

LITTIL Infrastructuur

AWS



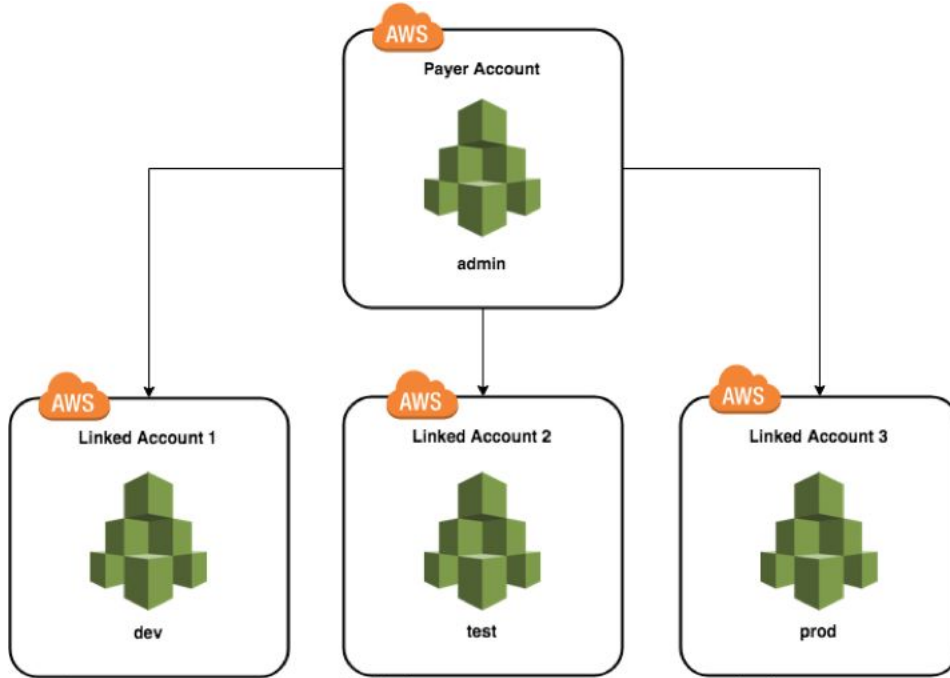
AWS Basics

Root account: Account with resources, credentials (password & access key)

IAM account: Resource within a root account, credentials and permissions



AWS Accounts - Consolidated billing



- Billing account (top account, creates organisation)
 - Staging account (created in or attached to organisation)
 - Production account (created in or attached to organisation)

<https://aws.amazon.com/blogs/awsmarketplace/centralizing-payments-aws-marketplace-with-consolidated-billing/>



AWS Services

Identity & Access Management (IAM)

AWS Certificate Manager (ACM)

Cloudfront

Simple Storage Service (S3)

Elastic Compute Cloud (EC2)

Virtual Private Cloud (VPC)

Secret Manager

Elastic Container Registry (ECR)

Elastic Container Service (ECS)

Relational Database Service (RDS)

Cloudformation & Cloud Development Kit (CDK)



AWS IAM (LITTIL CI & Back-end)

- Identities: User, Usergroup, Role
- Policies (with permissions, e.g. s3:PutObject)
- User
 - Authenticates with credentials (which can leak, so temporary credentials are advised)
- Roles
 - Can be assumed from a context (e.g. Github pipeline for a specific git repo)
 - Session expires (after e.g. 30 minutes)
 - Temporary credentials, not pre-shared

Security best practice: Log in to any root account to create IAM admin users, then store root account credentials safely, but never use them again except in emergency.

If IAM credentials get compromised root account can invalidate them. However, if root account credentials get compromised, the account is lost but we're still paying for anything running or launched later!



AWS Cloudfront (LITTL front-end)

Serves static content from edge locations. Ideal for SPA applications

Edge location cache filled from e.g. S3 bucket

https://aws.amazon.com/cloudfront/features/?whats-new-cloudfront.sort-by=item.additionalFields.postDateTime&whats-new-cloudfront.sort-order=desc#Global_Edge_Network



AWS S3 (LITTIL front-end)

Object (file) storage

File-system-like storage

Used in LITTIL for storing front-end app as a source for Cloudfront distribution



AWS ECS (LITTIL Back-end)

Used in LITTIL for running both the back-end service container, and a container that is used as stepping stone for developer database access.



AWS RDS (LITTIL Back-end)

Hosts a managed LITTIL MariaDB



AWS Cloudformation (LITTL Infra & CI)

- YAML Templates that define **resources**
 - e.g. IAM user, ECS Cluster, RDS database
- Deployable units are called “**stacks**”
 - Contain said resources
- Deployed to a specific region
 - `aws cf deploy --template-file example-application.yaml --stack-name ExampleStack`
 - Some resources are global within root account or global across all (everyones') root accounts



AWS CDK (LITTIL Infra & CI)

- Write Cloudformation stacks in TypeScript (among other languages)
- Compile Typescript code to Cloudformation YAML templates
- Deploy templates
 - `cdk deploy ExampleStack`

