SpringOne Platform by Pivotal

PCF in the Land of NSX: A Closer Look at PCF with NSX-V vs. NSX-T

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Agenda

- PCF with NSX-V
    - Ref Deployment Arch
    - NSX-V Edge Gen Tool and Pipeline
    - Demo
- NSX-V vs. NSX-T
- NSX-T Drill down
    - NSX-T Router Design
    - NSX-T Network Setup
- PAS + NSX-T
    - NSX-T PCF Design
    - NSX-T Routing Configuration with PAS
    - App Security
    - Demo
- Q and A

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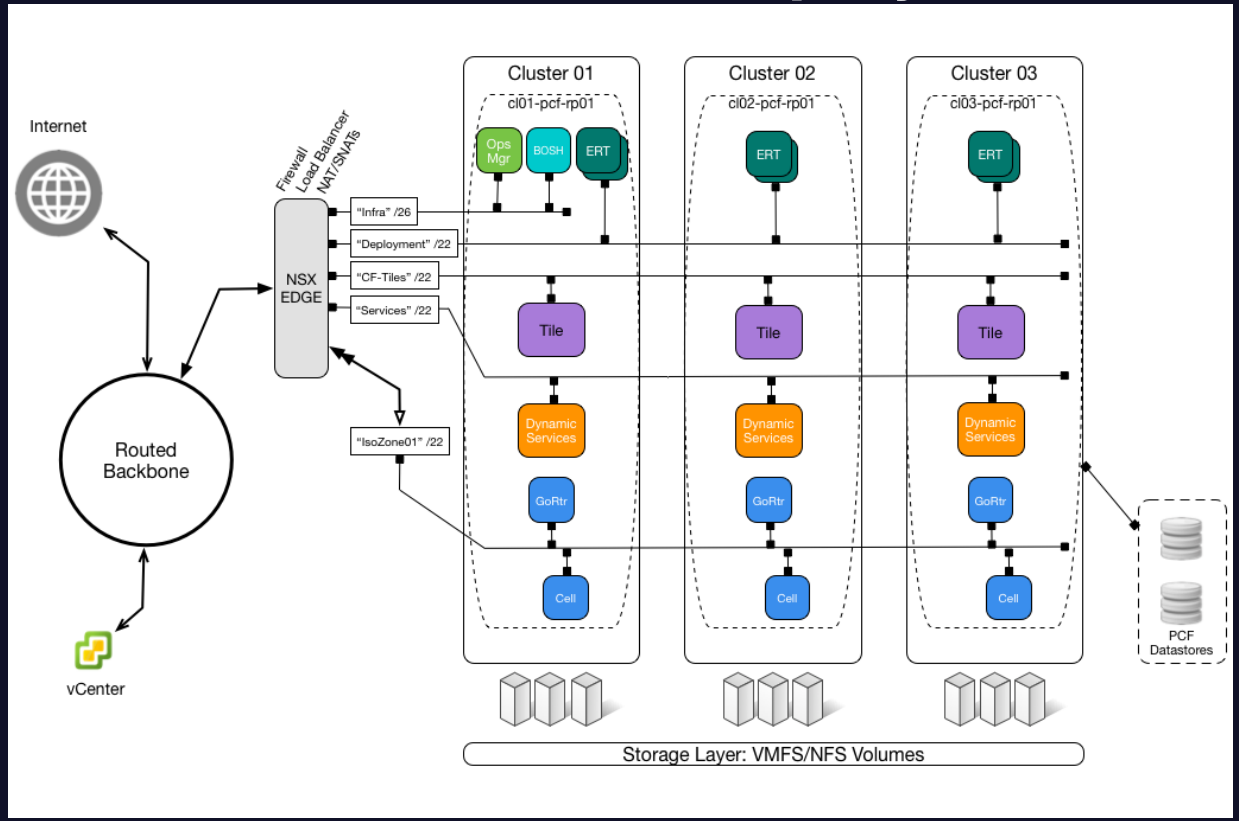
PCF with NSX-V : Reference Deployment Architecture



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PCF with NSX-V: current approach

- Default NSX-V Edge creation and maintenance
  - Complex steps
  - Manual
  - Time consuming
  - Tedious
  - Error prone

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PCF with NSX-V - Automation

- nsx-edge-gen
  - Tooling to automatically create NSX-V Edge instance
    - Templated to support PCF v1.x Reference arch
    - Extensible (enable DLR, multiple iso zones)
    - Create edge instances in minutes
    - Consistent results
  - Github Repo
    - https://github.com/cf-platform-eng/nsx-edge-gen/

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PCF with NSX-V - Automation

- nsx-ci-pipeline
  - One Click deployment driven via pipeline
    - Uses Concourse Pipeline
    - Creation of NSX-V Edge instance
    - Full install and deployment of Pivotal Ops Mgr, ERT, MySQL, RabbitMQ, SCS tiles (PCF 1.x versions)
    - Security Group integration for components (GoRouter, Tcp Router, MySQL/RabbitMQ Proxies) bound to Edge Load Balancer
  - Github Repo
    - https://github.com/cf-platform-eng/nsx-ci-pipeline

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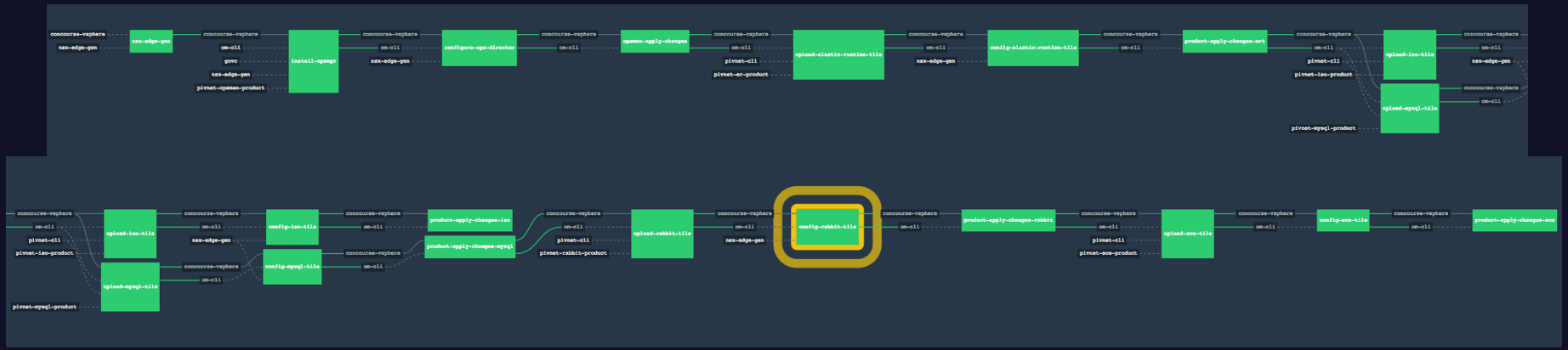
Pipelines



For more details

- https://allthingsmdw.blogspot.com/2017/08/automating-nsx-integration-with-pcf.html

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Demo: nsx-edge-gen

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NSX-V vs NSX-T

Feature	NSX-V	NSX-T
Native Container Support	No	Yes (Docker, K8S, PAS)
Encapsulation	VLAN	Geneve
Form Factor	VMs only	VM or Bare metal
Hypervisor	ESXi only	Multi-Hypervisor: ESXi and KVM (RHEL and Ubuntu)
vCenter Integration	Tightly integrated	Can be standalone (public cloud support in future)
User creates	Edges	Logical Routers (T0/T1 Routers) and switches

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NSX-V vs NSX-T…

Feature	NSX-V	NSX-T
Entry/Exit	Edge uses Uplink IPs	BGP or Floating IPs (via T0 Router)
Security Groups	At VM Level (via Bosh) and Isolation Zones	Fine grained; VM and Container level (ASGs, App policies, DFW)
PCF Foundations	One per Edge	Only one T0 Router per Edge instance. Harder to use cookie cutter approach
OSPF Support	Yes	No
PCF version support	PCF 1.x and 2.x at Bosh level	PCF 2.0 - Bosh and CF CNI
Loadbalancer	On Edge	stretches across hypervisor

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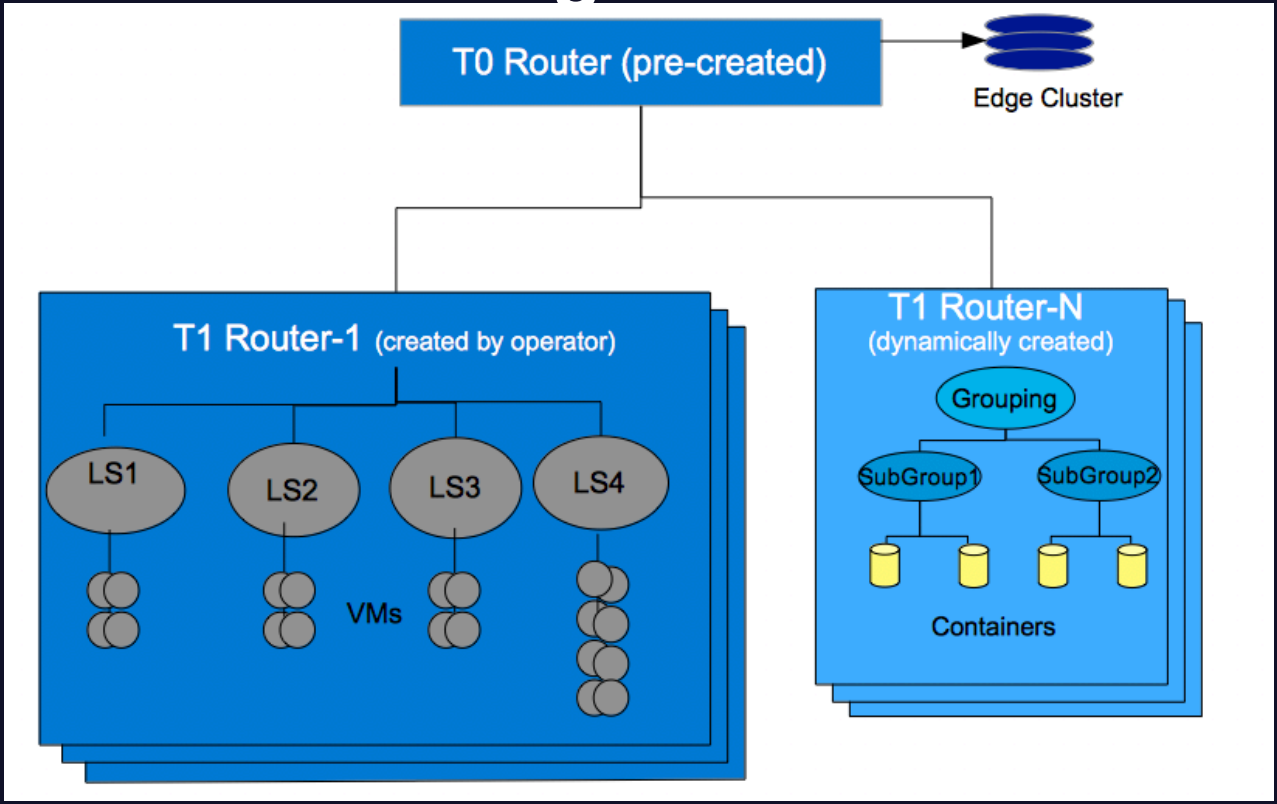
NSX-T Router Design



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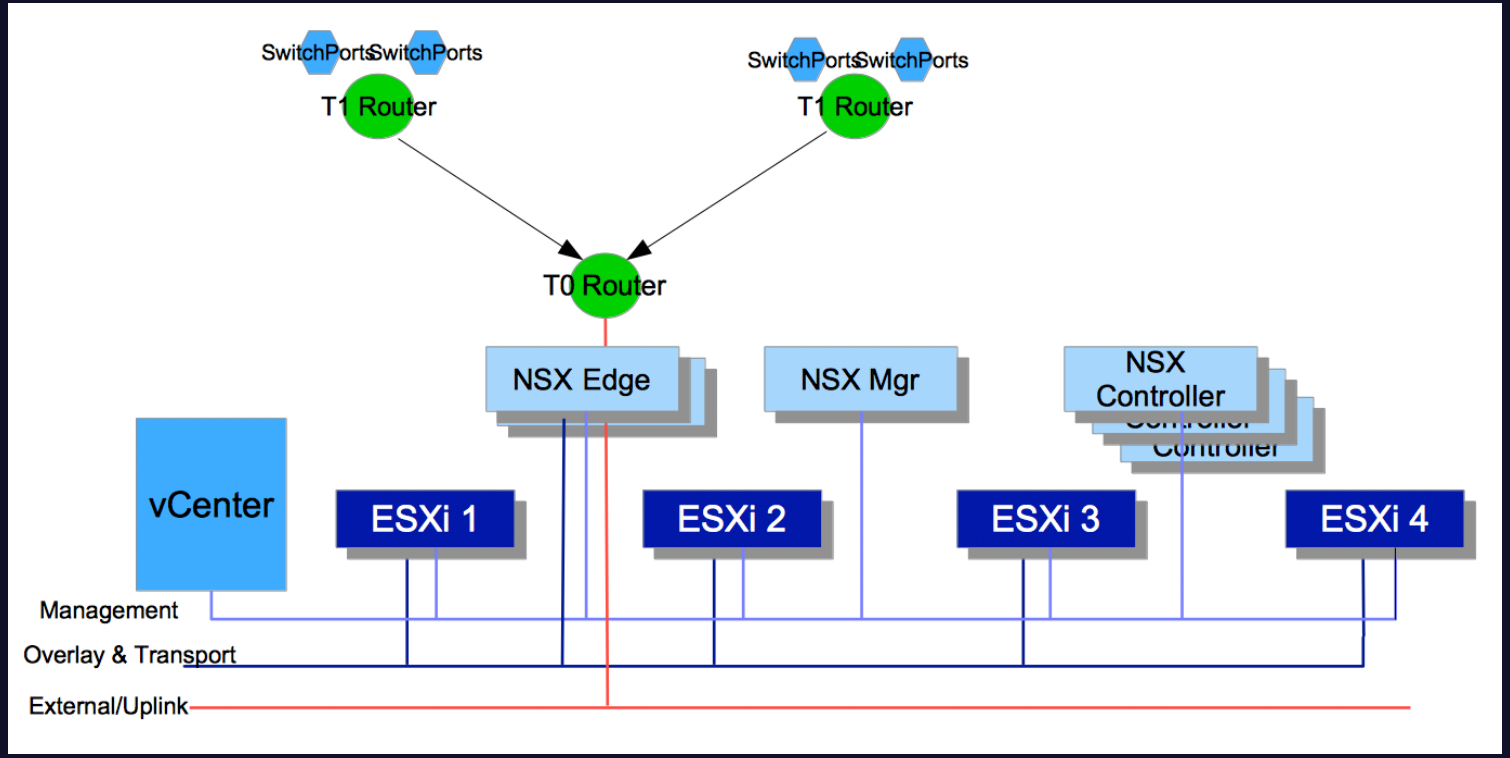
NSX-T Network Setup



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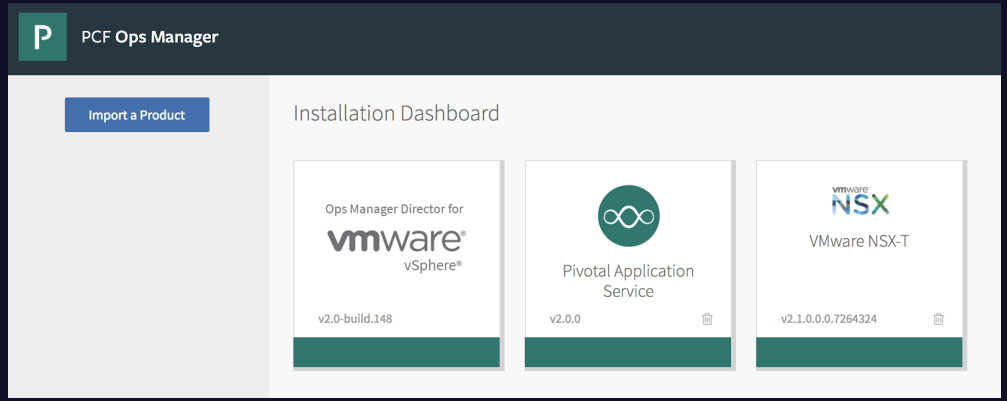
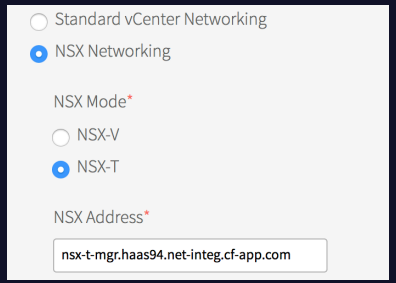
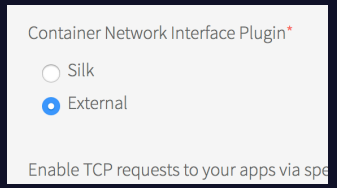
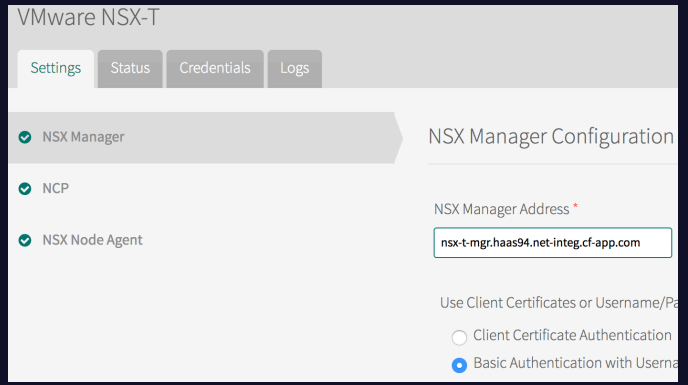
PAS + NSX-T Tile

- NSX-T as External CNI Provider for PAS, replacing Silk









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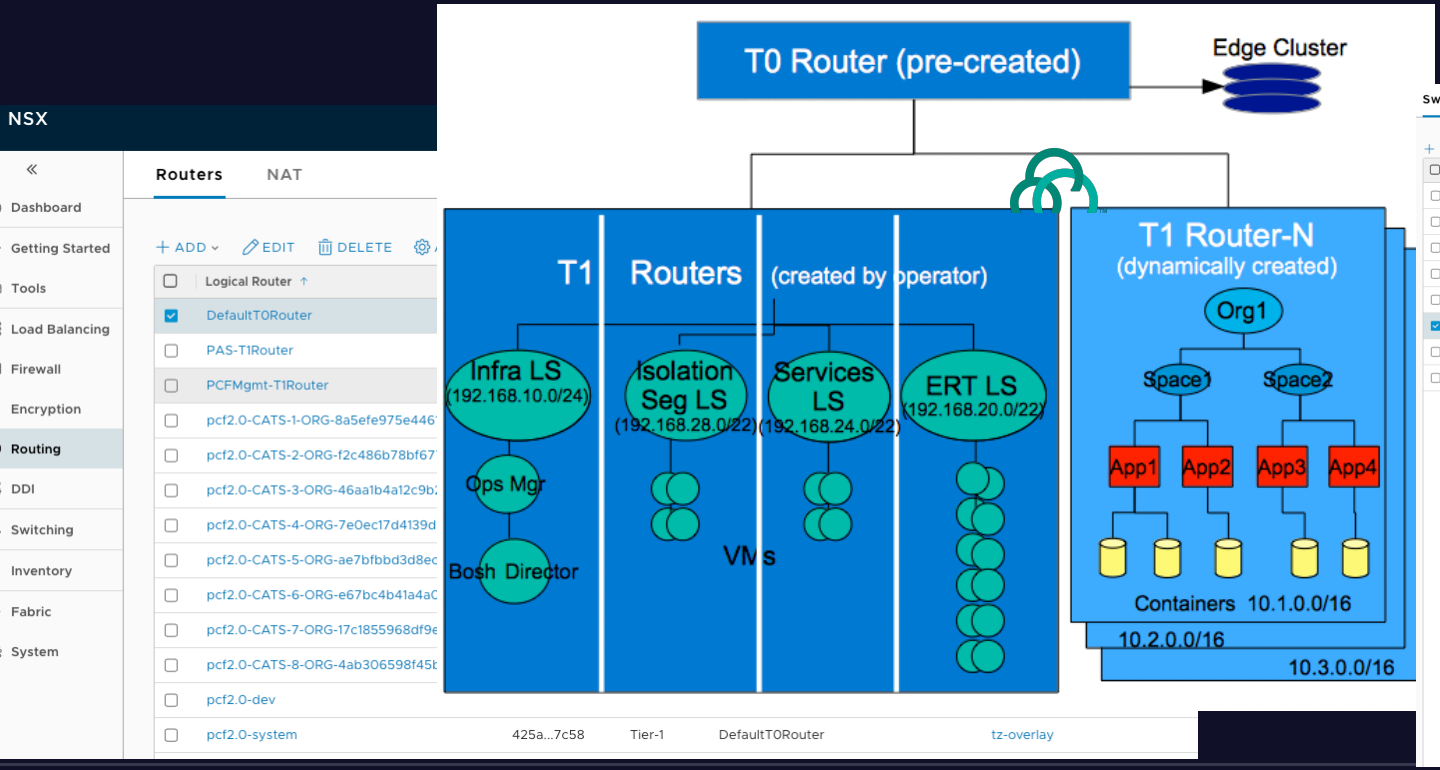
NSX-T Design for PAS



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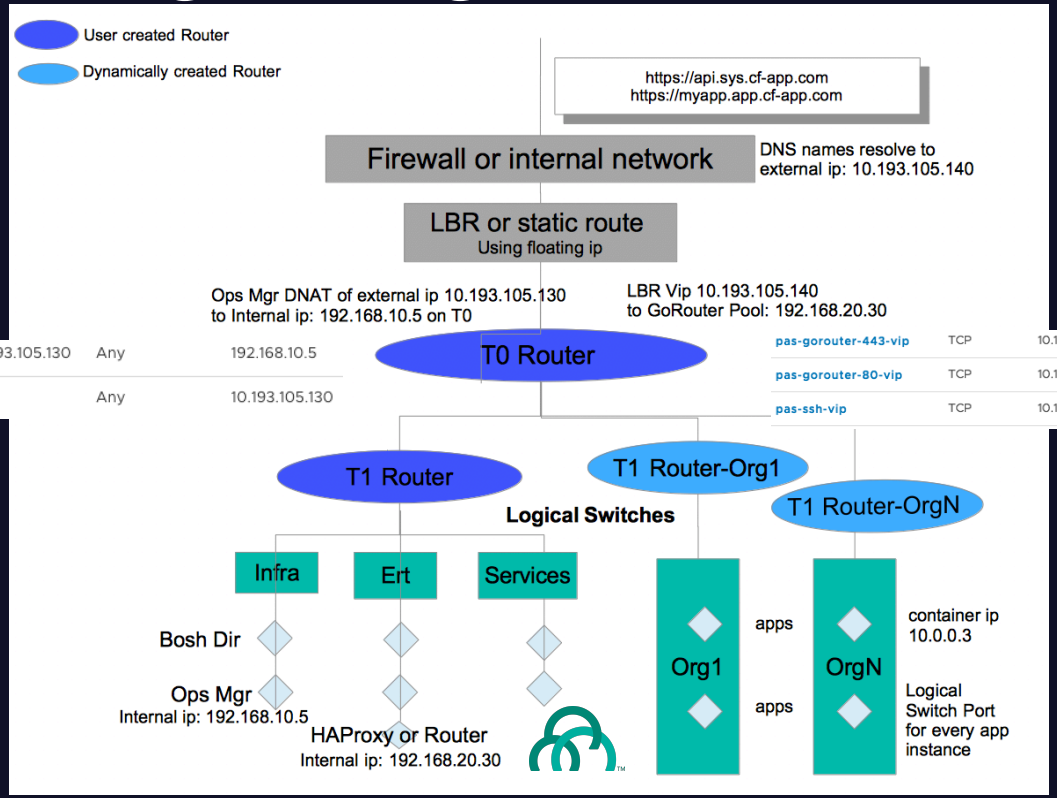
NSX-T Routing Configuration



DNAT	Any	Any	Any	10.193.105.130	Any	192.168.10.5
SNAT	Any	192.168.10.5	Any	Any	Any	10.193.105.130

pas-gorouter-443-vip	TCP	10.193.105.140:443	pas-gorouter-443-serverp...	pas-gorouter-l...
pas-gorouter-80-vip	TCP	10.193.105.140:80	pas-gorouter-80-serverpool	pas-gorouter-l...
pas-ssh-vip	TCP	10.193.105.141:2222	pas-ssh-serverpool	pas-gorouter-l...

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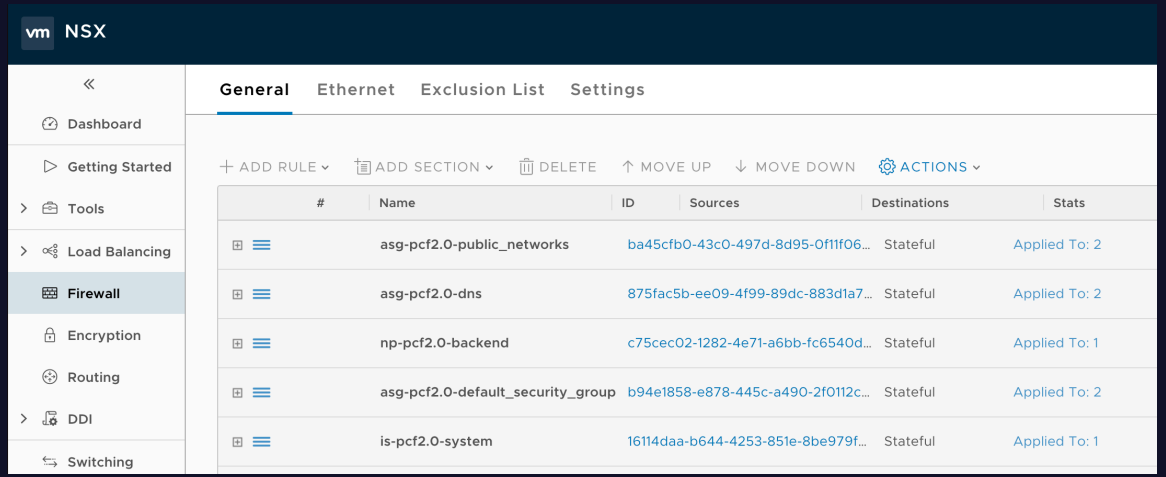
App Security

- Support for ASGs
- Support for container to container policies
- Distributed firewalls
- Micro-segmentation
  - Fine grained control
  - Identification of apps to external services/parties



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Demo: NSX-T

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Questions ?

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