
AWS
re:Invent

SEC316

Comparing AWS Deployment Tools to Manage Multiple Accounts

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AWS

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Am I in the right place?

THE RIGHT TALK

- This is a 300+ level talk
- Use of solutions like these may require expertise above and beyond that which can be supported by AWS Support or Service Teams
- Some familiarity with AWS concepts and technologies is assumed

Agenda

- Example customer environments
- Available tools
- Tooling decision criteria
- How our customers achieved their goals, with the right tool



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Deployment tool caveats

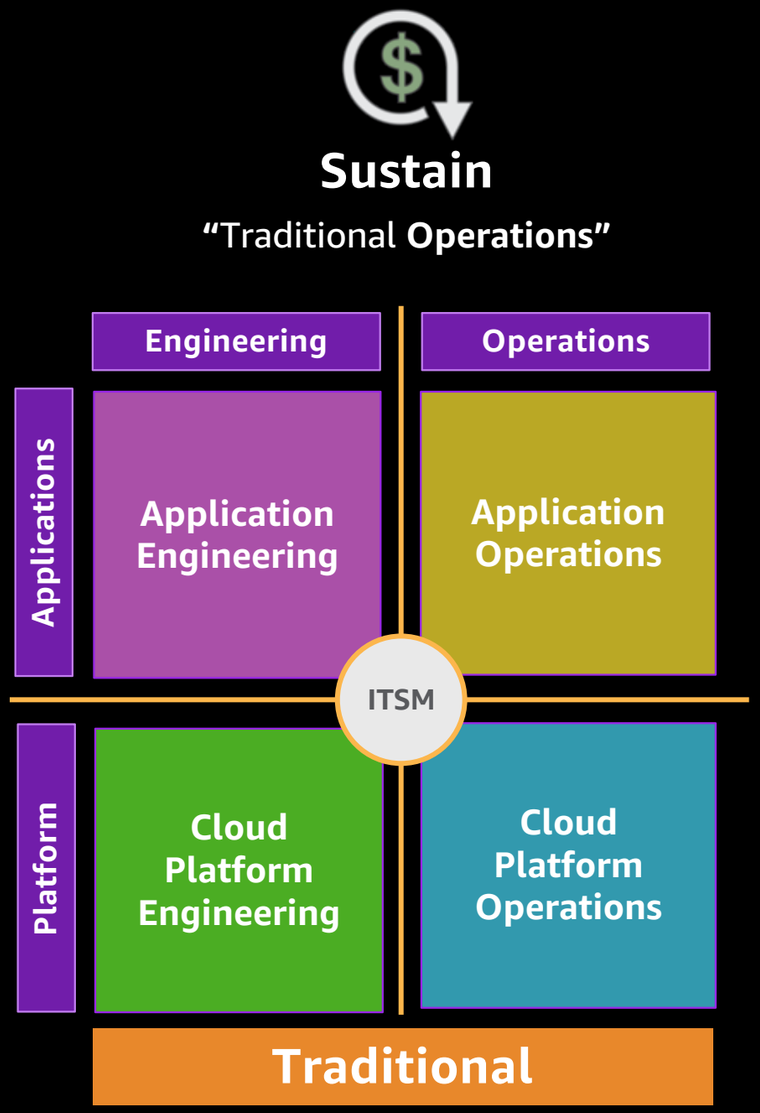
- New tools (both Amazon and 3rd party) come out or are updated regularly
- There is no such thing as a comprehensive listing of all tools out there, so the tools listed here could be viewed as representative of a model, rather than the only tool available
- Our customers who used these tools found they solved their issues for their use cases; your mileage may vary

Customer environments



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Ana - Sustain



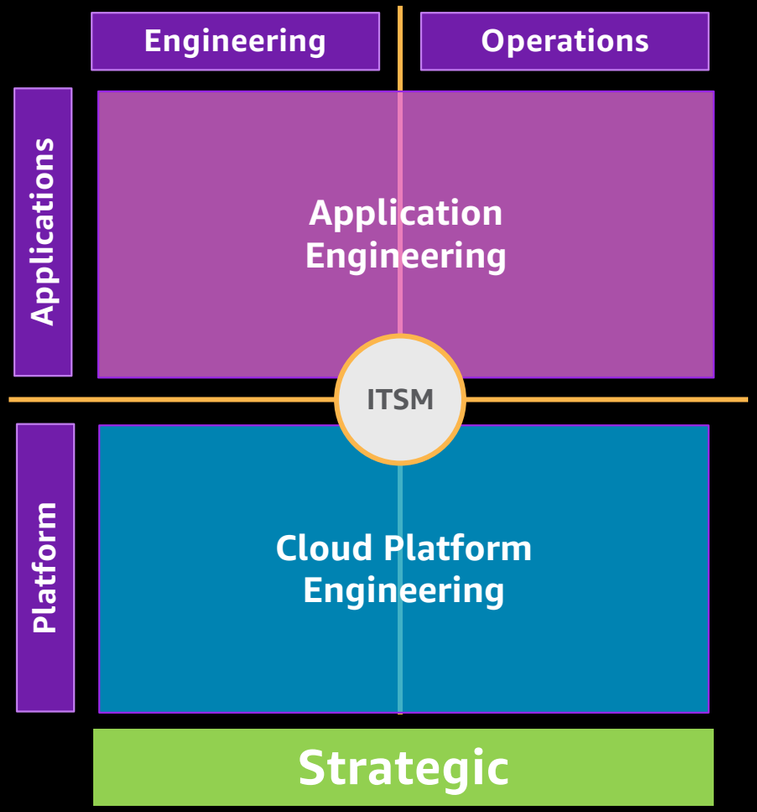
- Each group uses their own toolset(s) and uses ticketing systems to interact
- The schedule for deployments is 1 per quarter with a “War-Room” approach of large deployments and all groups working together over a weekend to deploy changes
- Scalability has been an issue, since the Infrastructure Engineering and Operations Team is required for all application roll-outs across many applications

Bob – CloudOps



Optimize

“CloudOps”



- CloudOps deploys infrastructure for Application teams and responds to ticketed requests
- The app teams deploy as often as they like, but infrastructure changes may take 2-4 weeks (to allow for Security reviews)

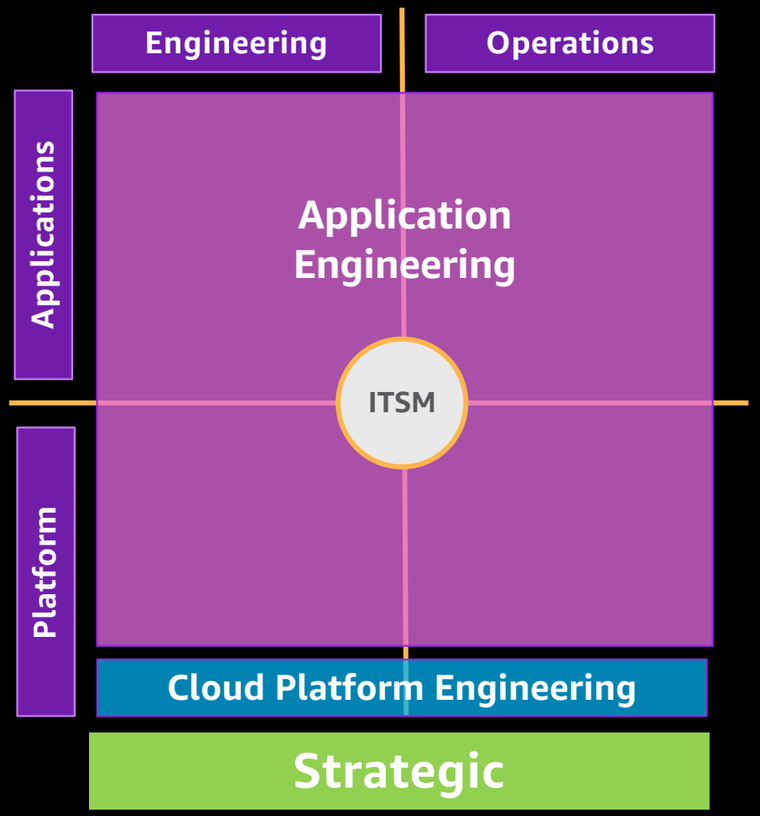
- Development Agility / Speed is difficult due to the back and forth required to perfect the infrastructure for each application

Carlos – DevOps



Grow

“DevOps”



- The App team is responsible for the application and can deploy as often as they like
- Each DevOps team uses their own pipeline to create / update their own infrastructure, and production deployments aren’t uniformly governed

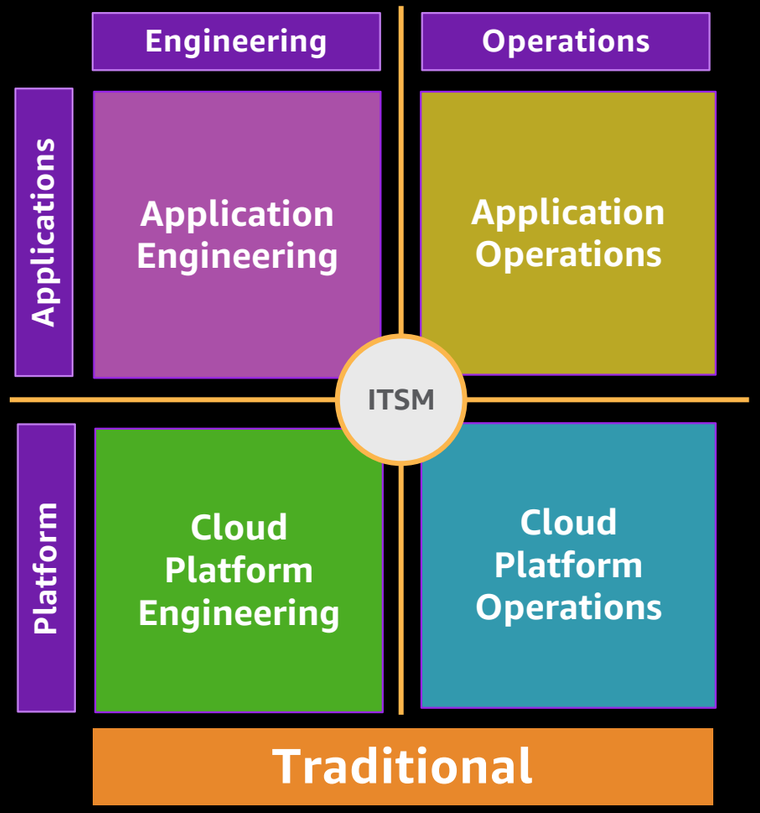
- Governance is suffering due to the need for standardized compliance within pipelines

Customer environments



Sustain

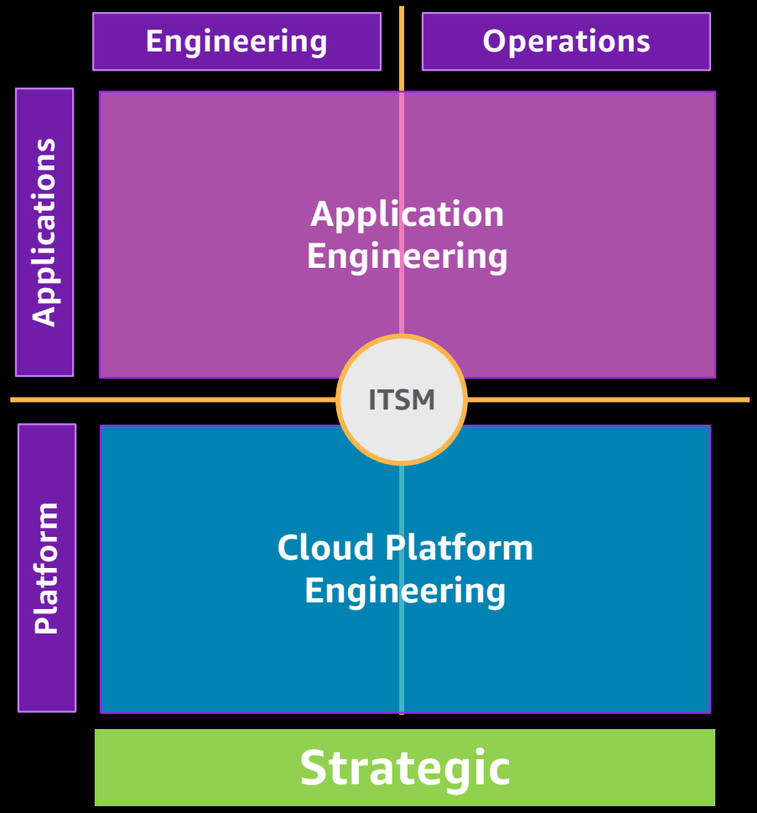
"Traditional **Operations**"





Optimize

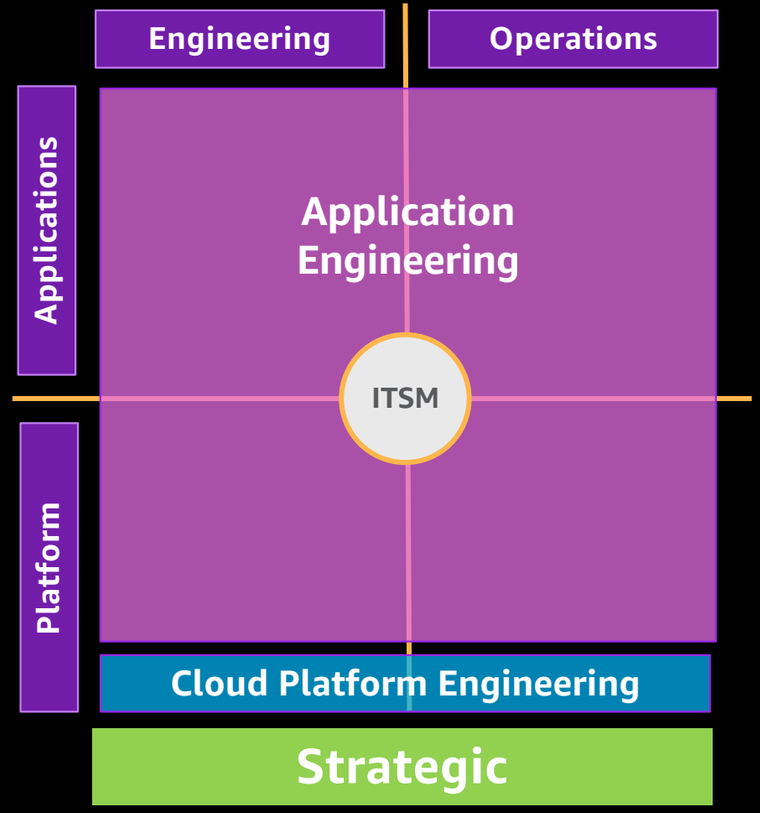
"CloudOps"





Grow

"DevOps"



Examples of available tools



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Deployment tools discussed

- AWS Service
  - AWS CloudFormation
- Open Source Tools
  - Service Catalog Tools
  - AWS Deployment Framework

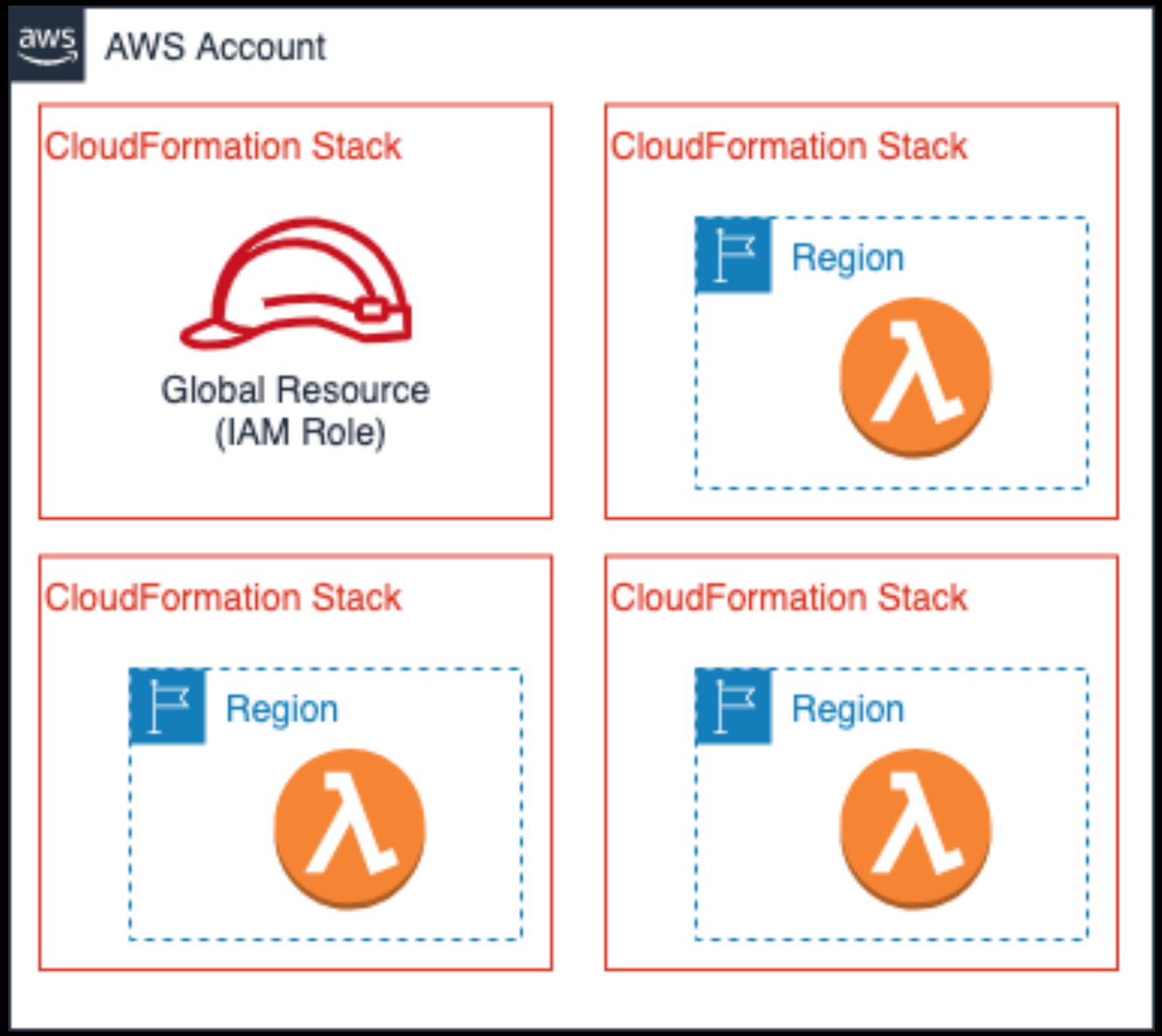
CloudFormation Stacks and StackSets



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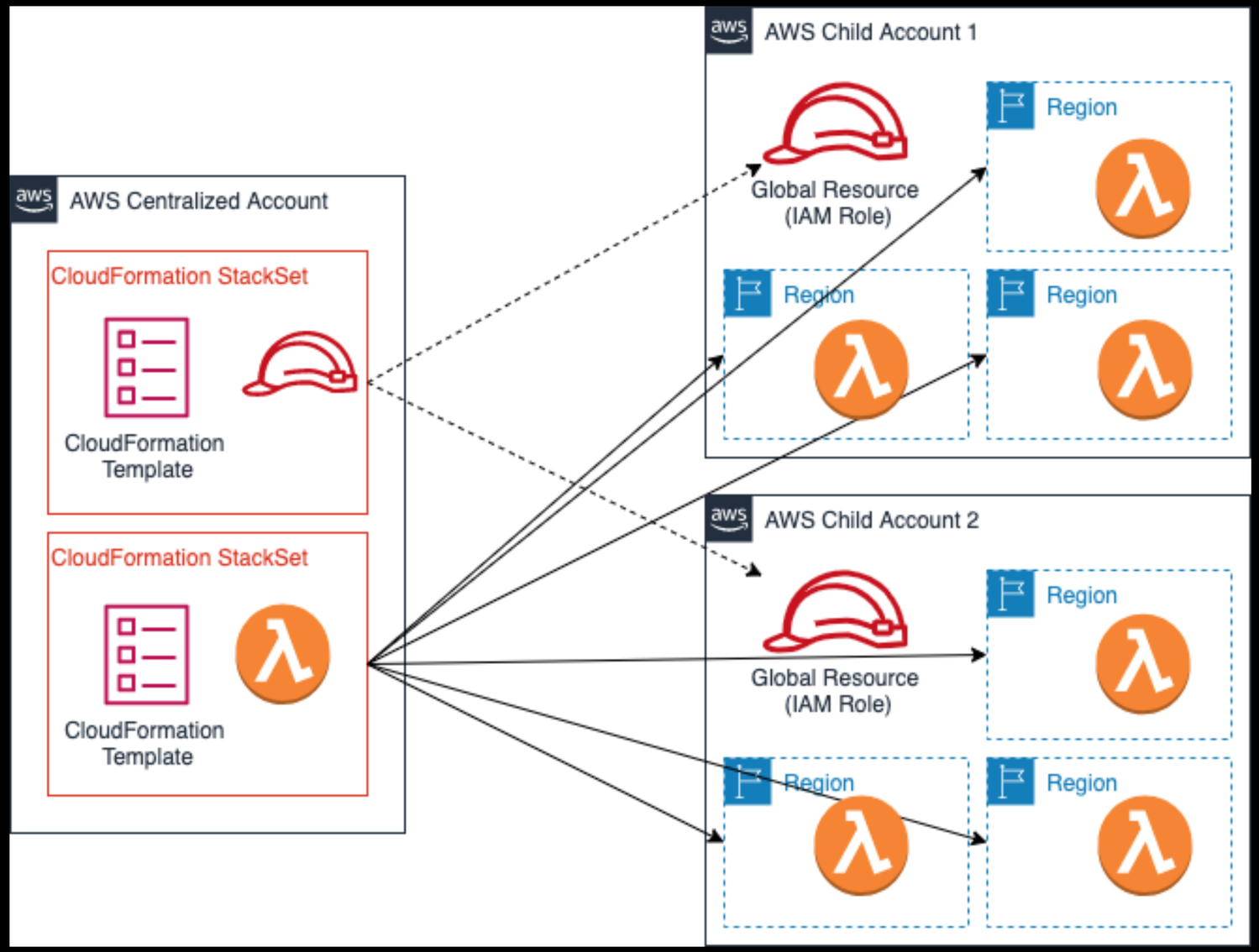
AWS CloudFormation Stacks



- AWS CloudFormation Stacks are templates of code that instantiate resources within the local account and region

- Stacks create the resources and infrastructure to run your applications

AWS CloudFormation StackSets



- AWS CloudFormation StackSets pushes your template out to associated accounts and regions and **immediately instantiates** the resources
- Allows a Platform Team to push guardrails and infrastructure into accounts from a centralized account

Service Catalog Tools

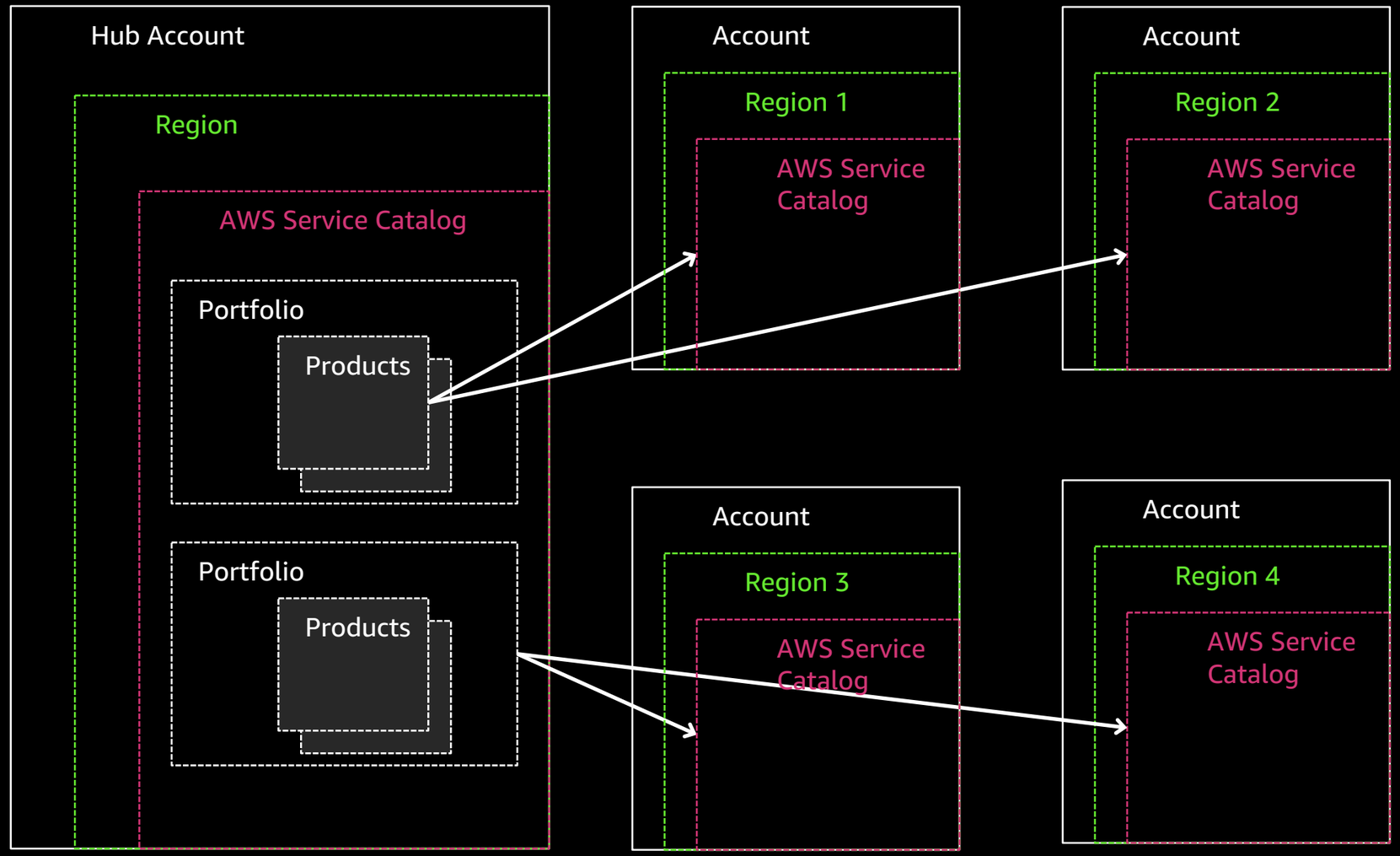


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Service Catalog Factory

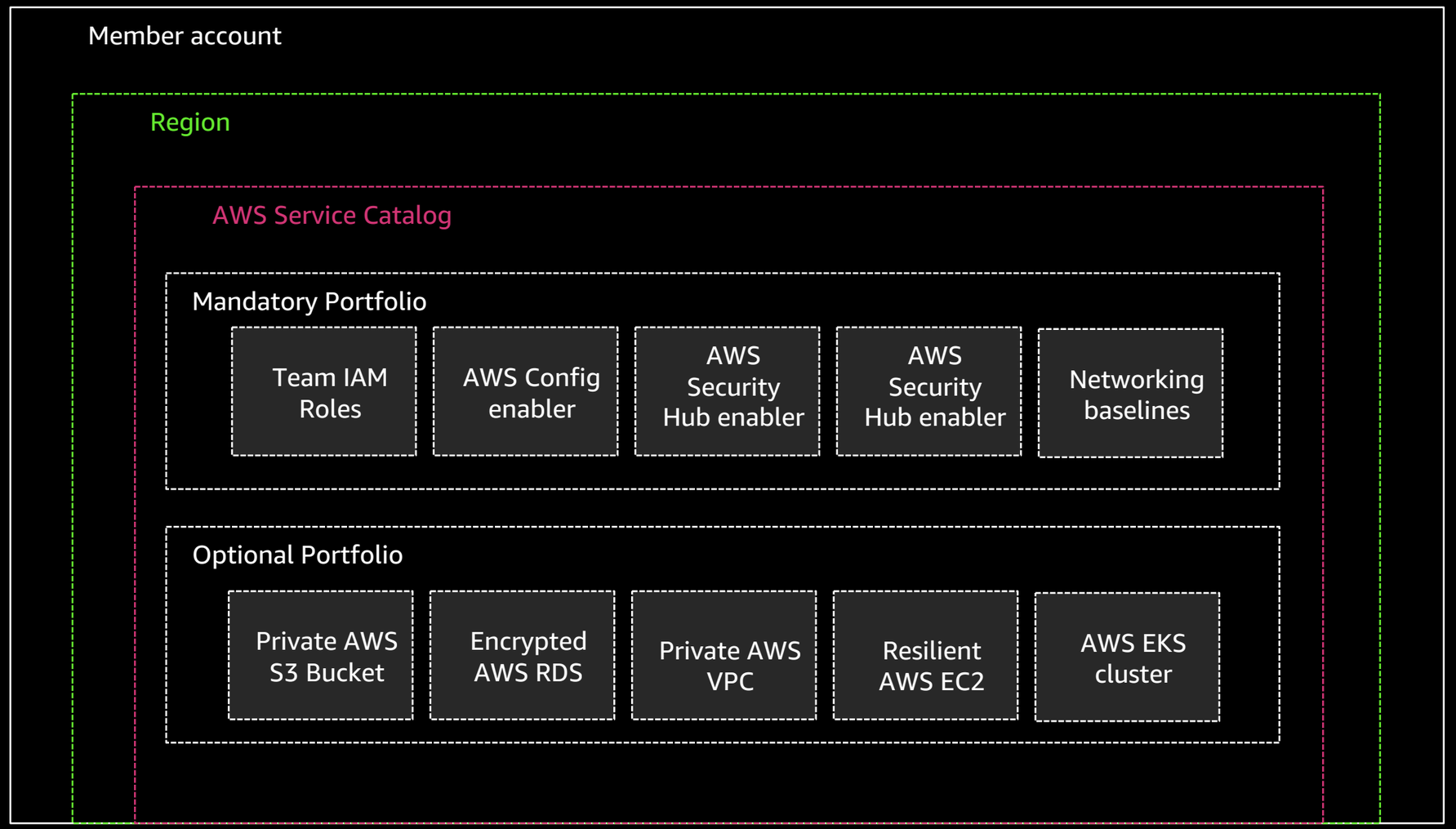
Provisioning products and sharing portfolios



- Factory enables the sharing and copying of portfolios and products from a Hub account to multiple regions

Service Catalog Puppet

Build your portfolio of products



- Puppet shares the portfolios with member accounts
- Puppet also manages which products are instantiated by default vs. simply enabled as an optional product

AWS Deployment Factory

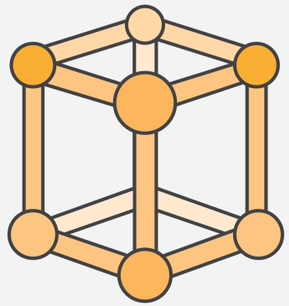


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AWS Deployment Framework

Pipeline Generation

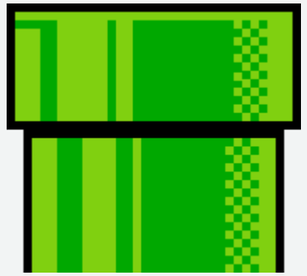


- **Account Bootstrapping**
  - Based on AWS Organizations organizational units
  - CloudFormation based
  - Automated and updateable
  - ADF base resources (+ SCPs)

- Creates pipelines within the deployment account, with cross-account permissions into the member accounts

AWS Deployment Framework

Pipeline Operation



- **Deploying via Pipelines**
  - Based on AWS Organizations organizational units
  - Allows for Continuous Delivery or Continuous Deployment
  - Repeatable, tested and secure manner of Deployment
  - Based on AWS Native Services

- Deploys code from the developers code repository into the specified target accounts

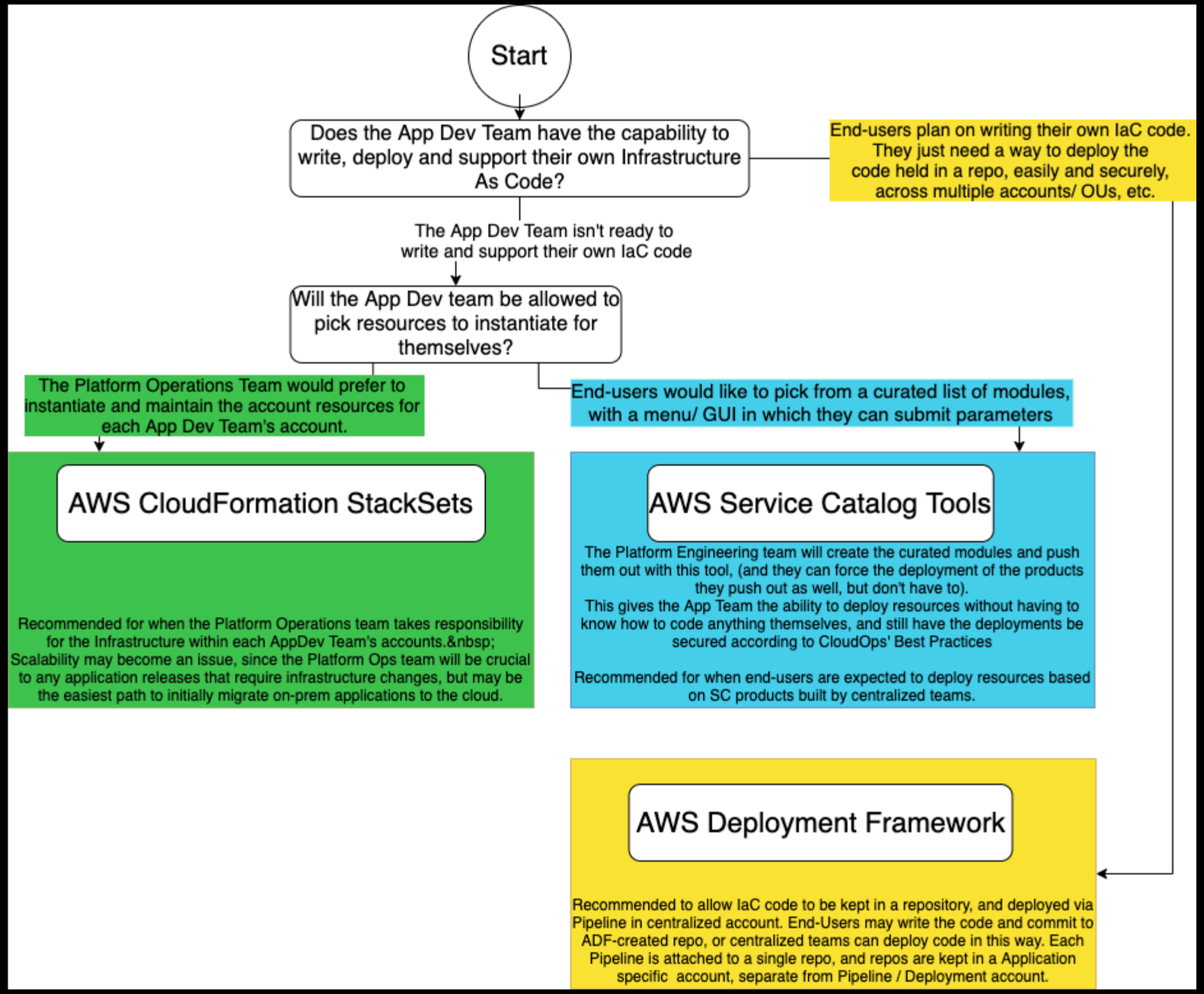
Matching the tooling to the right use case / customer



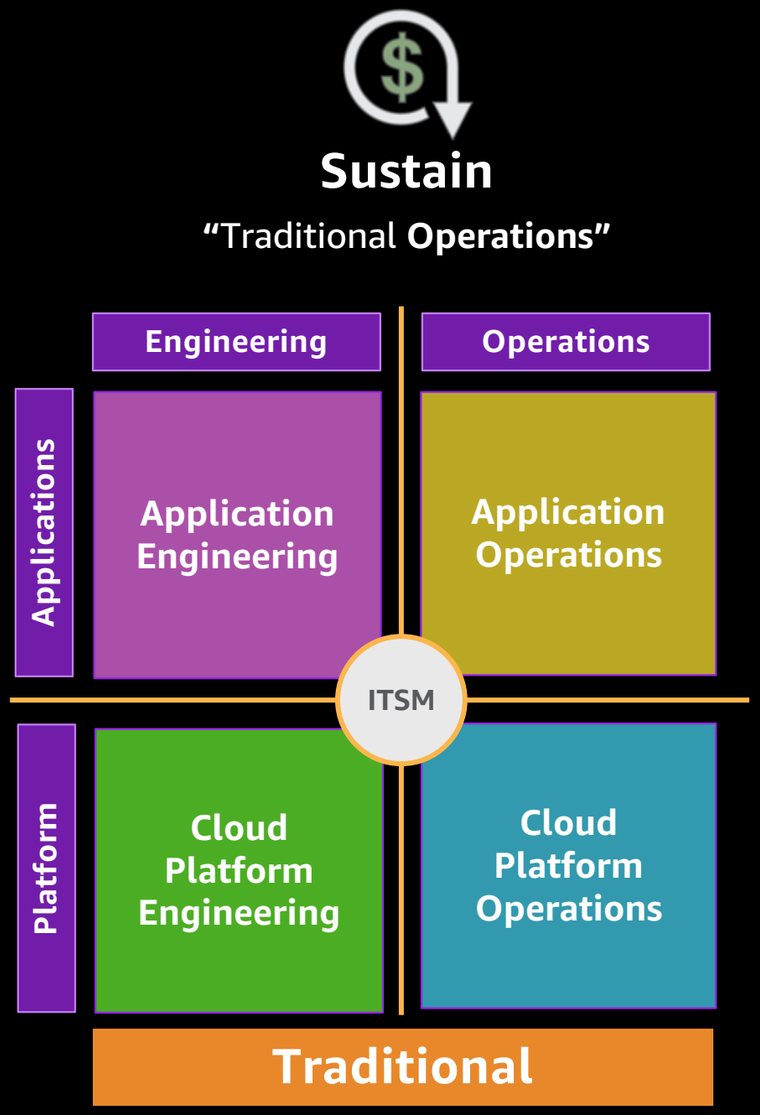
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Decision flow

- Decisions:
  - Whether the App Teams can write / support their own Infrastructure As Code
  - Whether Platform Team allows end-users to instantiate their own resources



Success for Ana with CloudFormation StackSets



Application Engineering

- Submits requests to Platform Team for needed infrastructure
- Writes the application code to use provided infrastructure

Cloud Platform Engineering

- Writes the templates used within the StackSets
- Accumulates a library of templates to address App Dev needs

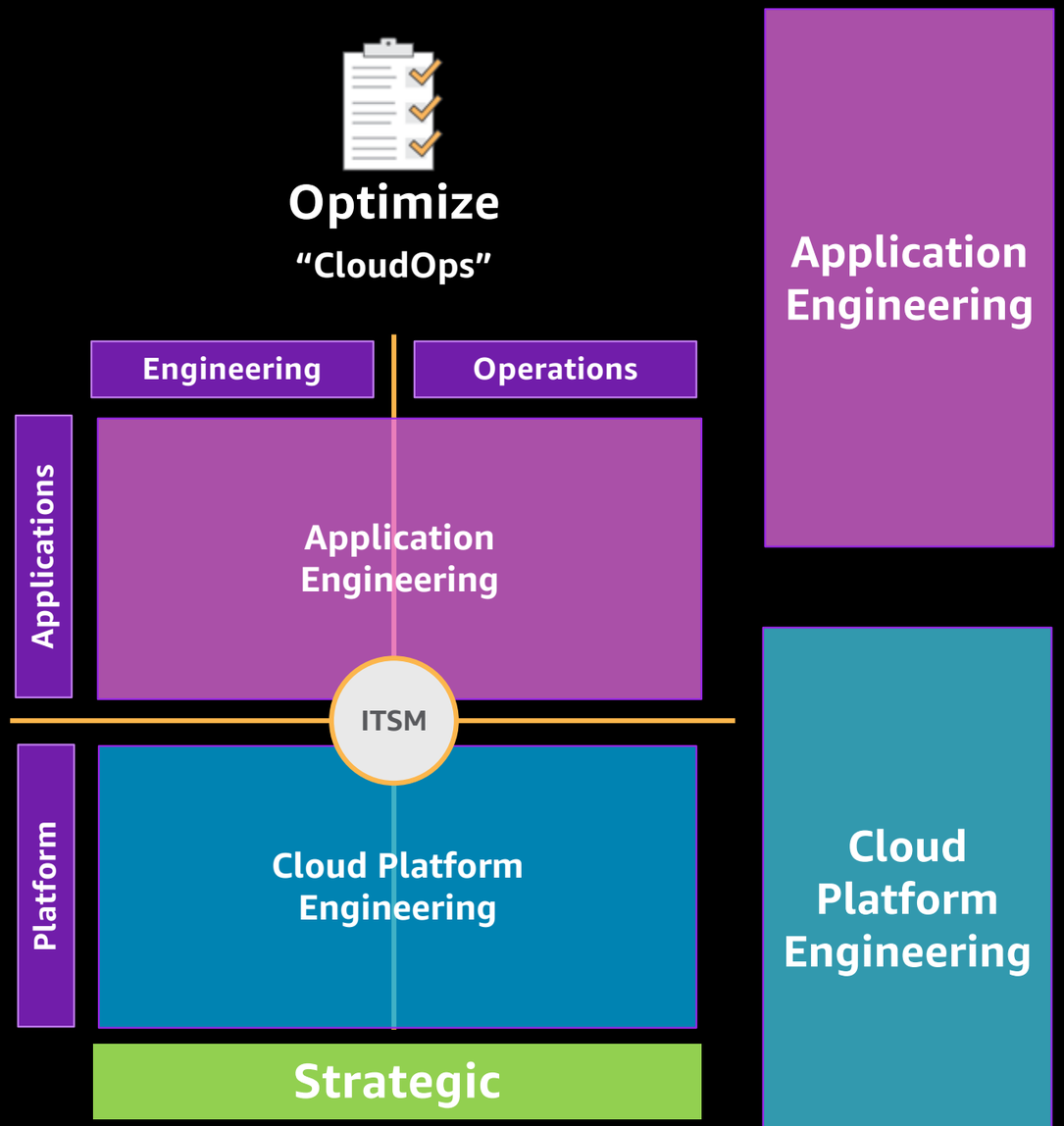
Cloud Platform Operations

- Creates the StackSets from Engineering templates
- Applies the templates to accounts and regions

Application Operations

- Deploys and supports production application

Success for Bob with Service Catalog Tools



Application Engineering

- Submits requests to Platform Team for infra
- Chooses the optional components that best fit the application needs
- Writes the app code to use the existing infra
- Deploys / supports Production application

Cloud Platform Engineering

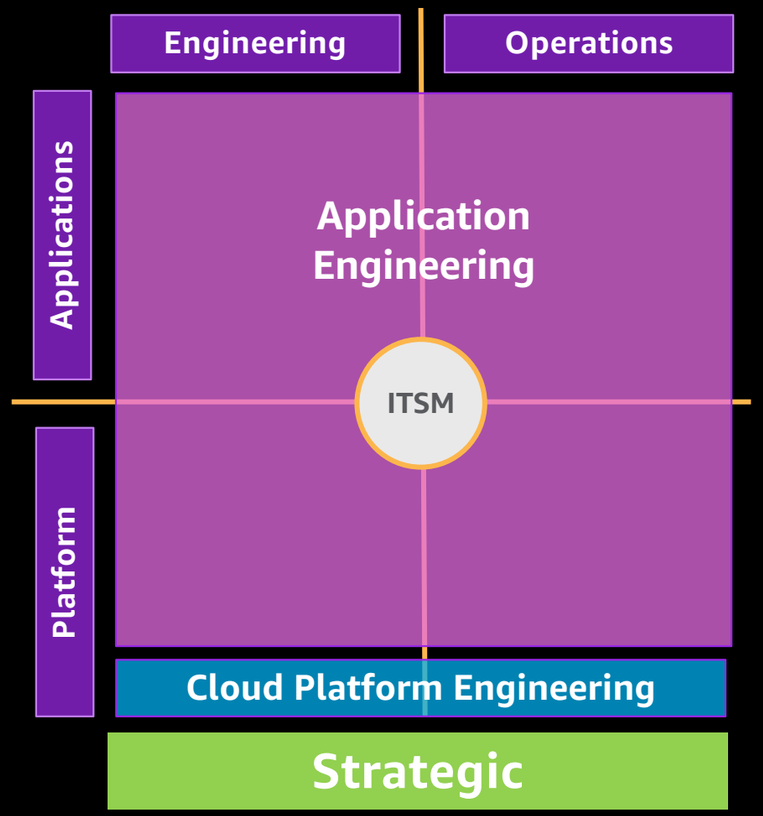
- Creates the templates used within Service Catalog Tools
- Provides portfolios to accounts and regions and works closely with App Engineering to ensure their requirements are met with templates

Success for Carlos with AWS Deployment Factory



Grow

“DevOps”



Cloud Platform Engineering

- Creates and secures the standardized pipelines used within AWS Deployment Factory
- Works with Security to ensure each pipeline has / is using least privilege
- Onboards and supports the App Teams

Application Engineering

- Choose their own infrastructure that best fits the application needs
- Writes the Infrastructure as Code and saves code into individual repos
- Decides when and how often to deploy code into Dev and Production
- Deploys / supports Production application

Tool summary

- AWS Service

  AWS CloudFormation Stacks (https://amzn.to/2H967kH)

  AWS CloudFormation StackSets (https://amzn.to/33TN5b5)





- AWS Solution

  CloudFormation Guard (https://bit.ly/3jXb2nC)



- Open Source Tools

  Service Catalog Tools

  SC Factory: (https://bit.ly/2H4IxWA)

  SC Puppet: (https://bit.ly/2H0r1T8)





  AWS Deployment Factory (https://bit.ly/3iUREGr)



Call to action

- Find your own organization among these three success stories
- Download the tools you’re interested in and give this a try in your own lab environments
- Establish a close working relationship with your internal customers so they can drive the most useful initial templates to start with

Thank you!

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