Training Part 2

Action, Passion, Integrity

AWS API

- RESTful
- Generally, AWS is API first
- Well supported in several languages
  - Today we will focus on Python = Boto
  - https://aws.amazon.com/sdk-for-python/
- Boto (and other libraries, handle things for you)
- And even if they don't:
  - Signing = https://github.com/boto/botocore/blob/develop/botocore/auth.py

API Credentials

- Protect at all costs!

1. Passing credentials as parameters in the `boto.client()` method
2. Passing credentials as parameters when creating a `Session` object
3. Environment variables
4. Shared credential file (`~/.aws/credentials`)
5. AWS config file (`~/.aws/config`)
6. Assume Role provider
7. Boto2 config file (`/etc/boto.cfg` and `~/.boto`)
8. Instance metadata service on an Amazon EC2 instance that has an IAM role configured.

Lambda (tm)

What is AWS Lambda?

- AWS's "serverless" compute
- Function-as-a-service
- You pay in increments of 200ms and provisioned compute power
- Several supported languages
  - Python
  - Node
  - Go, Java, C#
- Several execution triggers
  - Manual (Provide parameters, get response)
  - AWS Events (Different events in AWS can trigger a Lambda with the event as parameter, CRON)
  - API gateway (Make a web service!)

Shhh... Lambda is just containers

But containers done very well.

What's the big deal?

- Server no longer matters (that much)
- Massively parallel
- Usually pretty cheap
- The glue for event-based actions in AWS

- Let's talk about trust again ...

OSI Model			
Layer		**Protocol data unit (PDU)**	**Function**[3]
Host layers	7. Application	Data	High-level APIs, including resource sharing, remote file access
	6. Presentation		Translation of data between a networking service and an application; including character encoding, data compression and encryption/decryption
	5. Session		Managing communication sessions, i.e. continuous exchange of information in the form of multiple back-and-forth transmissions between two nodes
	4. Transport	Segment, Datagram	Reliable transmission of data segments between points on a network, including segmentation, acknowledgement and multiplexing
Media layers	3. Network	Packet	Structuring and managing a multi-node network, including addressing, routing and traffic control
	2. Data link	Frame	Reliable transmission of data frames between two nodes connected by a physical layer
	1. Physical	Symbol	Transmission and reception of raw bit streams over a physical medium

What to be aware of …

- Container reuse
- Networking
  - VPC placement / securitygroups
  - Consumes IP space (pre-provisioned)
- Remember, it's a container
  - Operating System
  - Environment
  - Local storage
- Libraries
  - Must compile binaries on the same version of Amazon Linux
  - Deployment package must be self-contained

Deployment

- IAM
- Packaging
  - An archived (ZIP) directory structure
  - This gets unzipped on the container and is the root of execution
- Upload your package
  - S3
  - Direct (size limitation)
- Versionable
- Logging
  - Cloudwatch Logs

Let's build some things

Thank you!