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Journey into Serverless

Where we are going, we don’t need* servers...

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What is a Serverless Website?

So no more servers?

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What is Serverless?

- A website “without” a server
- Only doing the “minimal” amount of custom code and domain specific logic
- Allows for companies to now have to worry about infrastructure
- Ulitlizes Functions as a Service (FaaS) solutions (the cloud)

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History of web apps

Not a history lesson!

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Source: https://martinfowler.com/articles/serverless.html

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Downfalls of a classic web app

- Lots of boilerplate code
- Tied to implementation details
- Harder to scale
- Can be Monolithic
- Can get hard to test
- Manage infrastructure for your app
- Hard to pivot
- Modern apps add a layers of complexity

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Let’s drop the servers

Like they are hot and it’s 1999!

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What does a Serverless site look like?

- Client
  - SPA, served from CDN (if web)
- API / Background jobs
  - A collection of functions
  - Is behind an API Gateway, or some other trigger
- Authentication
  - Use an authentication service (OAuth)
- Database
  - Use a cloud provider (DynamoDB, mLabs)

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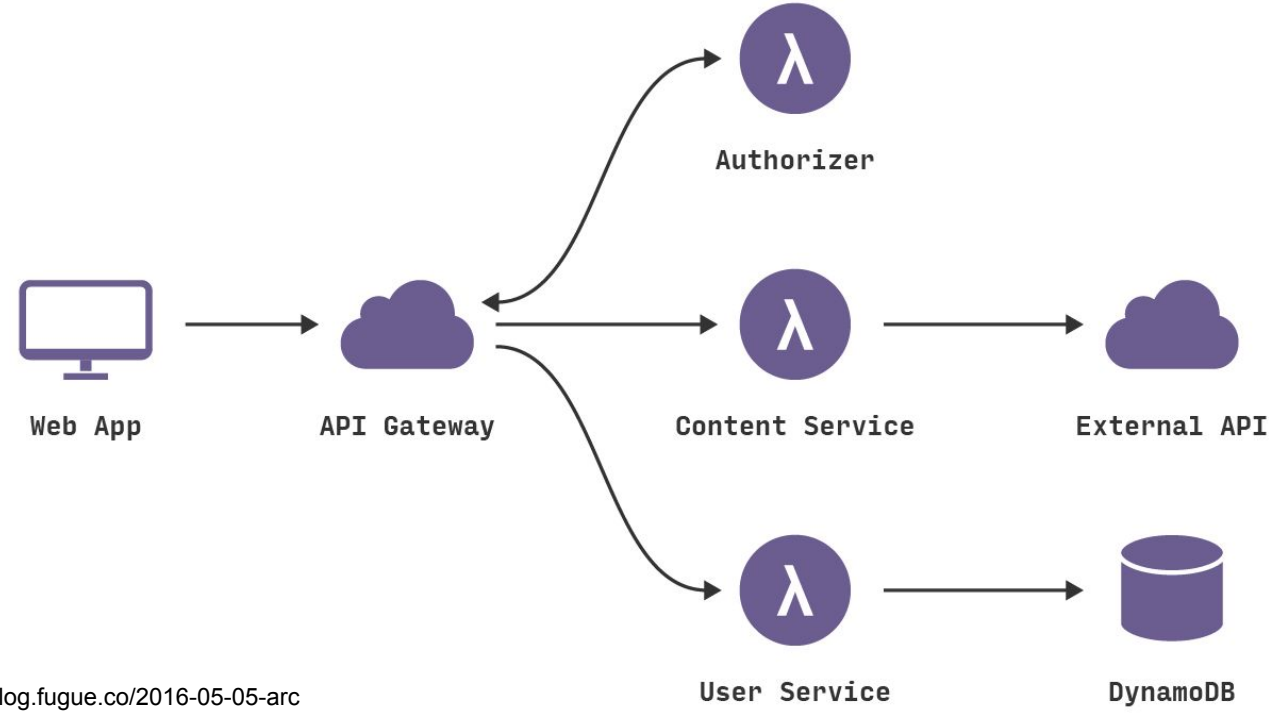

Source:
https://blog.fugue.co/2016-05-05-architecting-a-serverless-web-application-in-aws.html

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So why do this?

- Scalable right out of the gate
- Focus on functionality and not boilerplate
- Structure lends to TDD & BDD
- Structure naturally fits with microservices
- Abstracts away the idea (and overhead) of web server (lowers complexity)
- Cost is usually better
- Keeps your client and server separate
- Forces stateless code
- Not tied to a back end language
- Dev env is the same as production

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Use Cases (just some)

- Web APIs (RESTful and GraphQL)
- Event driven analytics
- File manipulation
- Data manipulation
- Cron Jobs and Automation
- Internet of Things

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Design Rant:
Mobile vs API vs Function

More buzzwords!

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How to do this?

- Hosting for
  - Functions (AWS, Azure, Google Cloud)
  - CDN, any static hosting (S3, Surge, Blob Storage)
  - Database, any cloud hosting provider
- Code management
  - Serverless framework (use to be called JAWS)
    - Easy deployments
    - Easy configuration
    - Cross vendor

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Best way to learn: Get your hands dirty!

Also, roll up your sleeves.

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Case Study

- Simple Web App (Be Like Ben!)
  - http://www.thirteenvirtues.com/
- Auth (Auth0), AWS Lambda, Node, React, Mongo
- Requirements
  - Simple CRUD
  - Daily Emails
- https://github.com/mdewey/serverless-demo

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Let’s check out some code

The proof is in the code

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Why did I learn?

- Authentication was hard, but came with great gains
- Server was the easy
- A good project structure will set you for success
- It’s still relatively new (came out in 2014)
- I would build a new site with this
- It felt good, I could see results fast
- Scripting (yarn/npm) is your friend

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So why not to this?

- Could have “cold starts” if not enough traffic
- No native libraries (sorry c++)
- Has to be stateless
- Developer environment overhead
- Complexity overhead
- Potential Vendor lock in
- Still early in hype cycle & best practices

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Wrap up

- Takes advantage of FaaS
- Minimal custom code (and that's a good thing)
- Easily fits into modern practices
- But still early in hype cycle, but I would bet on it not going away any

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Thanks for listening

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