

# **Falando a língua da Nuvem**

## Utilizando Cloud Development Kit

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whoami 🤝



# Ibrahim Cesar



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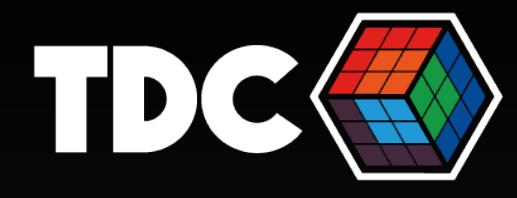
# O que é o Cloud Development Kit?

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# Cloud

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National Institute of  
Standards and Technology  
U.S. Department of Commerce

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Special Publication 800-145

## The NIST Definition of Cloud Computing

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Recommendations of the National Institute  
of Standards and Technology

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**Cloud**

1 — Auto serviço, sob demanda

“Capaz de prover capacidades **sem necessitar de interação humana ...**”



# Cloud

2 – Acesso completo através da rede

“ ... capacidades são disponibilizadas através da rede, acessada através de mecanismos tradicionais... ”



# Cloud

## 3 — Acesso a recursos

“Existe um senso de dependência de localidade [...] sem controle ou conhecimento sobre a exata localização destes recursos ...”

“... Recursos são acessados para servir a múltiplos consumidores utilizando um modelo *multi-tenant*...”



# Cloud

## 4 — Rápida elasticidade

“Capacidade pode ser provisionada elasticamente e entregue para escalar rapidamente acima e abaixo com a demanda”

“Para o consumidor, as capacidades disponibilidades para provisionamento muitas vezes parecem ser ilimitadas”



# Cloud

5 — Serviço mensurado

“ O uso dos recursos podem ser monitorados, controlados, reportadas ... e cobrados.”



# AWS Cloud Development Kit (CDK)

- Lançado em Julho 2019
- Open Source, escrito em TypeScript
- Criar e provisionar infraestrutura como código na AWS



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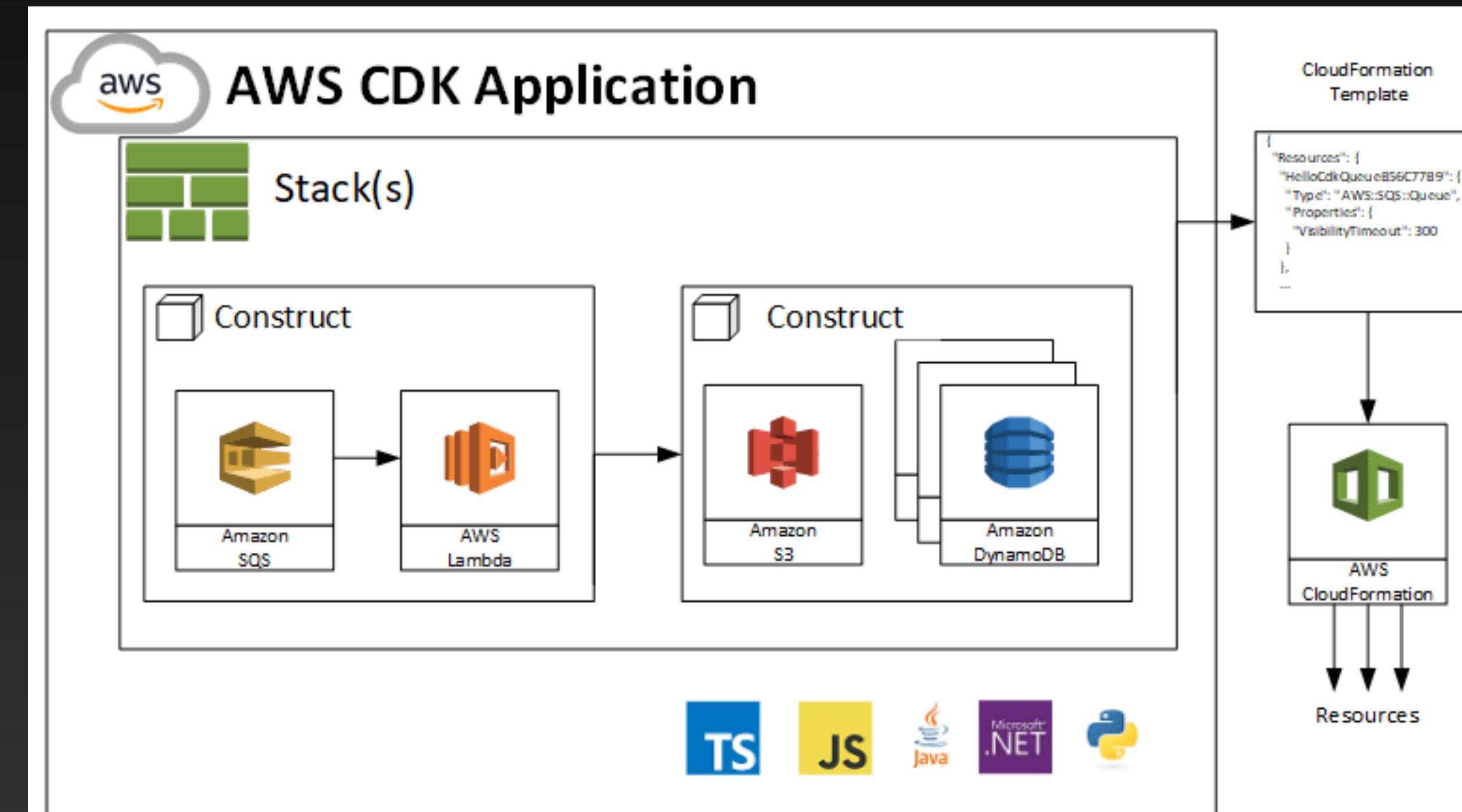
AWS CDK

Meeting developers  
**where they are**

TS   JS   Python   Coffee Cup   C   .NET



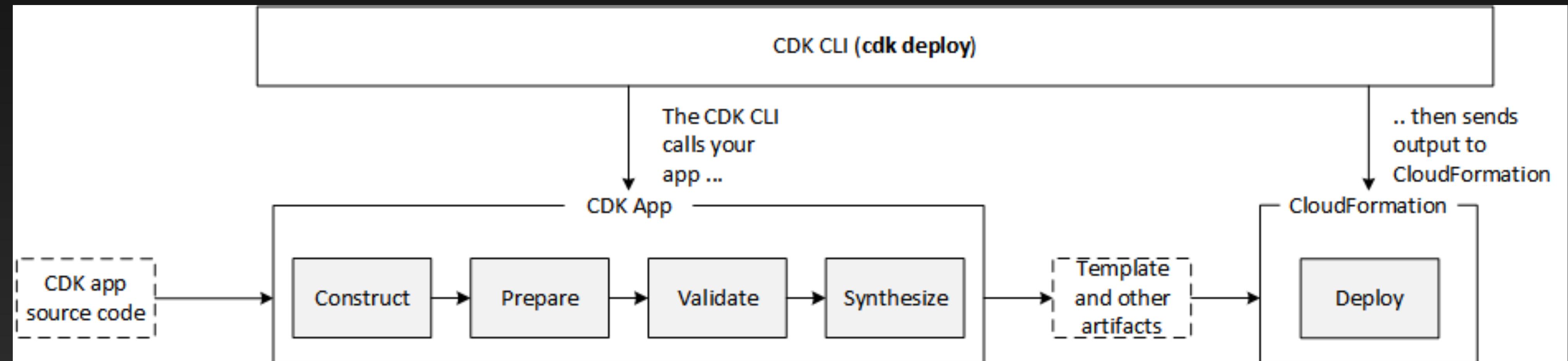
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**CDK**

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# CDK



**L1**

Mapeamento 1x1 de recursos do CloudFormation. Seguem a convenção do sufixo Cfn\* (e.g., *CfnBucket*)

**L2**

Nível maior de abstração com acesso a métodos de auxílio e vários valores padrões.

**L3**

Mais específicos e opinados, servem para casos de uso específicos, com muito menos código.

```
const bucket = new s3.CfnBucket(this, 'uploads-bucket');
```

```
const myVpc = new ec2.Vpc(this, 'my-vpc', {  
  cidr: '10.0.0.0/16'  
});
```

```
const lambdaRestApi = new apigateway.LambdaRestApi(this, 'lambda-rest-api', {  
  handler: lambdaFunction  
});
```



# CDK

```
const app = new App();

new FirstStack(app, 'stack-1');
new SecondStack(app, 'stack-2');

app.synth();
```

Modele sua aplicação em unidades lógicas de domínios baseados em *Constructs*, não *Stacks*. *Stacks* são uma unidade de deploy, e tendem a serem orientadas a aplicações específicas.

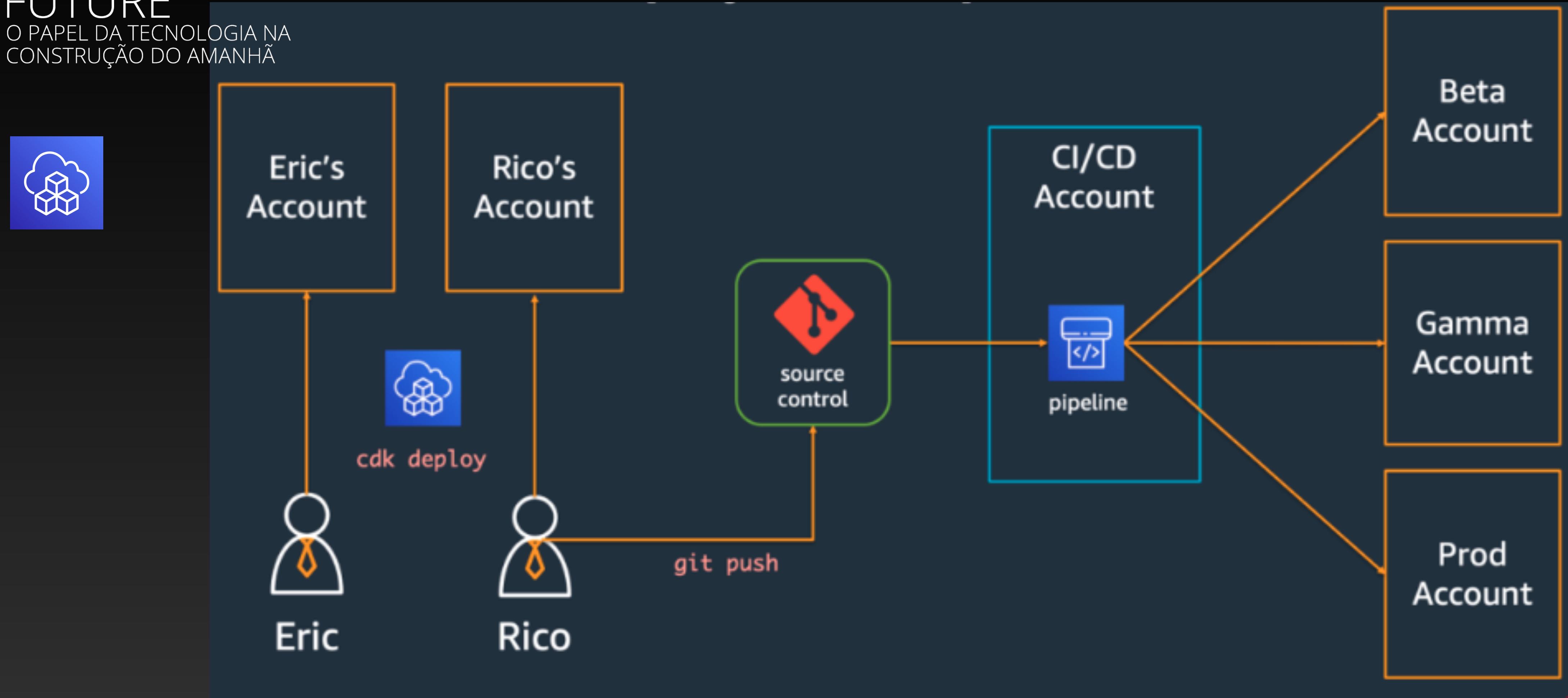
Construir com base em *Constructs* confere mais flexibilidade.

Use *Stacks* para isolar unidades de deploys, como:

- DevStack**
- StagingStack**
- ProdStack**

## Testes

CDK possui bibliotecas de teste: **assert** e **expect**.  
Preferencialmente cada teste deve testar *um e apenas um comportamento / recurso*.





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This deployment will make potentially sensitive changes according to your current security approval level (--require-approval broadening).  
Please confirm you intend to make the following modifications:

#### IAM Statement Changes

Resource	Effect	Action	Principal	Condition
+ \${EC2-Key-Pair-Manager-Role.Arn}	Allow	sts:AssumeRole	Service:lambda.amazonaws.com	
+ \${ec2Role.Arn}	Allow	sts:AssumeRole	Service:ec2.amazonaws.com	
+ arn:\${AWS::Partition}:s3:::\${AssetParameters13138ebf2da51426144f6f5f4f0ad197787f52aad8b6ceb26ecff68d33cd2b78S3BucketB8F32734} arn:\${AWS::Partition}:s3:::\${AssetParameters13138ebf2da51426144f6f5f4f0ad197787f52aad8b6ceb26ecff68d33cd2b78S3BucketB8F32734}/*	Allow	s3:GetBucket* s3:GetObject* s3>List*	AWS:\${ec2Role}	
+ arn:\${AWS::Partition}:s3:::\${AssetParameters73887b77b71ab7247eaf6dc4647f03f9f1cf8f0da685460f489ec8f2106d480dS3BucketFBAAEF59} arn:\${AWS::Partition}:s3:::\${AssetParameters73887b77b71ab7247eaf6dc4647f03f9f1cf8f0da685460f489ec8f2106d480dS3BucketFBAAEF59}/*	Allow	s3:GetBucket* s3:GetObject* s3>List*	AWS:\${ec2Role}	

#### IAM Policy Changes

	Resource	Managed Policy ARN
+	\${EC2-Key-Pair-Manager-Role}	\${EC2-Key-Pair-Manager-Policy}
+	\${EC2-Key-Pair-Manager-Role}	arn:\${AWS::Partition}:iam::aws:policy/service-role/AWSLambdaBasicExecutionRole
+	\${ec2Role}	arn:\${AWS::Partition}:iam::aws:policy/AmazonSSMManagedInstanceCore

#### Security Group Changes

	Group	Dir	Protocol	Peer
+	\${SecurityGroup.GroupId}	In	TCP 22	Everyone (IPv4)
+	\${SecurityGroup.GroupId}	In	TCP 3389	Everyone (IPv4)
+	\${SecurityGroup.GroupId}	Out	Everything	Everyone (IPv4)

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(NOTE: There may be security-related changes not in this list. See <https://github.com/aws/aws-cdk/issues/1299>)

Do you wish to deploy these changes (y/n)? █

# Faster deployments with CDK Pipelines!

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Developer Advocate  
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Eric Z. Beard

Software Dev. Manager  
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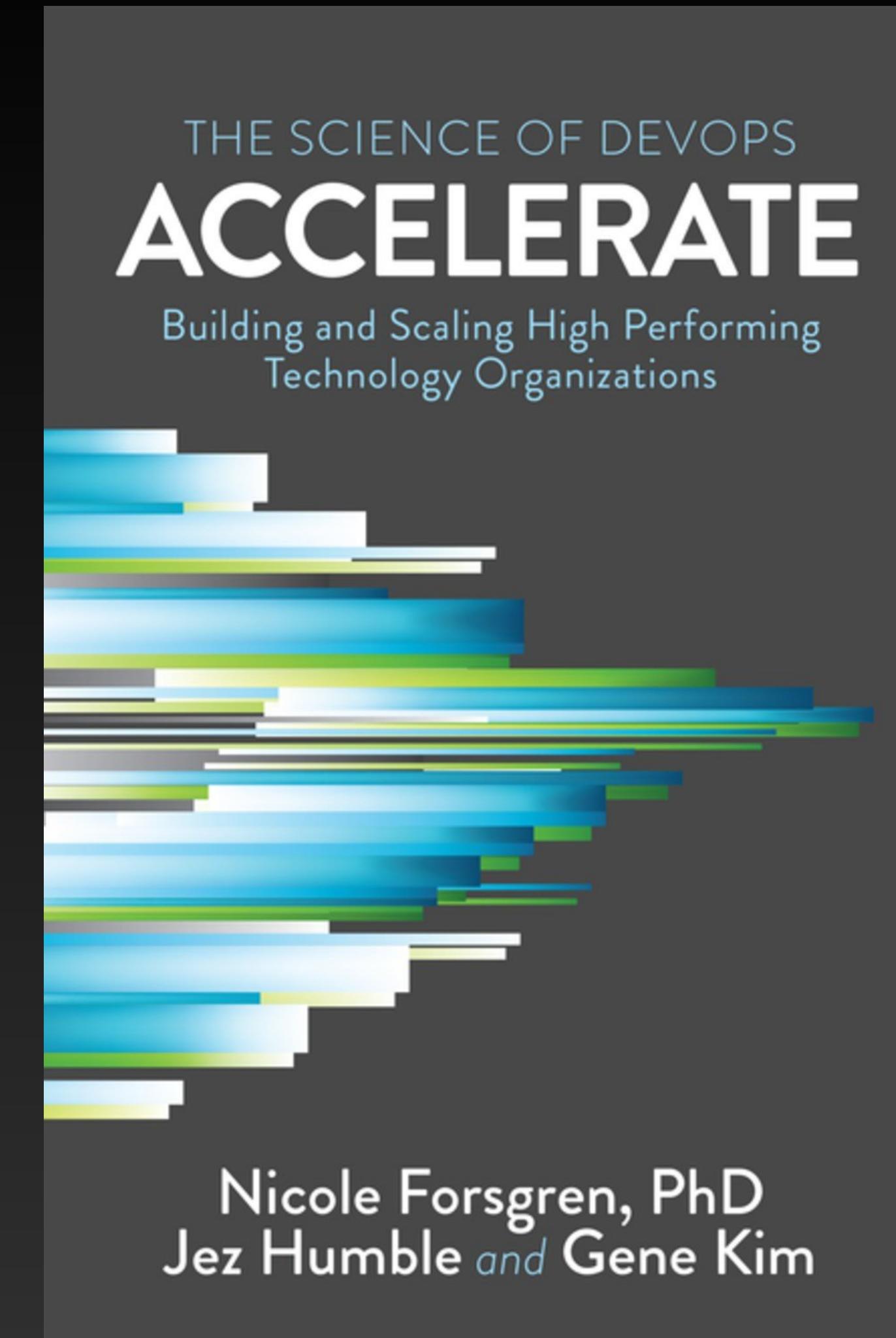
Rico Huijbers

Sr Software Engineer  
@rix0rrr

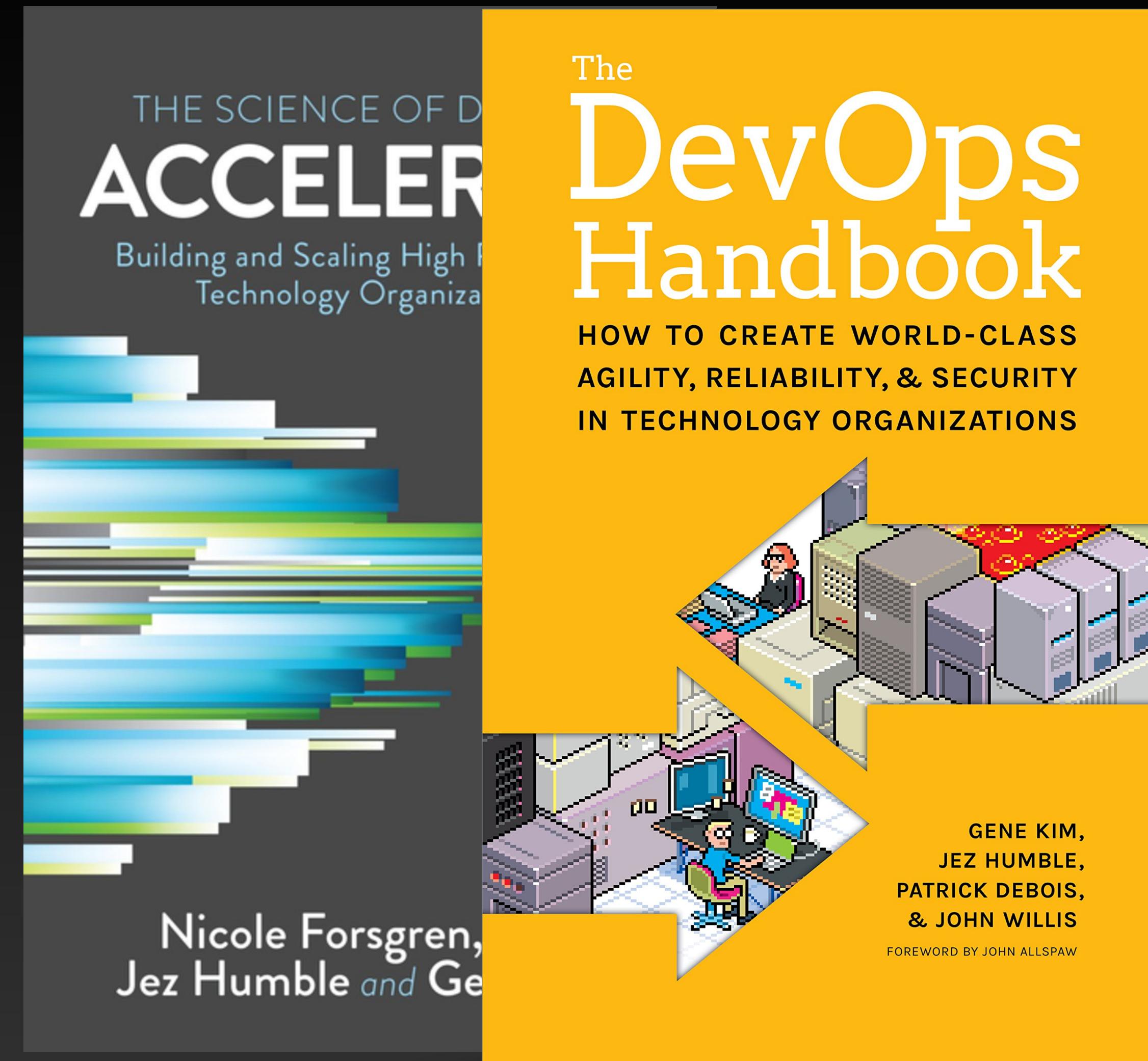


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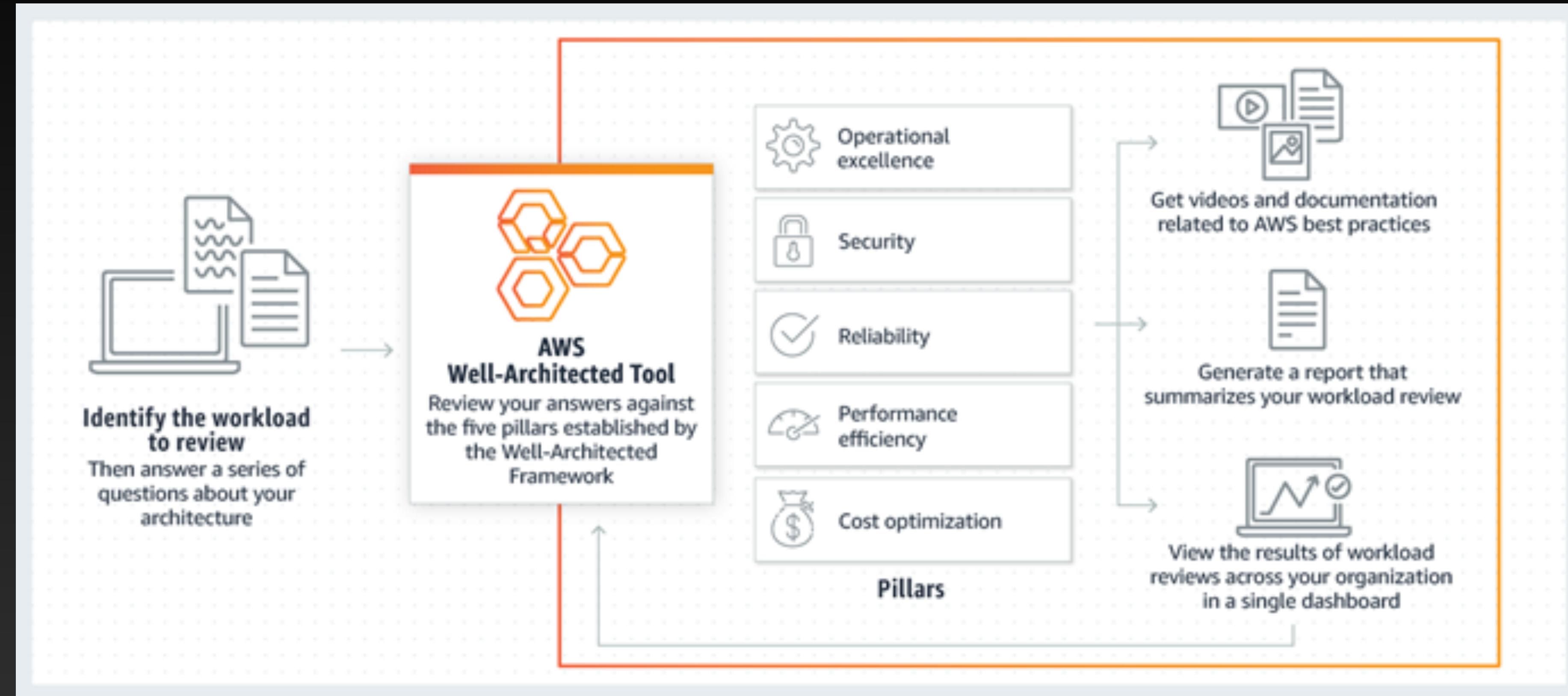
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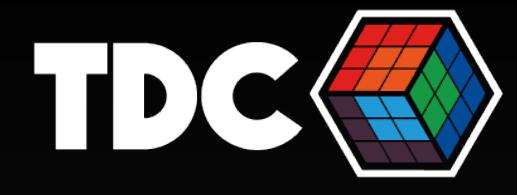
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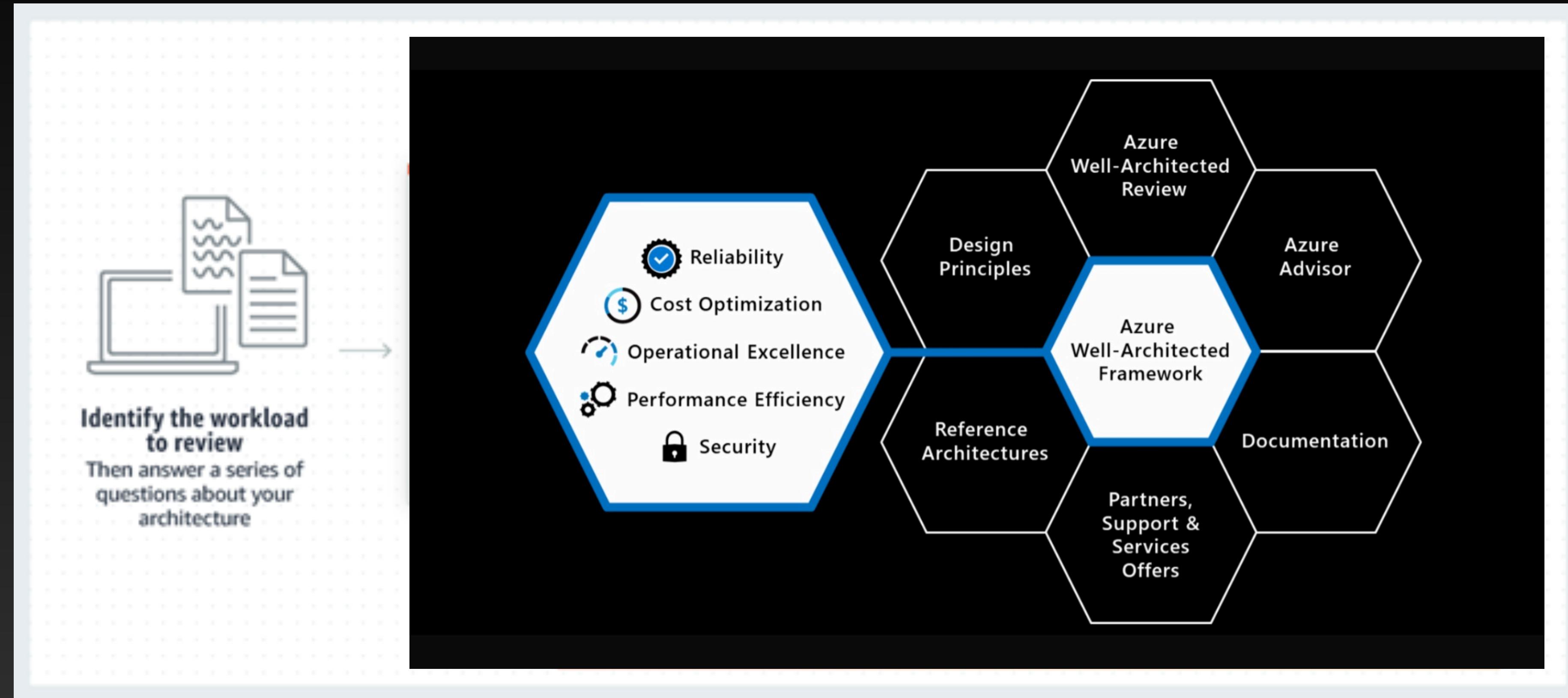


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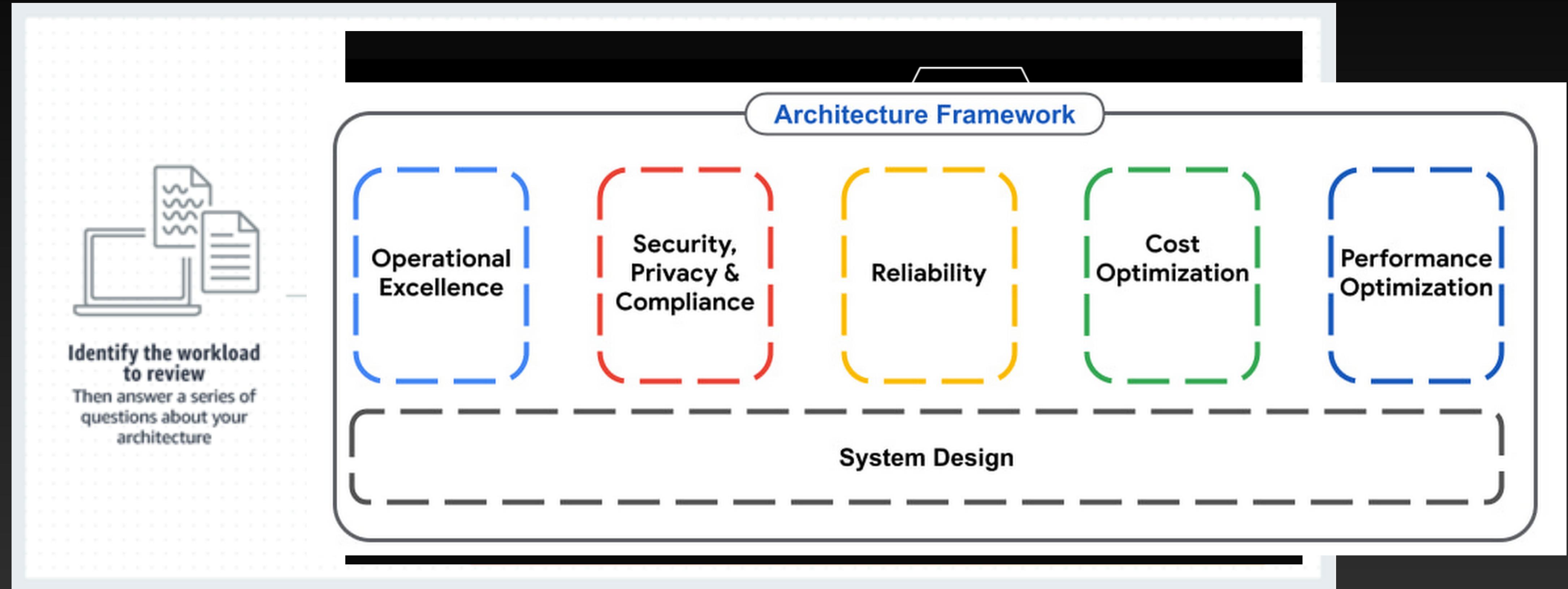


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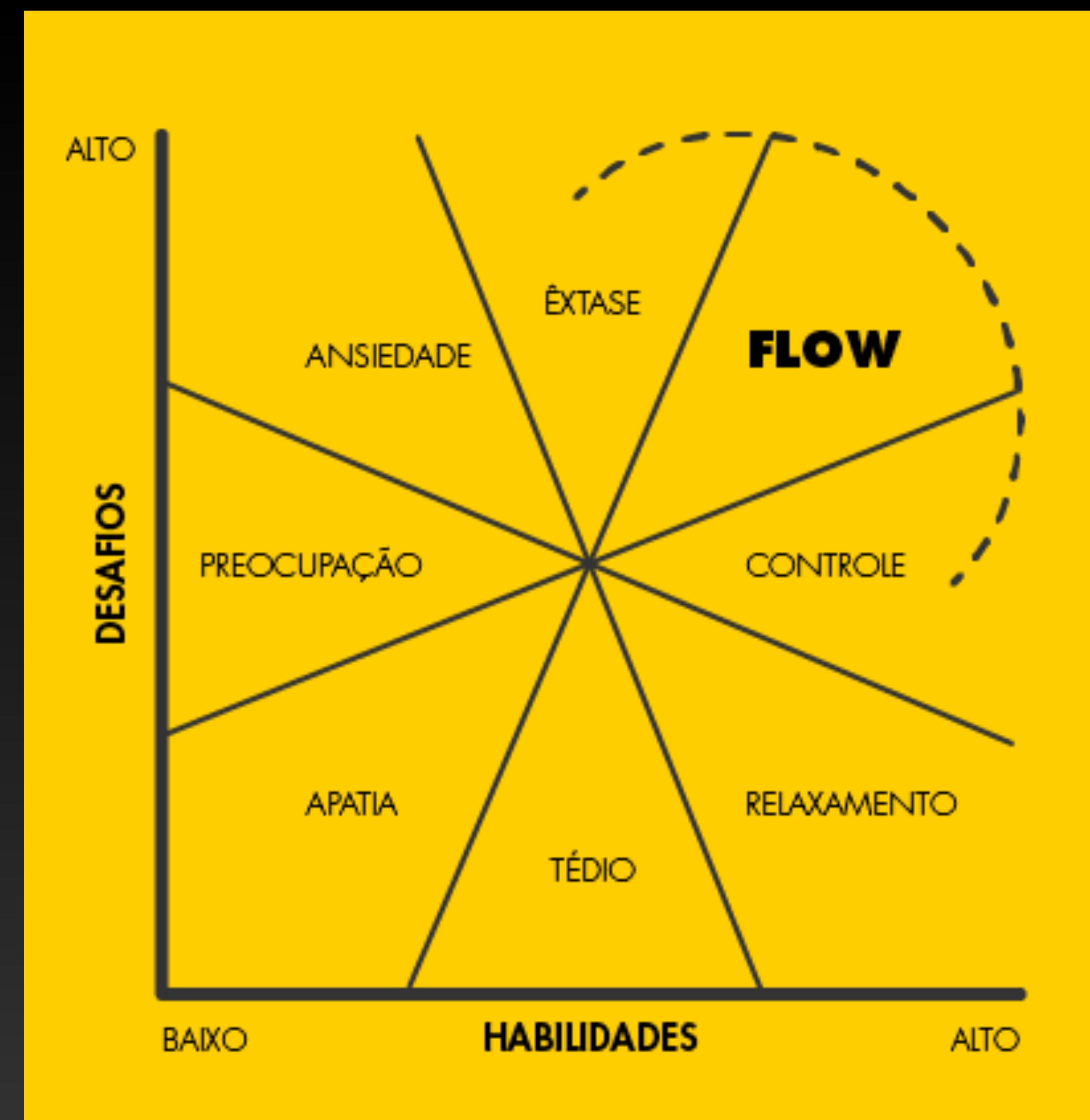
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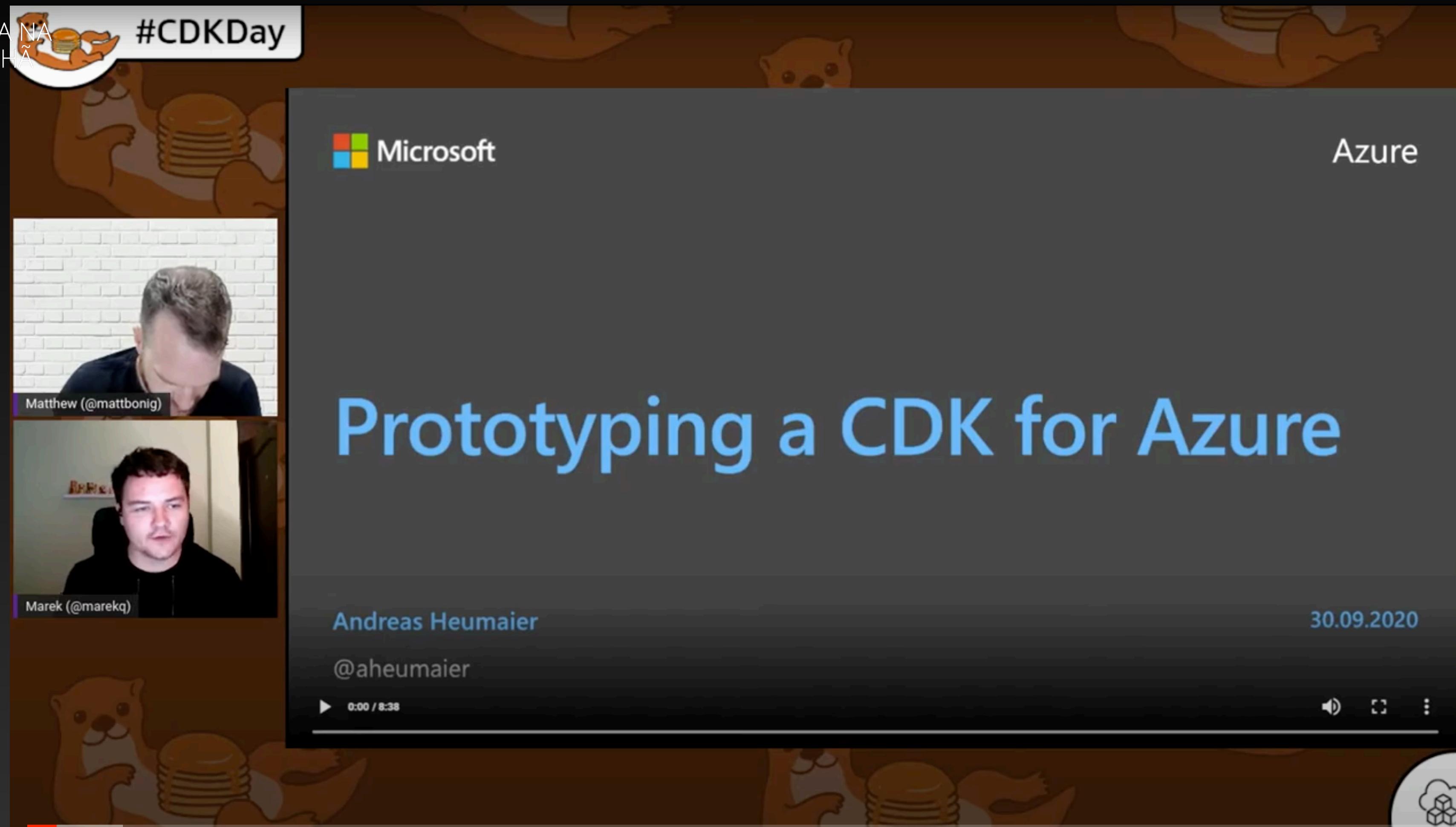


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Figure 1: Magic Quadrant for Cloud Infrastructure and Platform Services



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 **CDK Patterns**

This is intended to be a repo containing all of the official AWS Serverless architecture patterns built with AWS CDK for developers to use.

Follow [@CdkPatterns](#) for live discussion / new pattern announcements. I plan to add a new pattern weekly so check back regularly!

You can also check out our [Deconstructing CDKPatterns](#) YouTube channel for in depth walk throughs of the patterns.

Note, this is maintained by [@nideveloper](#) not AWS. For my motivation, please read this [blog post](#)

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**New to AWS CDK?**

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- To learn more visit the [AWS getting started guide](#)
- To do a workshop on CDK visit [cdkworkshop.com](#)
- Visit the [Hey CDK "How To" series](#) for some detailed answers
- Check out [Awesome CDK](#) for a curated list of awesome projects related to CDK



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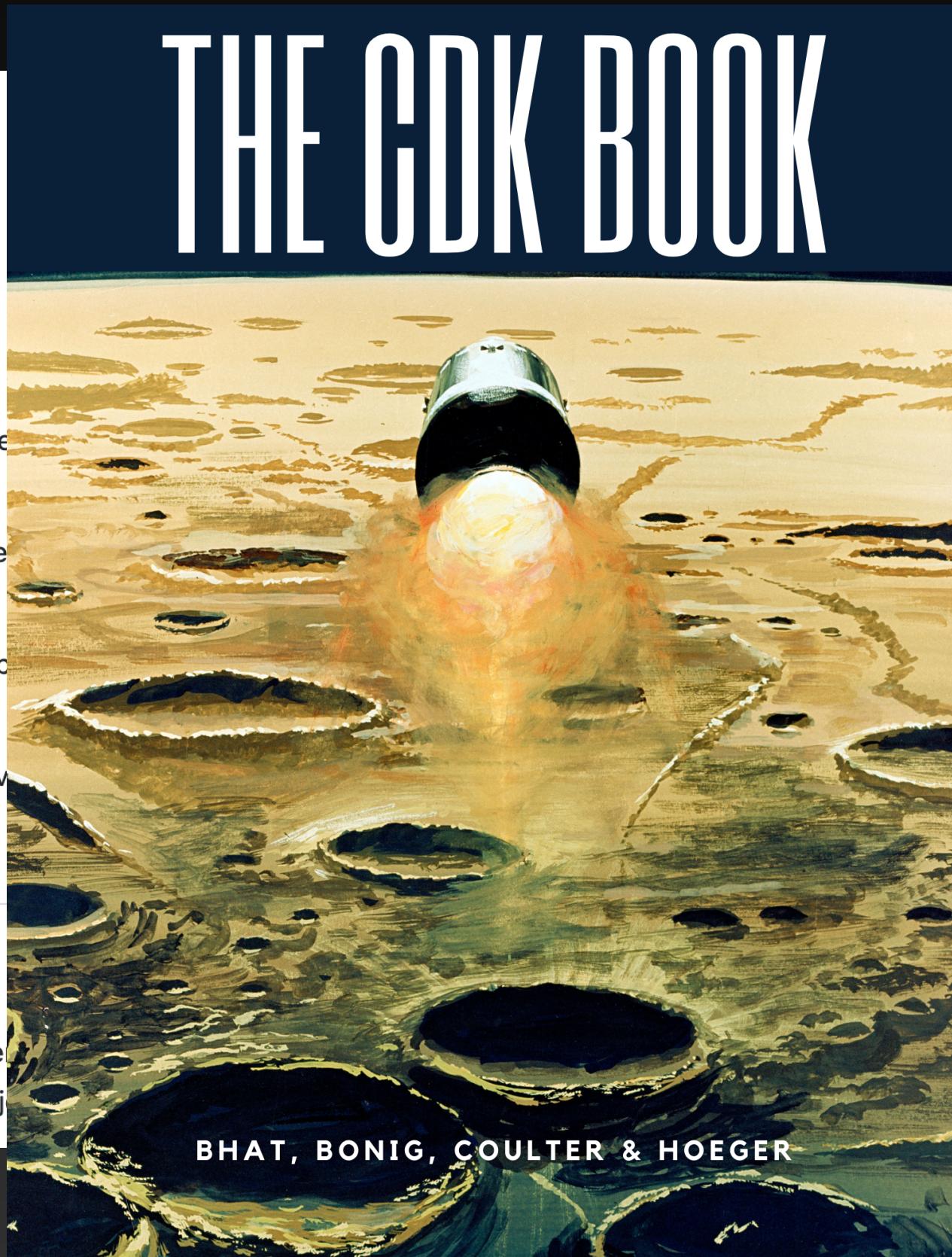
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 **CDK Day**  
30th April 2021

 Watch CDK Day



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**Obrigado!**

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