


AWS Fargate in Action

Tipps 'n Tricks & Lessons Learned

Nora Schöner | AWS Summit Berlin 2022



Agenda



Introduction



AWS Fargate Knowledge Shorty




Enhanced Networking



Observability Options



Money Talk: Fargate Costs



Sum it up!

Aim & Takeaway



Enhance your AWS Fargate setup



Production Lessons Learned



No AWS Fargate Setup 101

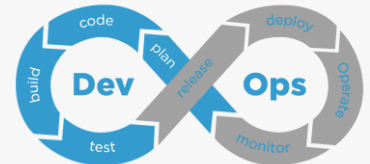


No Deep Dive & Live Coding

Hi, I'm Nora 🙋

Senior Software Engineer/Architect @ CodeCamp:N

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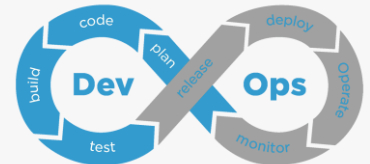
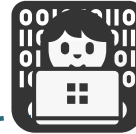


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@wolkencode



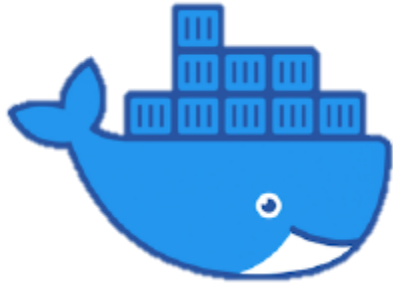
@norchen

She'nIT
Nürnberg

Awesome
#WomenInTechDACH

How it started...

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How it continued...

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Mid/Late
2018 GA



AWS Fargate

What is Fargate: Short Version

Container Orchestration in AWS

no underlying maintenance needed

"pay what you use" pricing model

full service integration



AWS Fargate



Amazon ECS



Amazon EKS

What is Fargate: Short Version

Fargate's Components

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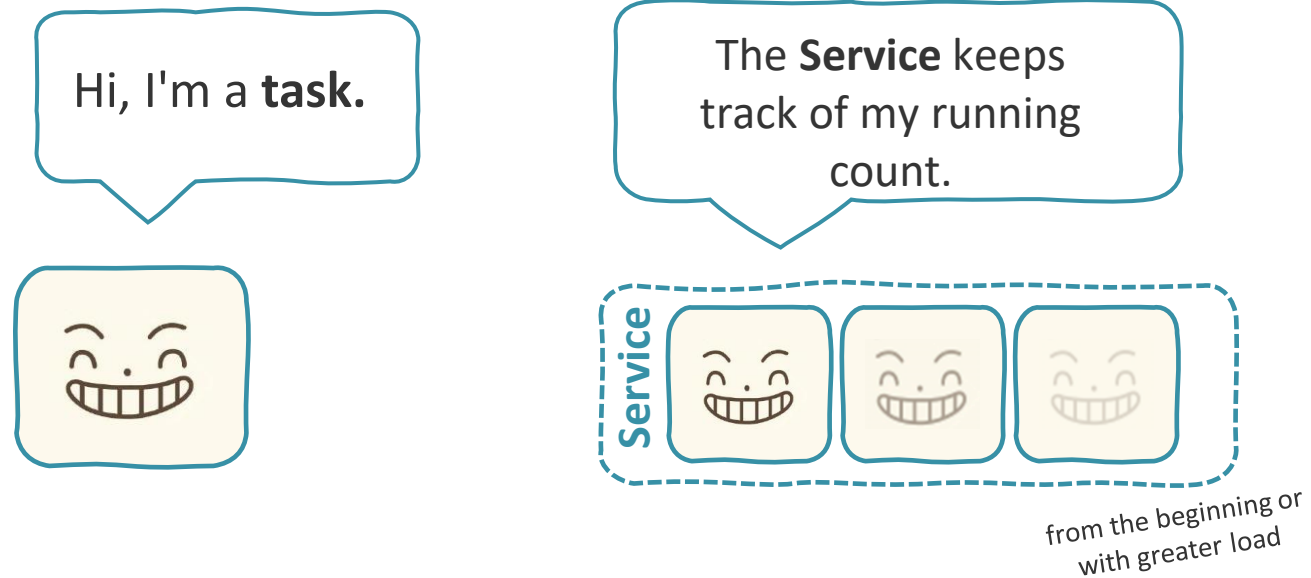
Hi, I'm a **task**.



My blueprint is a **task definition**.

What is Fargate: Short Version

Fargate's Components



What is Fargate: Short Version

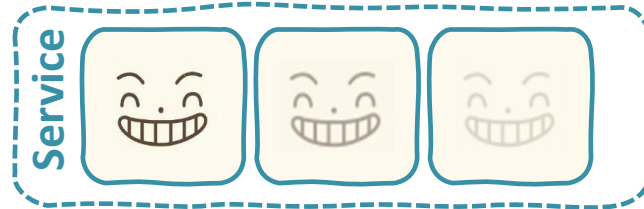
Fargate's Components

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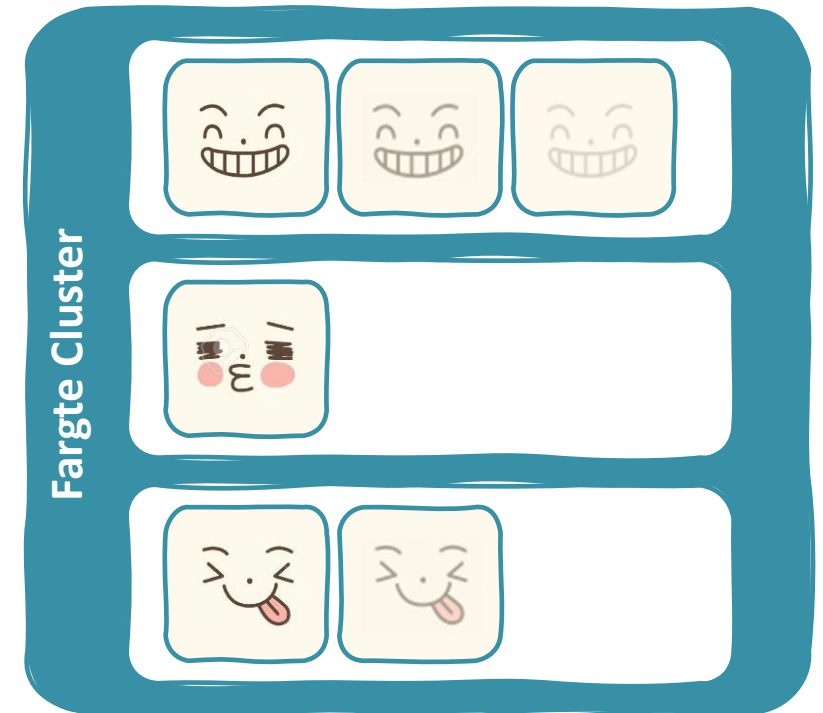
Hi, I'm a **task**.



The **Service** keeps track of my running count.



The **Cluster** groups me and my task friends logically together.

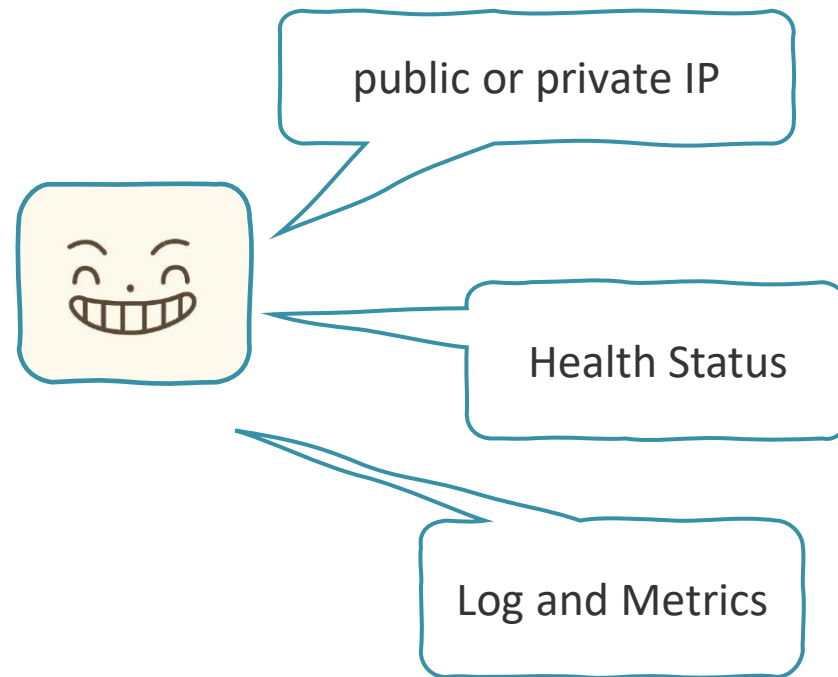


What is Fargate: Short Version

Fargate's Components

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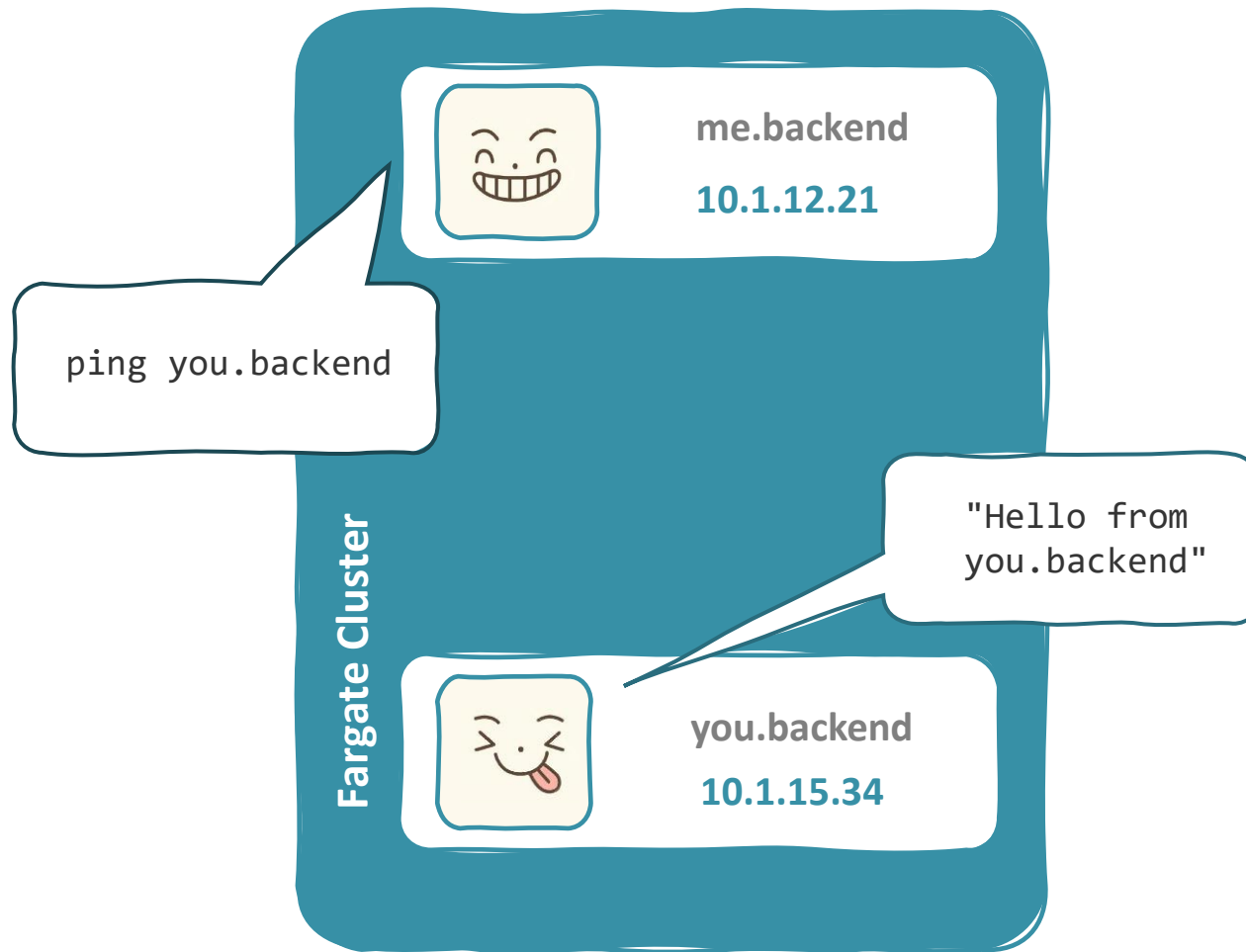
I have some super powers



Enhance Your Networking

Service Discovery mit AWS Cloud Map

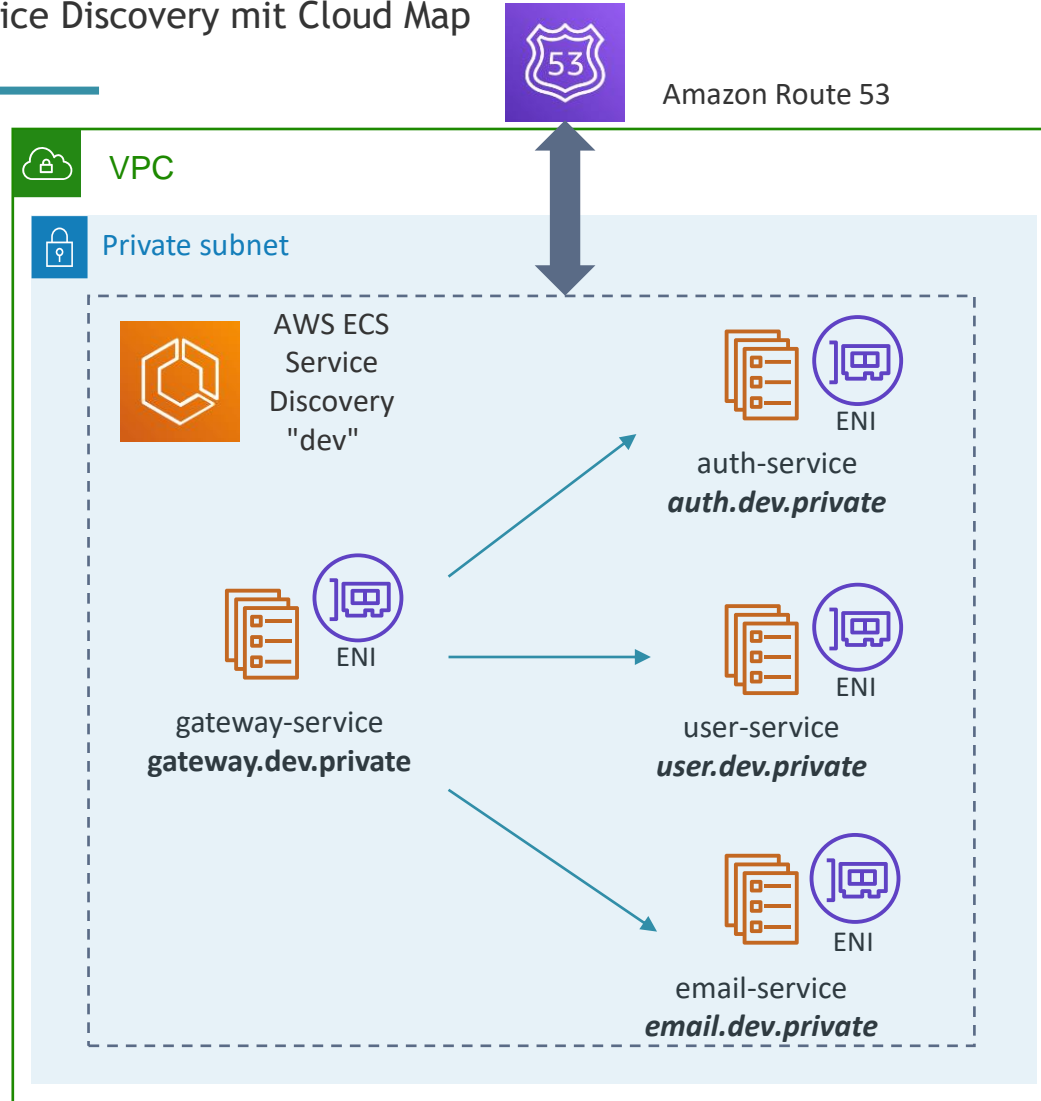
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- build-in resource DNS naming
- static DNS for changing IP
- build-in service communication

Enhance Your Networking

Service Discovery mit Cloud Map



```
resource "aws_service_discovery_private_dns_namespace" "dev" {  
  name       = "dev.private"  
  description = "Namespace for Service Discovery"  
  vpc        = aws_vpc.main.id  
}
```

```
resource "aws_service_discovery_service" "auth" {  
  name = "auth"  
  dns_config {  
    namespace_id = aws_service_discovery_private_dns_namespace.dev  
    dns_records {  
      ttl = 60  
      type = "A"  
    }  
  }  
  health_check_custom_config {  
    failure_threshold = 1  
  }  
}
```

```
resource "aws_ecs_service" "auth_service" {  
  name = "auth-service"  
  cluster = "ein-nettes-cluster"  
  task_definition = aws_ecs_task_definition.task.arn  
  desired_count = 2  
  launch_type = "FARGATE"  
  service_registries {  
    registry_arn = aws_service_discovery_service.auth.arn  
  }  
  ...  
}
```

Know your Clusters

Logging the devil out of it!

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- add a log driver or external tool

awslogs

awsfirelens

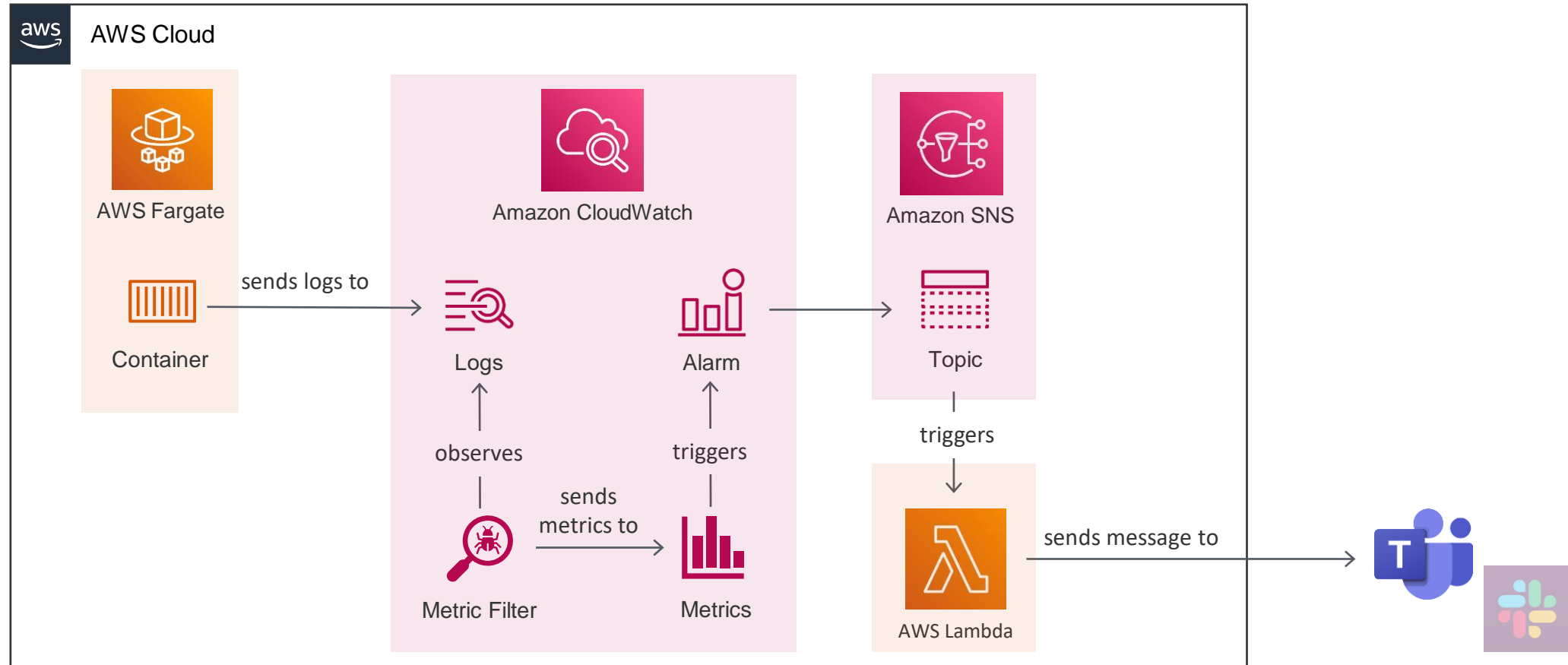
- observe the logs

- searchable & verbose



Know your Clusters

Logging the devil out of it! ► Using Log Metric Alarms



Know your Clusters

Logging the devil out of it! ► Using Log Metric Alarms

```
resource "aws_cloudwatch_log_group" "log"
{
  name           = "super-cool-log"
  retention_in_days = 90
}
```

```
resource "aws_cloudwatch_log_metric_filter" "log" {
  name           = "super-cool-log-filter"
  pattern        = "ERROR"
  log_group_name = aws_cloudwatch_log_group.log.name

  metric_transformation {
    name           = "super-cool-log-ERROR"
    namespace      = "ECSErrorLog"
    value          = "1"
    default_value = "0"
    unit           = "Count"
  }
}
```

Know your Clusters

Logging the devil out of it! ► Using Log Metric Alarms

```
resource "aws_cloudwatch_log_group" "log"
{
  name           = "super-cool-log"
  retention_in_days = 90
}
```

```
resource "aws_cloudwatch_log_metric_filter" "log" {
  name           = "super-cool-log-filter"
  pattern        = "ERROR"
  log_group_name = aws_cloudwatch_log_group.log.name

  metric_transformation {
    name           = "super-cool-log-ERROR"
    namespace      = "ECSErrorLog"
    value          = "1"
    default_value  = "0"
    unit           = "Count"
  }
}
```

```
resource "aws_cloudwatch_metric_alarm" "log" {
  alarm_name           = "super-cool-log-alarm"
  comparison_operator  = "GreaterThanOrEqualToThreshold"
  evaluation_periods    = "1"
  metric_name          = "super-cool-log-metric"
  namespace            = "ECSErrorLog"
  period               = "60"
  statistic             = "Sum"
  threshold            = "1"
  datapoints_to_alarm  = "1"

  alarm_actions        = [aws_sns_topic.log.arn]
  treat_missing_data   = "notBreaching"
}
```

Know your Clusters

Enable enhanced metrics

Enable ECS/ContainerInsights

```
aws ecs update-cluster-settings --cluster myClusterName  
--settings name=containerInsights,value=enabled
```

Help to observe usage and more

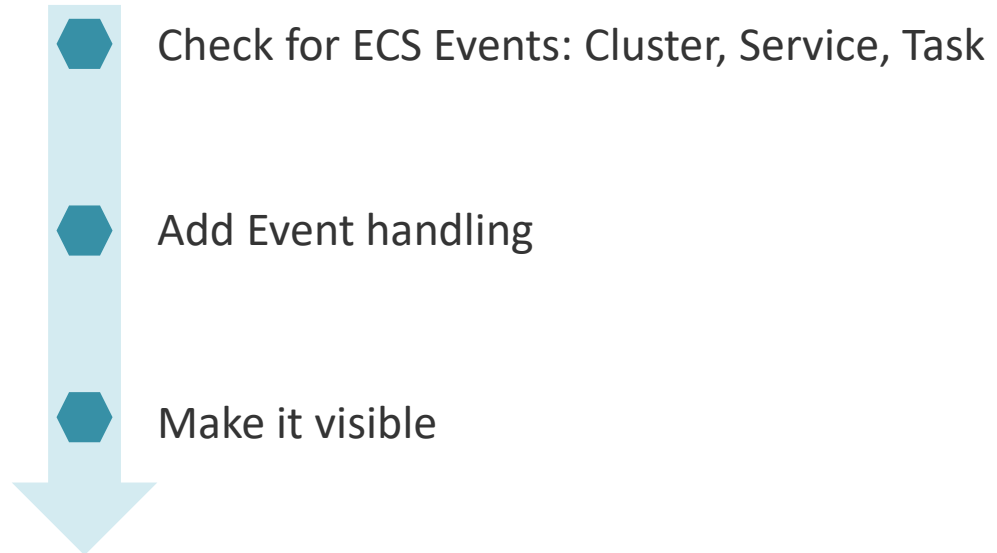
Comes with extra costs

👉 <https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/Container-Insights-metrics-ECS.html>



Know your Clusters

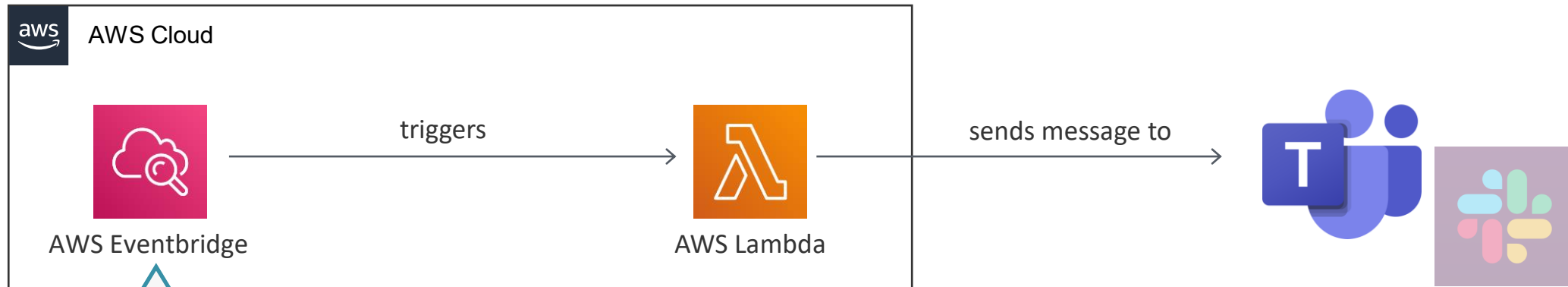
Listen to your services carefully!



Know your Clusters

Listen to your services carefully!

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Event Pattern:

```
{
  "detail-type": ["ECS Task State Change", "ECS Service Action"],
  "source": ["aws.ecs"]
}
```

👉 https://docs.aws.amazon.com/AmazonECS/latest/developerguide/ecs_cwe_events.html

Know your Costs (or take all my money!)

Take a look into Fargate Pricing

Fargate

256 (.25 vCPU)/0,5 GB Memory

~ 9,00\$/month

<https://calculator.aws>

Know your Costs (or take all my money!)

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256 (.25 vCPU)/0,5 GB Memory

~ 9,00\$/month

EC2 t3a.nano
+ 8GB SSD

2048(2vCPU)/0,5GB Memory

~ 4,20\$/month

EC2 t4.nano
+ 8GB SSD

2048(2vCPU)/0,5GB Memory

~ 3,80\$/month

<https://calculator.aws>

Know your Costs (or take all my money!)

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~ 5,40\$/month

EC2 t4.nano

+ 8GB SSD

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~ 5,00\$/month

<https://calculator.aws>

Know your Costs (or take all my money!)

Take a look into Fargate Pricing

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256 (.25 vCPU)/0,5 GB Memory

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2048(2vCPU)/Memory

~ 4,20\$/month
~ 5,40\$/month

EC2 t4.nano
+ 8GB SSD
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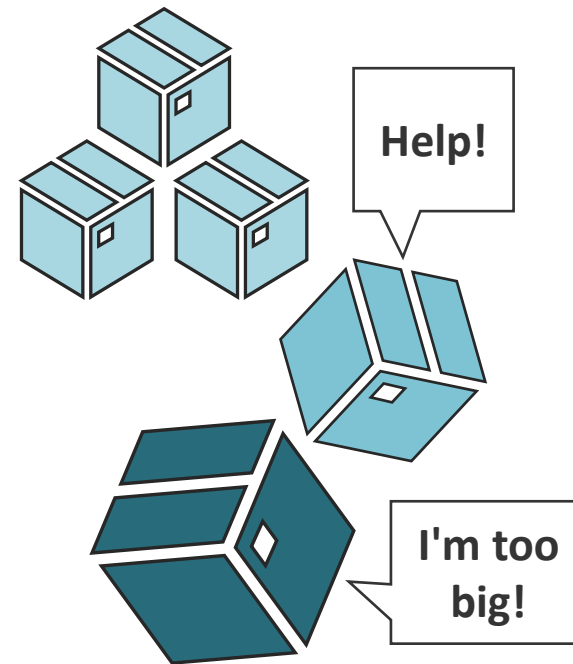
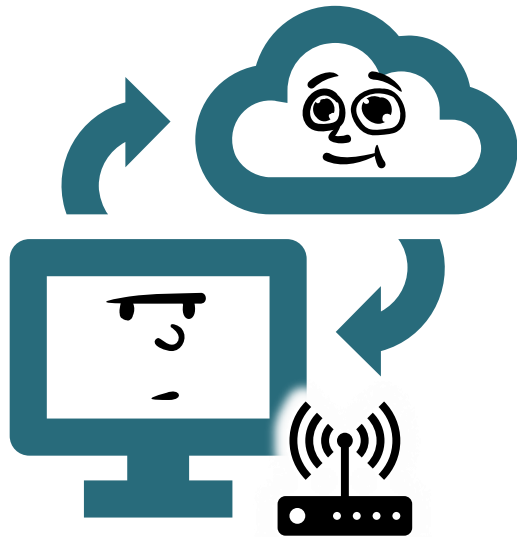
~ 3,80\$/month
~ 5,00\$/month

We are
maintainers
here...

Know your Costs (or take all my money!)

Common underestimation

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Know your Costs (or take all my money!)

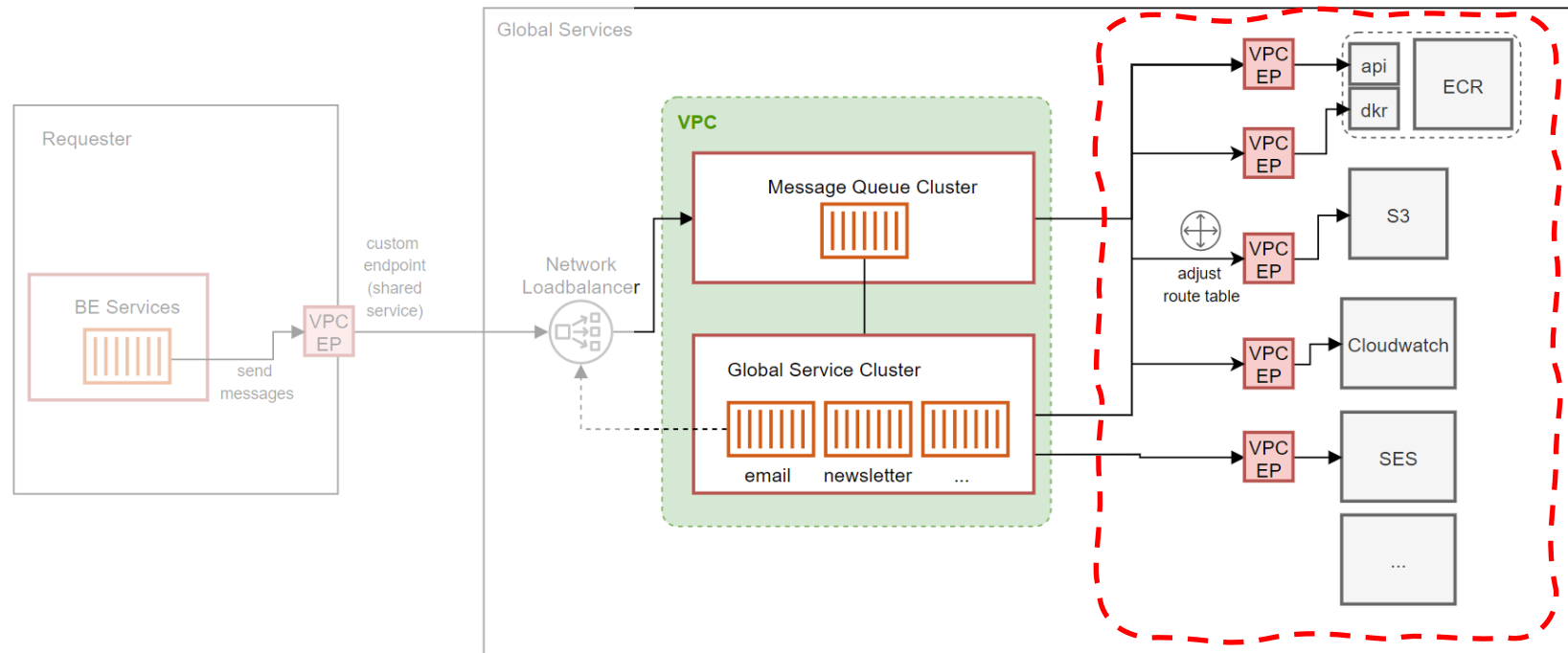
Common underestimation

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Low your Costs!

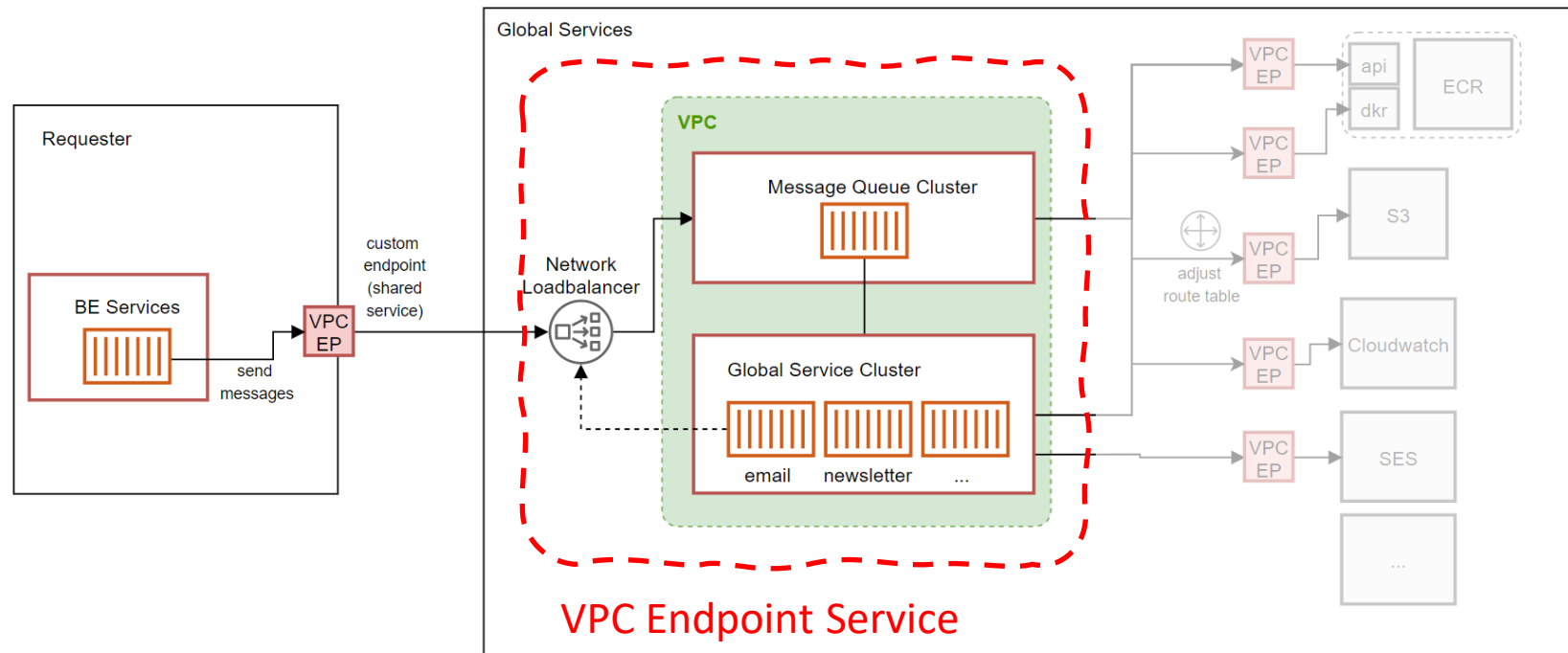
Decrease your outside traffic with VPC Endpoints



Low your Costs! (and enhance networking)

VPC Private Link

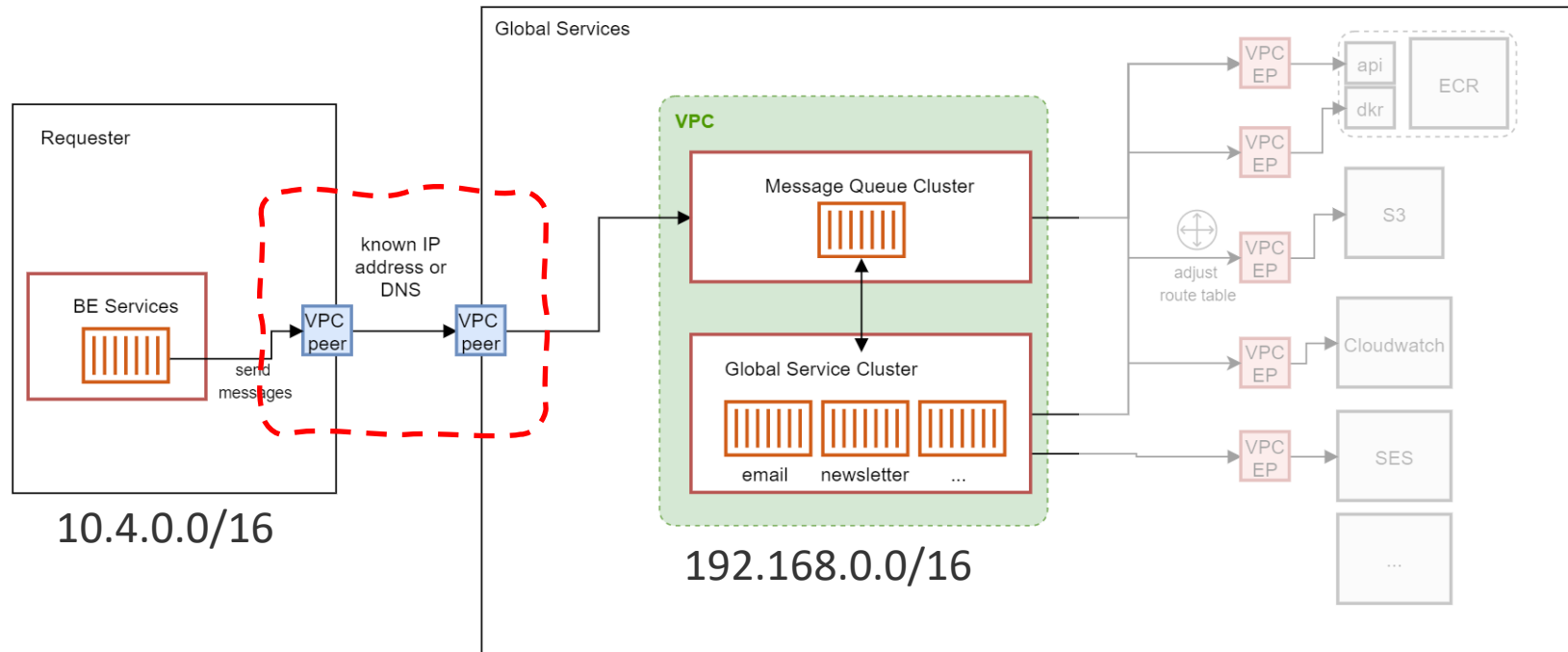
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Low your Costs ! (and enhance networking)

VPC Peering

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Requester Route Table

Destination	Target
10.4.0.0/16	local
192.168.0.0/16	pcx-0cxxxx

Global Services Route Table

Destination	Target
192.168.0.0/16	local
10.4.0.0/16	pcx-0cxxxx

Low your Costs!

Optimize the Package Size

- small base packages
- don't overload
- keep up-to-date

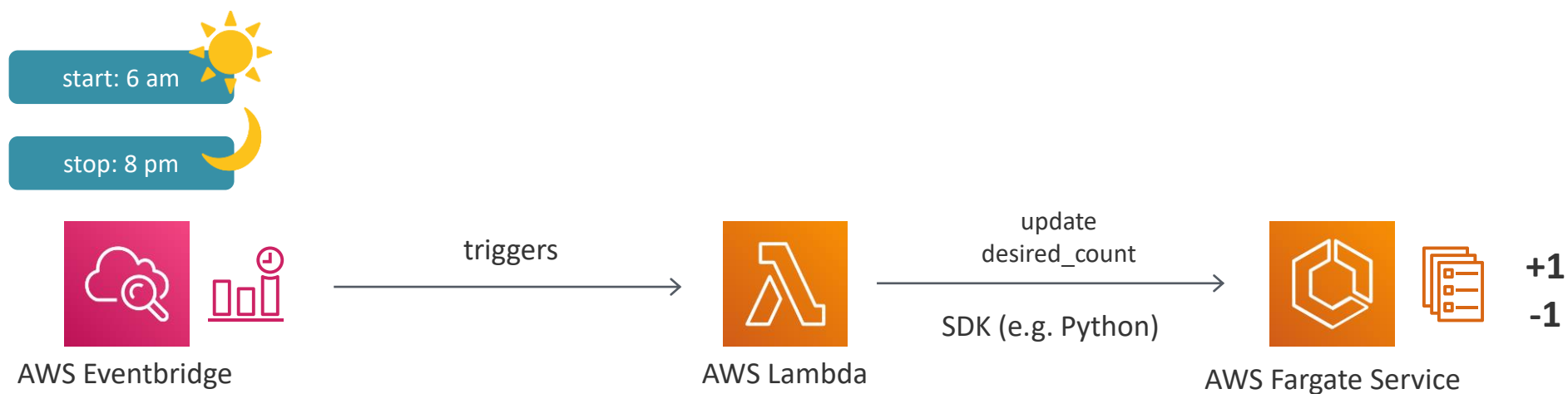
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Low your Costs!

Start/Stop Trigger

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What else?

Tools and other things

- SSH access to your container
- Add external storage
- Use build tools



What else?

Tools and other things

SSH access to your container

Add external storage

Use build tools

**Terraform
/CDK**

App2Container

**AWS
Copilot**



Sum it up: Challenges



Sum it up: Challenges



Sum it up: Challenges



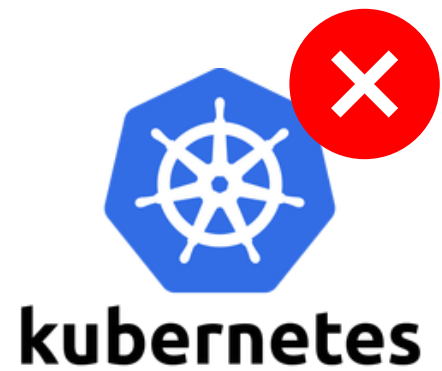
Sum it up: Challenges

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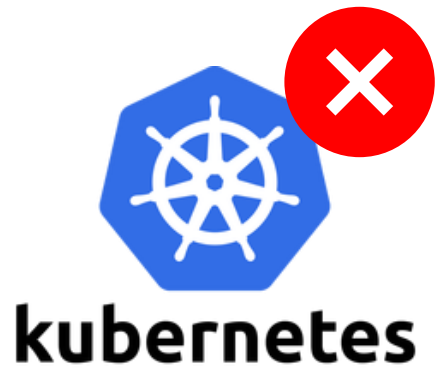
Sum it up: Advantages

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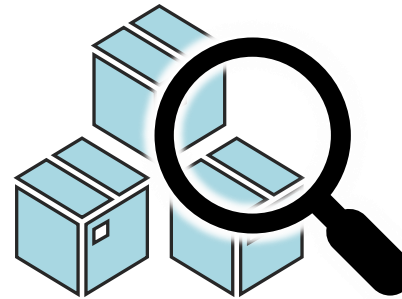
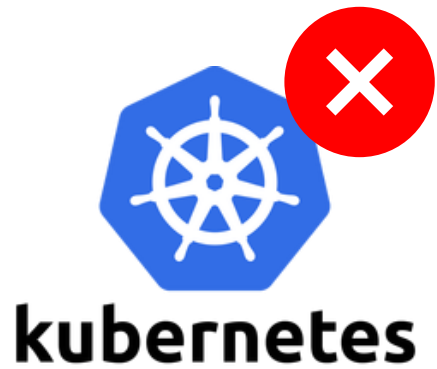
Sum it up: Advantages

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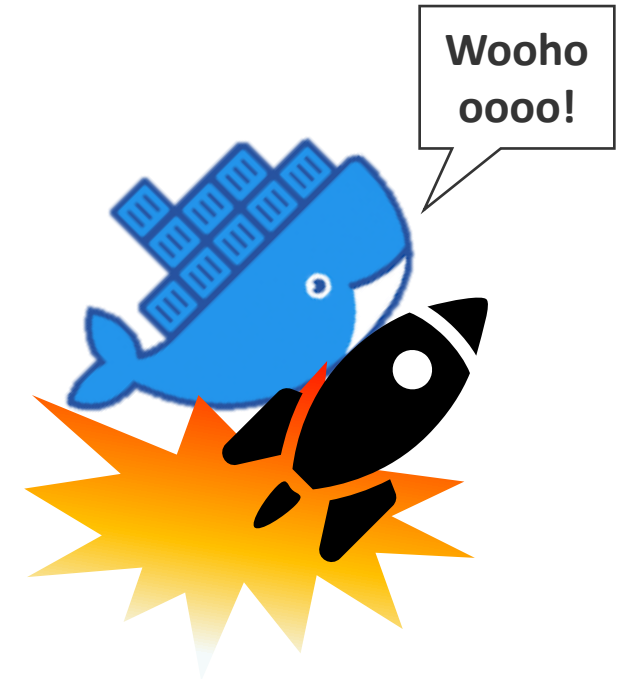
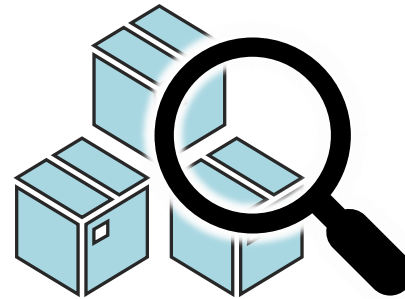
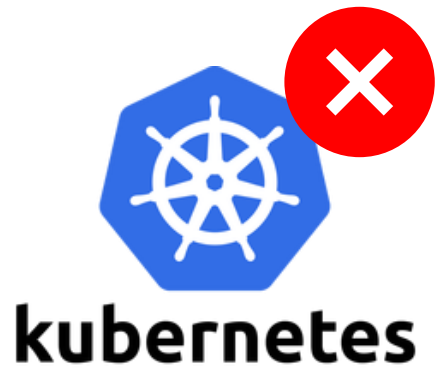
Sum it up: Advantages

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Sum it up: Advantages

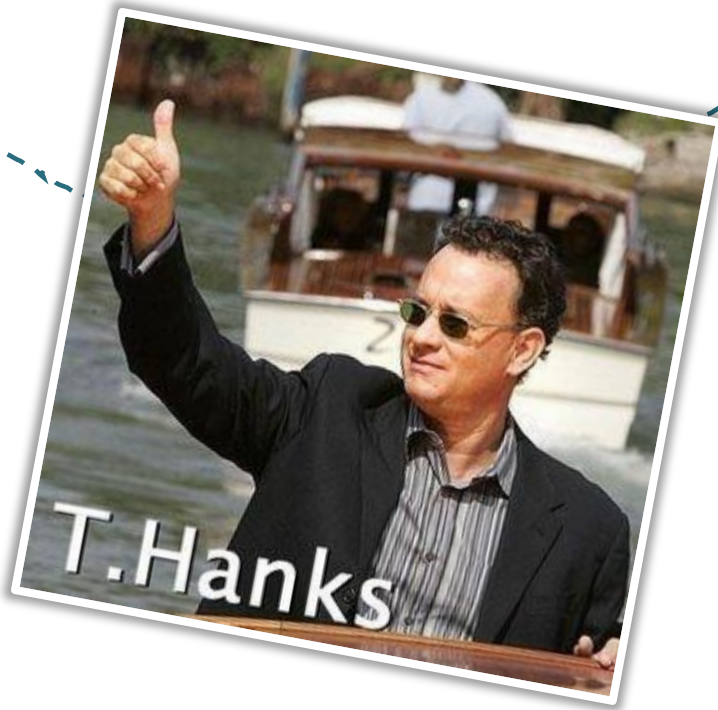
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Thanks for staying with me 🚩

Nora | Senior Software Engineer/Architect @ CodeCamp:N

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LET'S STAY
CONNECTED



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Awesome
#WomenInTechDACH

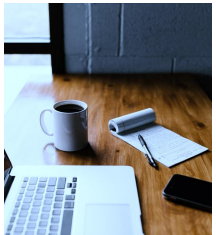
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