Cloud Challenges

by Joost Saanen

Cloud Legends
By Kabisa

Who am I ?

Joost Saanen
AWS Solution Architect

Kabisa

Cloud Legends
By Kabisa

Kabisa

Cloud Legends

By Kabisa

We are Cloud Legends

Hightech.
Fintech
E-Commerce.

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By Kabisa

“Cloud Legends finds **creativity** and **flexibility** extremely important. We believe in **high available**, **scalable**, **reliable** and **secure** cloud solutions. We are only satisfied when our **customers** are **satisfied** too.”

Cloud Practices

How to build quality Cloud Solutions?

1

- High Availability
- Infrastructure as Code
- Scalable Infrastructures

1 Create High Available Infrastructures

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High Availability

Downtime of Availability

Availability	9s	Downtime
90%	one	36,5 days/year
99%	two	3,65 days/year
99,9%	three	8,76 hours/year
99,99%	four	52 minutes/year
99,999%	five	5 minutes/year
99,9999%	six	31 seconds/year

High Availability

Downtime of Availability

1

- **Planned maintenance**
  database updates
- **Unplanned maintenance**
  Deploy bug fixes, fix broken deployments, network issues, etc.

Error Budget: *100% - 99,9% = 0,01% = 45 minutes/month*

High Availability

Important aspects when it comes to HA

1

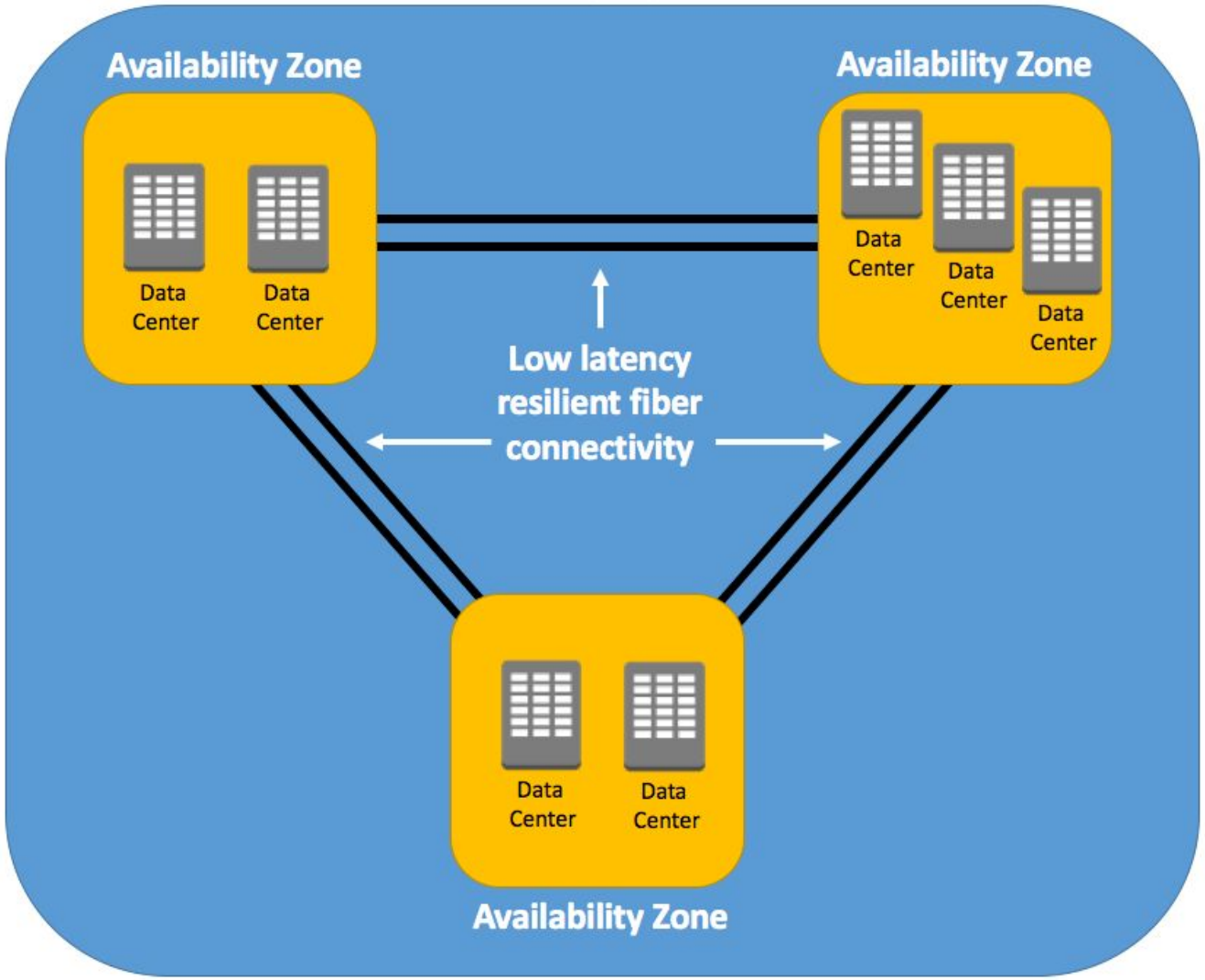
- Architecture
- Testing
- Deployments
- Organization

High Availability

1


Regions
Coming Soon

Regions / Availability Zones



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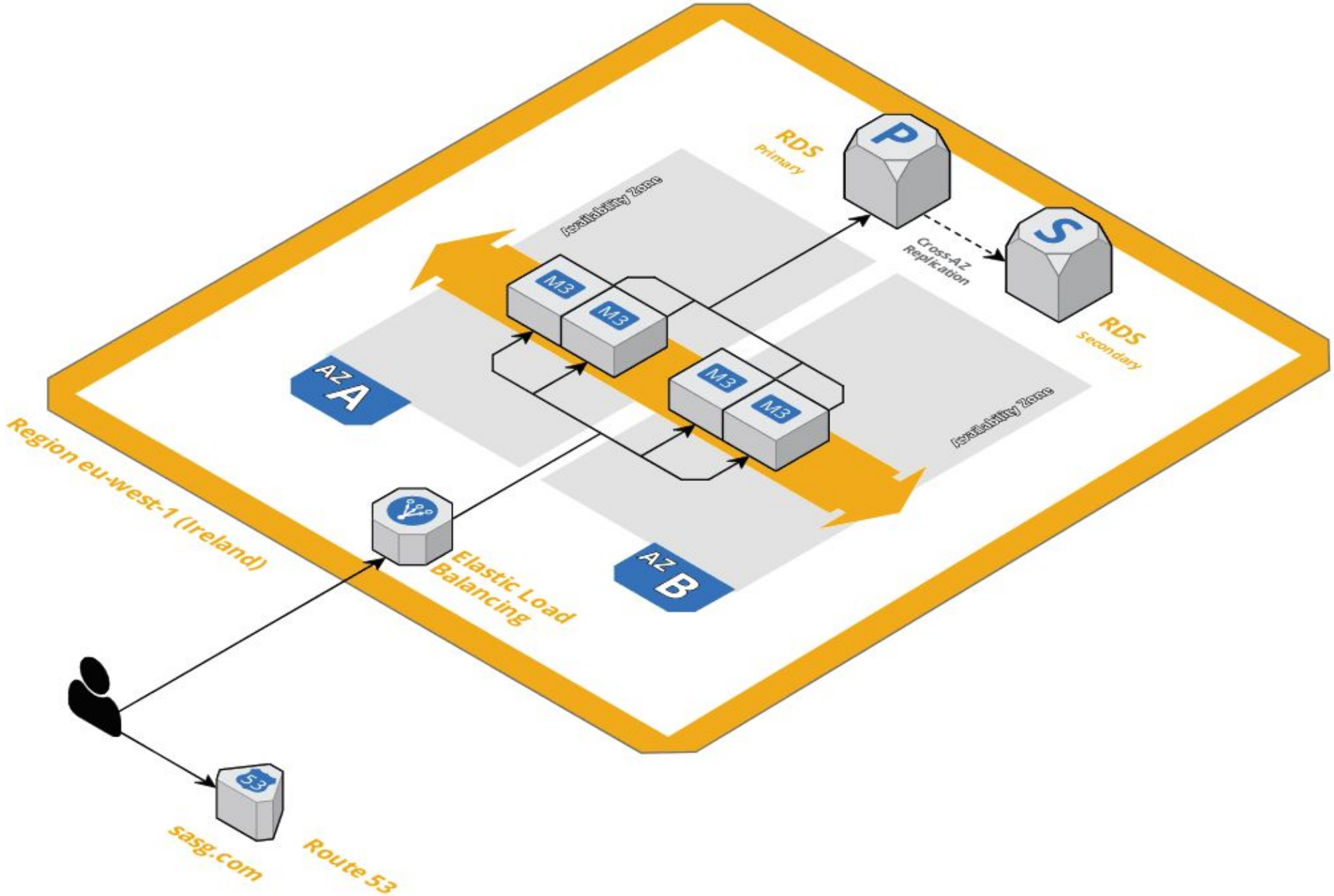
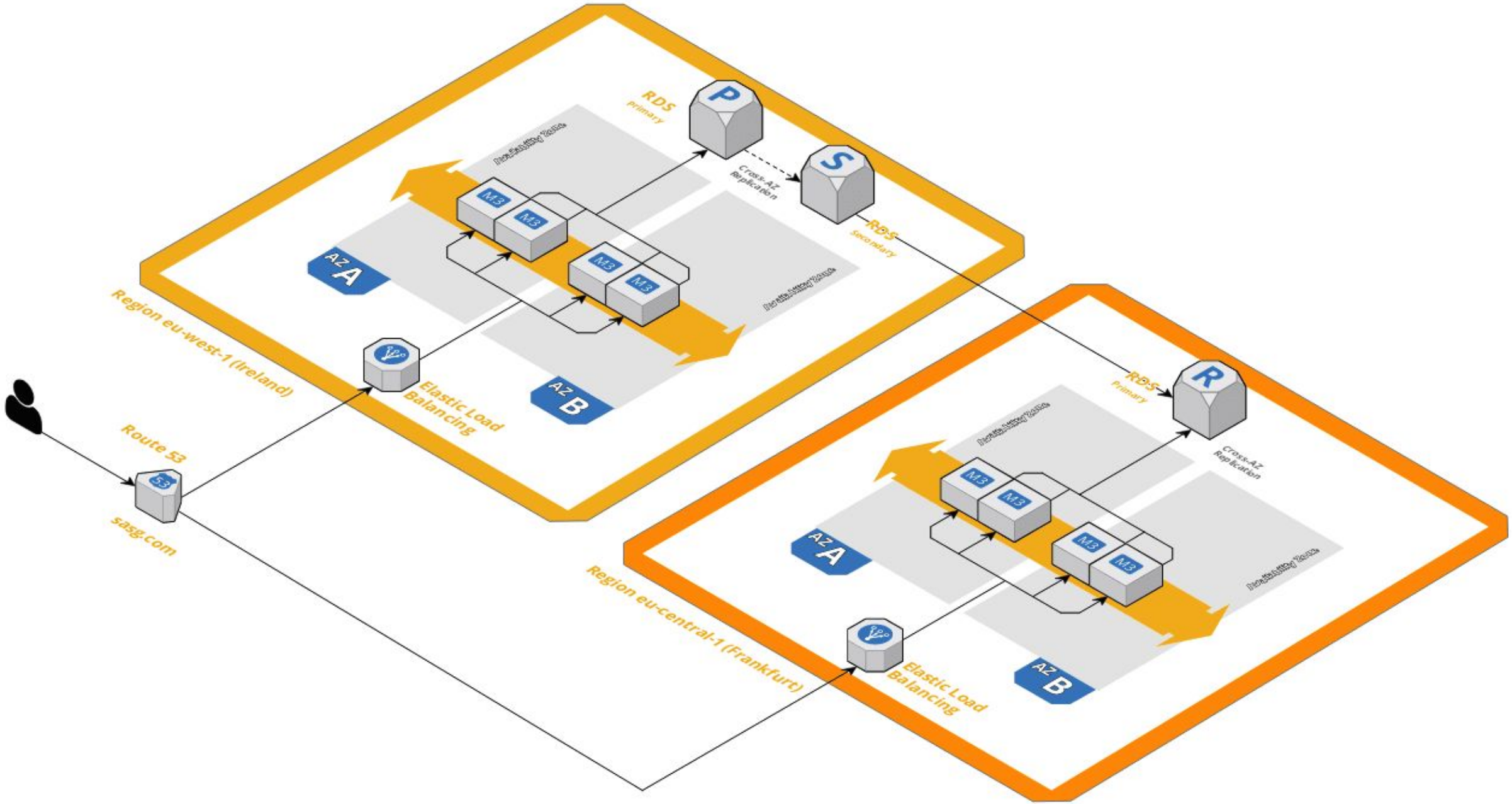

RDS
Primary
P
S
Cross-AZ
Replication
RDS
Secondary
Availability Zone
Availability Zone
M3
M3
M3
M3
AZ A
AZ B
Region eu-west-1 (Ireland)
Elastic Load
Balancing
53
sasg.com
Route 53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2 Always use “Infrastructure as Code”

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Infrastructure as Code

DevOps tasks before automation

2

- **Setup server**
  Install OS
  Configure networking
  Install packages
  Install database(s)
  etc.

  (all by hand!)

Infrastructure as Code

DevOps tasks before automation

2

Setup

- ❌ High human resources cost
- ❌ More effort and time
- ❌ More human errors possible

Infrastructure as Code

DevOps tasks before automation

2

Maintenance

- ❌ Update versions
- ❌ Deploy new release
- ❌ Rollback release

Infrastructure as Code

DevOps tasks before automation

2

Multiple environments

Infrastructure as Code

DevOps tasks after automation

2

“Automate the complete process with Infrastructure as Code (IaC)”

Infrastructure as Code

What is Infrastructure as Code?

2

- a way to automate all tasks end to end
- IaC tools/programs, which carry out these tasks
- IaC is a concept

HashiCorp
Terraform

puppet

Infrastructure as Code

3 main tasks categories

2

- **Infrastructure provisioning**
  - Network / Subnets / Routetables
  - Load Balancers
  - Servers
  - Database
  - etc.

Infrastructure as Code

3 main tasks categories

2

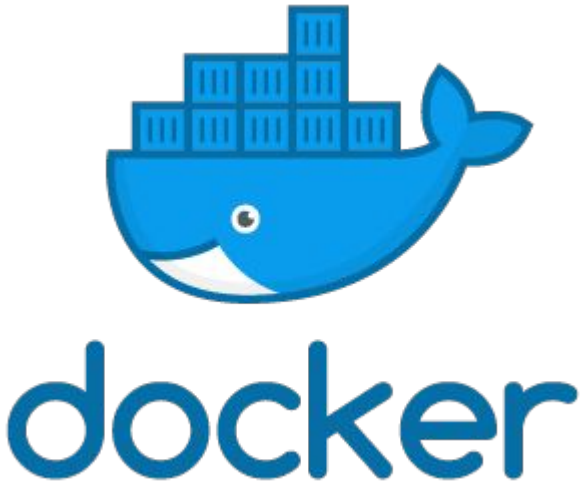
- **configuration of provisioned infrastructure**
    - Installing apps on servers
    - managing those apps
    - prepare infrastructure/servers to deloy your app

Infrastructure as Code

3 main tasks categories

2

- **Deployment of application**



Infrastructure as Code

Declaritive vs Procedural

2

Declaritive -> declare and result

- I want 2 servers

Infrastructure as Code

Declaritive vs Procedural

2

Procedural -> Step by Step instruction

- create a server
- add a server
- make this change

Infrastructure as Code

mutable vs immutable

2

Mutable > changing

- you run a server with Java 8
- There is a new Java version 9
- You update Java to version 9 on server

Infrastructure as Code

mutable vs immutable

2

Immutable:

- Replace server with new Java version freshly installed

3 Create Scalable Infrastructures

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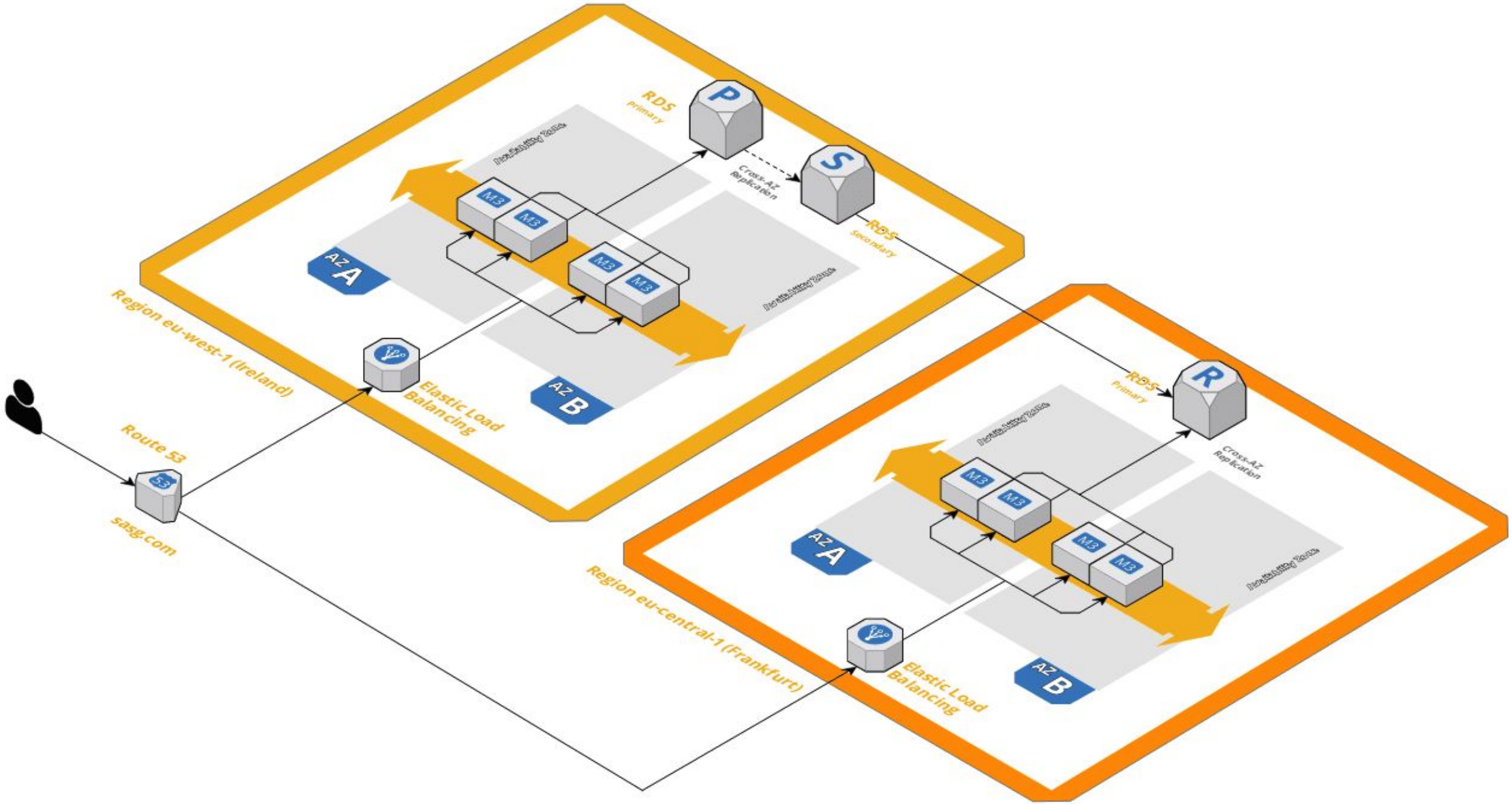
Scalable Infrastructure

What is scalability?

3

Scalability refers to the idea of a system in which every application or piece of infrastructure can be expanded to handle increased load.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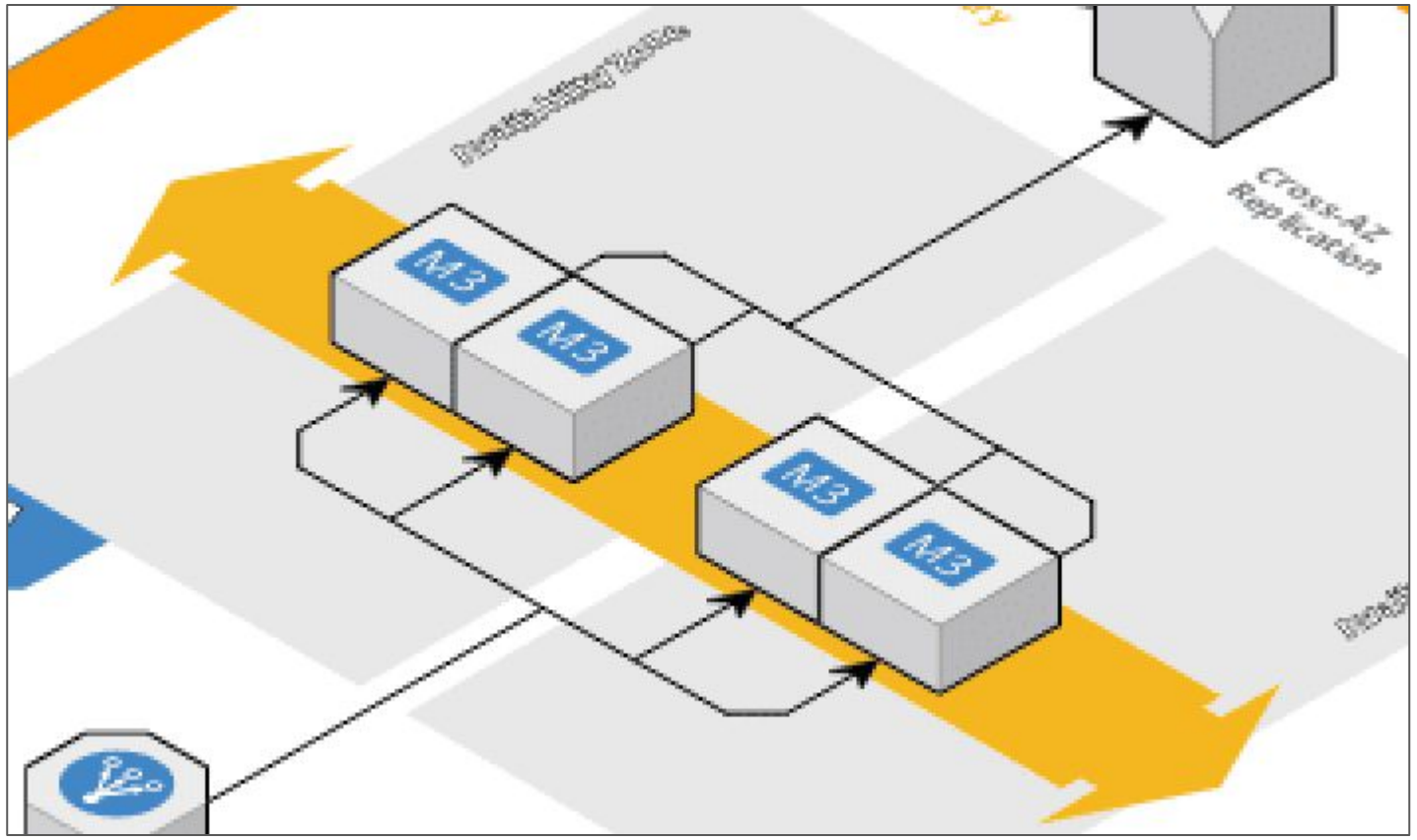
Scalable Infrastructure

Scale out, in, up and down?



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Scalable Infrastructure

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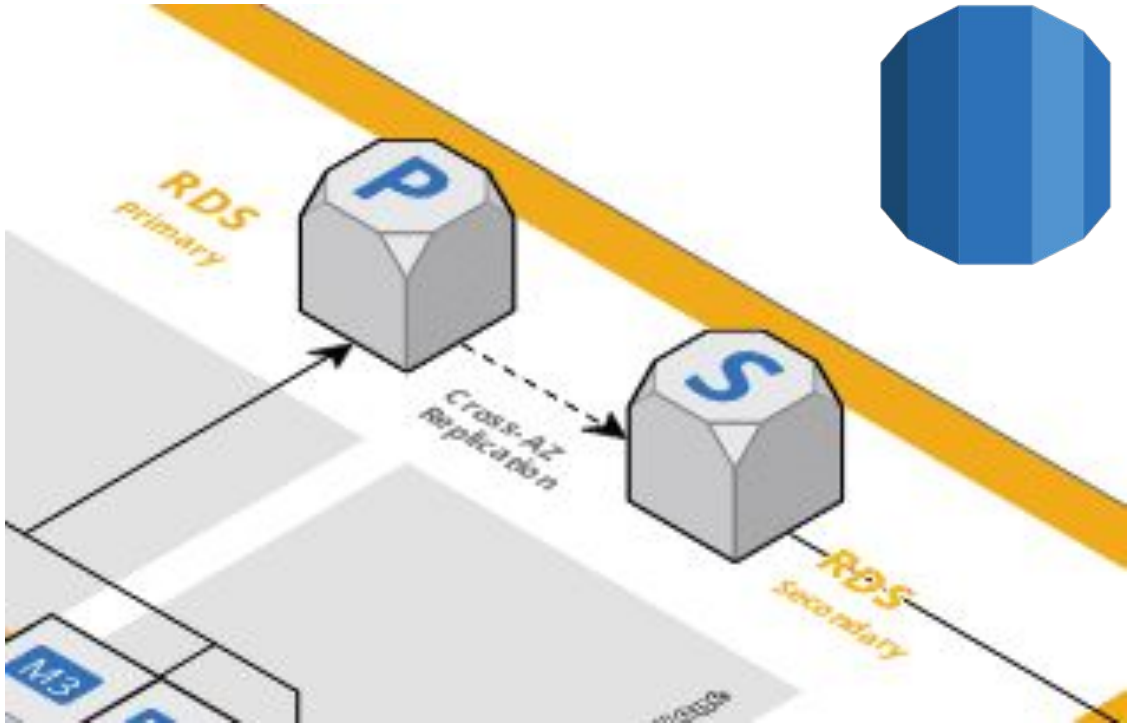
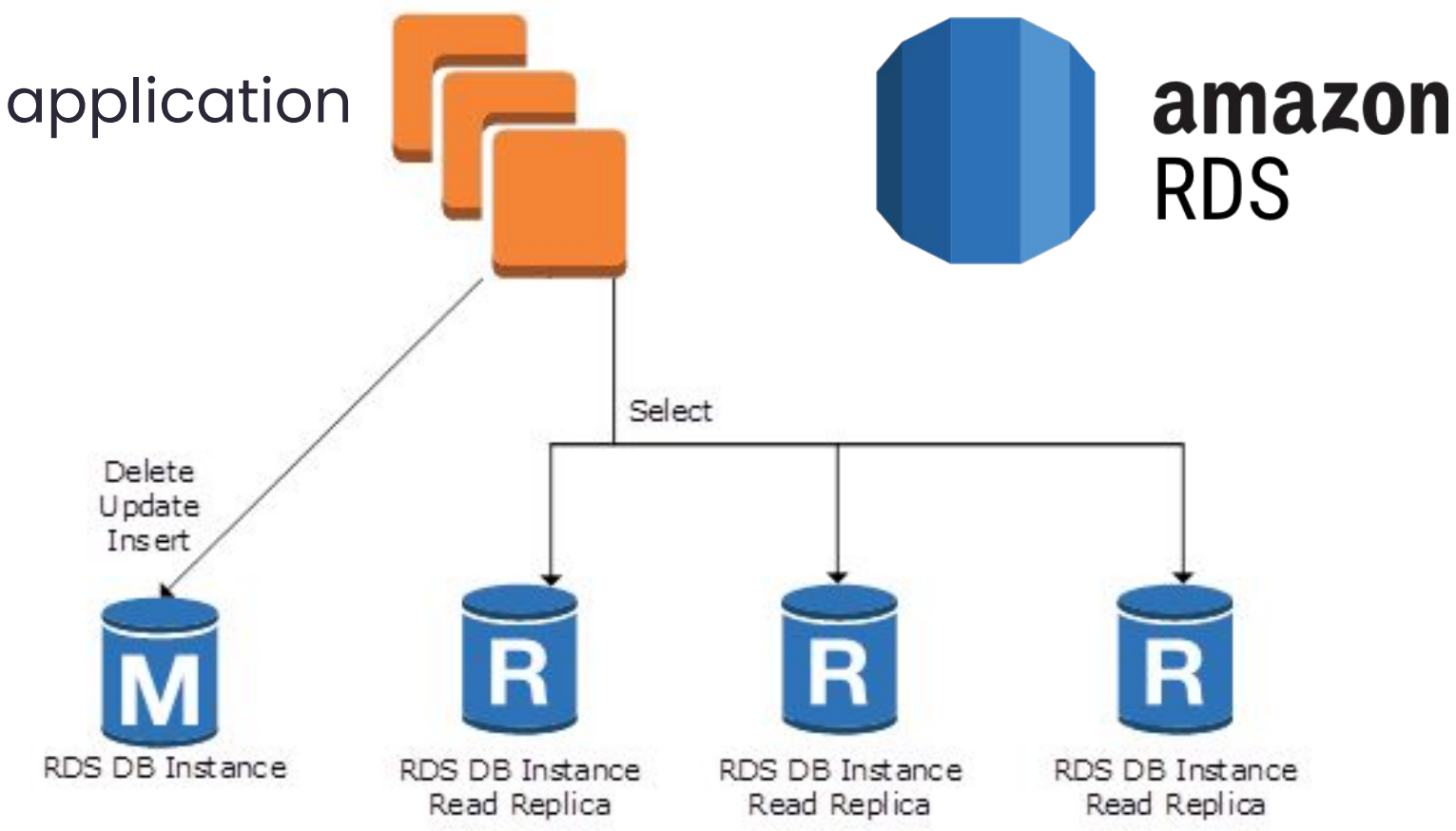


amazon
RDS

3

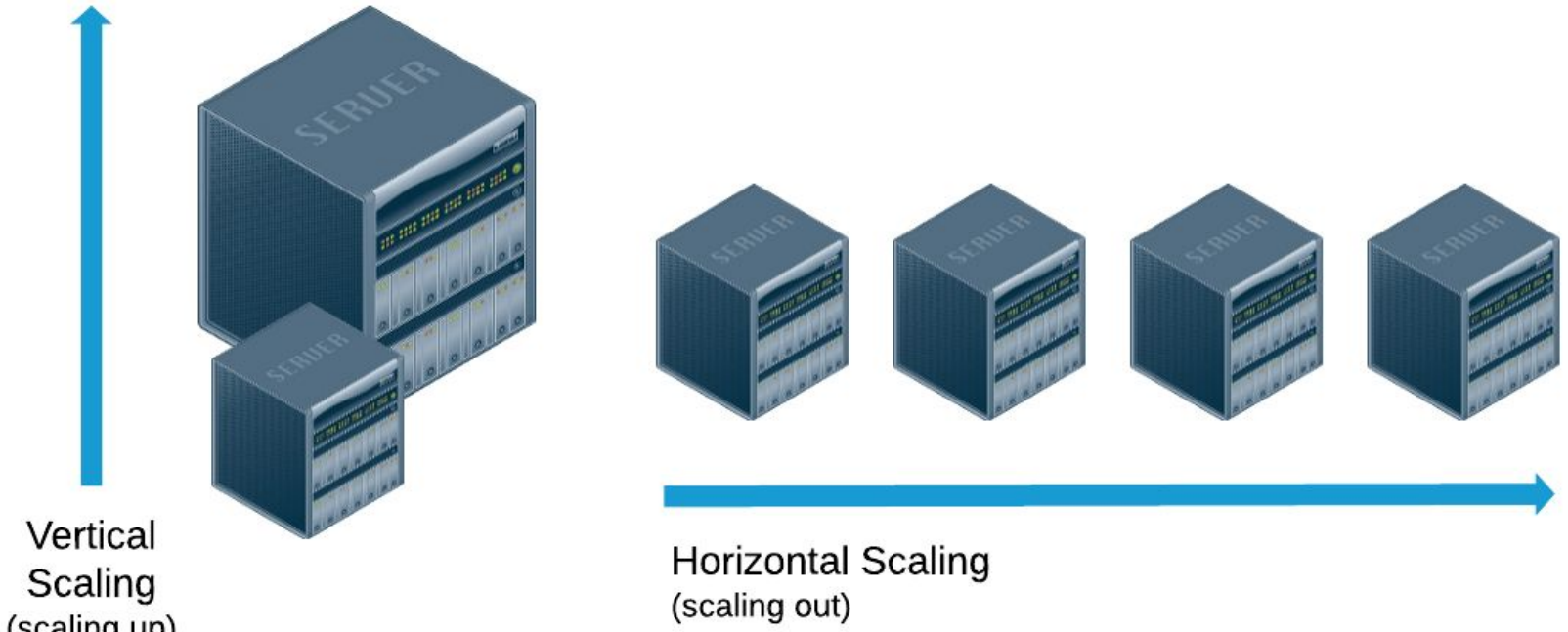
Scalable Infrastructure

Scale out, in, up and down?



Scalable Infrastructure

Scale out, in, up and down?



Thanks for listening

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