



Ford Motor Company's transition from Auto-Motive to Auto-Mobility

Introductions

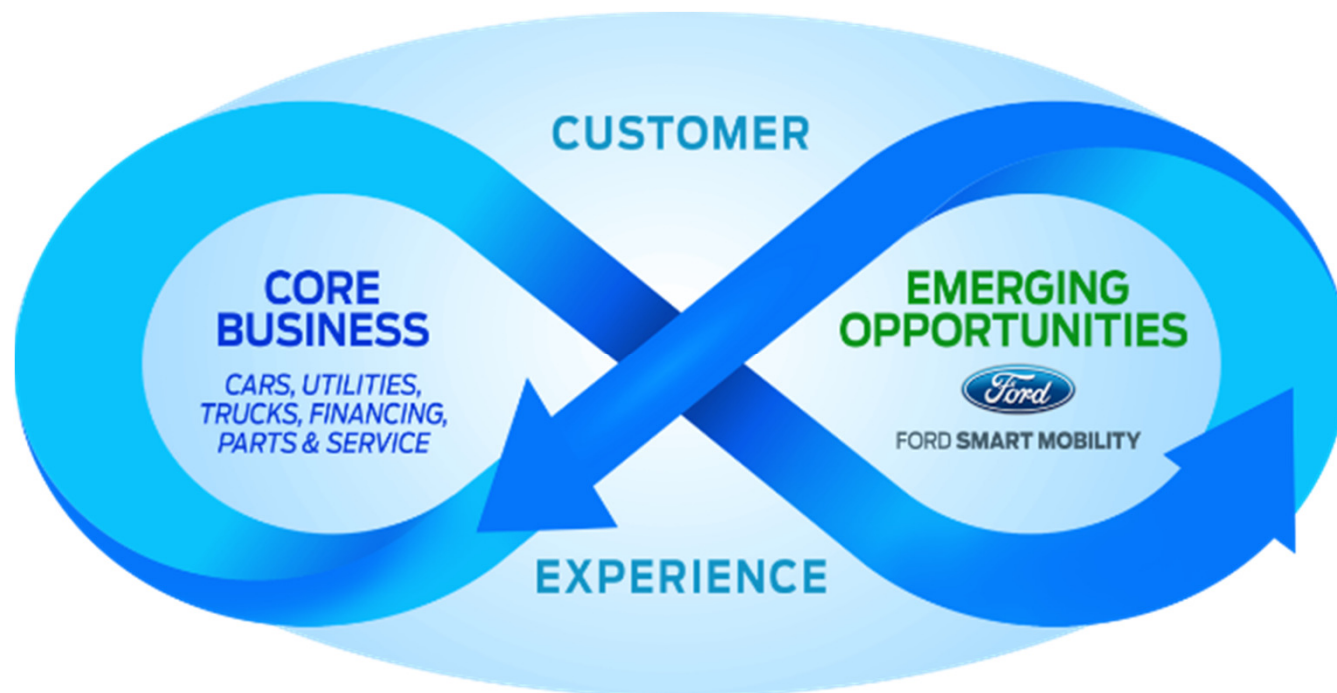


Go Further

- Mohsin Ahmed
(Senior Systems Engineer)
- Manu Pasari
(Senior Systems Engineer)



MAKING PEOPLE'S LIVES BETTER



Transforming Ford's Customer Experience Is Core To Our Strategy

ONE IT STRATEGY



Go Further



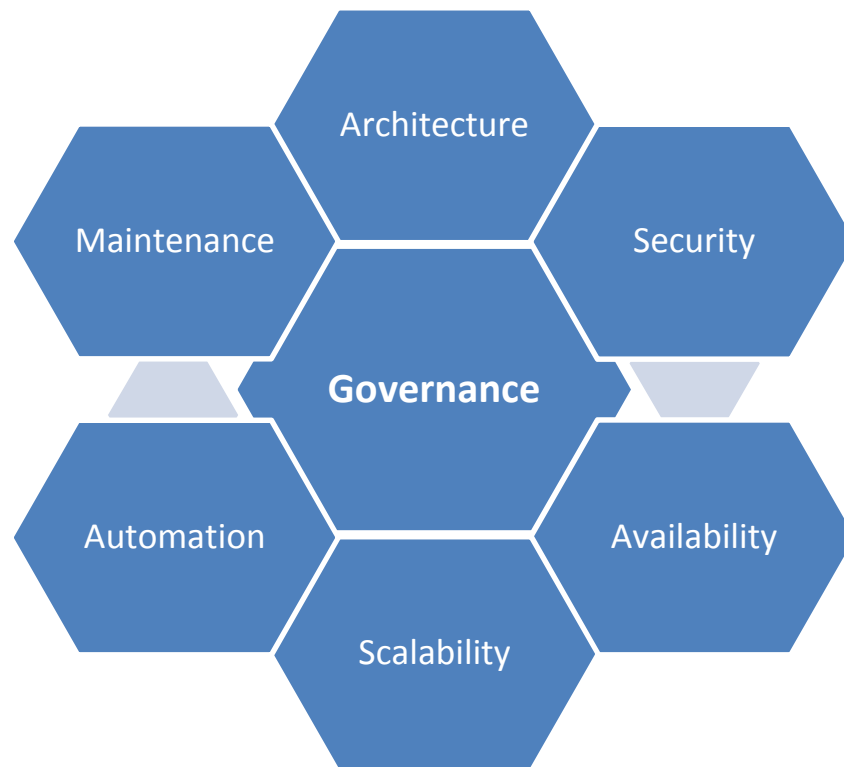
CLOUD FOUNDRY JOURNEY



- Two Years Ago with FordPASS
- PCF Global Deployment in Azure
- Multi-DC implementation On-Prem
- Governance
- Tool Set



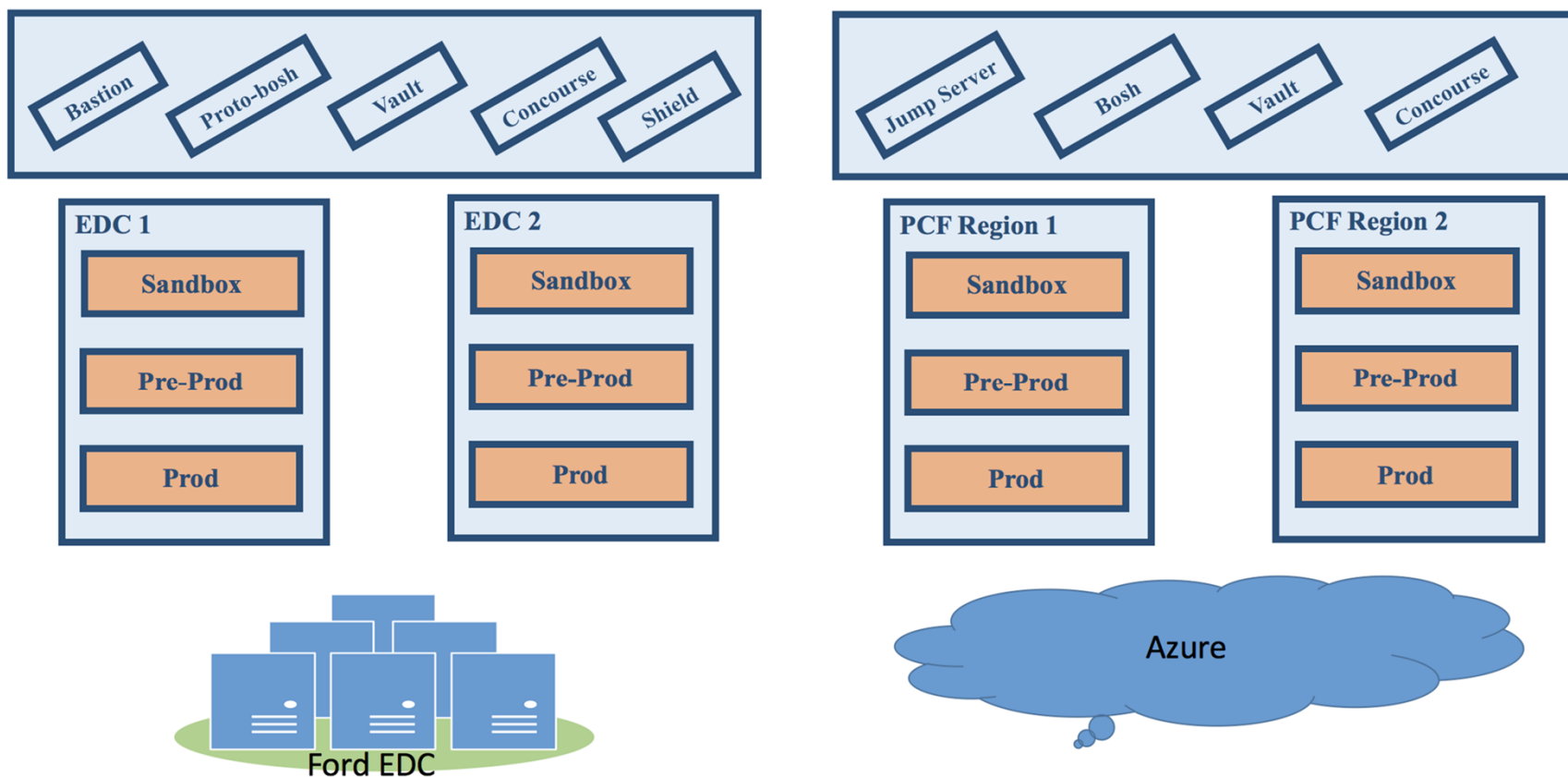
GOVERNANCE



CURRENT STATE



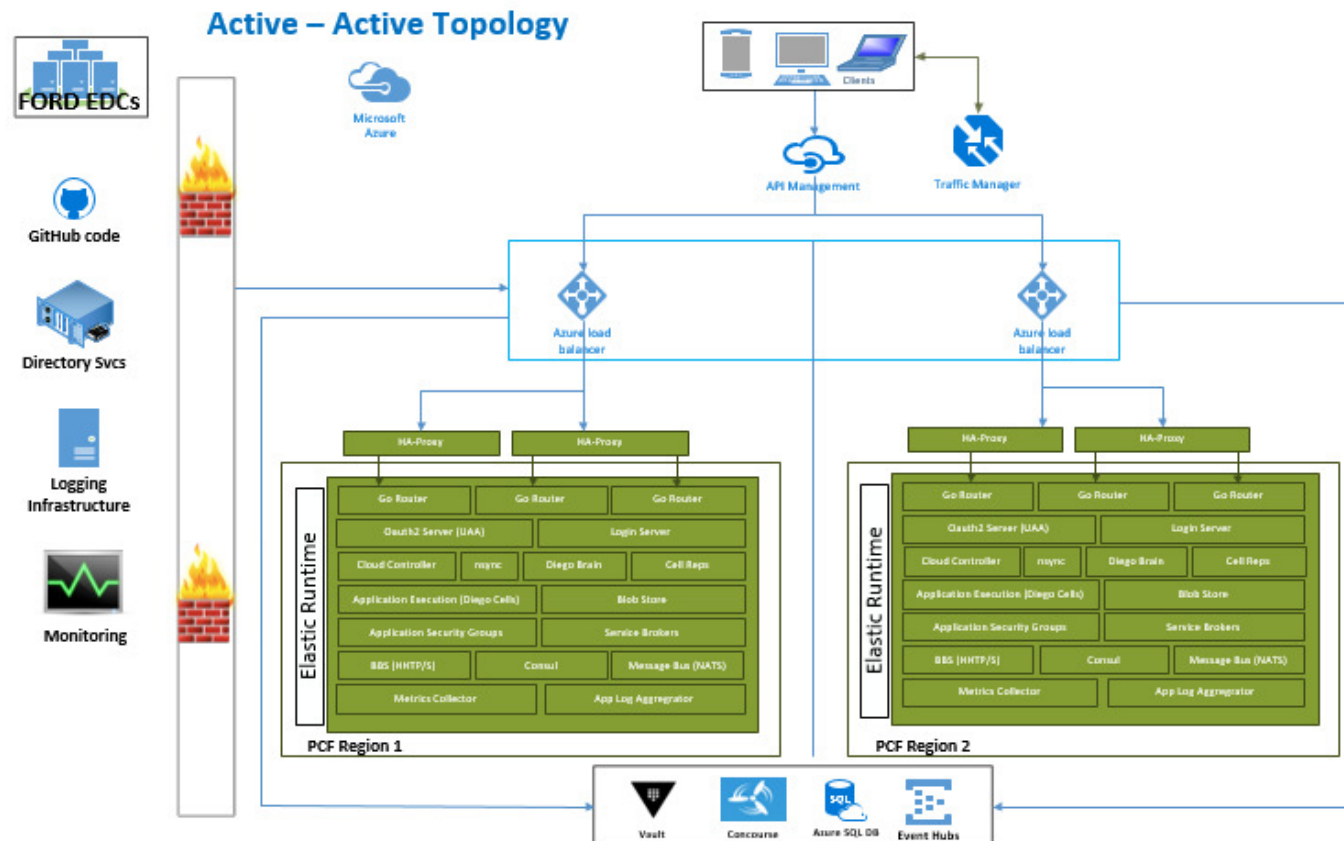
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ARCHITECTURE



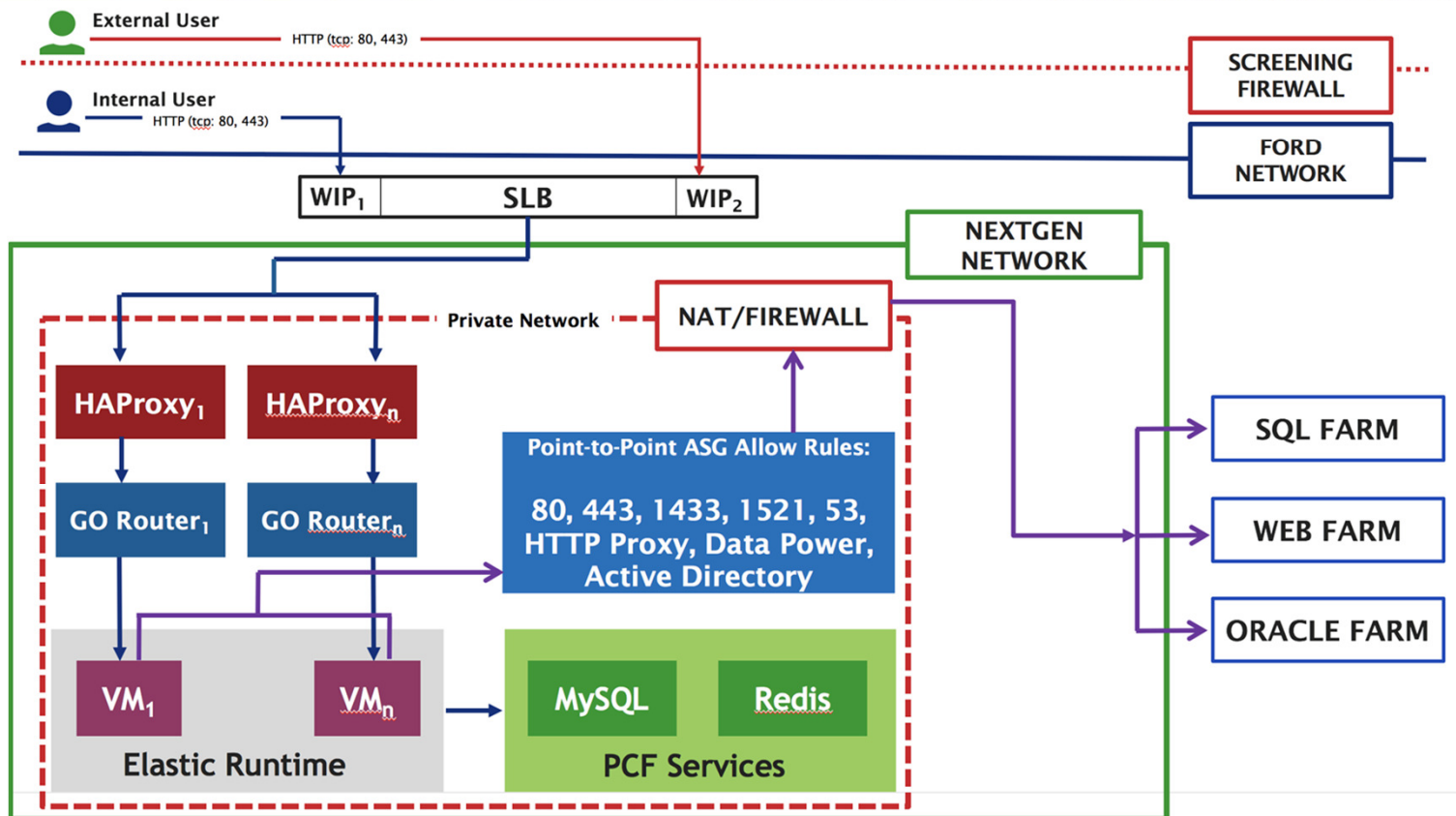
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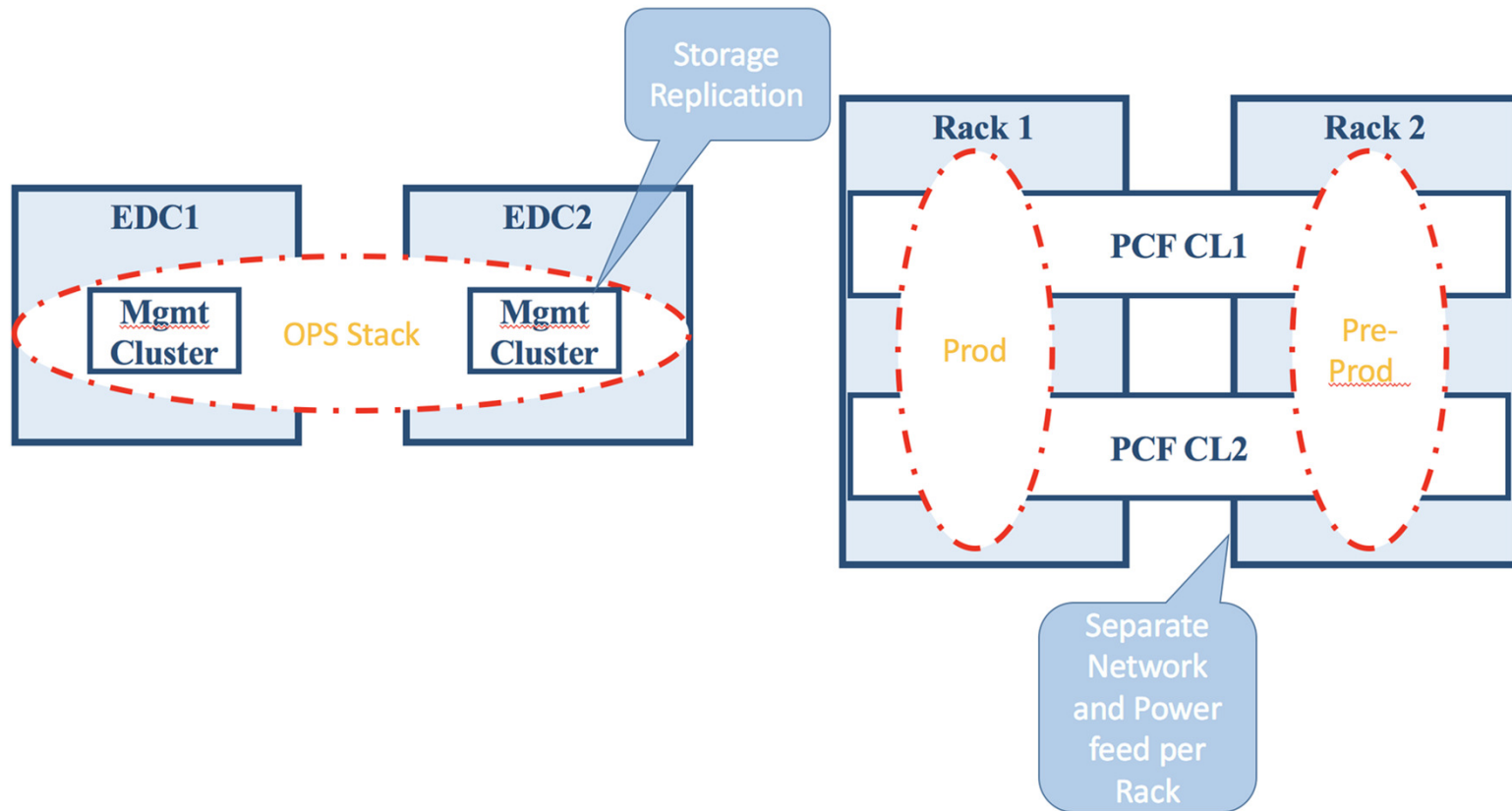
ON-PREM ARCHITECTURE



Go Further



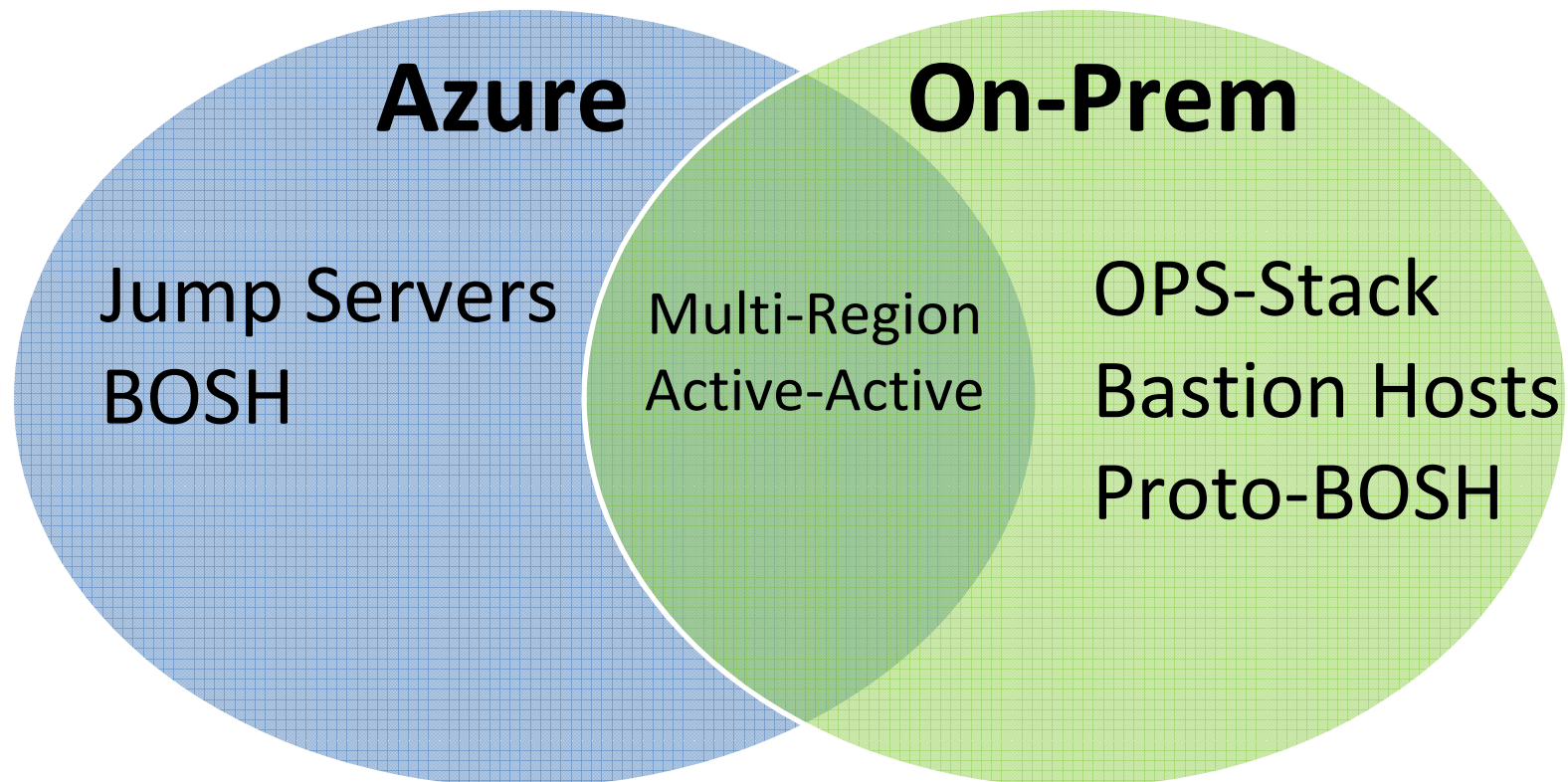
vSphere ARCHITECTURE



ARCHITECTURE



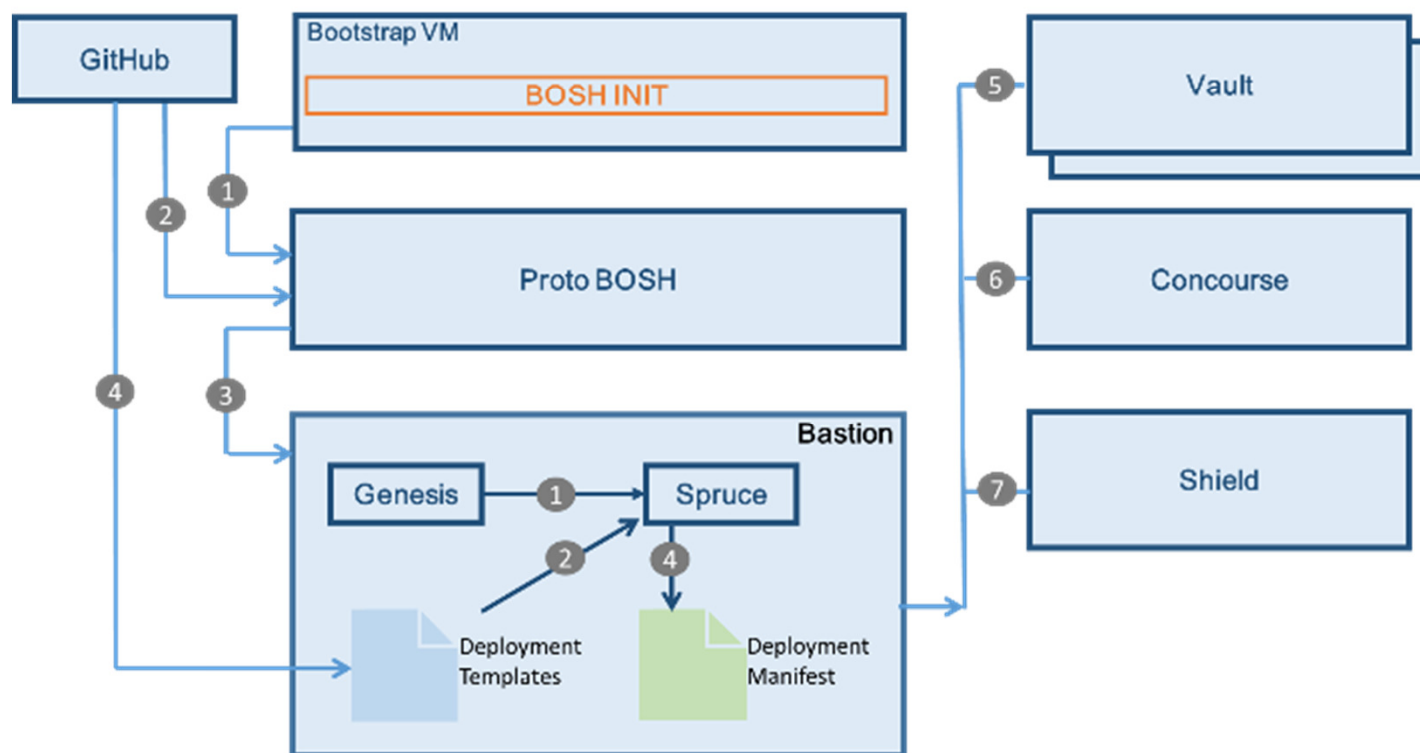
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PCF OPS STACK



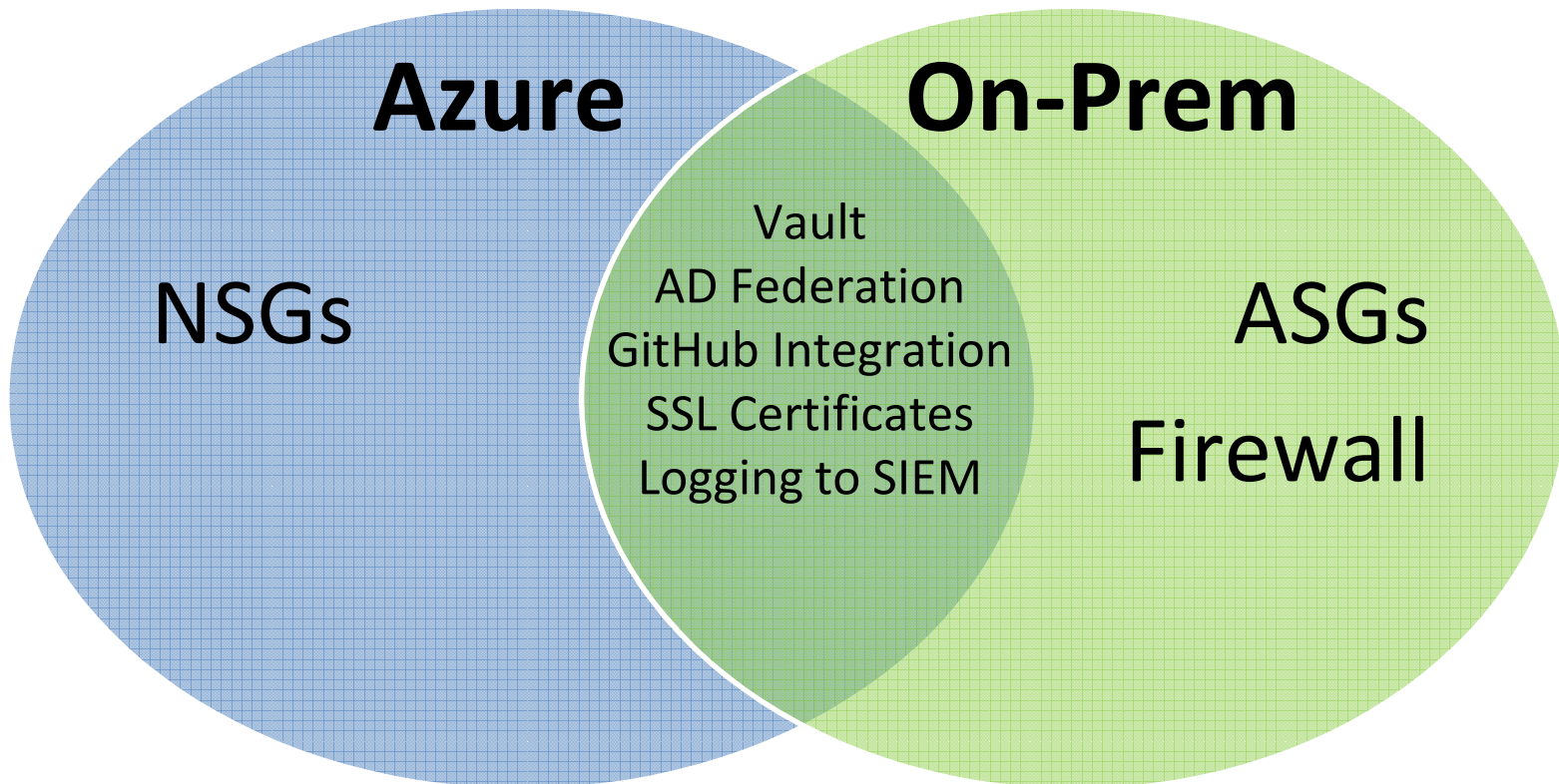
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SECURITY



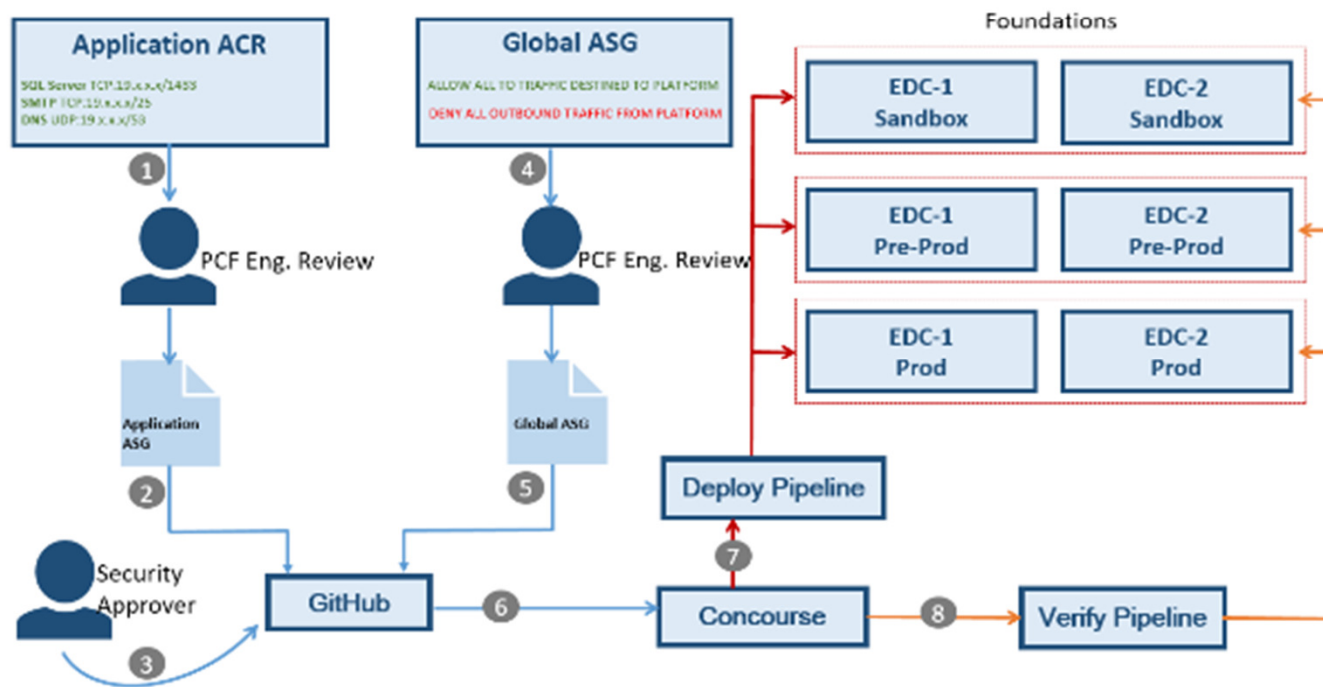
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PCF ASG WORKFLOW



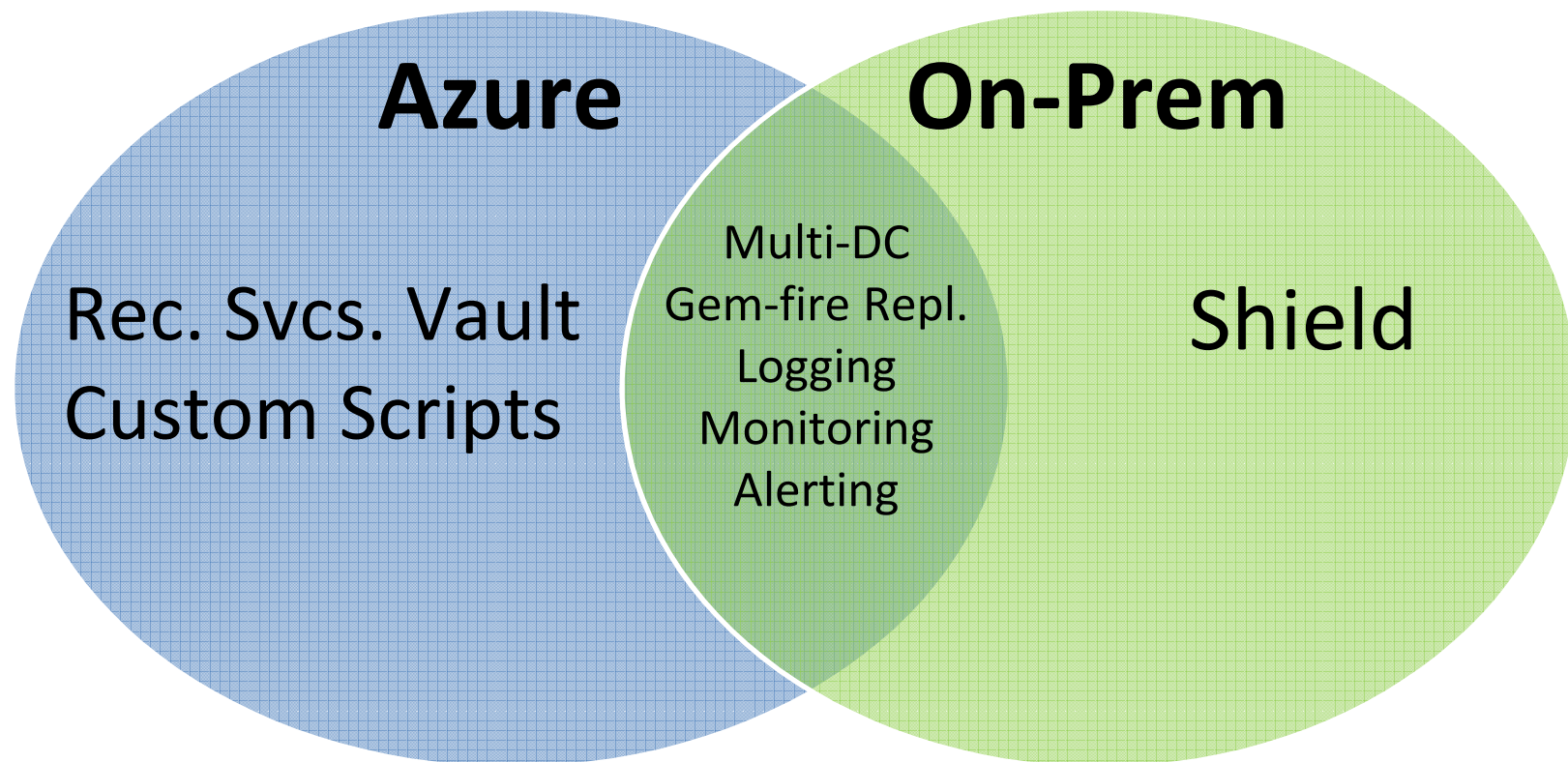
PCF Application Security Group: Workflow



AVAILABILITY



Go Further

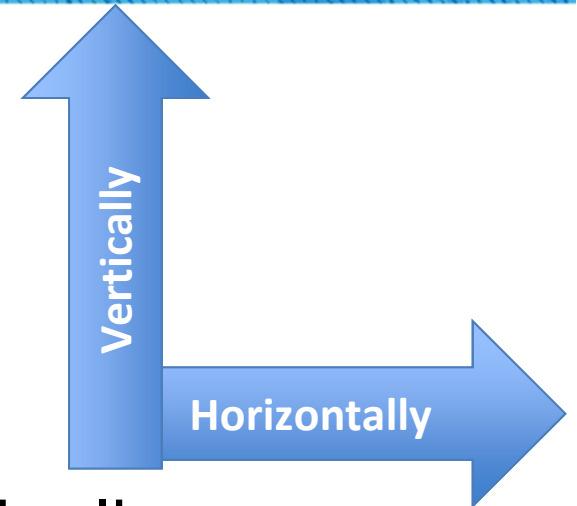


SCALABILITY



Go Further

- Capacity Planning
- Review of projects in the queue
- Pro-Active Monitoring &
- Alerting for resource consumption
- Scale resources using Concourse Pipelines



AUTOMATION



- CI/CD Pipelines
- Genesis
- Concourse
 - Integration with Github & Vault

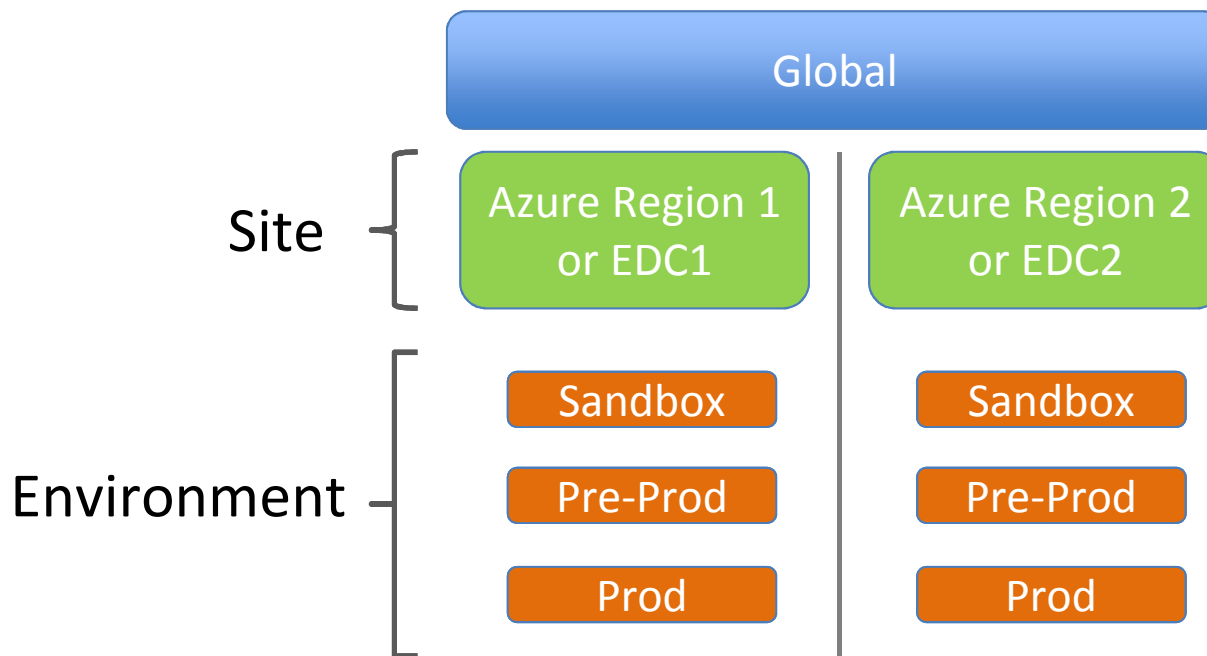


GENESIS

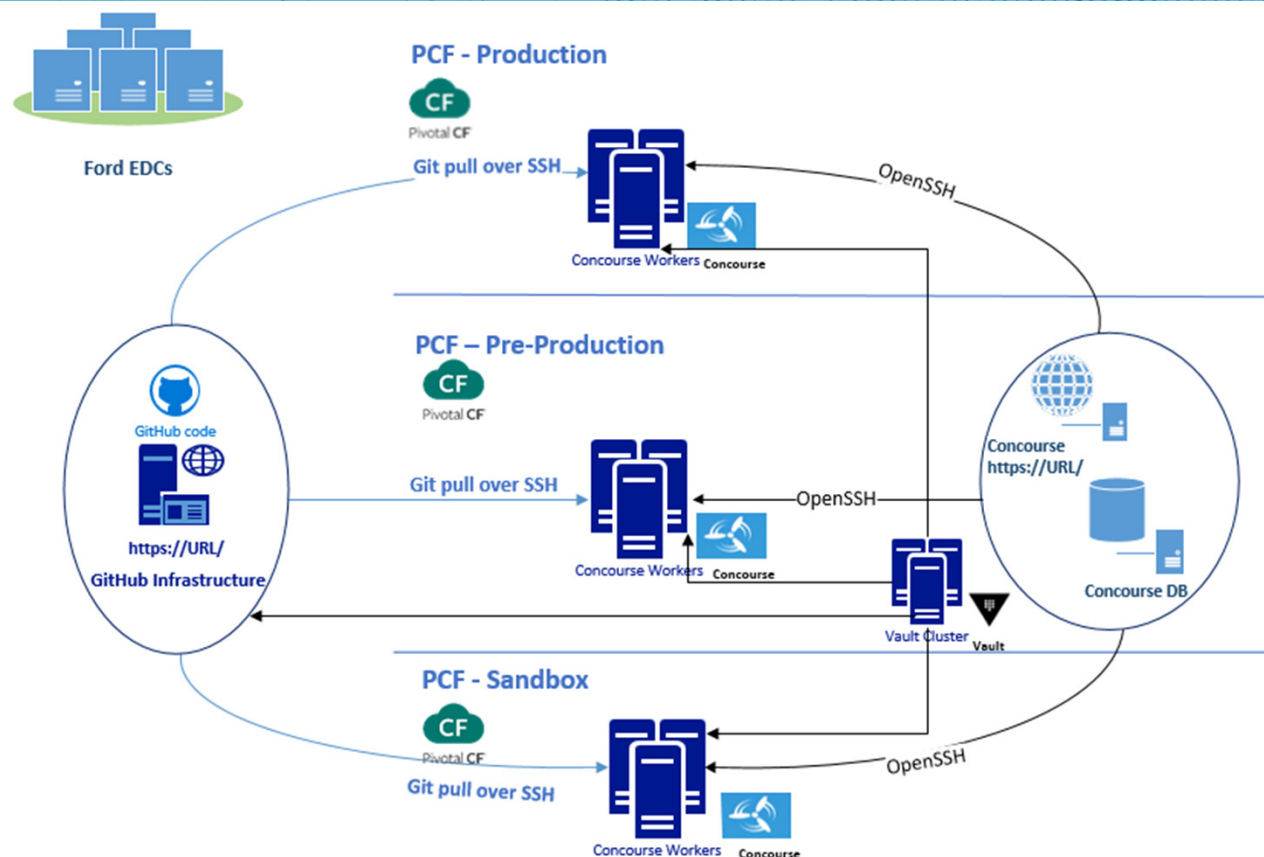


Go Further

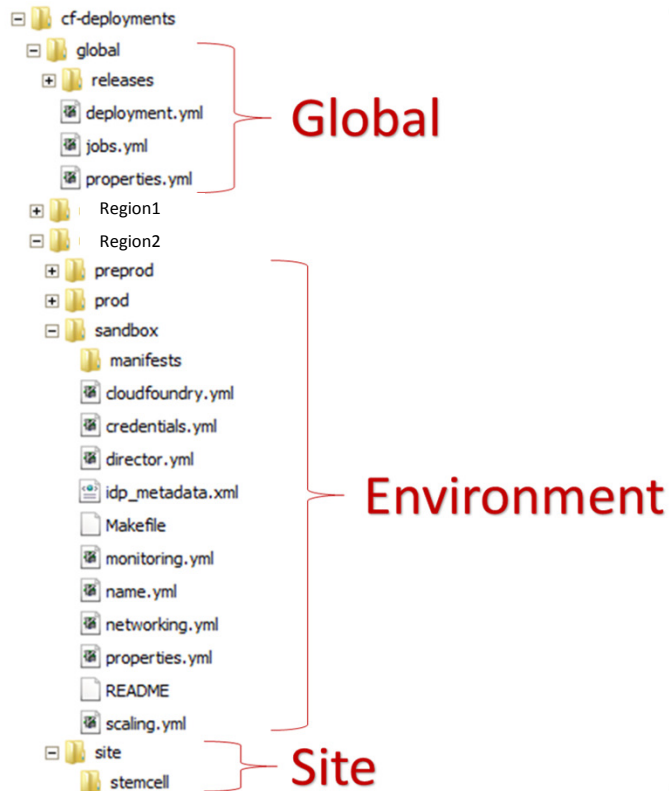
Logical Strata



CONCOURSE ARCHITECTURE

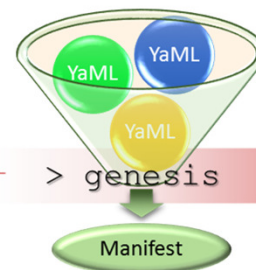


GENESIS EXAMPLE



To build the **Sandbox PCF** environment:

- YaML files that exist in “global”, “site”, and “environment” are merged together based on logical strata
- The output is one single manifest that can be deployed

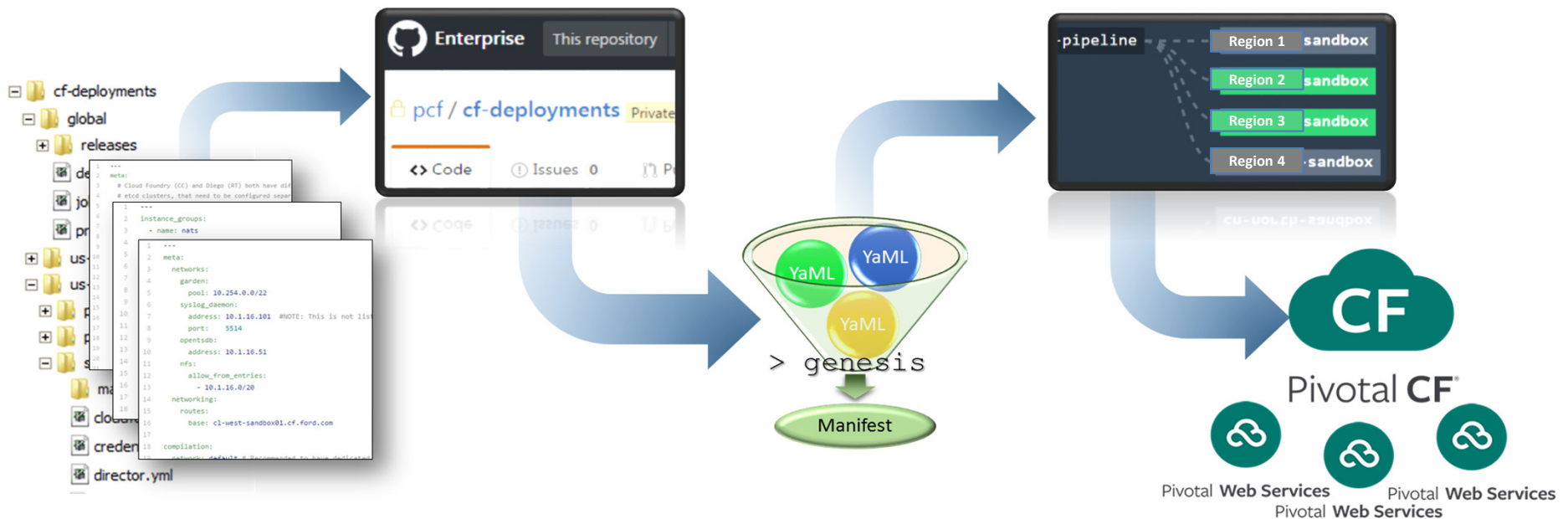


```
2095 - cloud_properties:
2096   availability_set: as-cf-diegosbrain1
2097   ephemeral_disk:
2098     size: 56000
2099     use_temporary_disk: false
2100   instance_type: Standard_DS1_V2
2101   storage_access_key: REDACTED
2102   storage_account_name: REDACTED
2103   name: diego_brain-partition-f83270581d7bf9ef476f
2104   network: default
2105   stemcell:
2106     name: bosh-azure-hyperv-ubuntu-trusty-go_agent
2107     version: "3263.21"
```


GENESIS & CONCOURSE



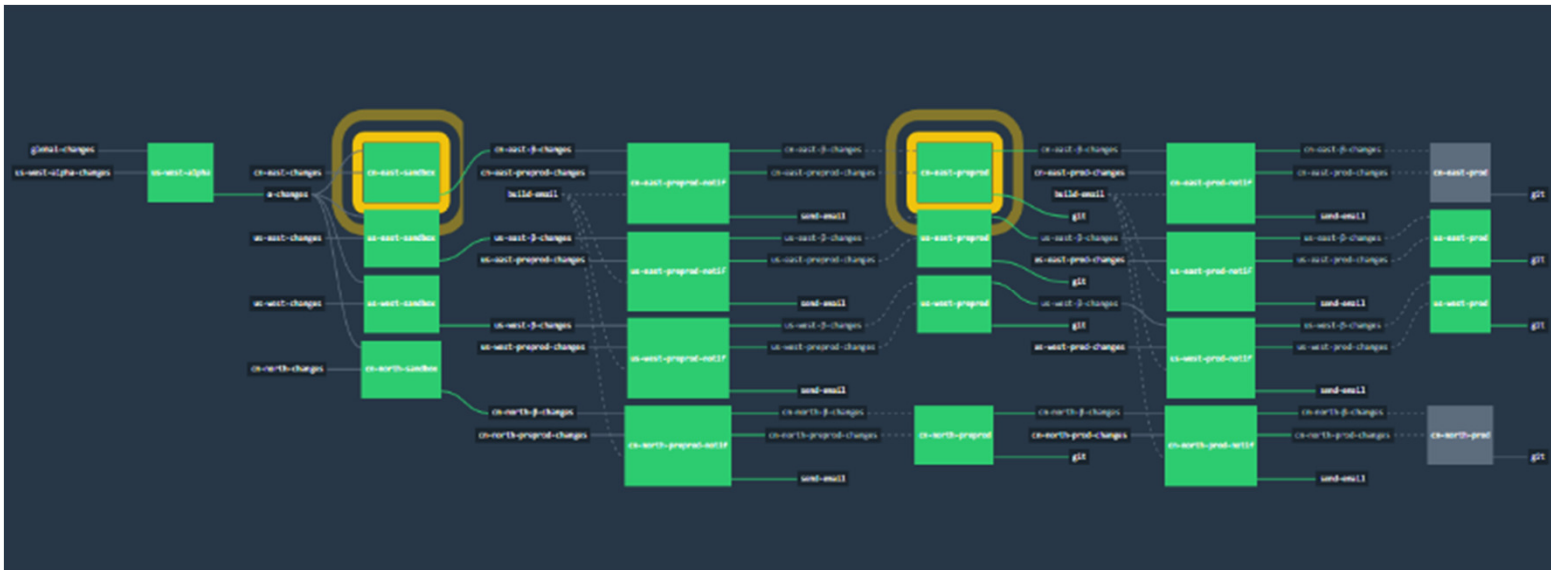
- Once manifests are organized using Genesis, it will automatically create deployment pipelines
- We can then deploy cloud foundry and services using Concourse



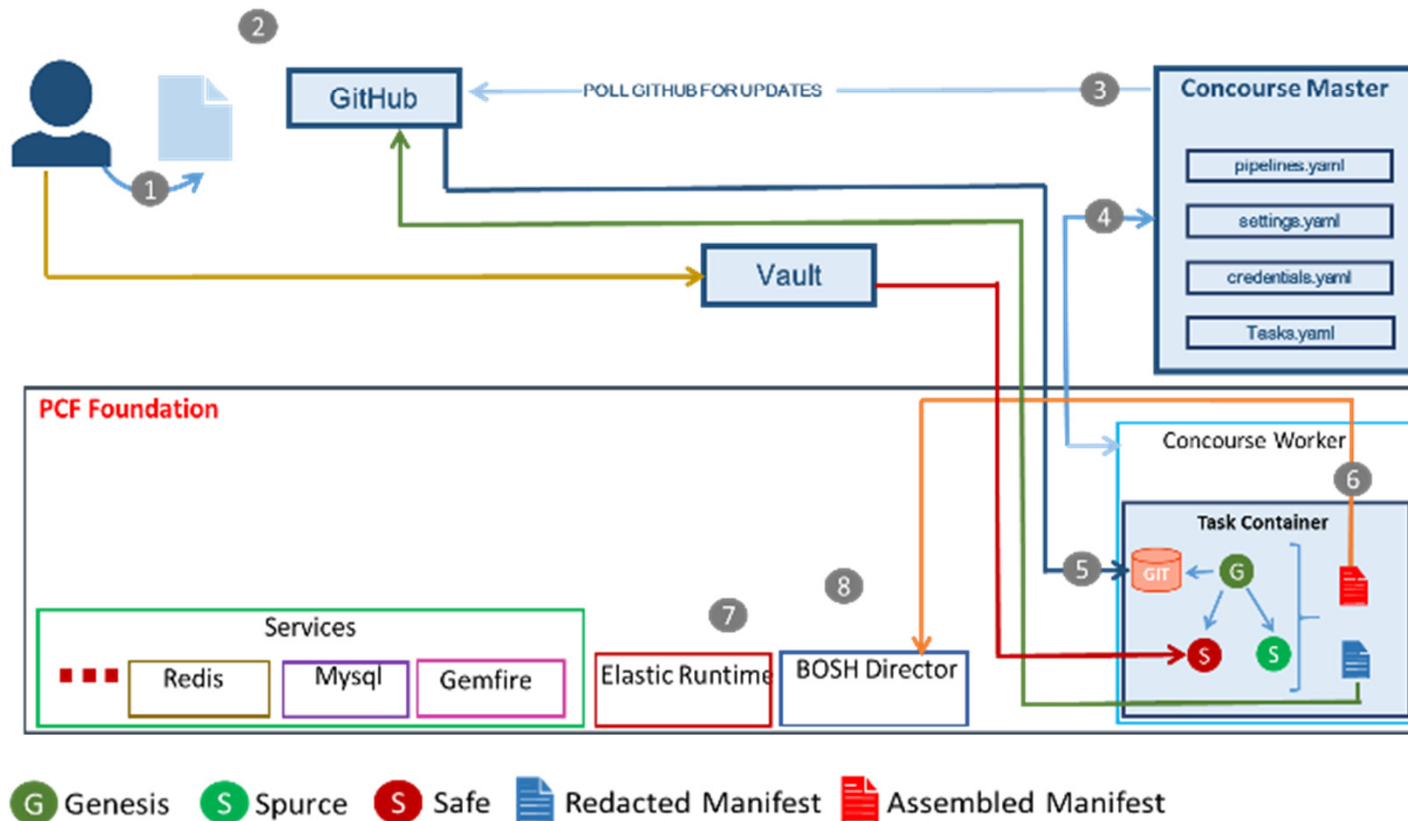
CONCOURSE PIPELINE



Layout of our Concourse CF pipeline



CONCOURSE WORKFLOW

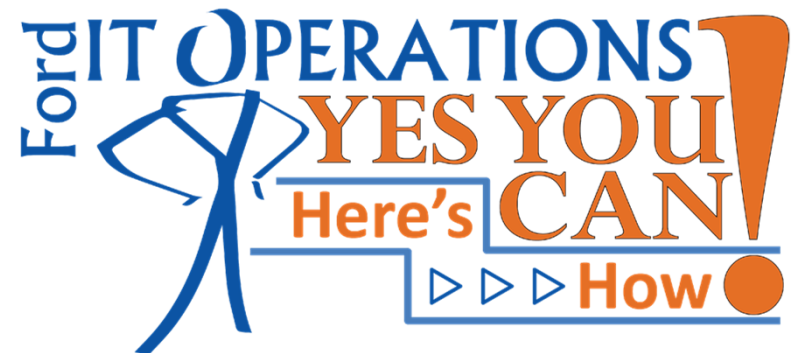


OPERATIONS



Go Further

- Day 2 Activities
 - Efficiencies
 - Platform Health
 - Reporting
 - Metrics
 - Security

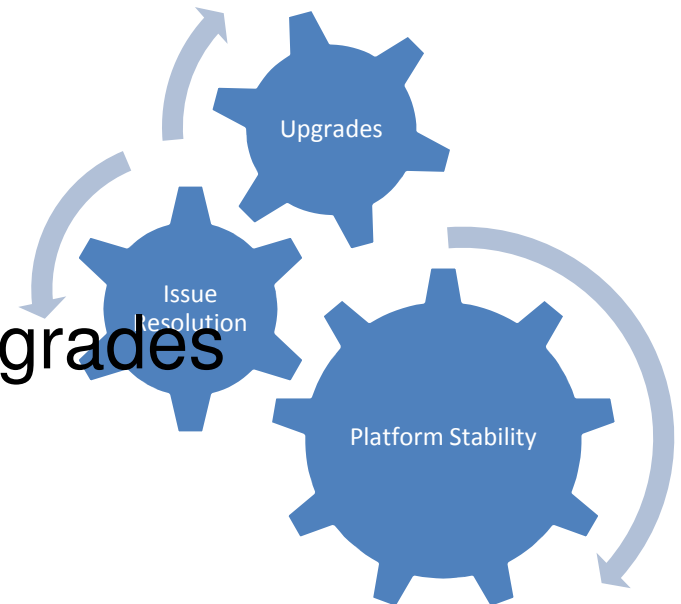


MAINTENANCE



Go Further

- Dev-Ops Model
- Leverage GTM
- Leverage Concourse Pipeline
- Service Updates & Platform Upgrades
- No Maintenance Windows
- During business hours



LESSONS / CHALLENGES



On-PREM

- HA Proxy Deployment
 - LTM License Limits
- NAT Device – Using Firewall component
- GSLB sticky config. to support Active/Active configuration
- Shield doesn't backup Vault. Also doesn't encrypt backups

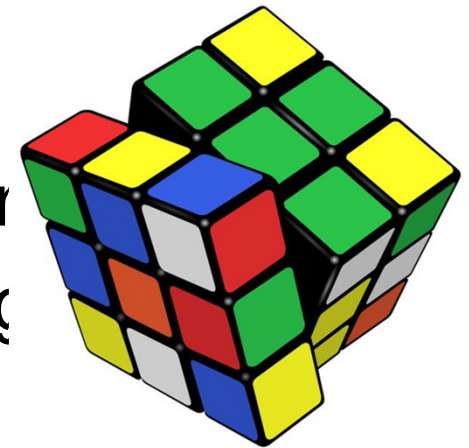


LESSONS / CHALLENGES



Azure

- Network Address Space
 - Unique among regions / foundation
- Limitation of mounting external storage
 - 1 TB cap
- Do not have the ability to create custom roles
- Fully portable Concourse Pipelines
- Logging



WHAT'S NEXT



- Alignment between Azure & On-Prem
- Frequent Credential Rotation
- Logging & Monitoring Enhancements
- Evaluate Azure Service Brokers
- Self Service Portal for Developers
- Software Developed Ecosystem (SDE)



ACKNOWLEDGEMENTS



- Tim Deichelbohrer – PCF Operations

Q & A



Go Further

- Questions



THANK YOU!



- Thank you for attending