

Cloud Functions on the Enterprise

Talk



David Gonzalez
Senior Engineer
nearForm



Use the link above to submit your questions



Agenda

Microservices in the real world

Cloud Functions + APIs: Welcome to the Atomic Era

Enterprise grade application

Live Demo

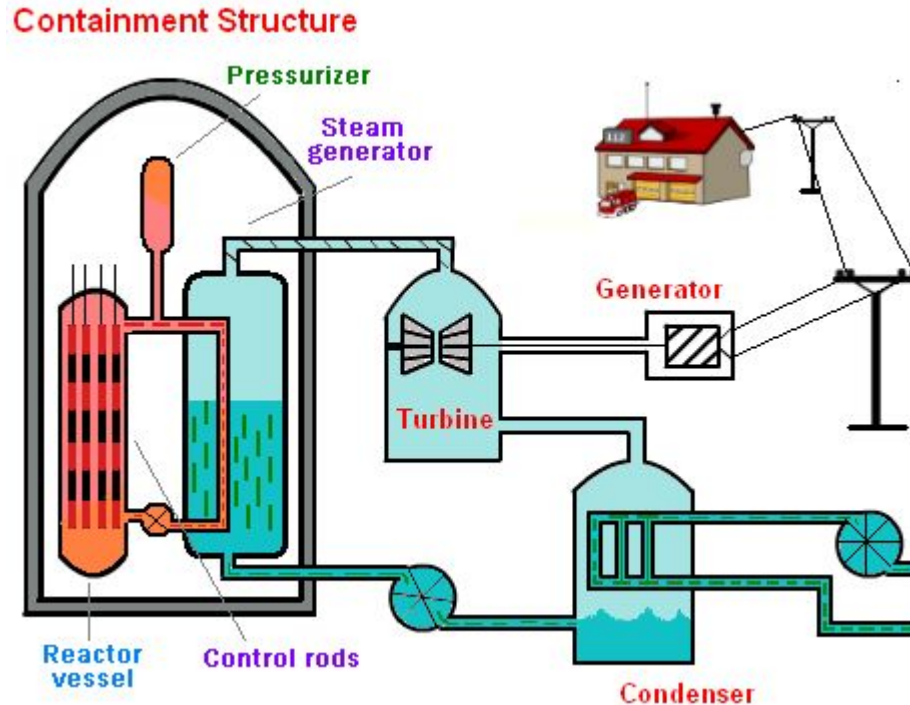
Q&A

Microservices in the real world

what is this?



It is the same as this: a nuclear reactor



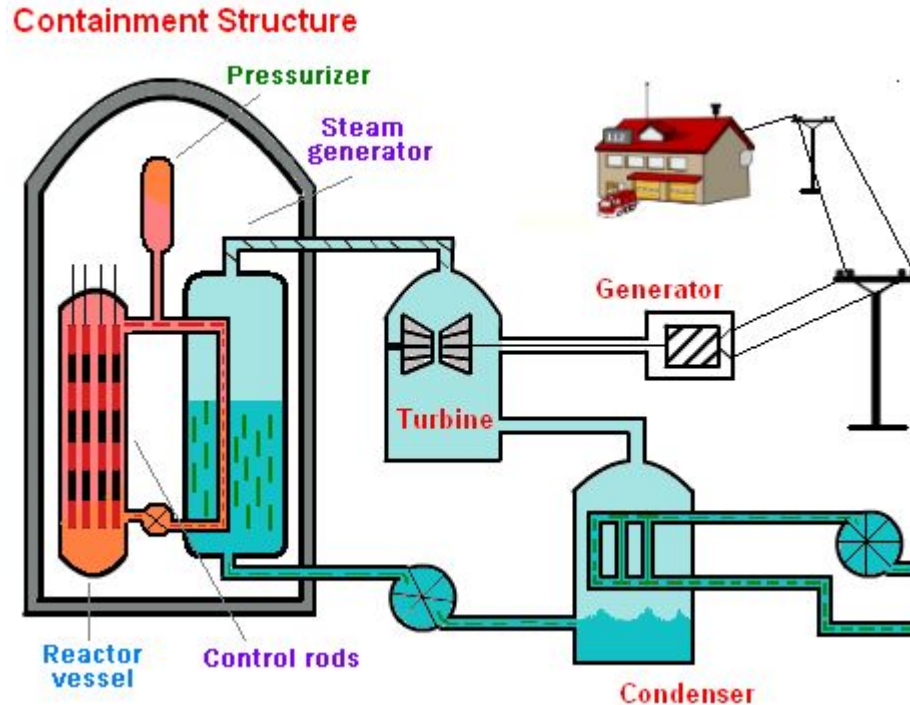
Microservices and nuclear reactors

- **Reduce the risk:** a failure in a component can be managed to gracefully shutdown parts of the system.
- **Standalone components:** condenser, pumps, turbine... as the boiler at home.
- **People who knows about turbines, work with turbines:** inception, construction, deployment and maintenance.
- **Automation:** Nuclear reactors will stop on their own the humans disappear from the earth.

Nuclear reactors and failure



Redundancy and contention



About your software

Can your software fail?

About your software

- Not only can fail, it is guaranteed to fail...

Why did you not plan for this?

About your software: **Failure**

- **Partial failure:** Your bank is not be able to give you the account balance but it is still able to process payments.
- **Total failure:** Your bank is not able to give you the account balance so therefore it is unable to process payments.

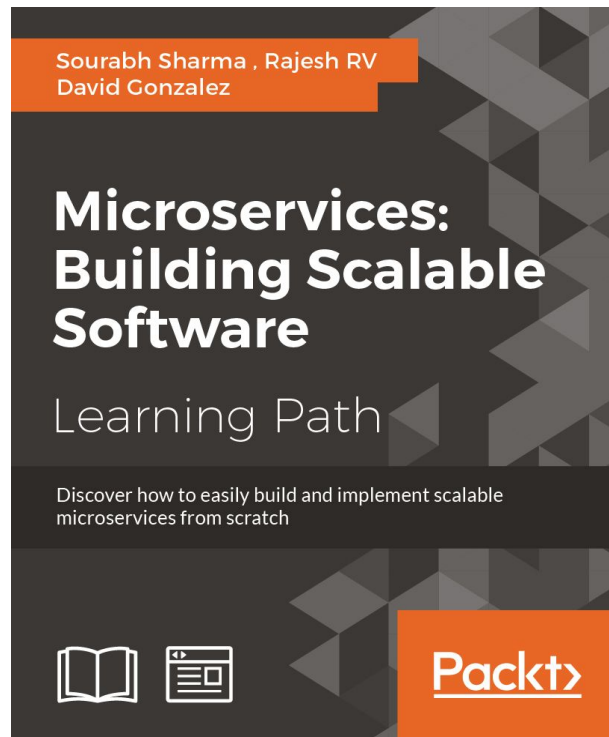
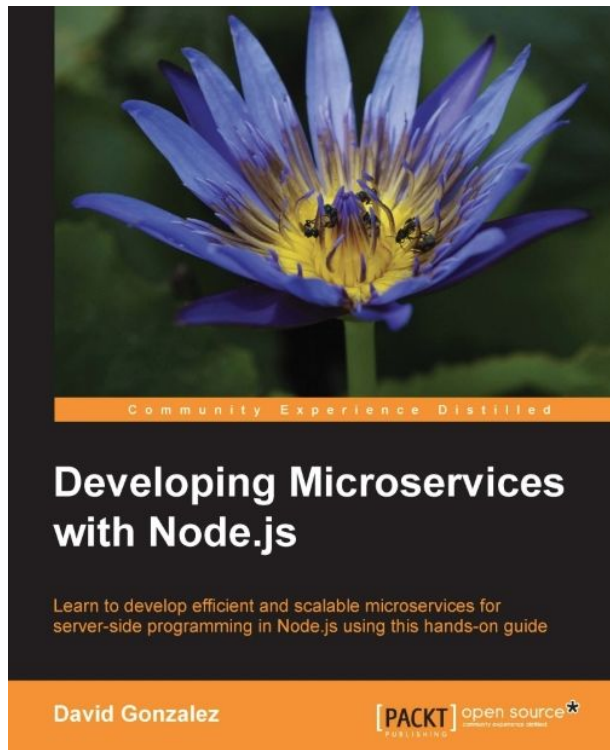
About your software: Deployments

- **Big deployment** every quarter at 4 am after working hard for a couple of weeks to make everything ready.
- **Black and white deployments:** Either succeeds or fails.
- **Big expectations.** Failure needs to be explained to management in the majority of the cases.

About microservices I

- **Small independent components** that work together to accomplish a business function.
- **Separated lifecycles**: deployments are separated small events
- **Microservices are not a silver bullet**: Operation overhead
- **Reduce the risk** of change at the cost of “**raising the hiring bar**”
- Automation is a **must**
- **Automation is a must**
- **AUTOMATION IS A MUST**

About microservices II



Cloud Functions & Enterprise: Welcome to the **Atomic Era**

Google Cloud Functions

- **Serverless** microservices: no operations. Just code.
- Fully functional Node.js programs... Only Node.js for now.
- **Event driven** execution: Google Cloud Storage buckets, Pub/Sub messages, HTTP...
- **Integrated with all the Google APIs**: Vision, OCR, Big Data APIs...

Example of Cloud Function

```
/**
 * HTTP Cloud Function.
 *
 * @param {Object} req Cloud Function request context.
 * @param {Object} res Cloud Function response context.
 */
exports.helloGET = function helloGET (req, res) {
  res.send('Hello World!');
};
```

Cloud Functions: Dos and Don'ts

- **Do not** base your system entirely in Cloud Functions. Maintenance can get very very tricky and performance might not be consistent as they are ephemeral
- **Do not** loosen the security in your Cloud Functions
- **Use them** for ETL actions: **Extract Transform and Load** your data
- **Use them** to **decouple** your app third party systems
- **Use them** to create your mobile backend (Firebase)
- **Use them** to apply **data processing APIs** to your data/systems...

Enterprise Grade Applications

Enterprise Grade Applications

- Cloud Functions can be the key for data ingestion into your systems
- They compliment (never replace) your systems extending its boundaries
- Google Cloud Platform offers a comprehensive set of AI APIs that allow you to interact with: Text, images, video and other “Real World” elements
- **The majority of the companies** could benefit from using **Cloud Functions** to “cut the corners” in their systems

Enterprise applications: OCR

- Optical Character Recognition

Cloud Function + Vision API (OCR)



Enterprise applications: Image tagging

- How do you search for images containing trees? Or houses?

Cloud Function + Vision API + Big Data



Live Demo

- If you are in financial services, you need to KYC (Know Your Customer)
- The majority of the time a copy of the passport is enough but some companies require a picture of the customer and a picture of the passport in order to compare them
- False positives: People uploads an unbelievable amount of “unexpected” photos

Live Demo

- <https://github.com/dgonzalez/person-muffin>



THANK YOU
