Oops! I've just spent the entire AWS budget

(or how to set up a secure and low-cost environment for R Shiny Apps).

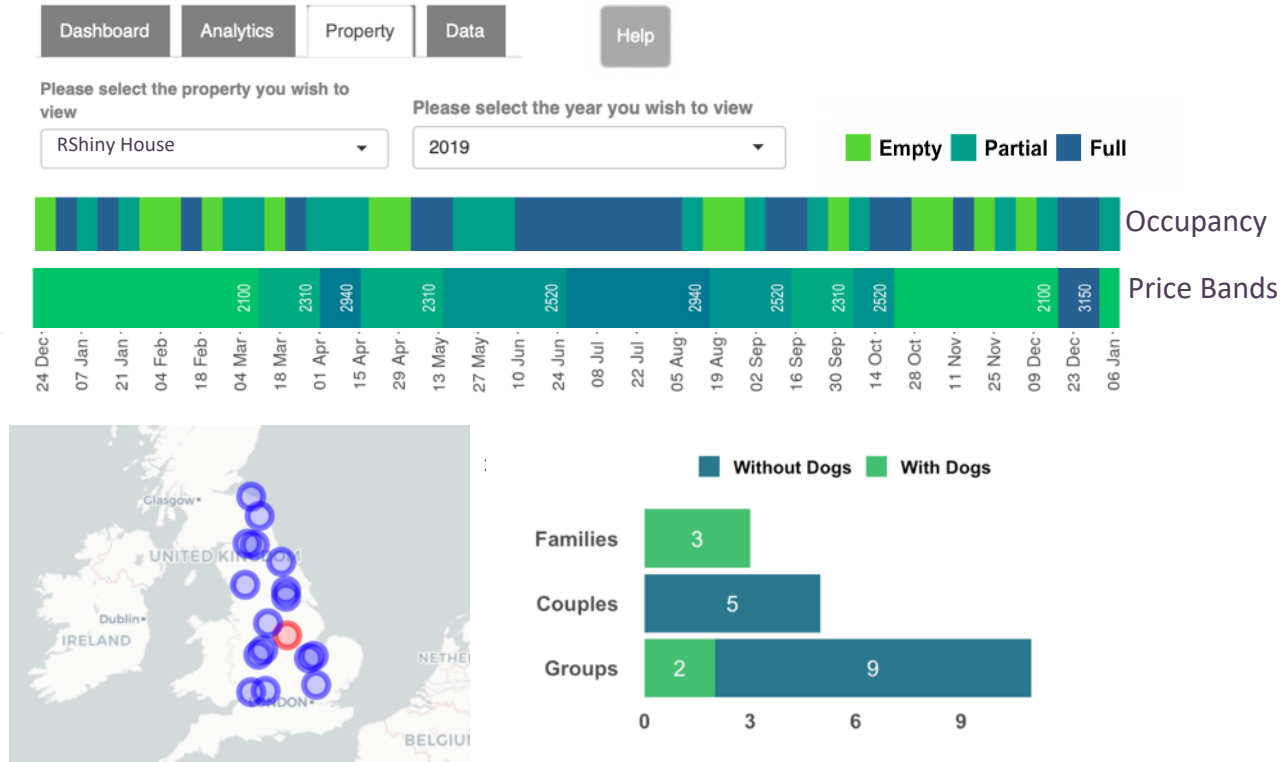Alex McCall

Effini

Delivering data at what cost?

- Cloud Computing Cost

- Cost of a security breach

- Secure cloud architectures

- Cost vs. Security
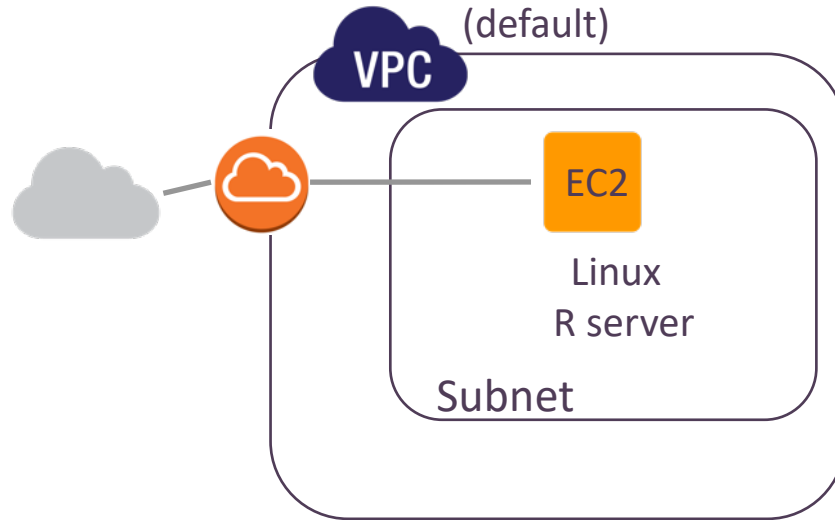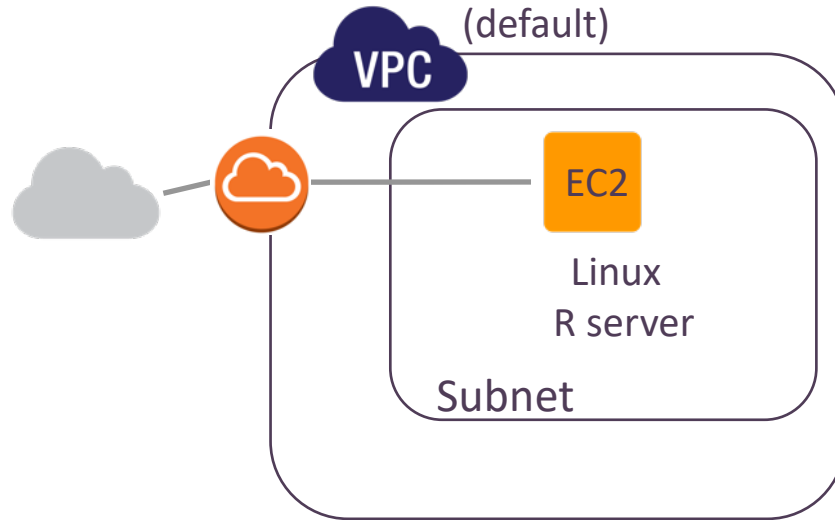
Effini

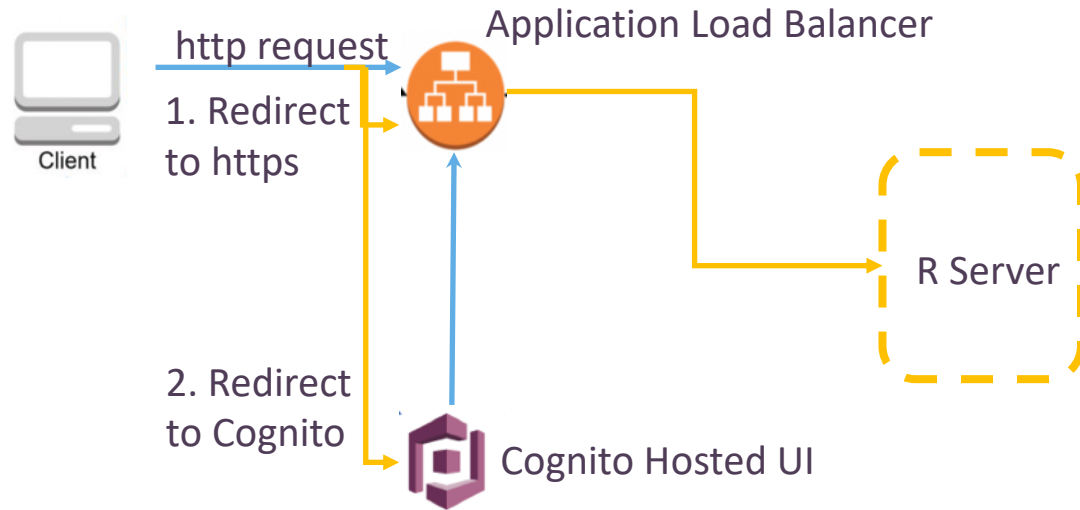# Application - R Shiny

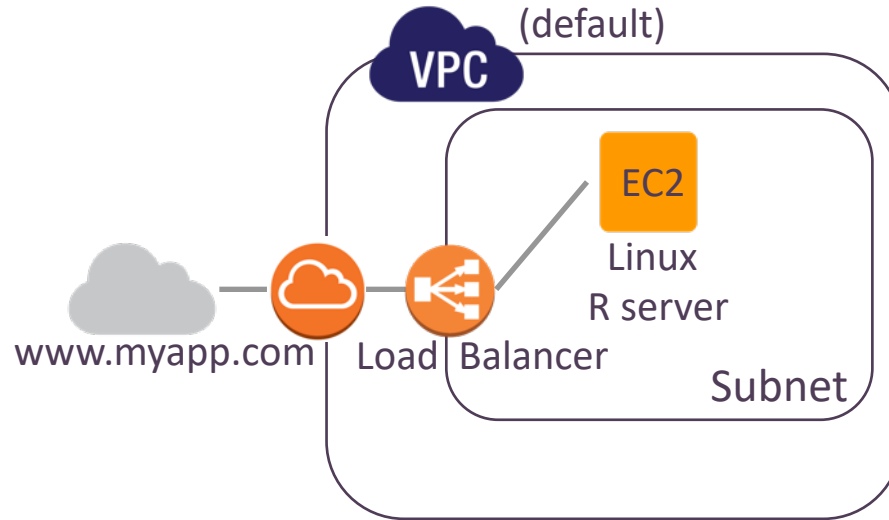# Cloud options...

shinyapps.io by RStudio

First Attempt....

(default)

VPC

EC2

Linux
R server

Subnet
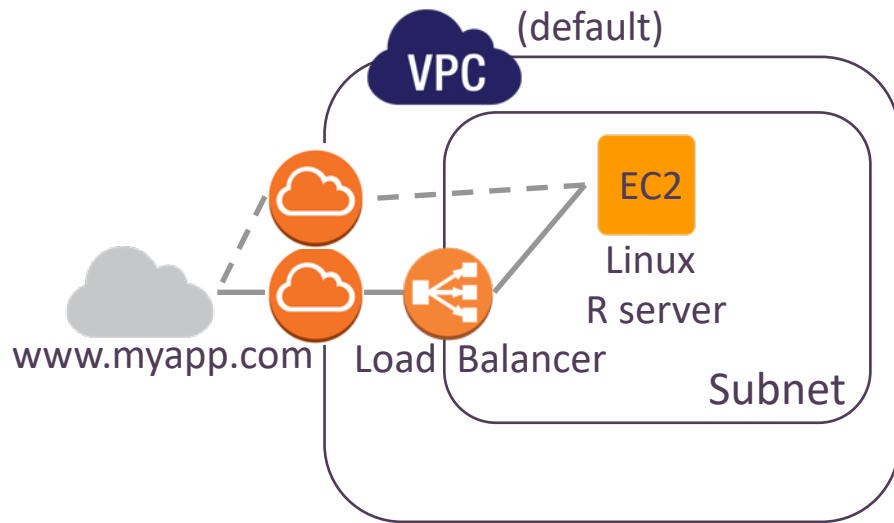
Effini

First Attempt....

Load Balancer – how it works..

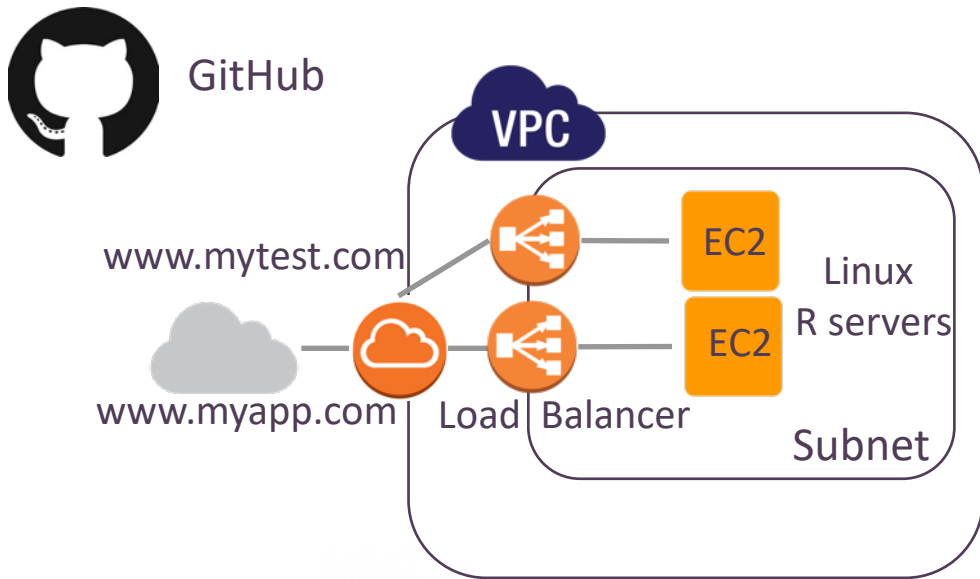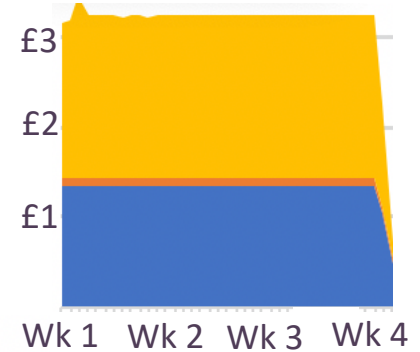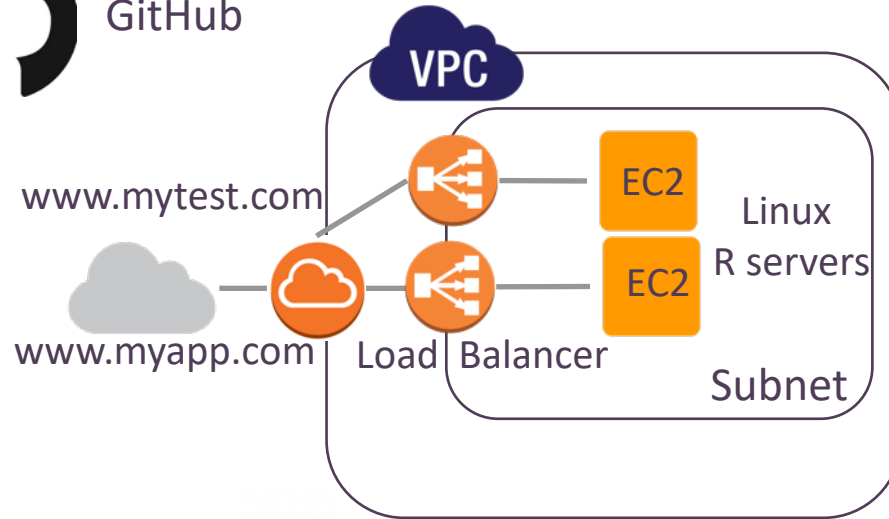# Encryption and authentication

but…

Problem solved?

GitHub

VPC

EC2

Linux
R server

www.myapp.com

Load Balancer

Subnet

Effini
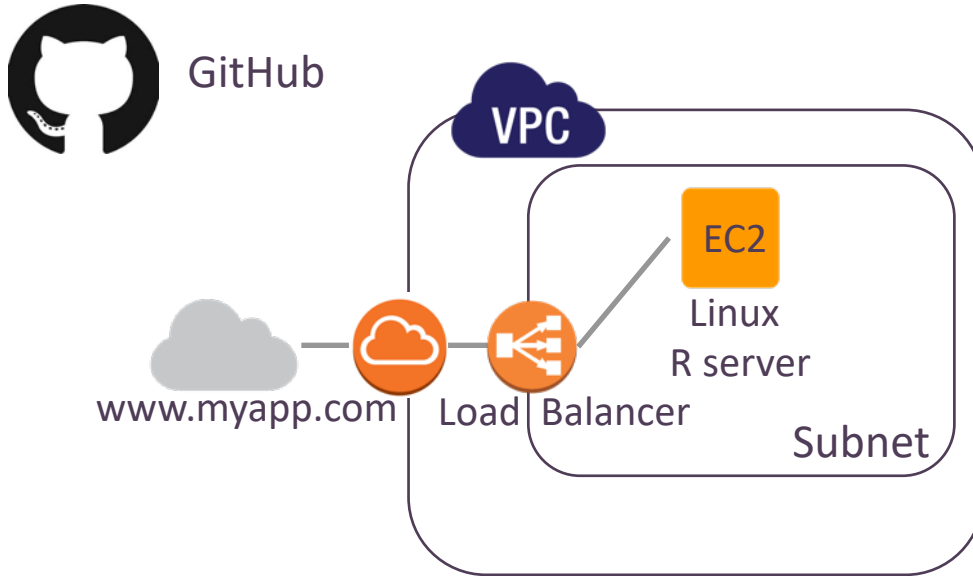
Add a test environment

Oops……what about the cost?

Switch it off and on again….
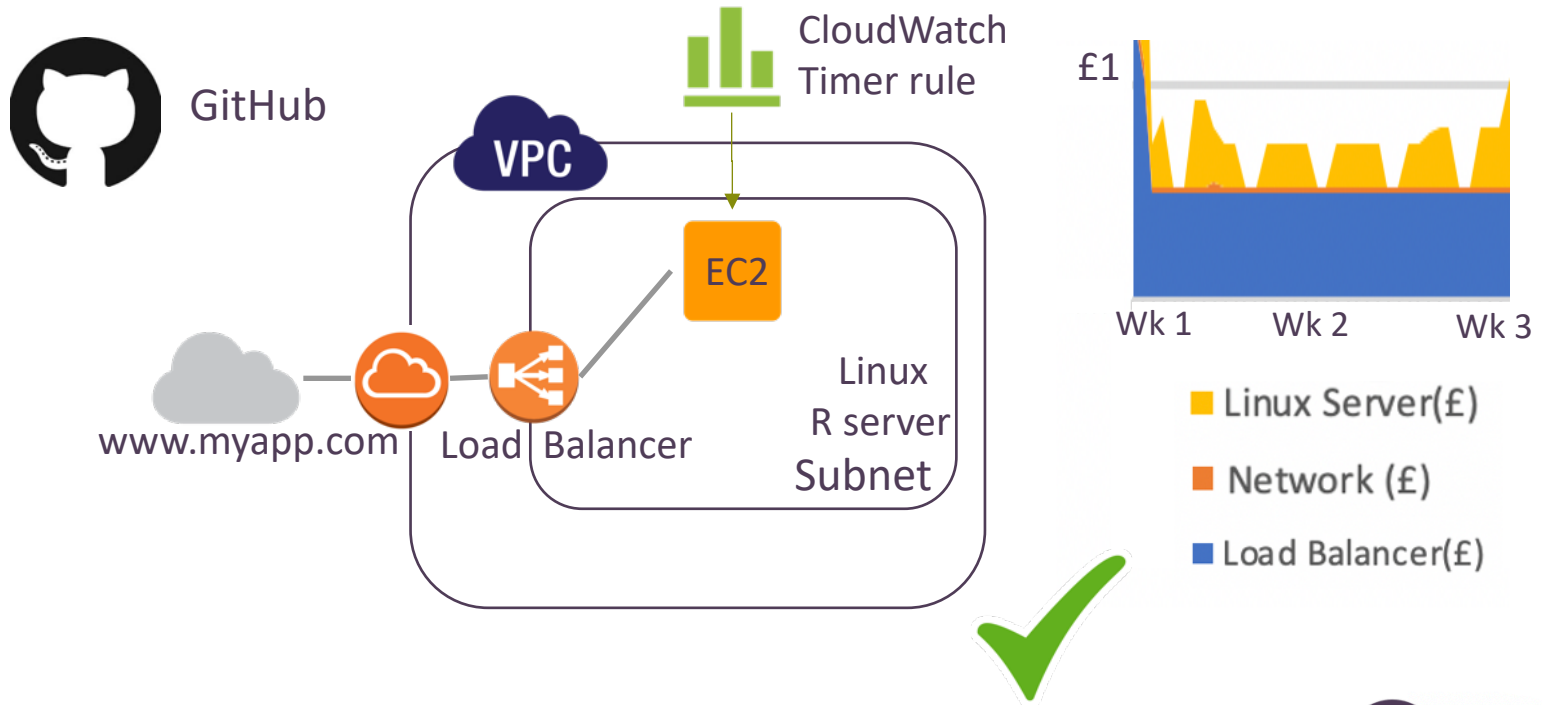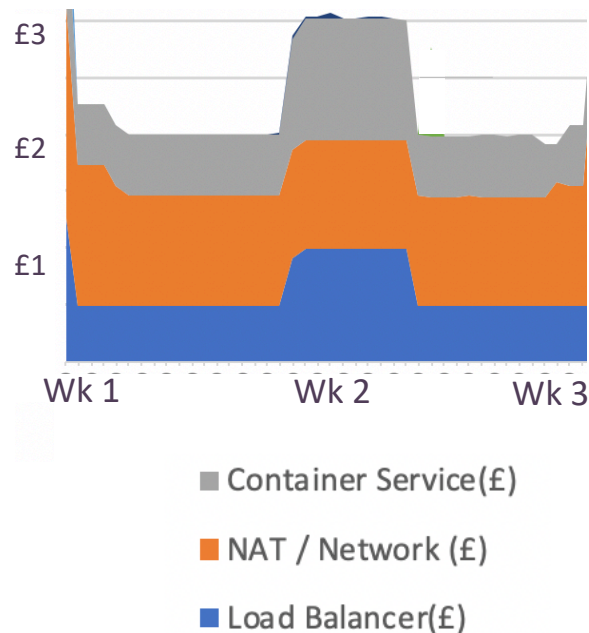
Introducing containers
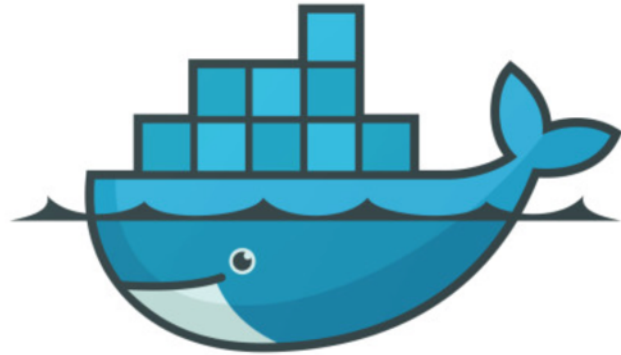
- "Lightweight, standalone, executable package"

- Different (cheaper!) cost model

- Forces separation of data from application

- Encrypted data now held in AWS S3 storage

Effini

Second attempt, but those costs…

VPC

www.myapp.com

NAT Gateway

Load Balancer

Public Subnet

Fargate

Container Service

Private Subnet

Private Link

amazon S3

Docker

Data

Container Service(£)

NAT / Network (£)

Load Balancer(£)

£3

£2

£1

Wk 1   Wk 2   Wk 3

Effini
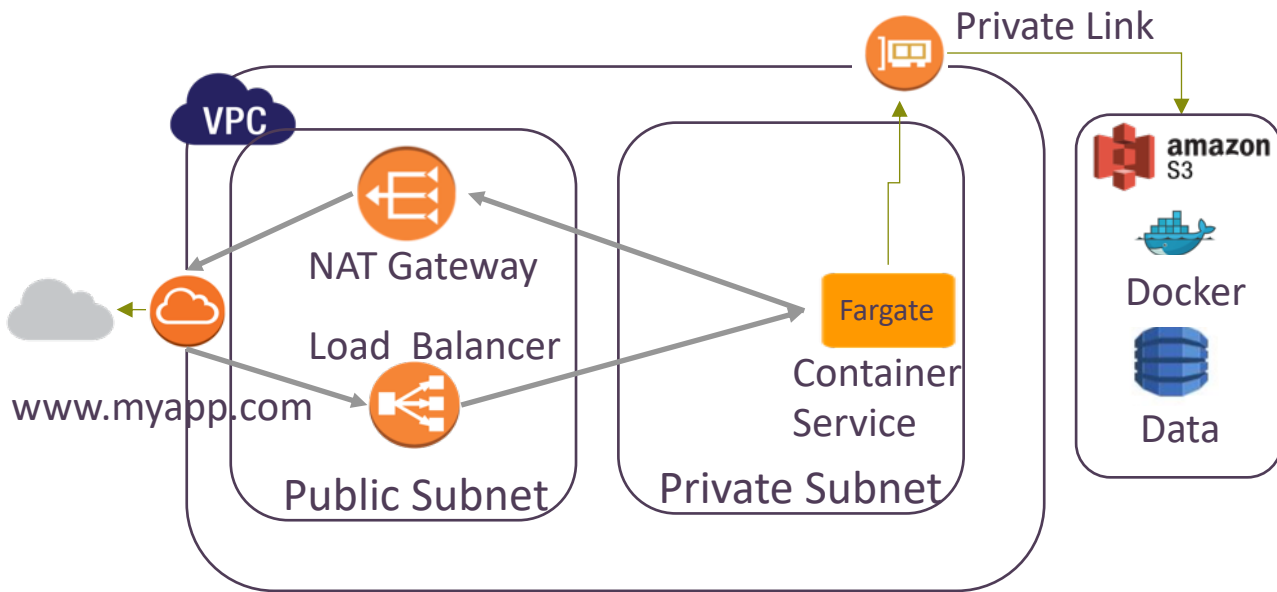
Cloudwatch to the rescue….again

CloudWatch Timer rule

Private Link

VPC

NAT Gateway

Load Balancer

www.myapp.com

Public Subnet

Fargate

Container Service

Private Subnet

amazon S3

Docker

Data

£3

£2

£1

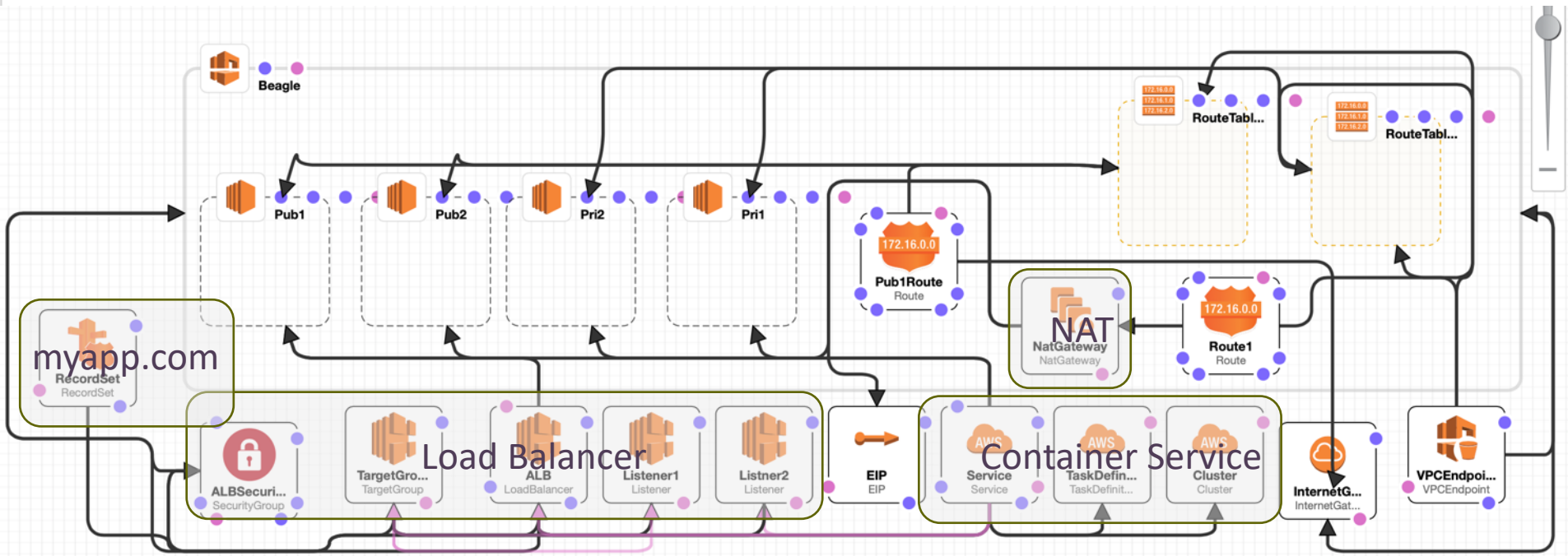Wk 1   Wk 2   Wk 3

■ Container Service(£)

■ NAT / Network (£)
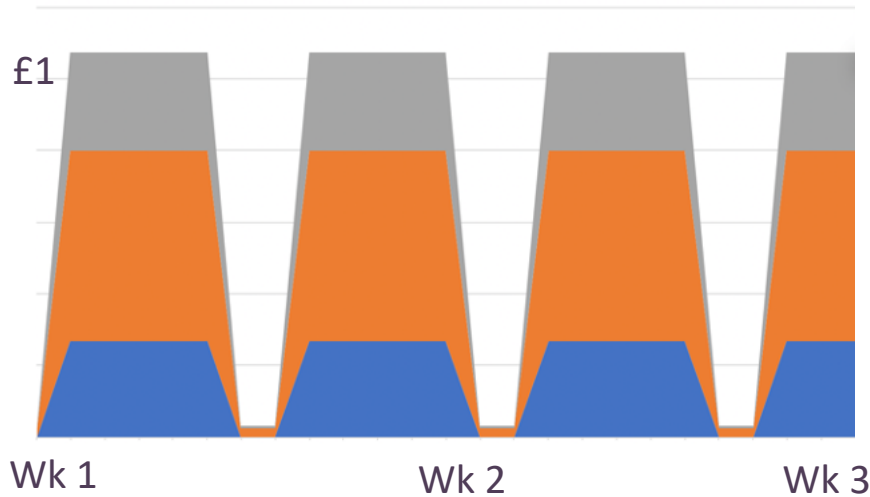
■ Load Balancer(£)

Effini
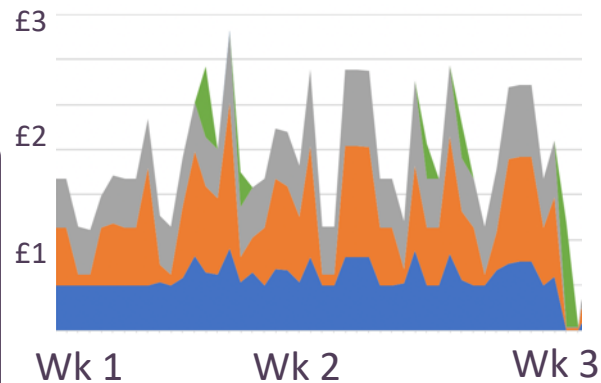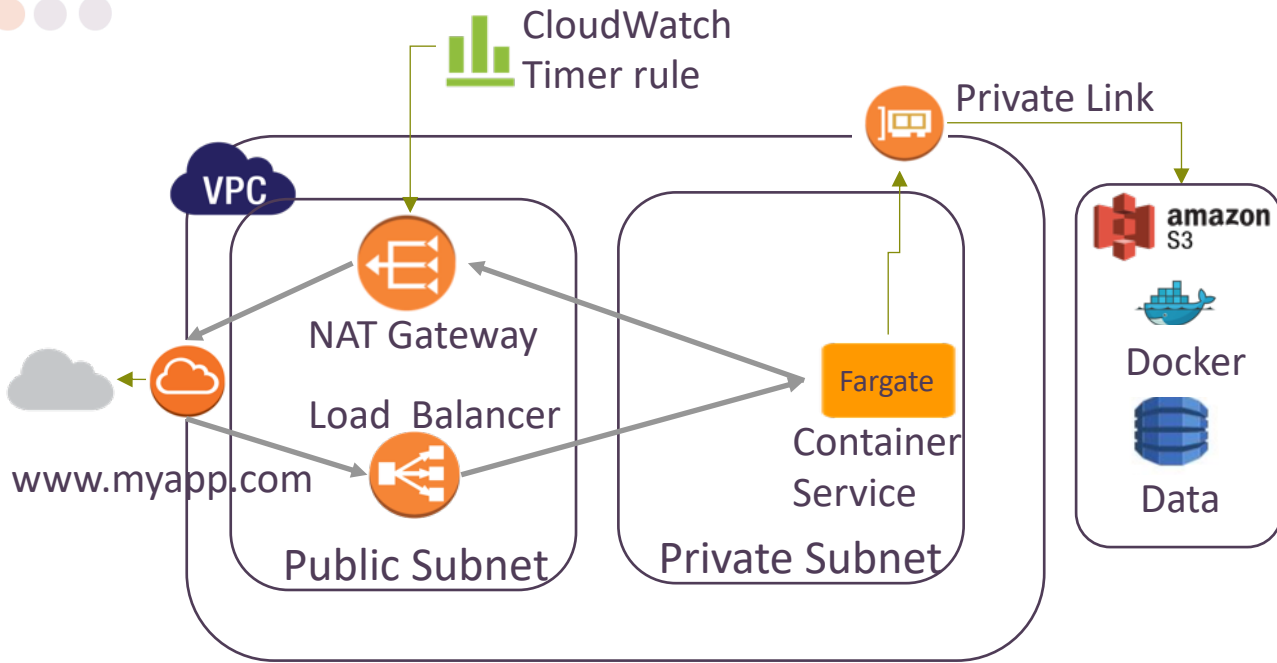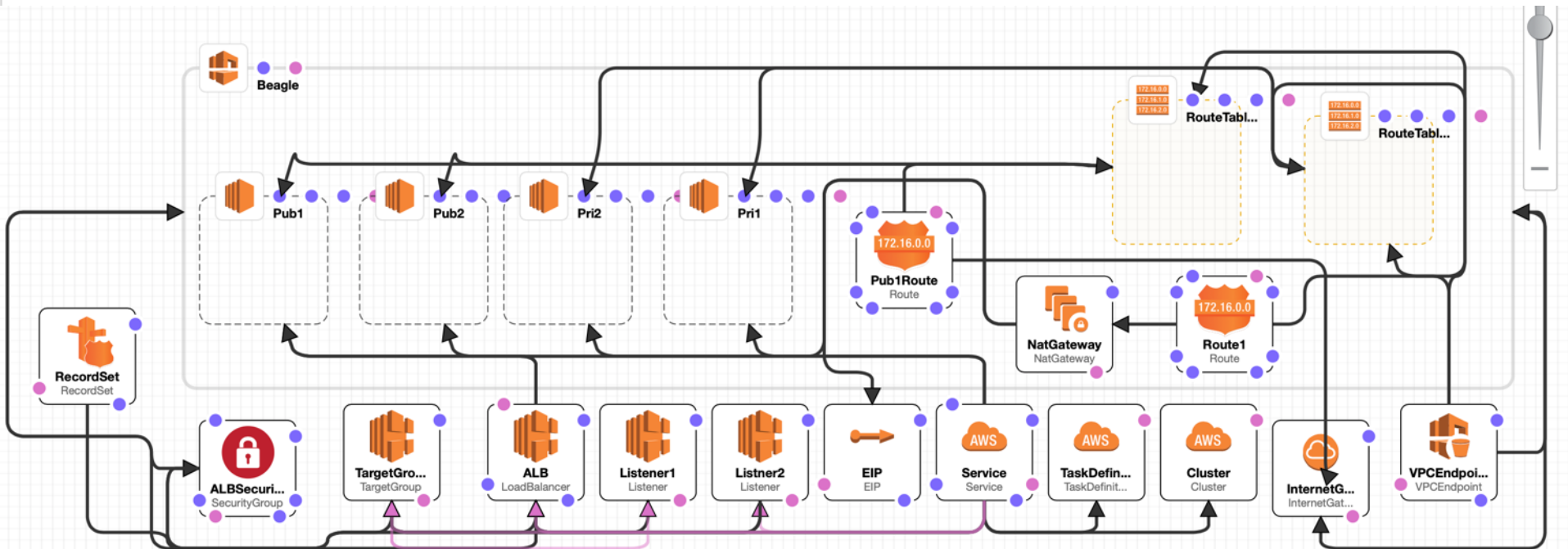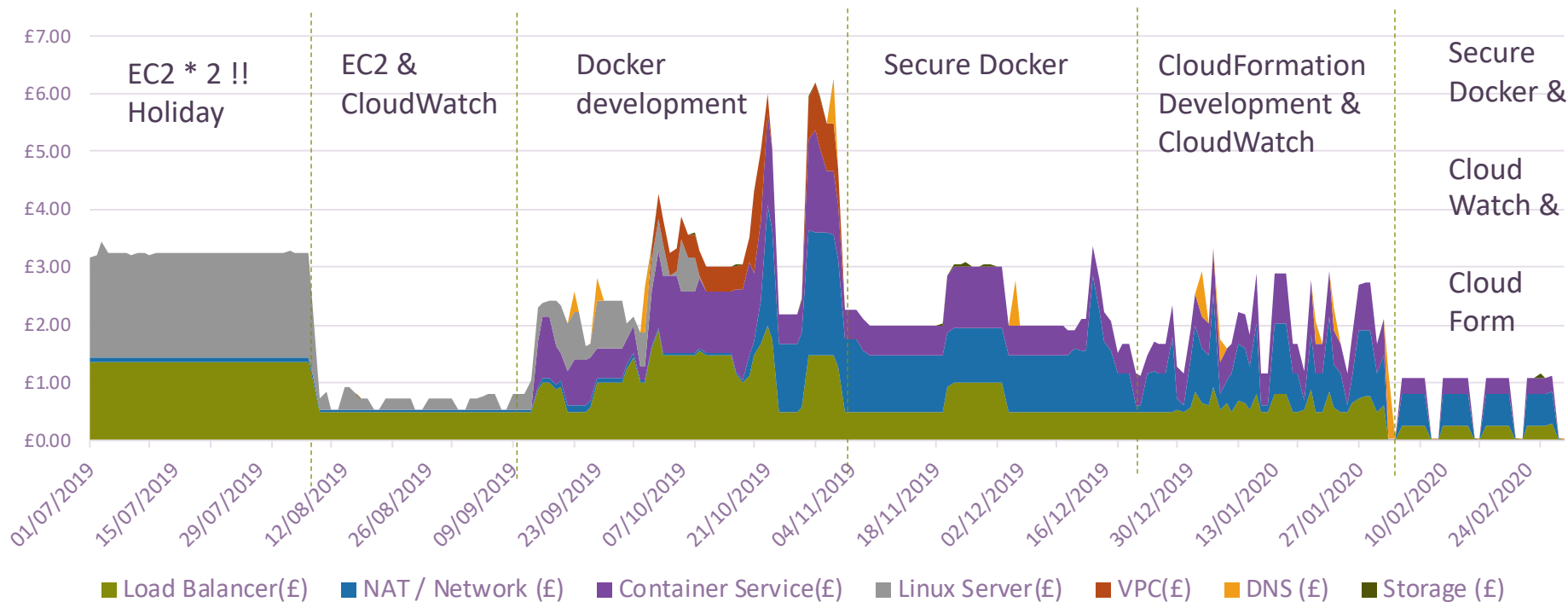
CloudFormation

CloudFormation

At last……

- Predictable low costs £30 per month

- Secure & Resilient Environment

- Infrastructure as code is essential
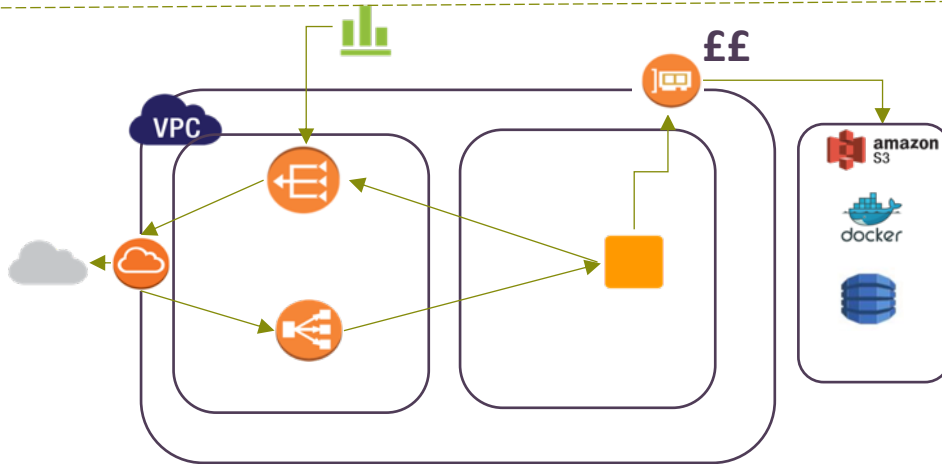
- System built only when needed

■ Container Service(£)
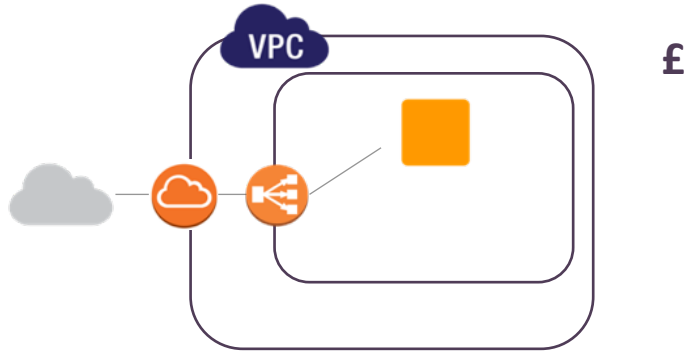
■ NAT / Network (£)

■ Load Balancer(£)
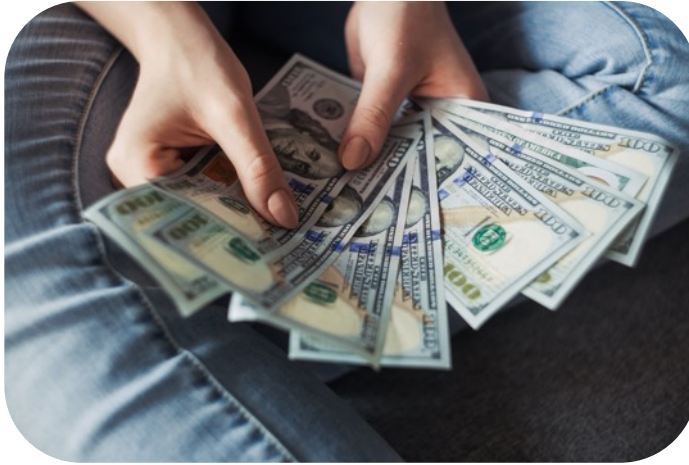
Effini

Costs

Cost vs security

Other Security Considerations

- Security Groups

- Access Control

- Credential management

- Virtual Private Network

- IP Whitelist

Effini

Delivering data at what cost?

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Effini

Questions....

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 alex@effini.com

 linkedin.com/in/alex-mccall/

Effini

Useful links

- https://hub.docker.com/r/rocker/shiny/

- https://www.bjoern-bos.de/post/learn-how-to-dockerize-a-shinyapp-in-7-steps/

- https://docker-curriculum.com/#setting-up-your-computer.

- https://business-science.github.io/shiny-production-with-aws-book/

- https://aws.amazon.com/blogs/compute/task-networking-in-aws-fargate/

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