The bridge to possible

Realising DevOps through Cisco technologies

The Detail

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Technical Solutions Architects, UKI

Cisco Live!

BRKCLD-2991

Cisco Webex App

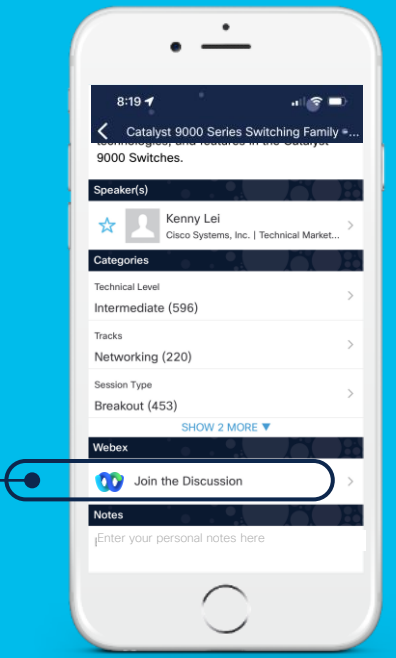
Questions?

Use Cisco Webex App to chat
with the speaker after the session

How

1. Find this session in the Cisco Live Mobile App
2. Click “Join the Discussion”
3. Install the Webex App or go directly to the Webex space
4. Enter messages/questions in the Webex space

Webex spaces will be moderated until February 24, 2023.



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Agenda

- Deploy the App
- Hybrid Cloud, Evolved
- WOW!
- What happened?
- The MicroServices pipeline
- The Infrastructure pipeline
- The Application pipeline
- What's next?

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Tool Terminology Slide

API – Lets one service communicate with another
CI/CD – Automated process for frequent delivery of a service
Execution Venue – A place where a transaction takes place
Pipeline – A series of steps to deliver a new service

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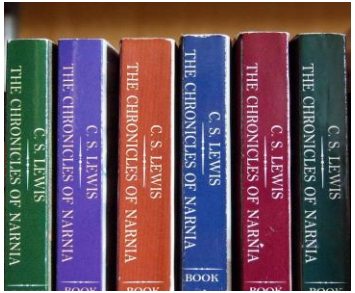
The Truth

PowerPoint



https://www.pexels.com/photo/the-chronicles-of-narnia-book-159778/

Fiction

https://www.publicdomainpictures.net/en/free-download.php?image=tree&id=173260

Reality

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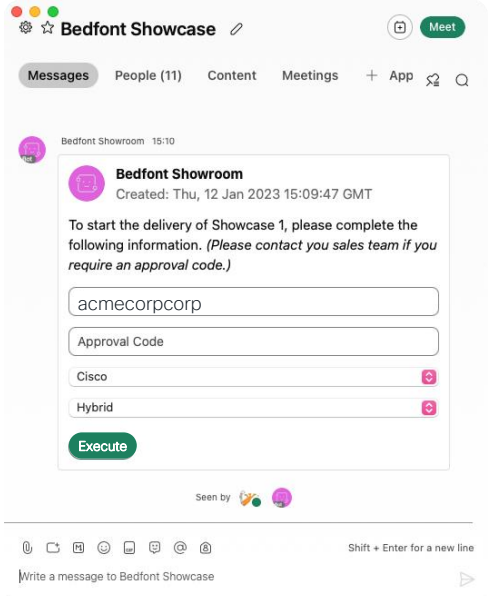
Deploy the App

Audience Participation...

It’s On The Cards…



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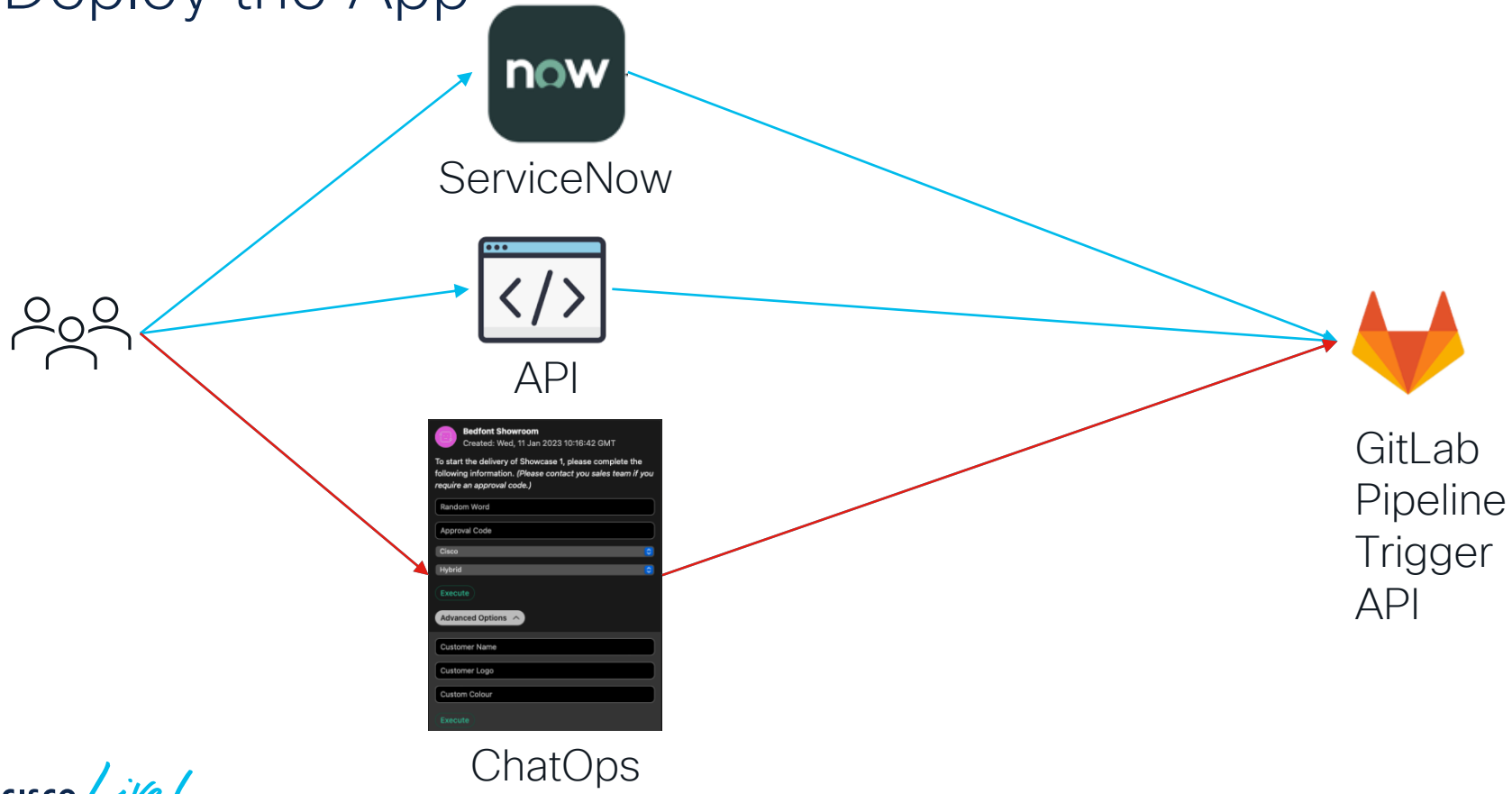
… We'll come back to this later…

Demo

A demonstration of launching the application deployment.

Deploy the App



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WARNING

Live Demo!!

The Art of the Possible

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Hybrid Cloud, Evolved

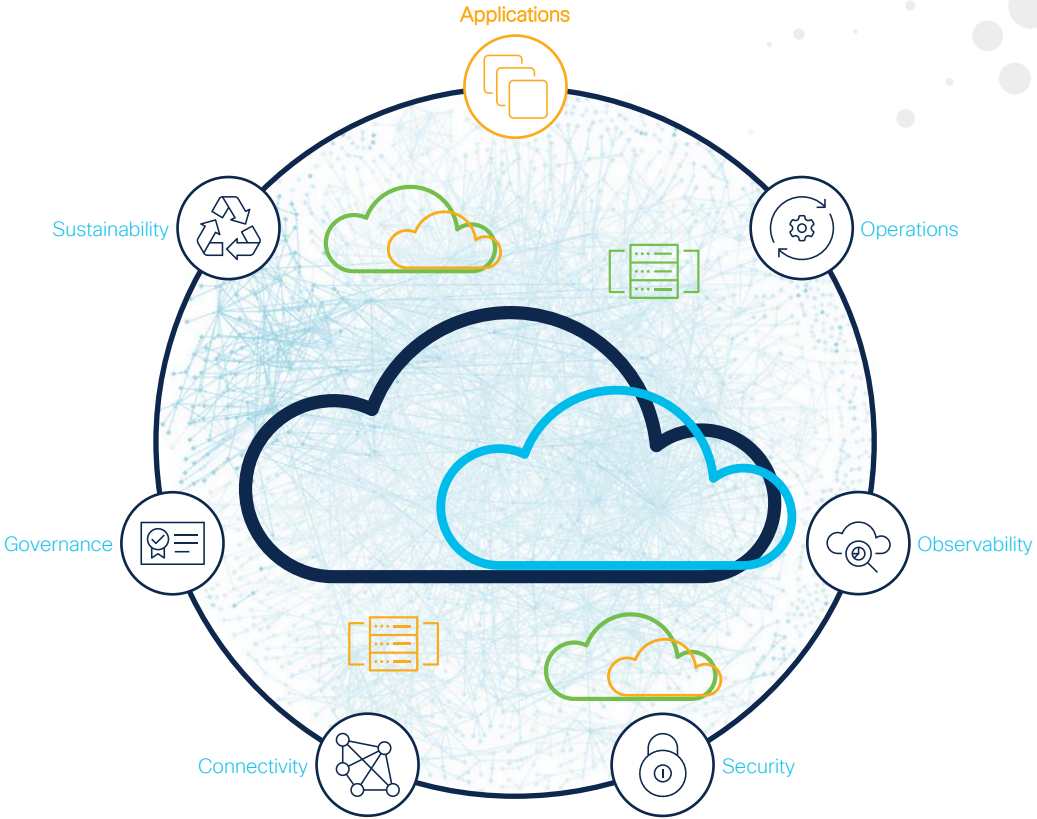
Digital Transformation

requires

Infrastructure & Operations Transformation

underpinned by

Hybrid Cloud, Evolved



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IT Resilience for the Digital Age

Seven core beliefs on what it takes to achieve resiliency

Solve for journeys, not applications

Take a risk-based approach

Leverage IT operations data

Design for the storm, not the blue skies

Adopt an engineering mindset

Avoid hero culture

Become proactive, not reactive

Source: McKinsey Digital – 11 May 2021- by Arun Gundurao, Jorge Machado, Rut Patel, and Yanwing Wong

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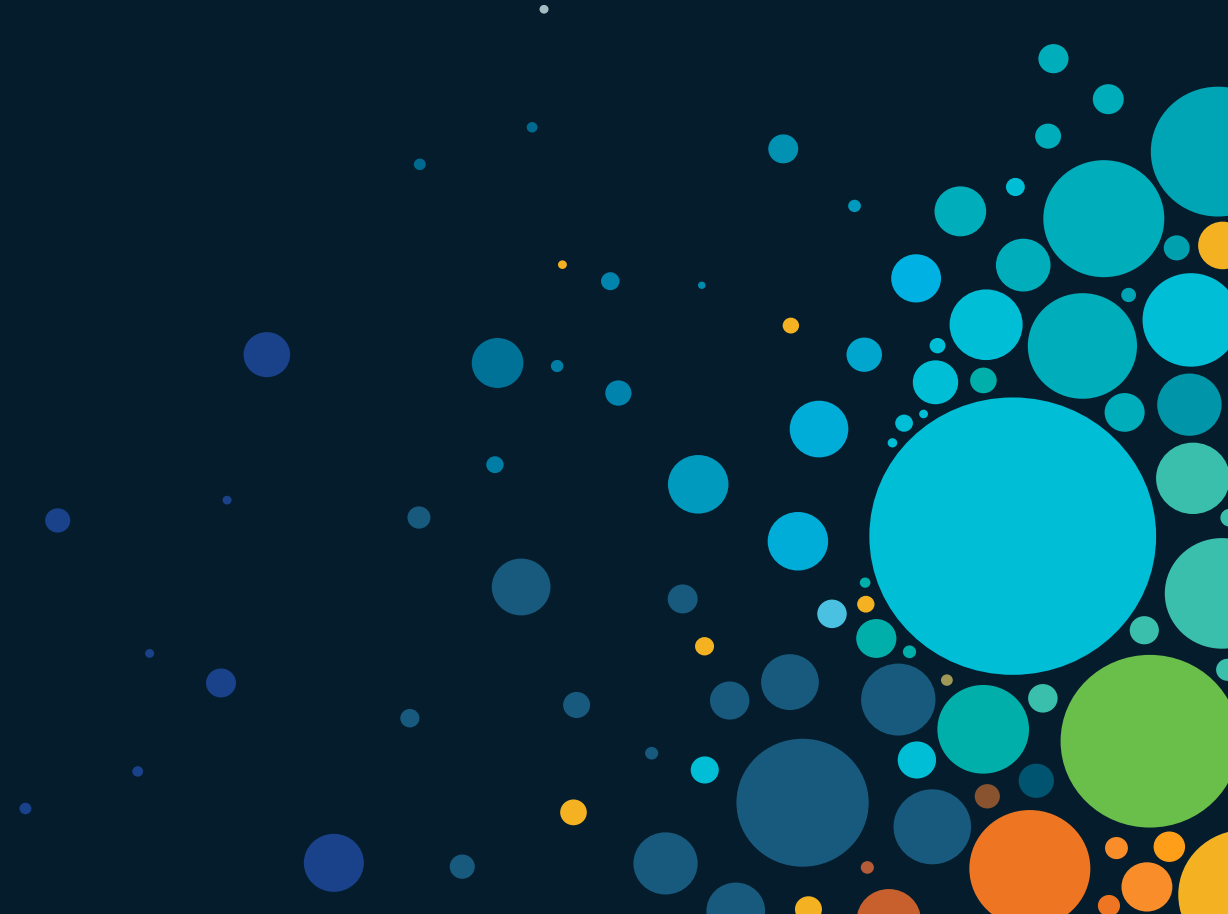
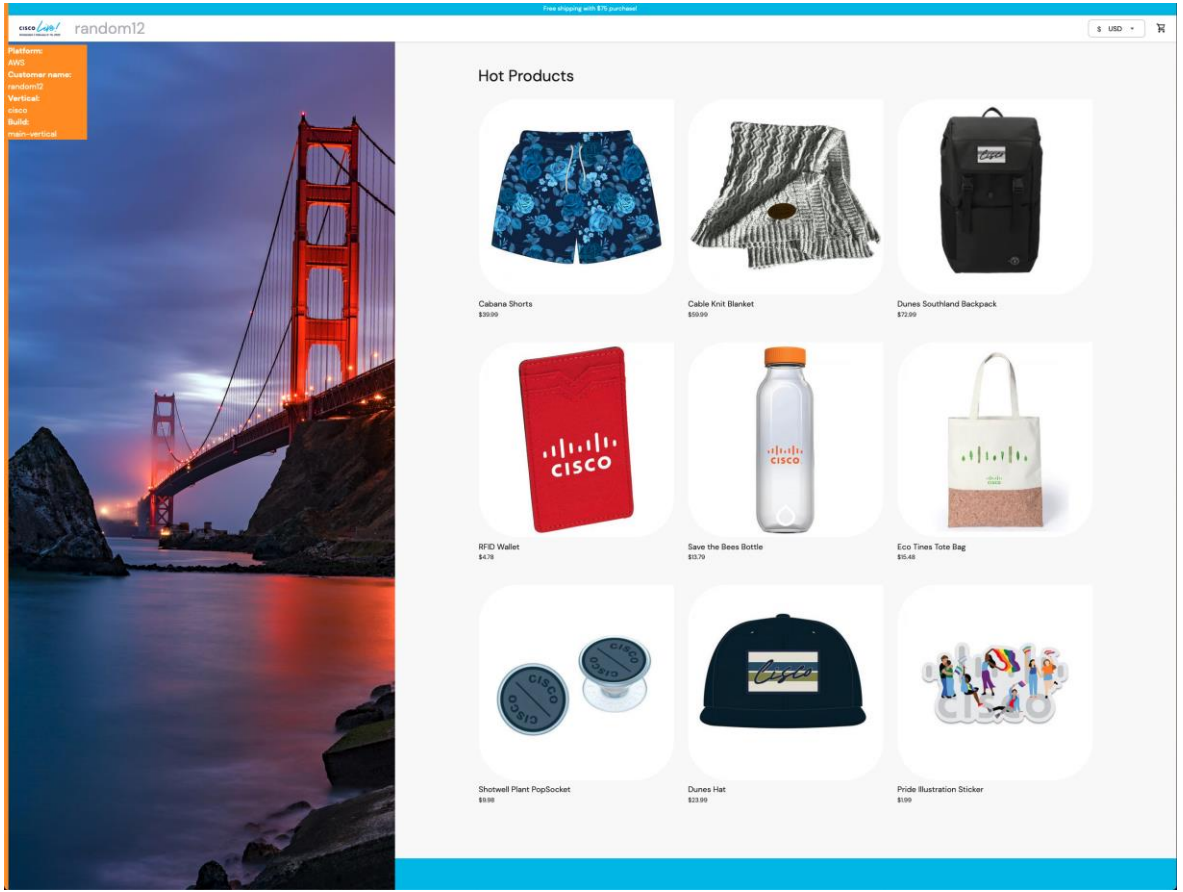
Now, why did we pick a card, and why is the name significant…?

WOW!



WOW!



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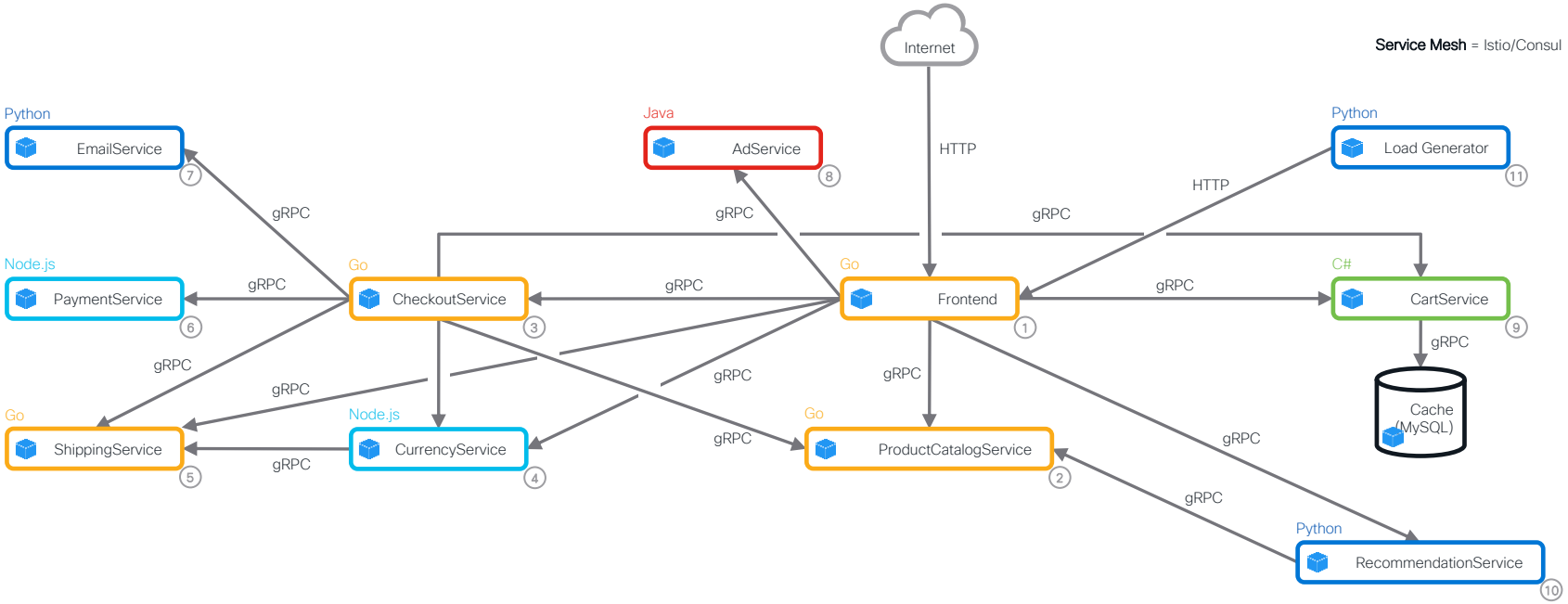
Demo

A demonstration of the deployed application.

What happened

What happened?

Google Cloud Microservices Demo Application



Source: https://github.com/GoogleCloudPlatform/microservices-demo

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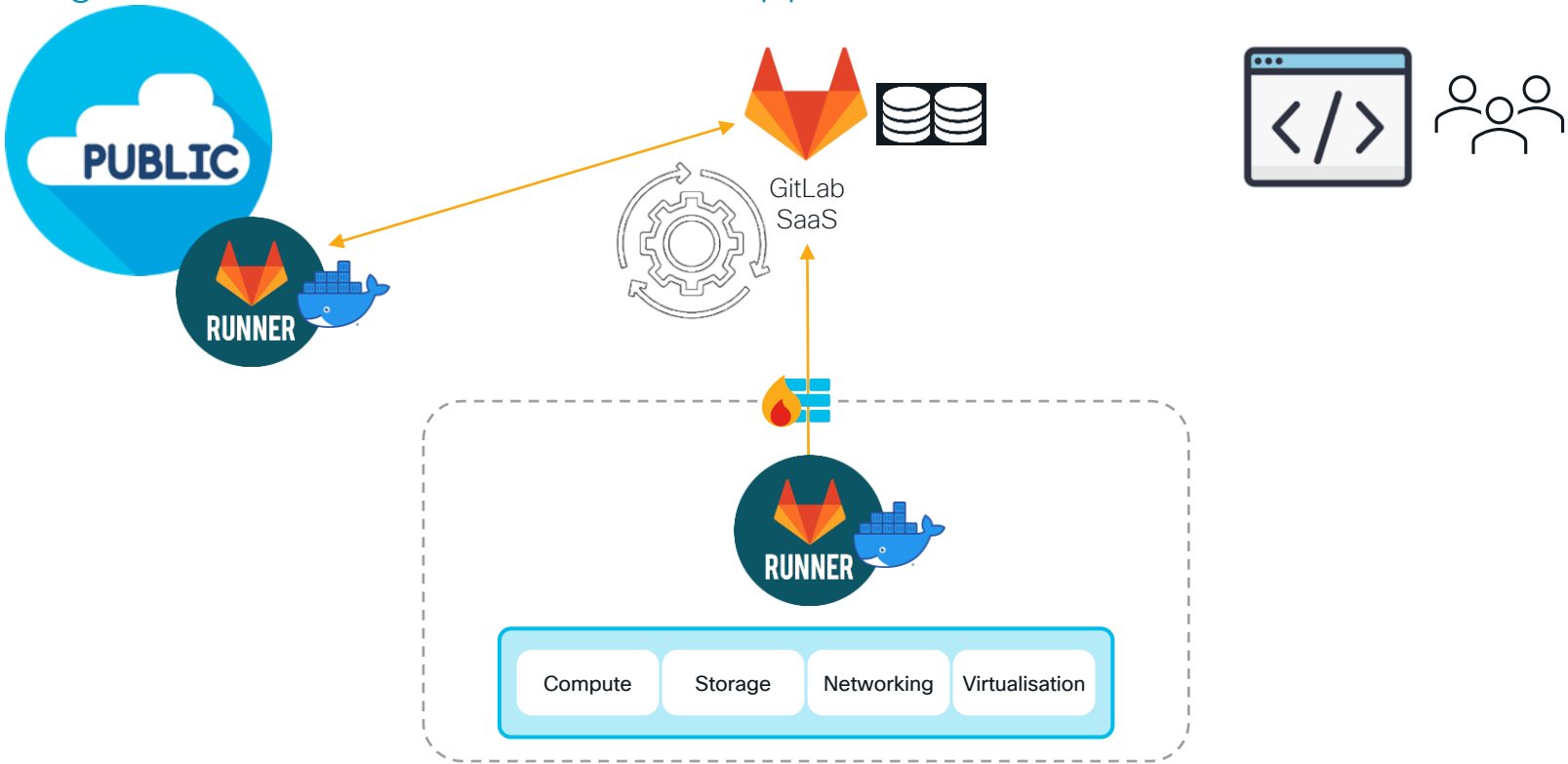
What happened?

Google Cloud Microservices Demo Application



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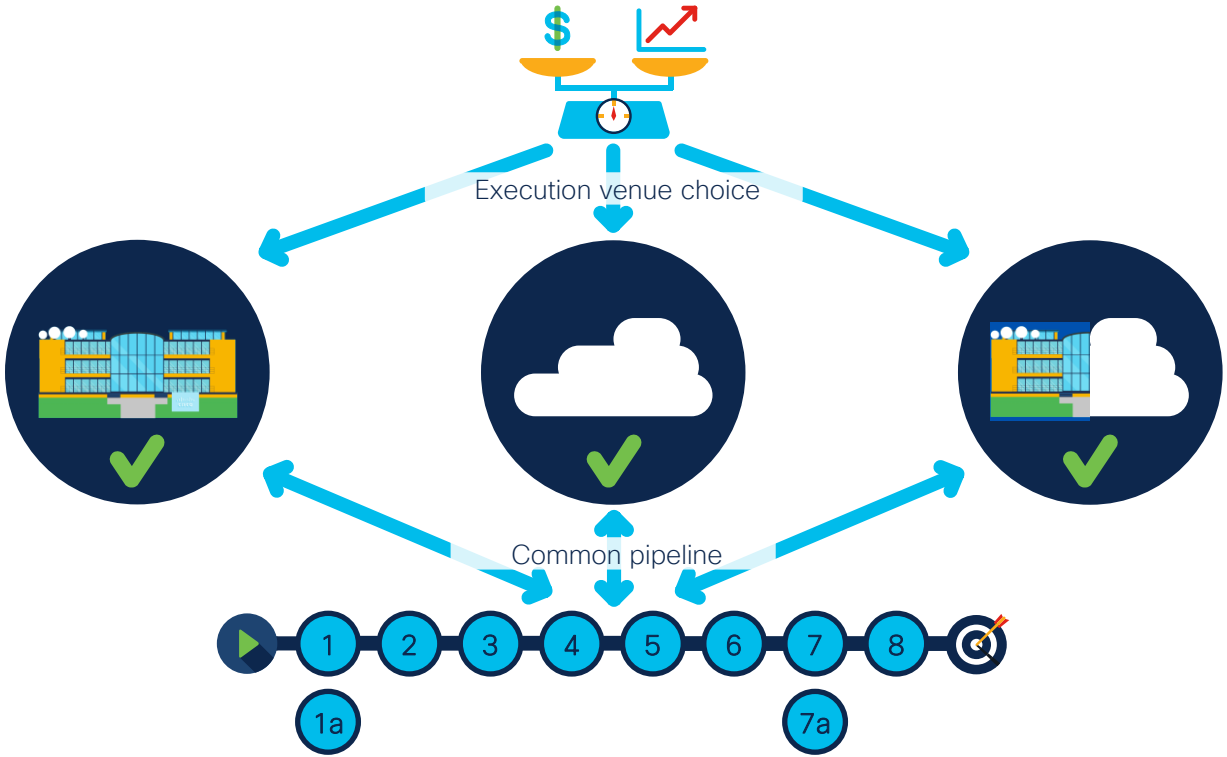
What happened?

The deployment options



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What happened?

The deployment stages

Input
API call from initial request is made to GitLab, with the request variables.

Validate
Request variables validated e.g., company name provided is valid for use in FQDNs, etc.

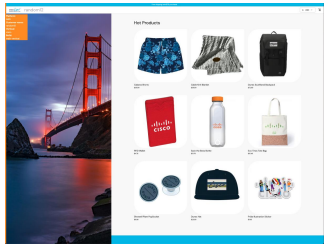
Test Infra
GitLab calls pyATS to confirm availability of basic network constructs

Deploy
Terraform plan executed, based on selected execution venue

GUI /Test
In parallel, GitLab:

triggers a synthetic client request to the front-end and grabs a screenshot

triggers a full end-to-end test via a Python script



Stages 1 and 1a | Stage 2 | Stage 3 | Stage 4 | Stage 5 | Stage 6 | Stages 7 and 7a | Stage 8 | DEPLOYED!

Preflight
GitLab provisions a Python container with a script to query IWO, via Intersight, to confirm resource availability

Plan
Terraform checks what already exists within the infrastructure compared with the required Terraform blueprint

Compliance
Confirmation that targeted Terraform plan has been successfully deployed

ThousandEyes tests are installed to confirm service availability

Webex
GitLab provides feedback to Webex confirming successful completion of the pipeline stages; a link to the pipeline that was triggered; a link to the front-end; and the screenshot from Stage 7

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What happened?

The solution stack

Cisco Solutions

NDO ACI

Networking

APIC Intersight IWO K8s

Platform Management

Thousand Eyes AppD Secure Workload

WebEx Teams PyATS Panoptica

Monitoring & Assurance

Supporting Solutions

Hashicorp Packer Terraform Consul VMWare AWS EKS Gitlab Docker Helm Ansible Trivy F5

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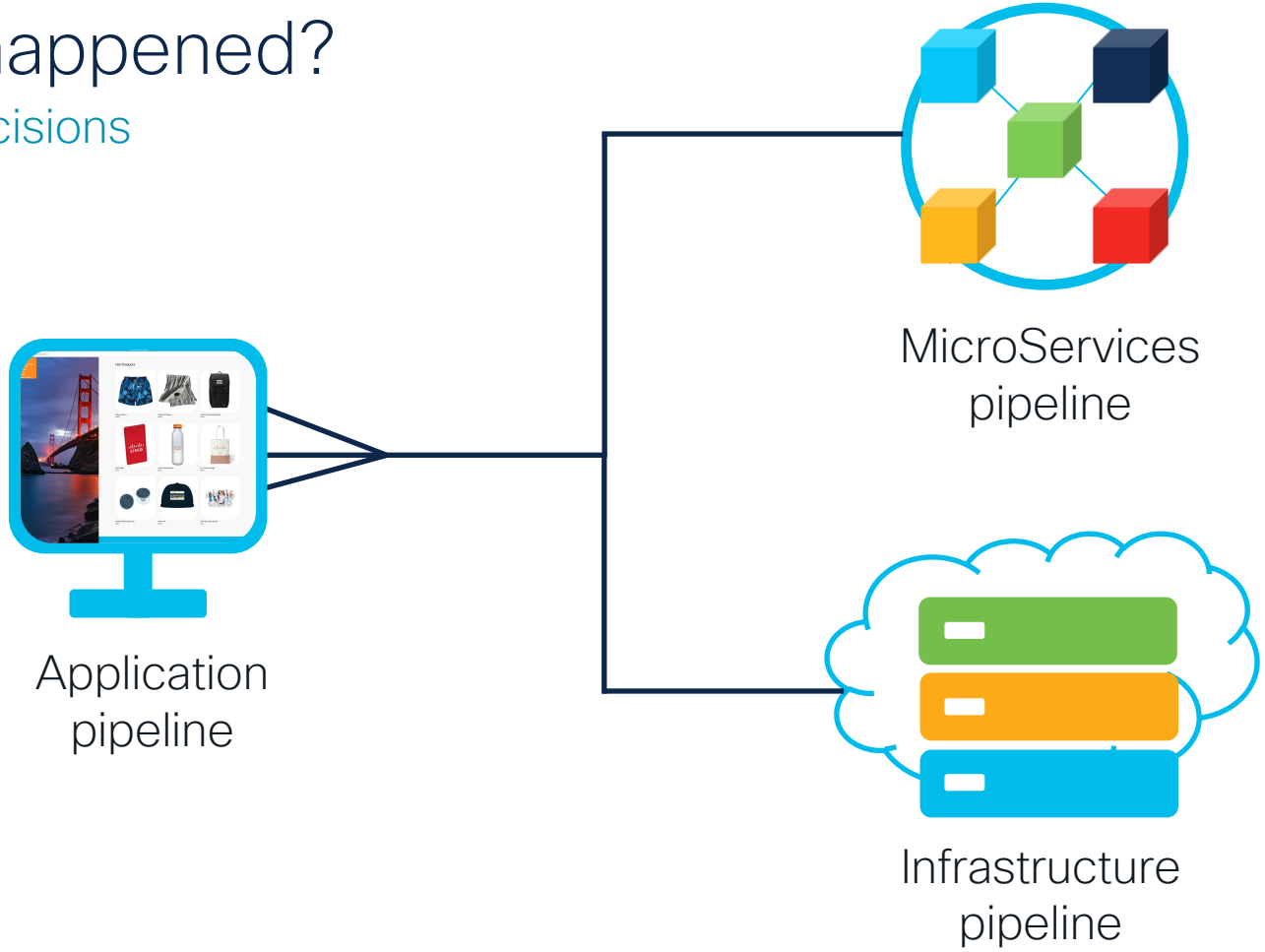
What happened?

Design decisions



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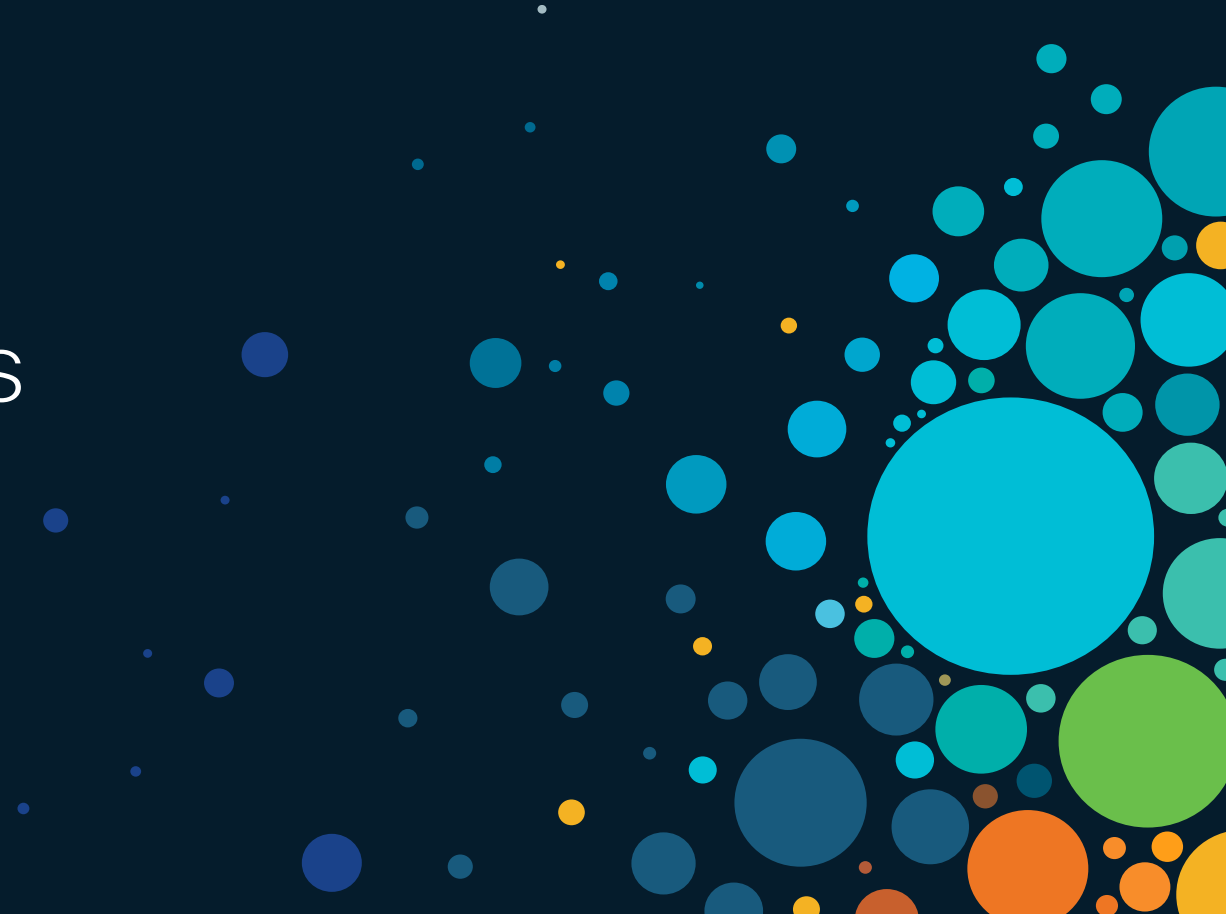
The MicroServices pipeline



The MicroServices pipeline

What happens

Input

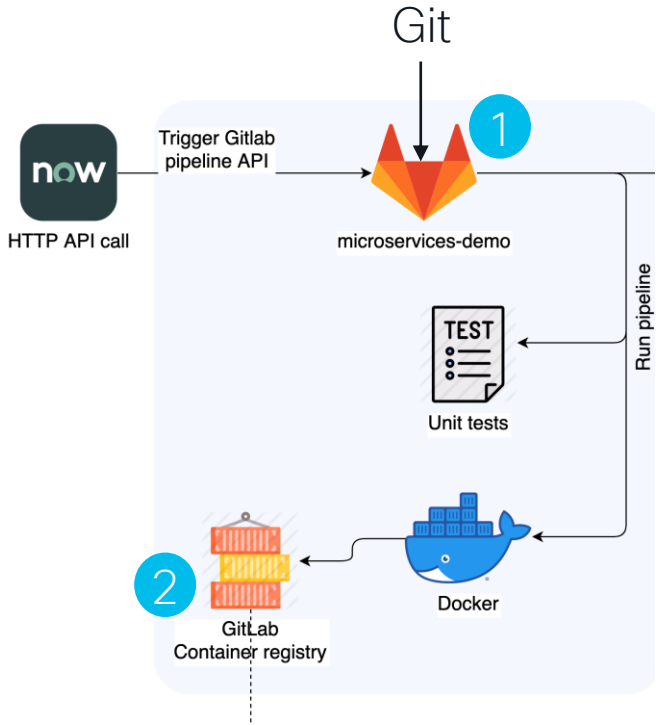
- Google Boutique App
  https://github.com/GoogleCloudPlatform/microservices-demo

Process

- GitLab repo
  - Customisations
  - Pipeline
  - Container Registry

Output

- New containers produced with customisations



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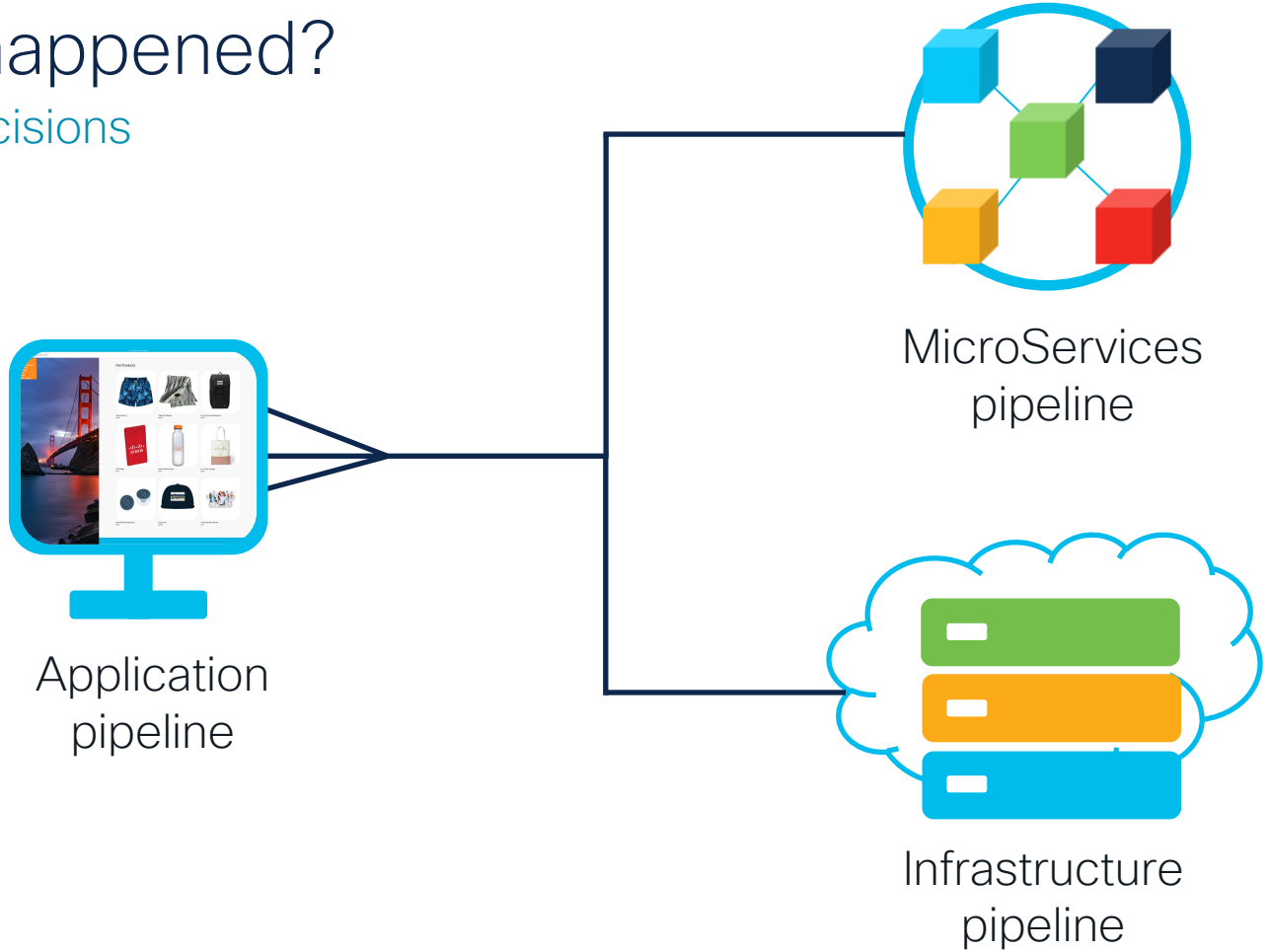
Demo

A demonstration showing the Microservices pipeline

What happened?

Design decisions



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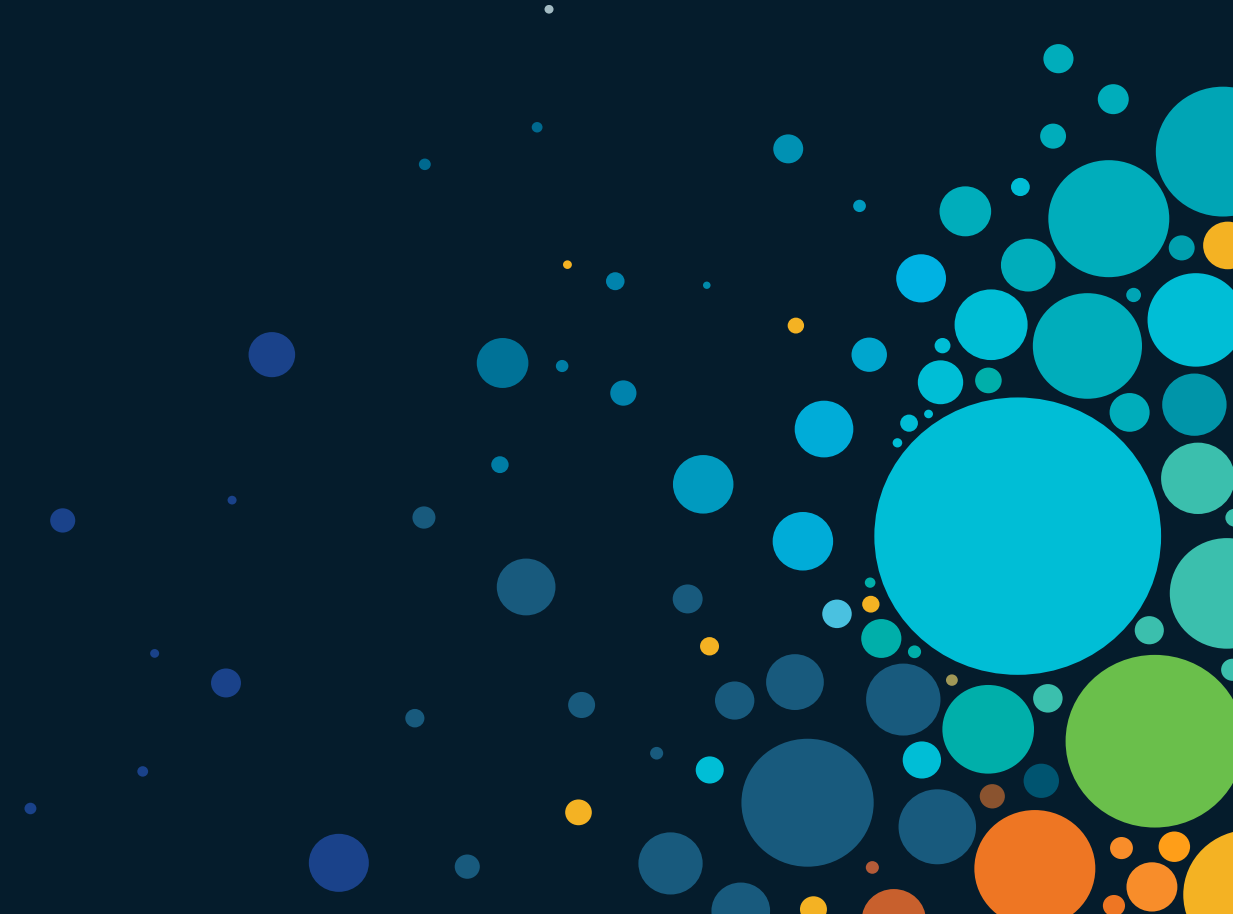
The Infrastructure pipeline



The Infrastructure pipeline

What happens

Input

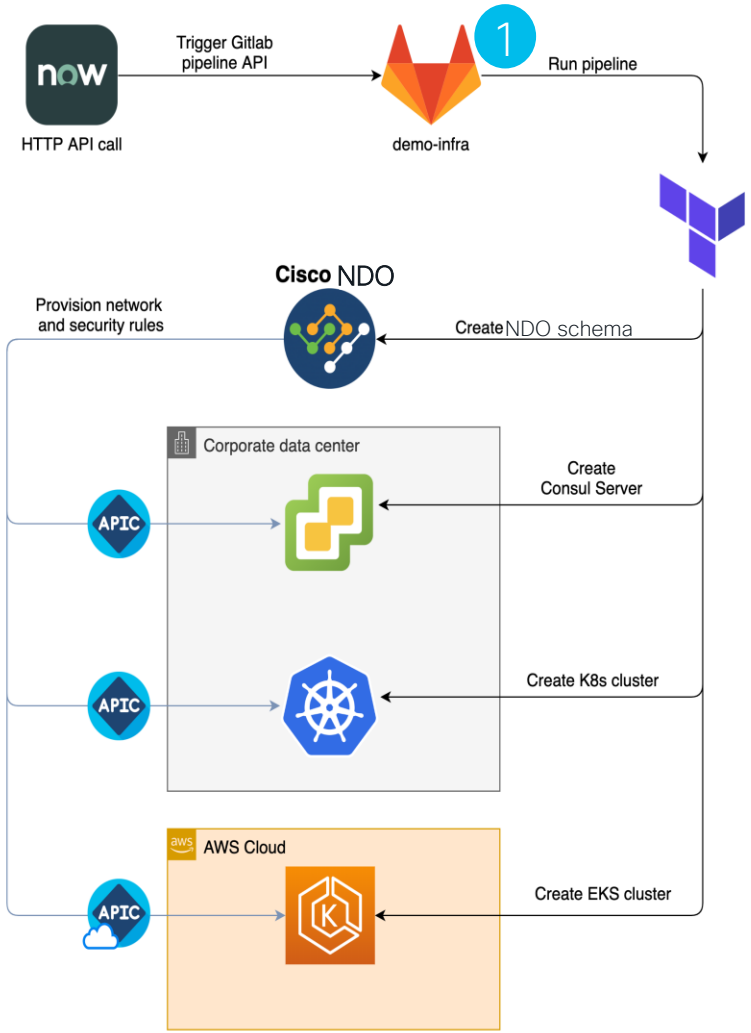
- API Parameters
  Subnets , names, BM host, enable additions

Process

- GitLab repo
  - Pipeline
  - VMware / K8s
  - ACI / AWS

Output

- Configured Infrastructure including on-premise, public cloud and supporting applications

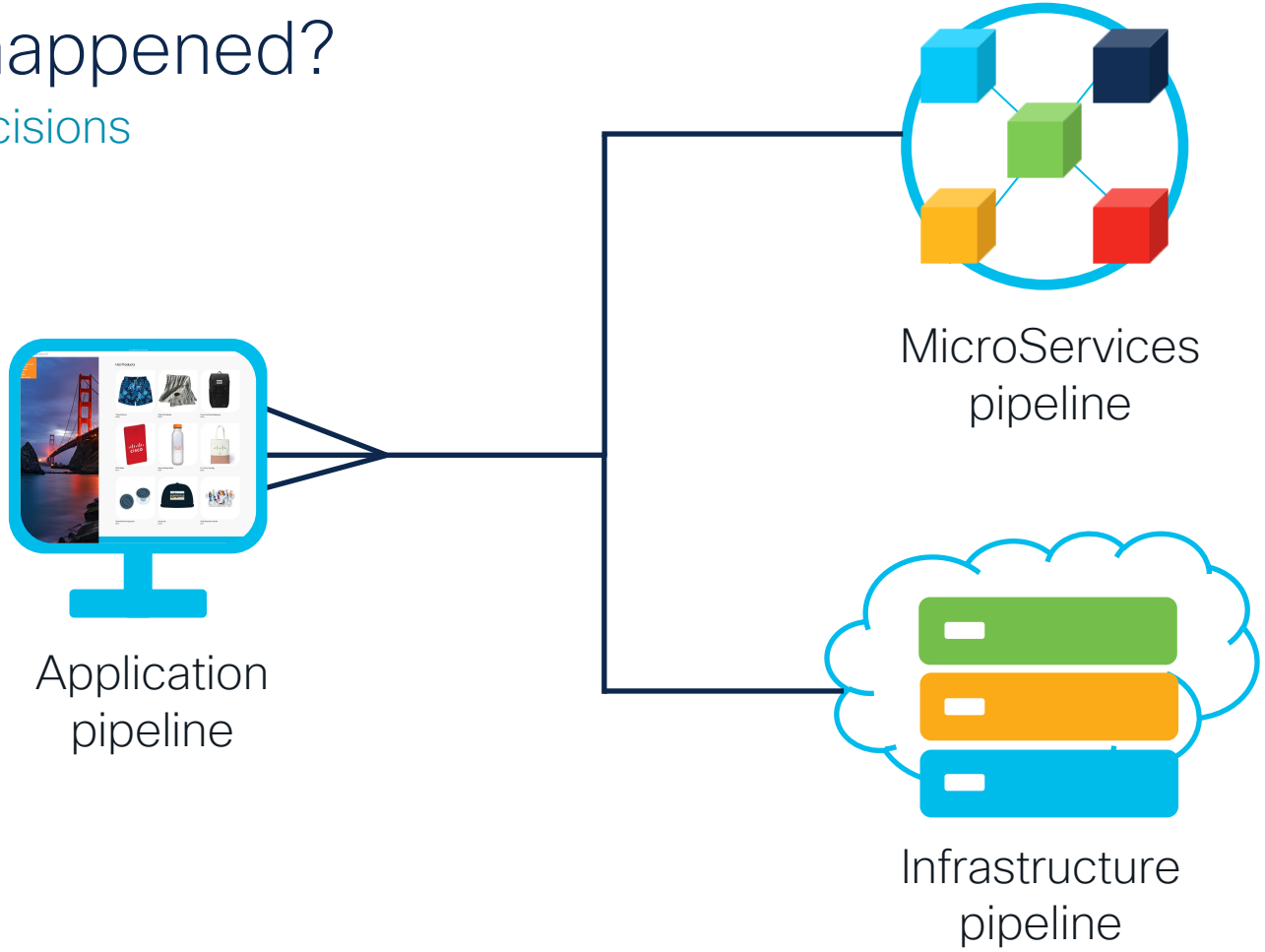


Demo

A demonstration showing the Infrastructure pipeline

What happened?

Design decisions



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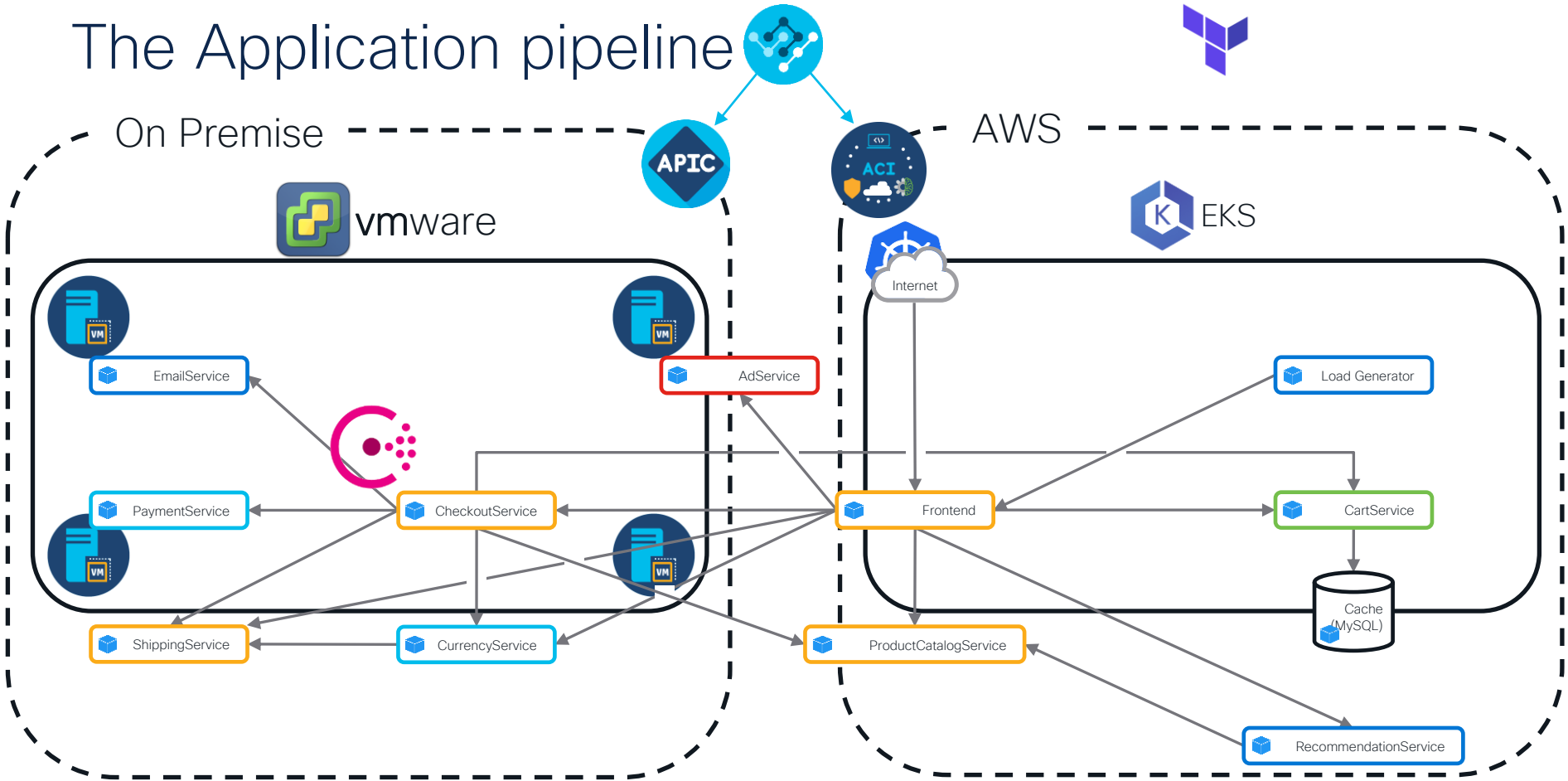
The Application pipeline

The Application pipeline



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The Application pipeline

Design decisions

Input

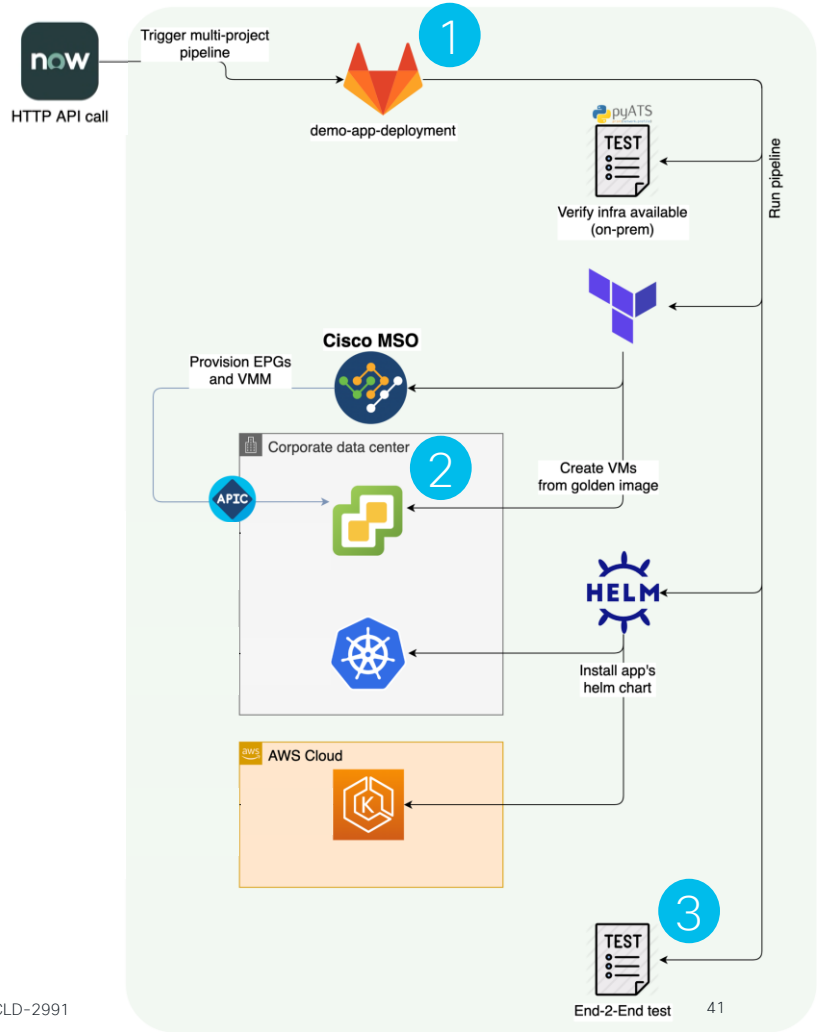
- API Parameters
  customer names, vertical, theme

Process

- GitLab repo
  - Pipeline
  - VM / Container
  - Integrations

Output

- Configured Application, feedback via ChatOps and a valid URL for access.

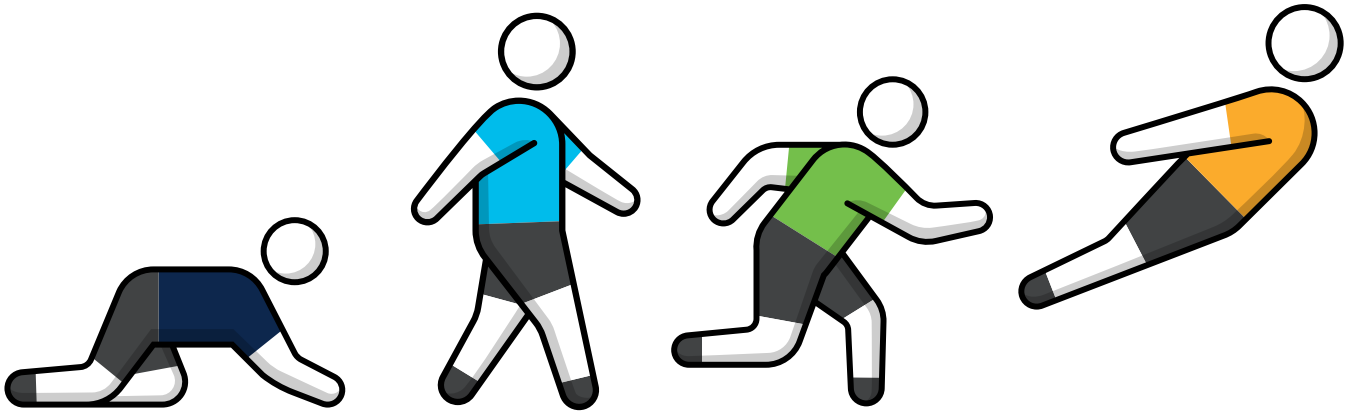


Demo

A demonstration showing the Application pipeline

What's Next

What's Next



Crawl… … Walk… … Run… … Fly!

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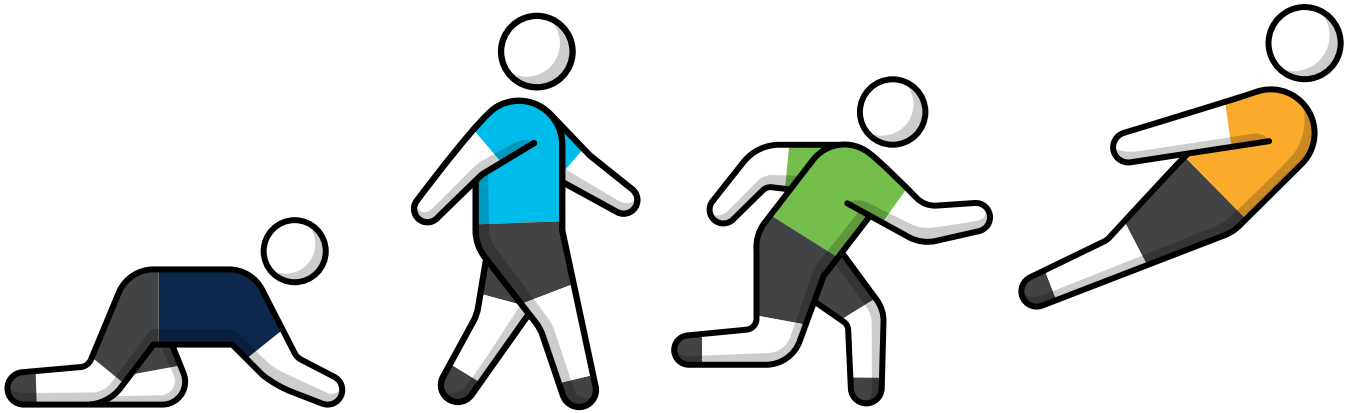
What's Next



Manual Script Automated DevOps

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What's Next

DevNet
https://developer.cisco.com/
https://developer.cisco.com/docs/nexus-as-code/#!introduction
https://developer.cisco.com/docs/aci/#!introduction/aci-programmability

YouTube
https://www.youtube.com/@CiscoSystems

GitHub
https://github.com/CiscoDevNet
https://github.com/cisco

Cisco Innovation Labs
https://eti.cisco.com/cil

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The bridge to possible

Thank you

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ALL IN