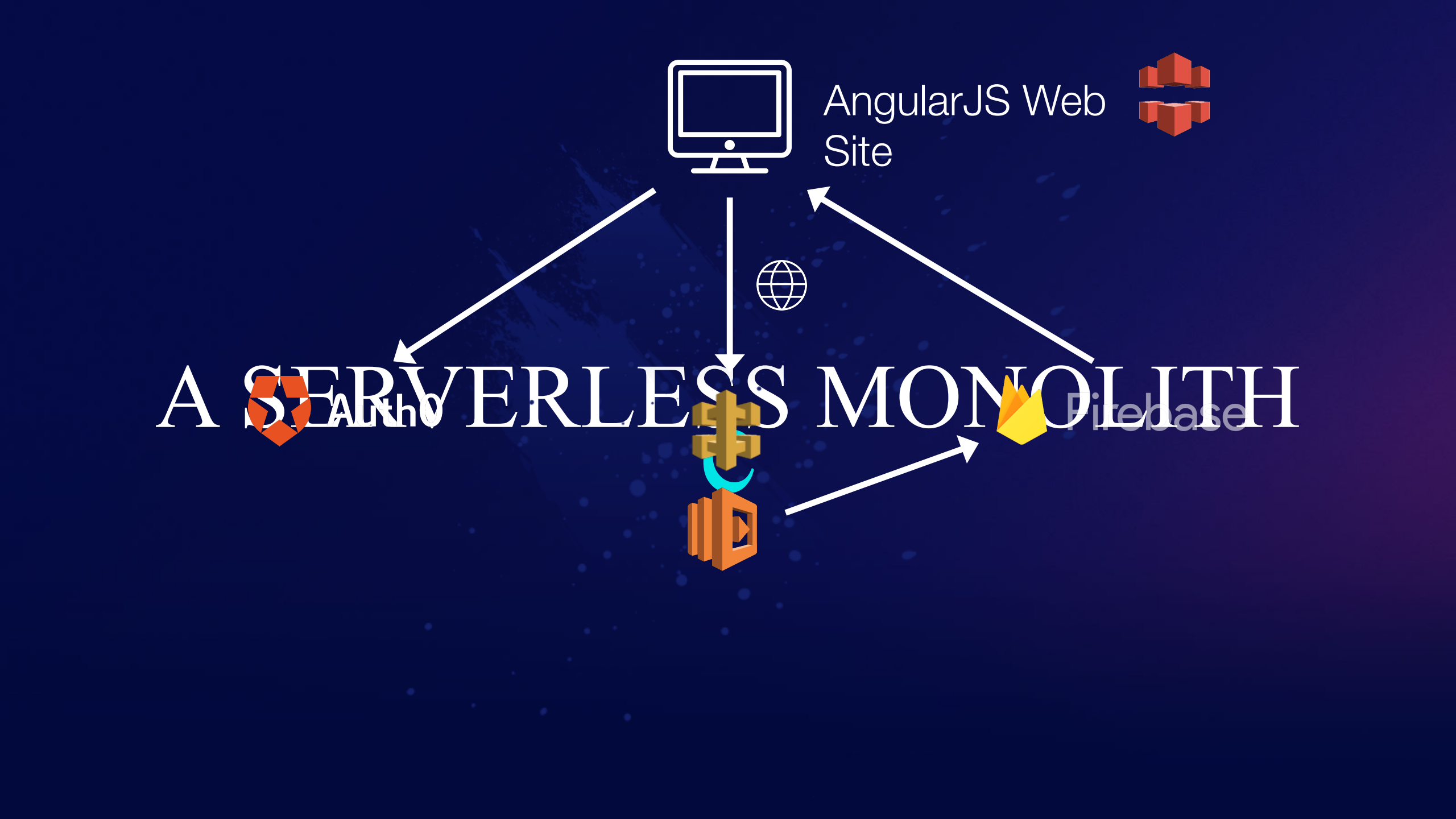
Cons

- Not for everyone
- Service levels and customization
- Vendor lock-in
- Decentralization

Pros

- No more servers to manage
- Versatile
- Lower Cost
- Less code
- Scalable and flexible


AngularJS Web Site
A SERVERLESS MONOLITH
Auth0
Firebase

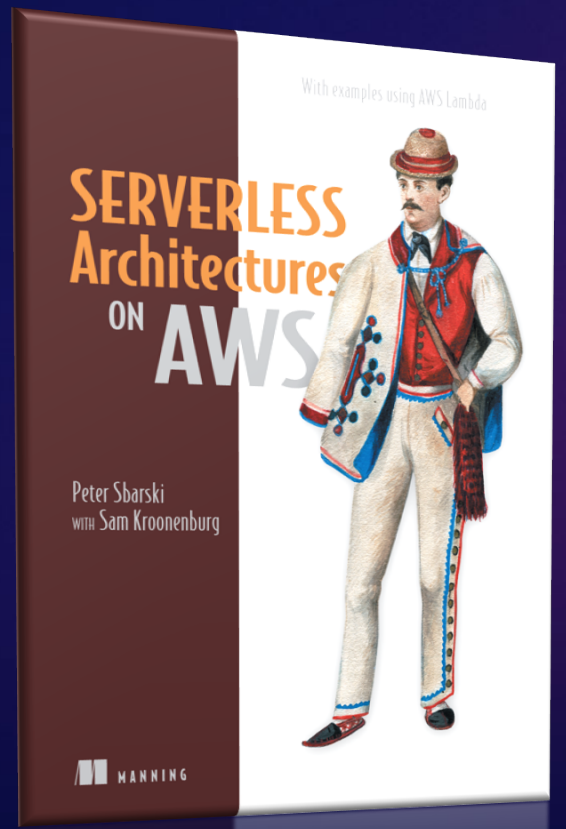
GOING MICRO

MONOLITH TO MICRO
e

MANAGED SERVICES ARE MOVING TARGETS

How can you get started?

- **serverlessconf.io** & video.serverlessconf.io
- Follow **@serverlessconf** for serverlessconf info
- A Cloud Guru **acloud.guru/serverless**
- Book: “Serverless Architectures on AWS” **http://book.acloud.guru**



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rendering react components
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slackbots
facebook messenger bots
website screenshots
load testing
event-driven workflows
serverless
enables
creativity.

GET HANDS-ON WITH SERVERLESS

Unique workshops taught by the gurus from **A Cloud Guru** who work with serverless technologies every day..

Register interest at https://acloud.guru/serverless

WORKSHOP / 04

INTRODUCTION TO ALEXA DEVELOPMENT

Ryan Kroonenburg
FOUNDER OF A CLOUD GURU, HAS TAUGHT AWS TO OVER 100,000 ENGINEERS

Nick Triantafillou
DEVOPS INSTRUCTOR AT A CLOUD GURU

Thanks :-)

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