AGILITY

2016

SOLUTIONS FOR AN APPLICATION WORLD

Best Practice Deployment of F5 App Services in Private Clouds

Henry Tam, Senior Product Marketing Manager
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Agenda

1. The trend of data center, private cloud
2. OpenStack
3. F5 Solution
4. Customer Use Cases
5. Questions

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"What CIOs are ultimately looking for is the ability to **solve business problems faster** than their competitors, while reducing risk, adhering to **regulatory requirements**, and **increasing efficiency**."

-Fintan Ryan, RedMonk Analyst

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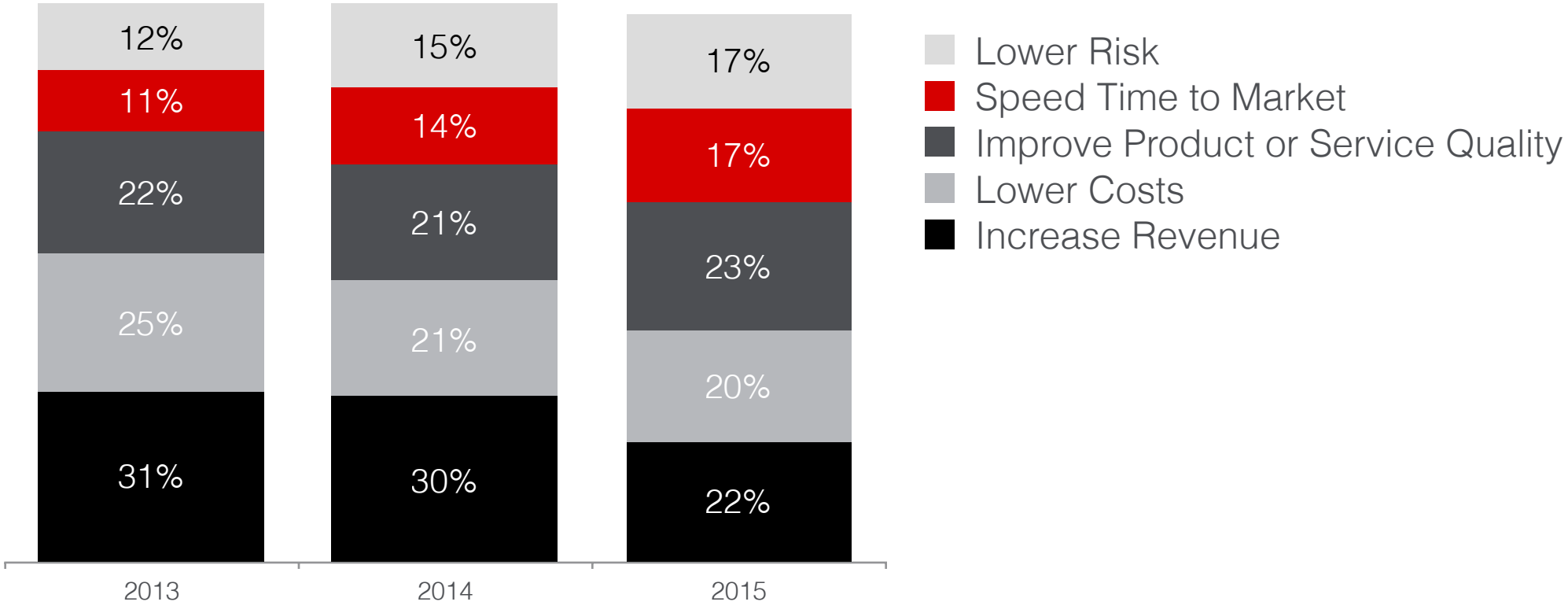
Private Cloud Trends

Your Priorities: Innovate without Risk

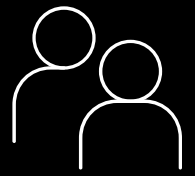


Innovation and low risk are **competing** priorities

Sample sizes: 2013 had 1,540 respondents; 2014 had 2,041; and 2015 had 1,736

Source: 451 Group Commissioned by Microsoft

67% of F5 Customers Employ a Cloud-First Strategy

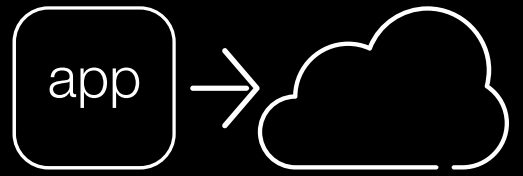


3,002

F5 CUSTOMERS SURVEYED

81%

PLAN A MIX OF PUBLIC AND PRIVATE CLOUD INFRASTRUCTURES



66%

PLAN TO MIGRATE UP TO HALF THEIR APPS TO THE CLOUD

43%

IDENTIFIED PRIVATE CLOUD AS STRATEGICALLY IMPORTANT

34%

IDENTIFIED PUBLIC CLOUD AS STRATEGICALLY IMPORTANT

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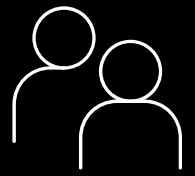

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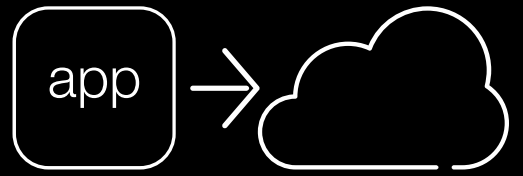

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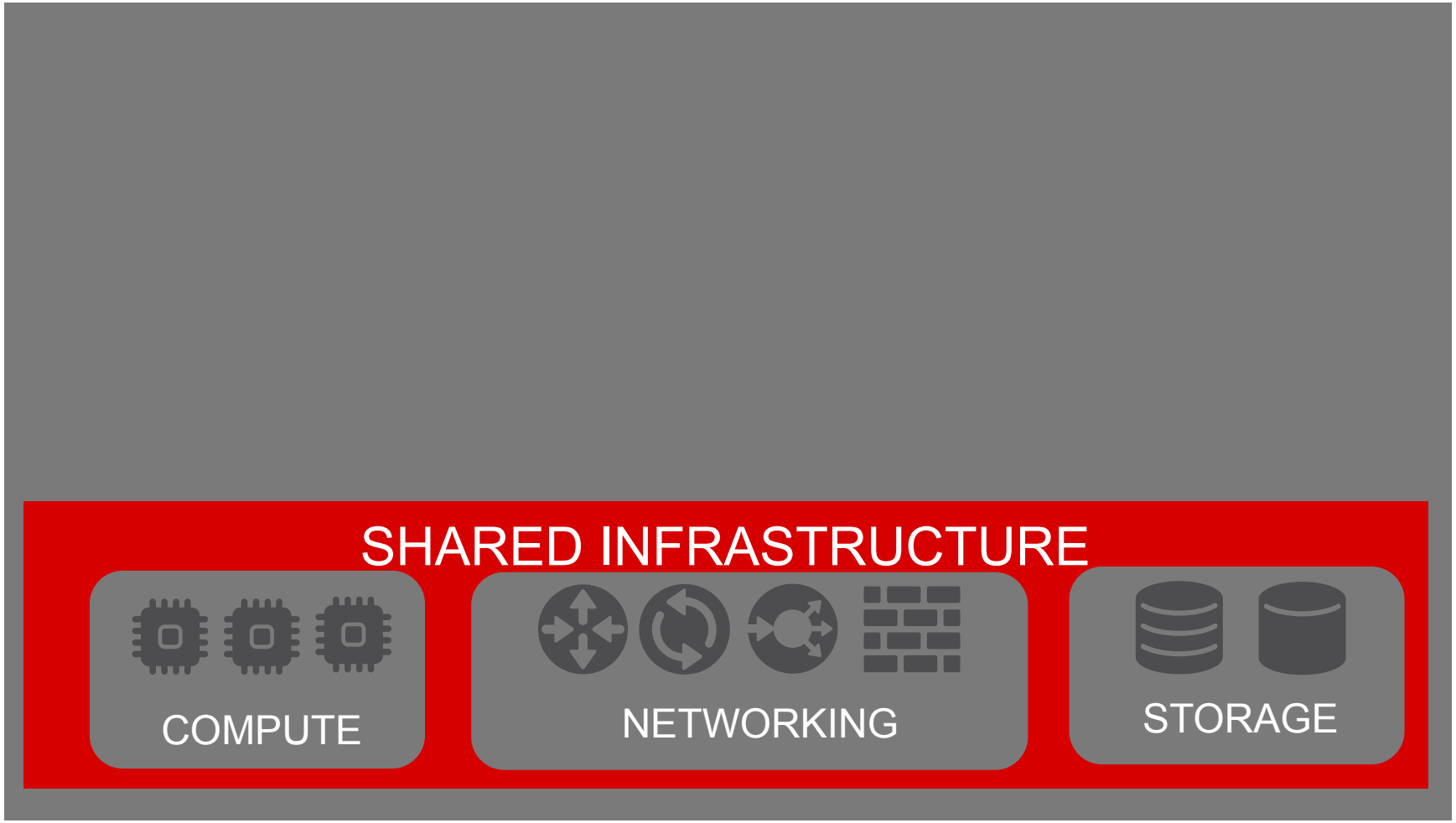
What is a Private Cloud?



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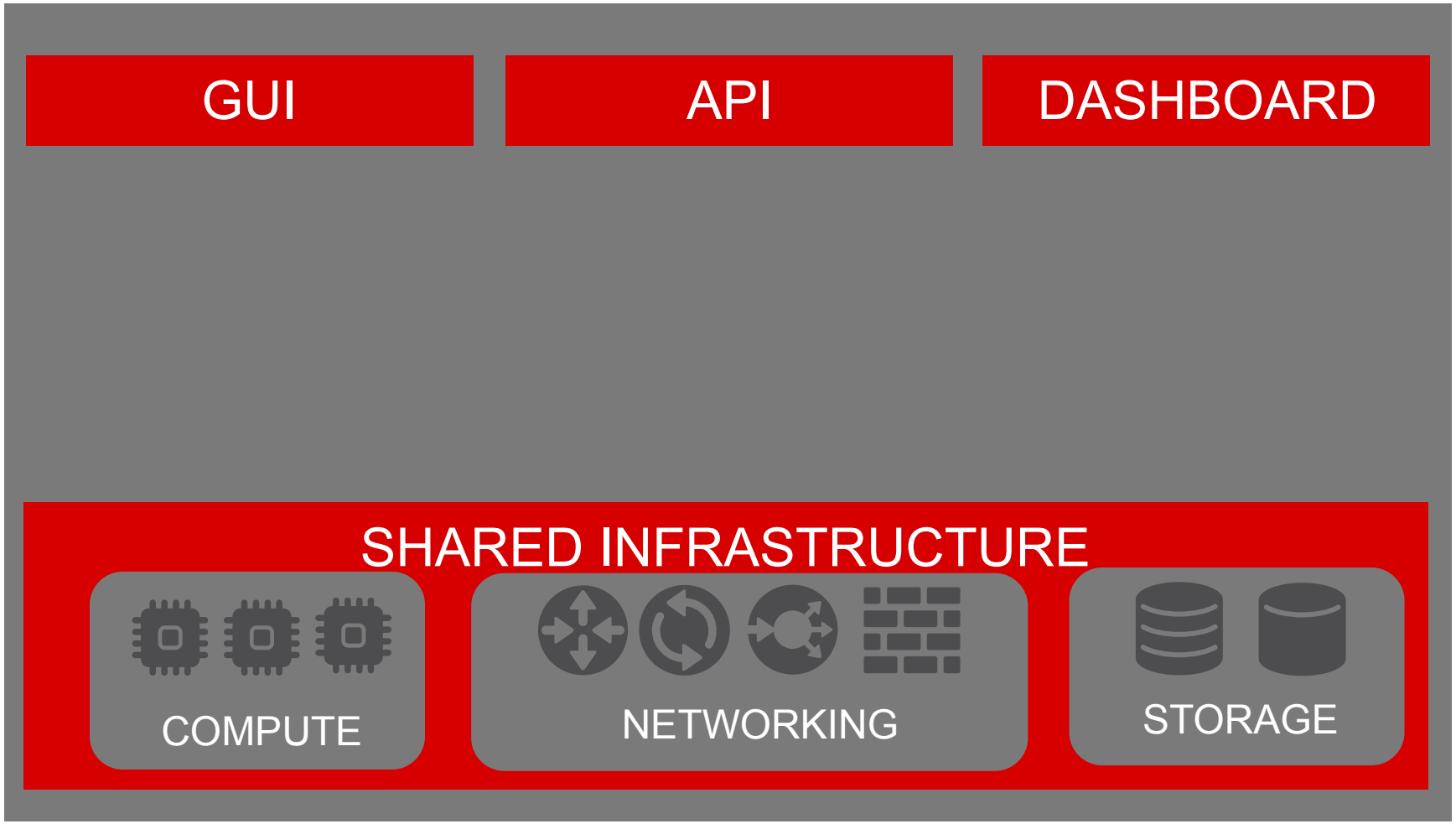

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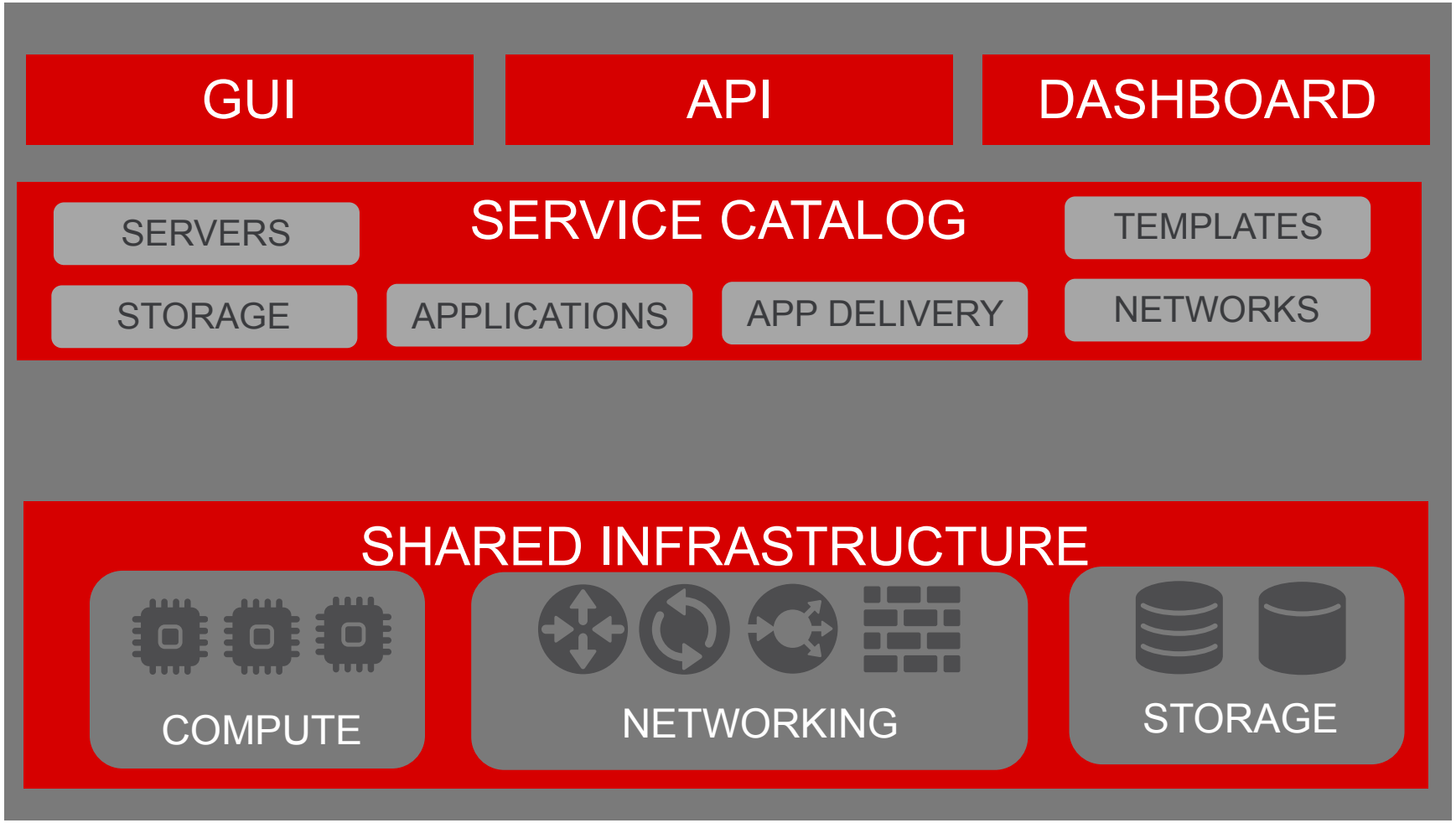

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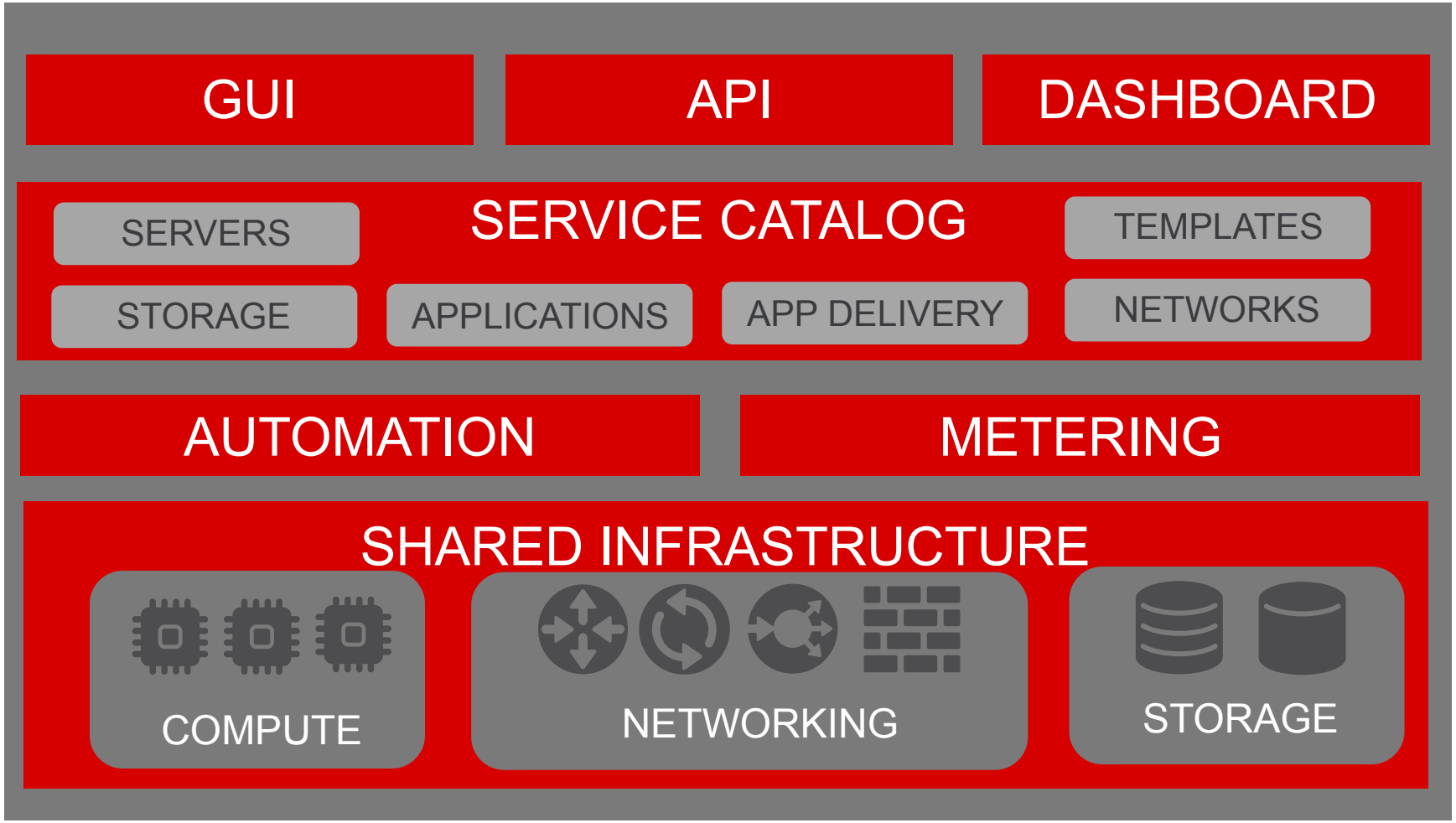
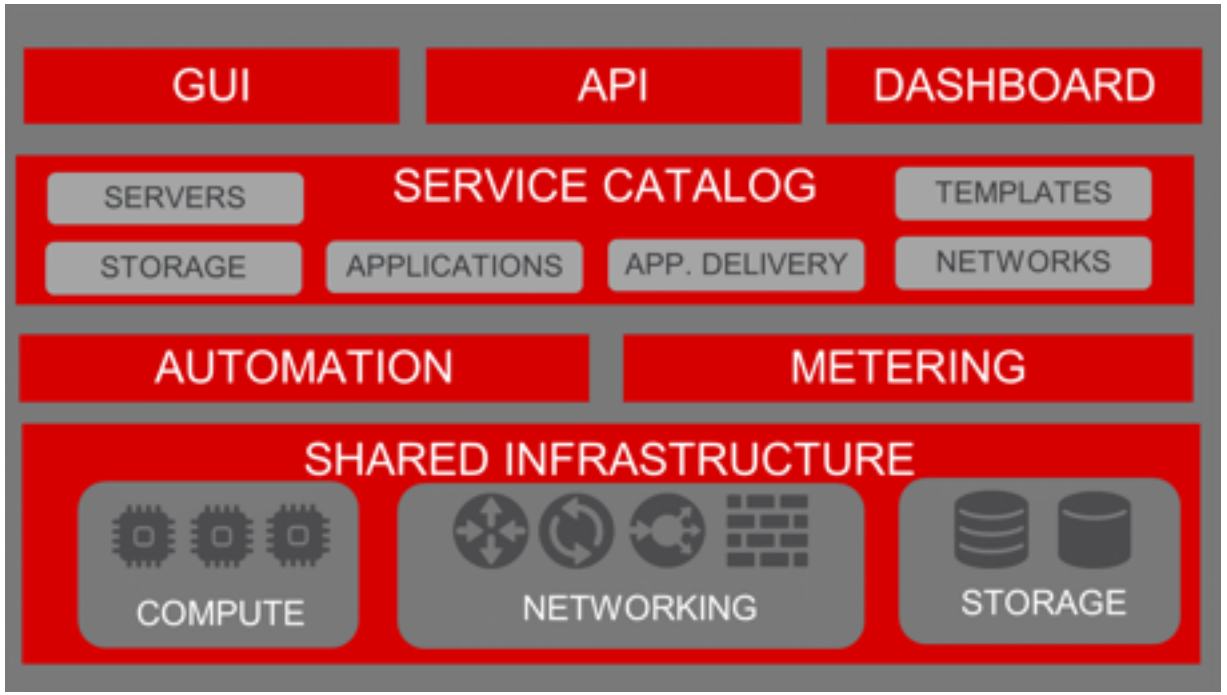


What is a Private Cloud?

Any complete private or public cloud offering also needs a service catalog, self-service, automated delivery, and service metering to fulfill business expectations.



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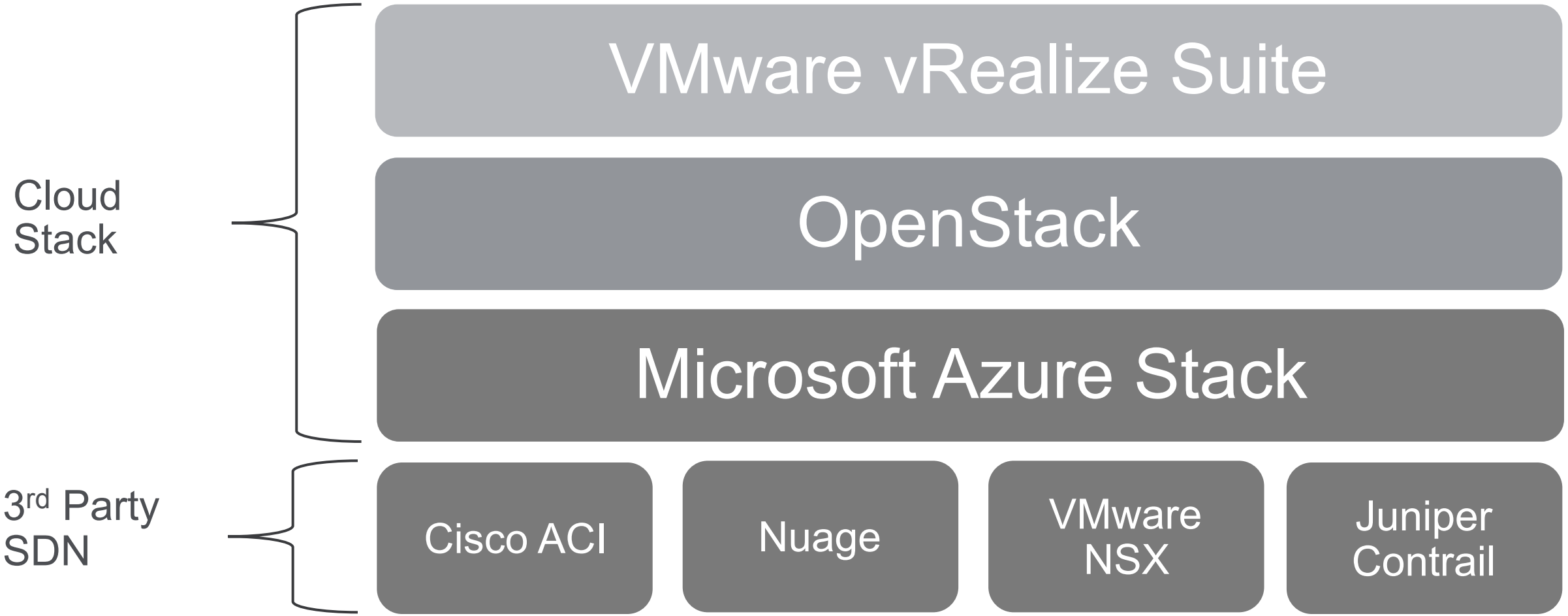
Cloud Technology Stack Choices



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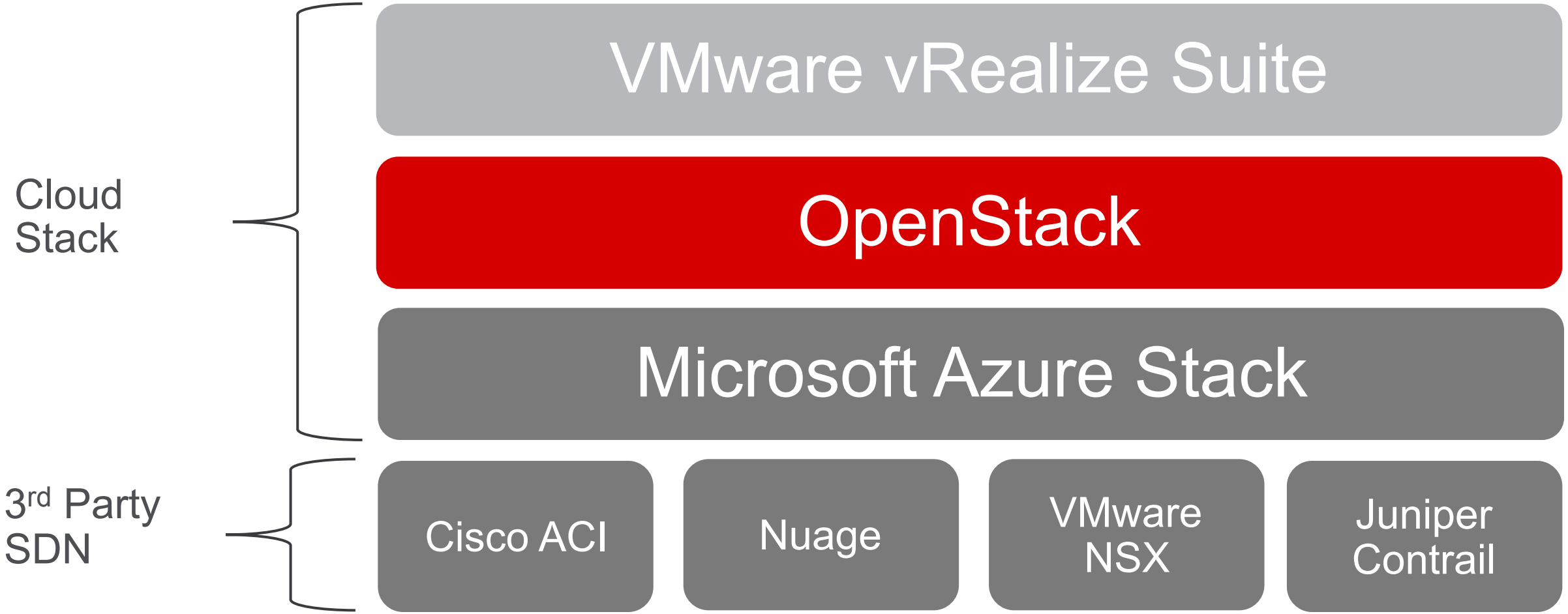


Private Cloud and OpenStack Architectures

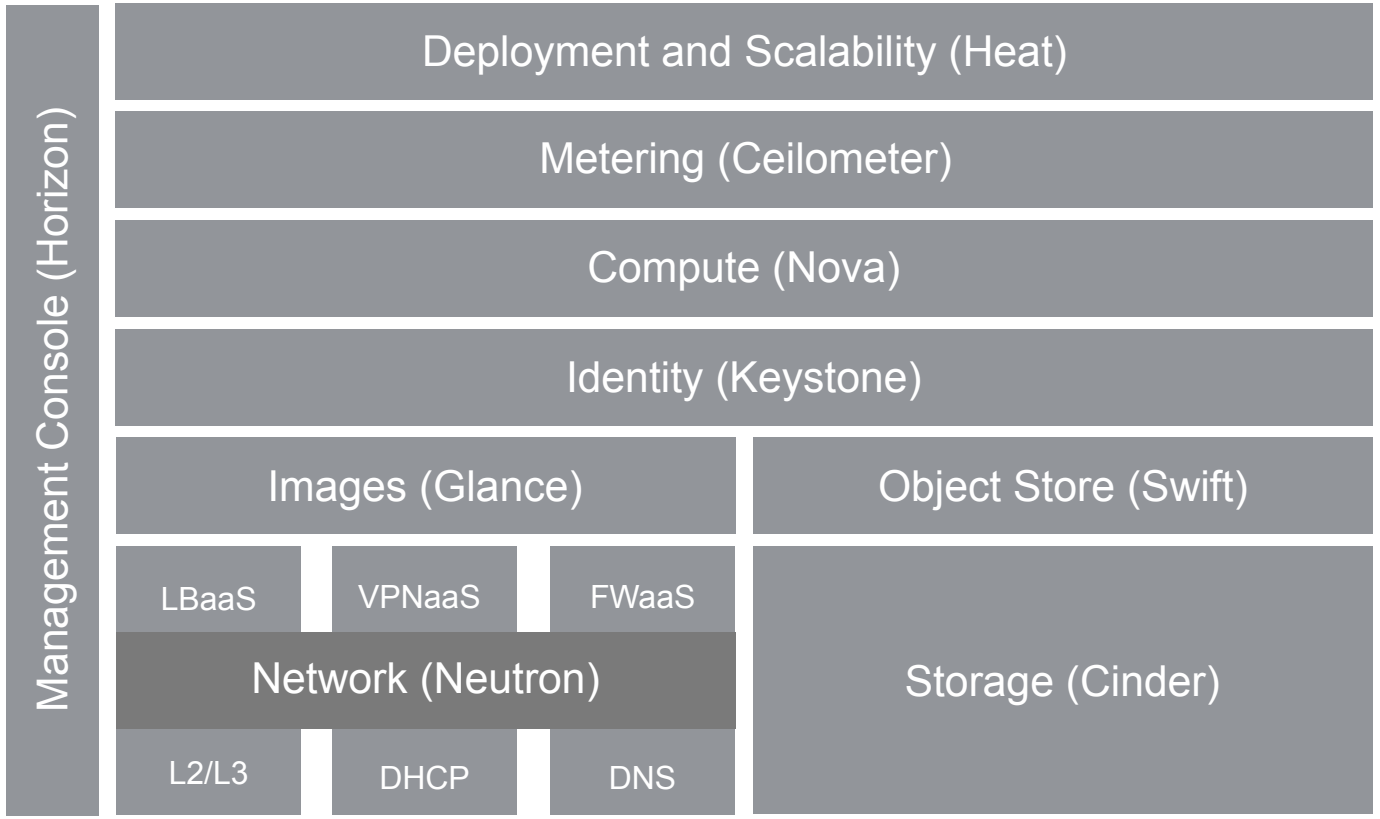
OpenStack Overview

What is OpenStack?

- Open source cloud platform based on community-defined standards
- Manages compute, storage, and network resources
- Expose standard APIs for tenants
  - Python API and REST methods

Meets Requirements

- Well-defined tenant model and service catalog
- Programmable, scalable infrastructure
- Orchestration via Heat



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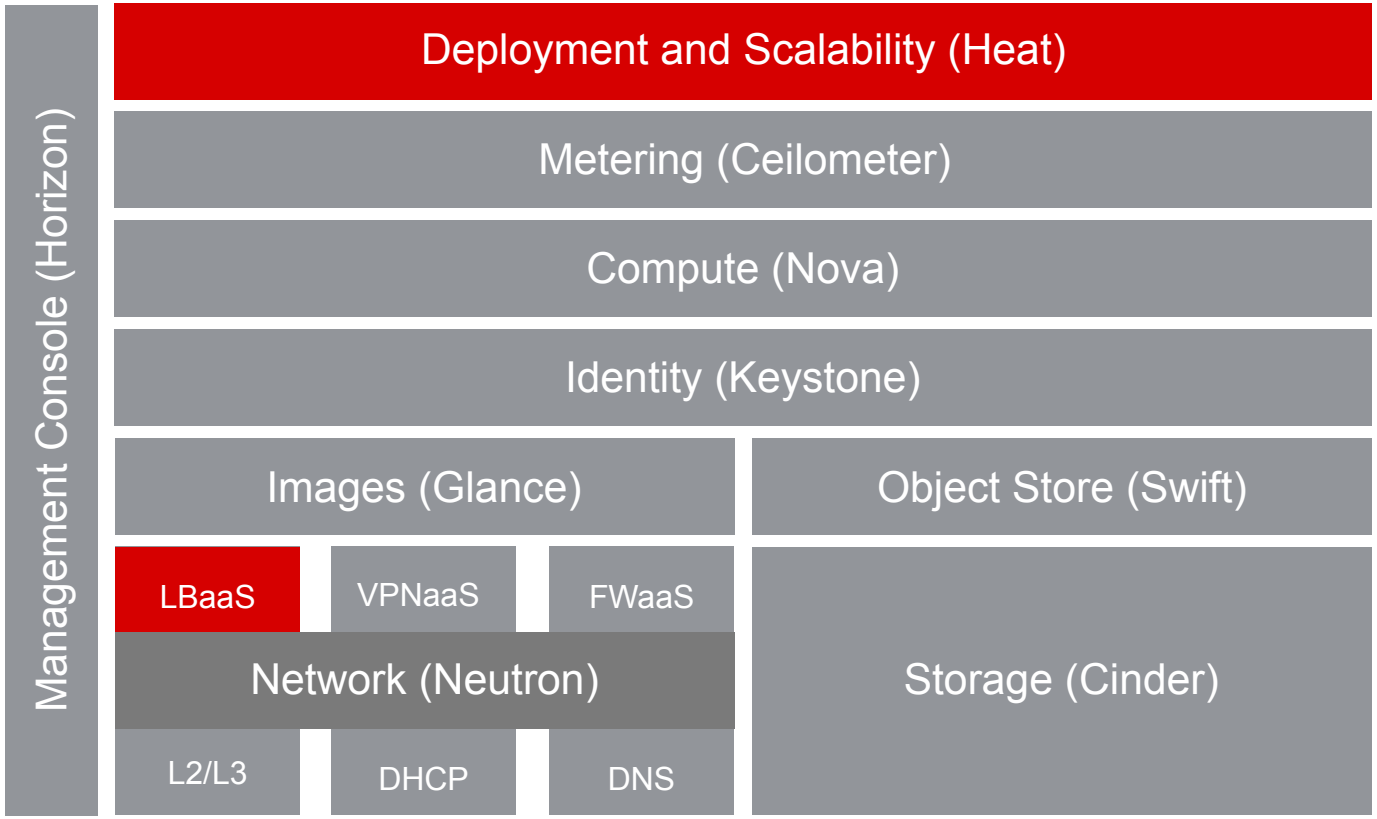
LBaaS and Heat

- F5 Integrates with both Heat and LBaaS to deliver services

- Using Virtual Editions **or** High Capacity hardware

- Use either or both



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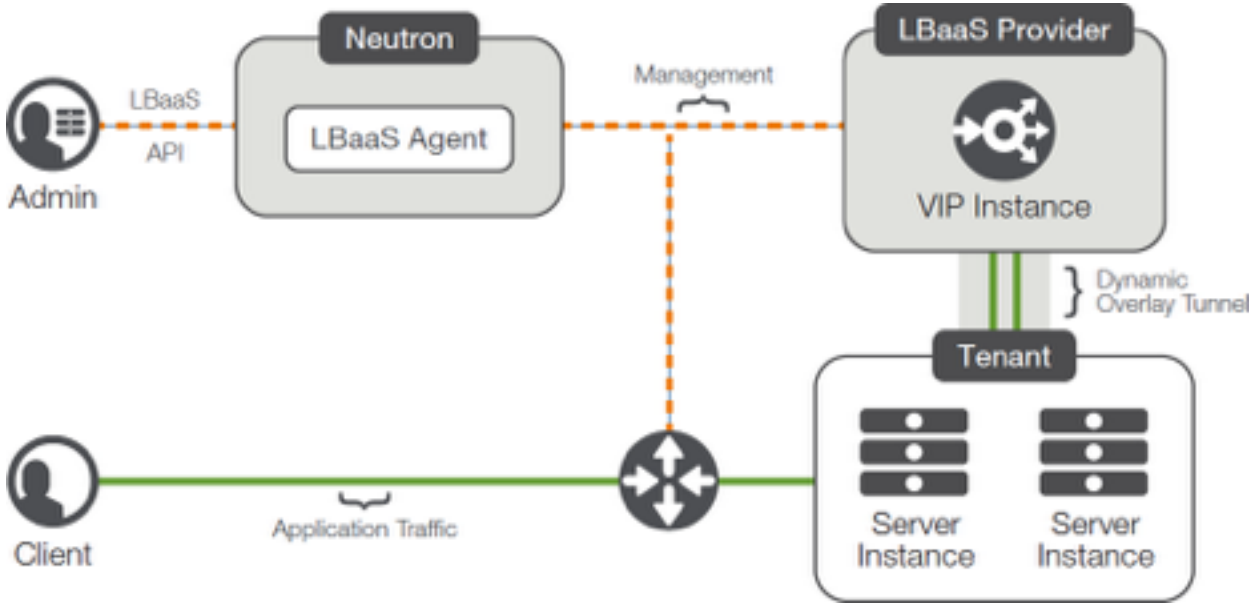
F5 LBaaS Implementation

- LBaaS V1 and V2 available
- Access using CLI, API or GUI (Horizon)
- Supports Standalone, HA-Pairs and N+1 Clustering
- Software Virtual Editions AND Hardware
- Hardware supports VLAN, VXLAN, and GRE Tunneling



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Load Balancing

LBaaS

TCP, HTTP, HTTPS

Simple Distribution

Basic Health Monitors

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Load Balancing

LBaaS

TCP, HTTP, HTTPS

Simple Distribution

Basic Health Monitors

Application Delivery

Heat

TCP, HTTP, HTTPS, HTTP/2, FTP, FIX, DIAMETER, RTSP, PCoIP…

Advanced Distribution

App Health Monitors

Traffic Optimization

Application Security

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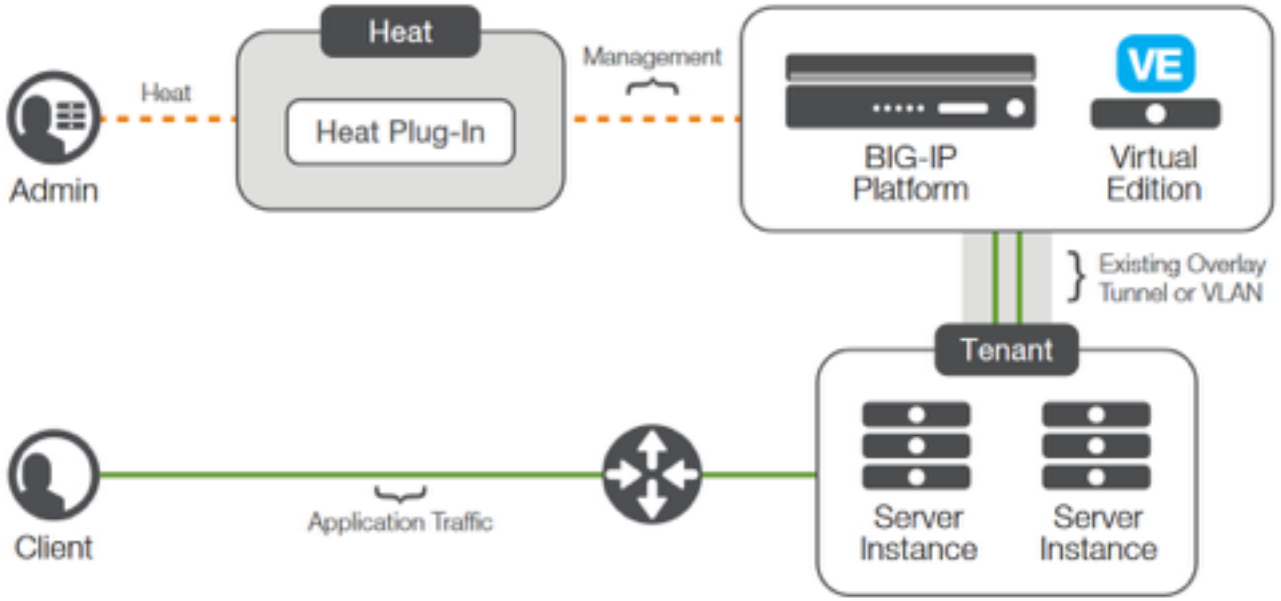
F5 Heat Implementation

- Declarative text files that describe a cloud application
- Extendable to non-OpenStack resources via plugins
- Integration with software CM tools (Puppet, Chef, Ansible, Salt)
- BIG-IP hardware, Virtual Editions
- In the provider space, or as a dedicated VE in the tenant



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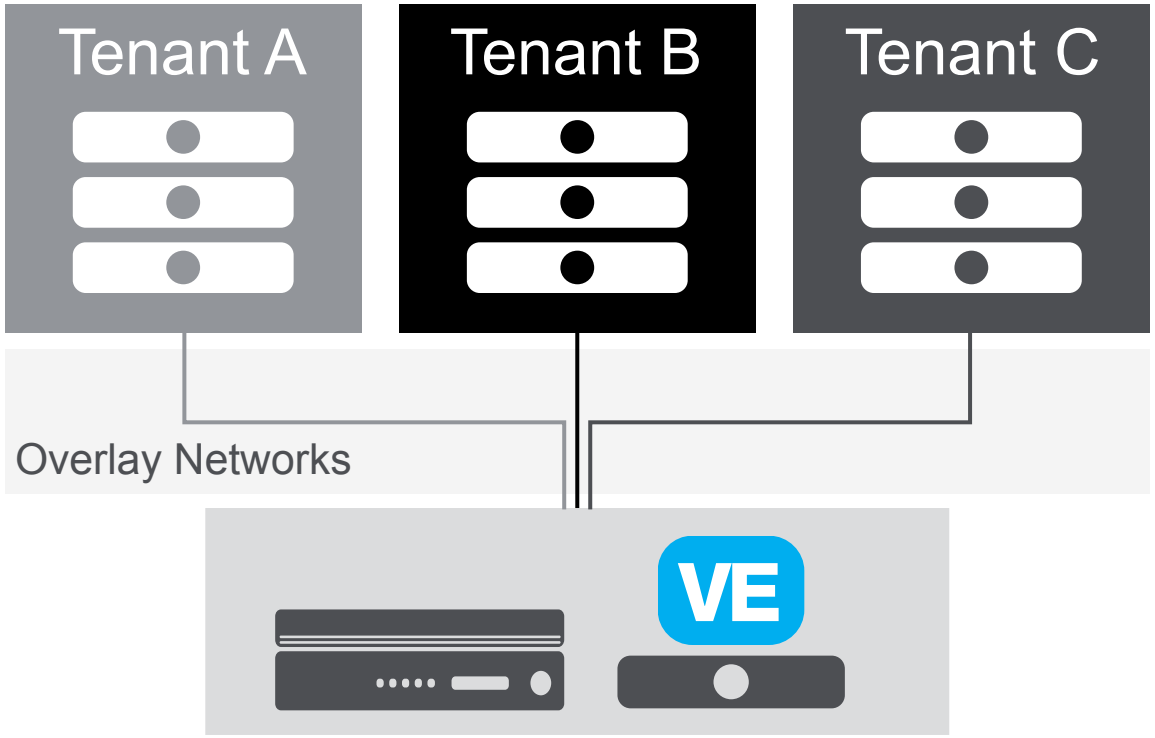
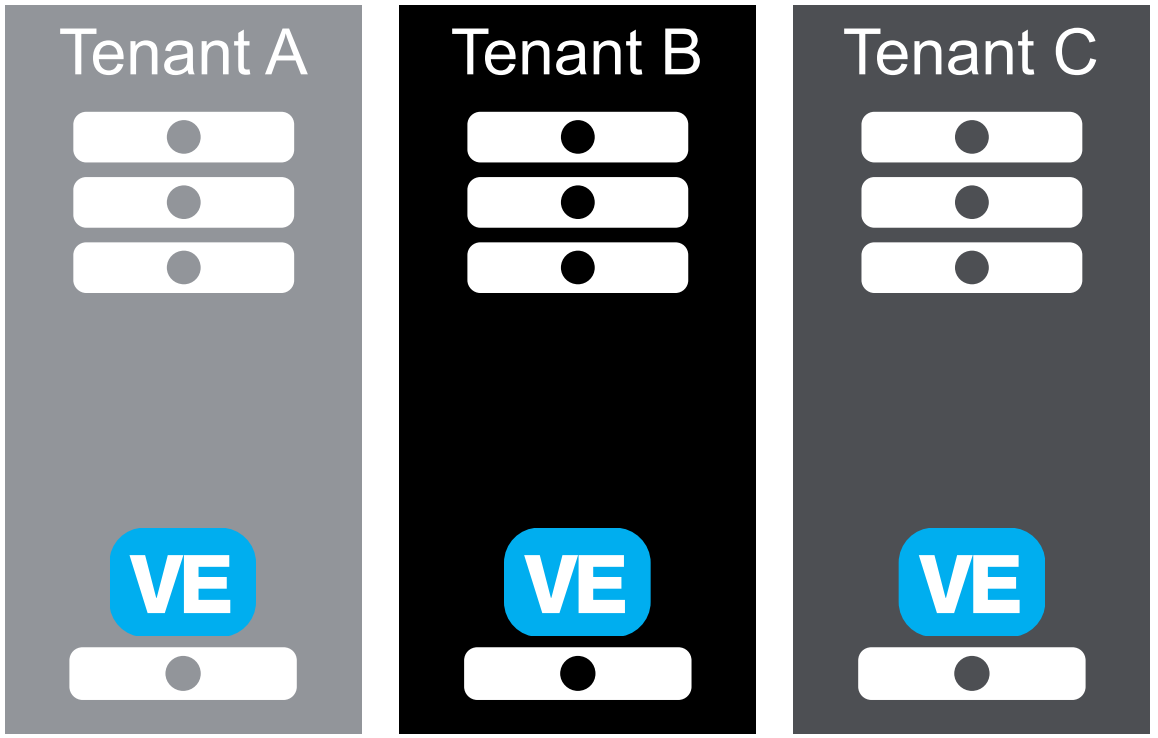
Multi-Tenant or Dedicated





Multi-Tenant BIG-IP platform

- SW (VE), HW, vCMP, VIPRION
- VLAN, VXLAN, NVGRE
- Partitions and route domains for tenant segmentation
- Agent configures route tables, tunnels, self-IPs, etc.

Dedicated BIG-IP VEs per tenant

- Dedicated for performance, security, availability
- Attached only to tenant overlay
- Driver implements Neutron services in tenant BIG-IP VE
- Tenant has direct access to BIG-IP VE

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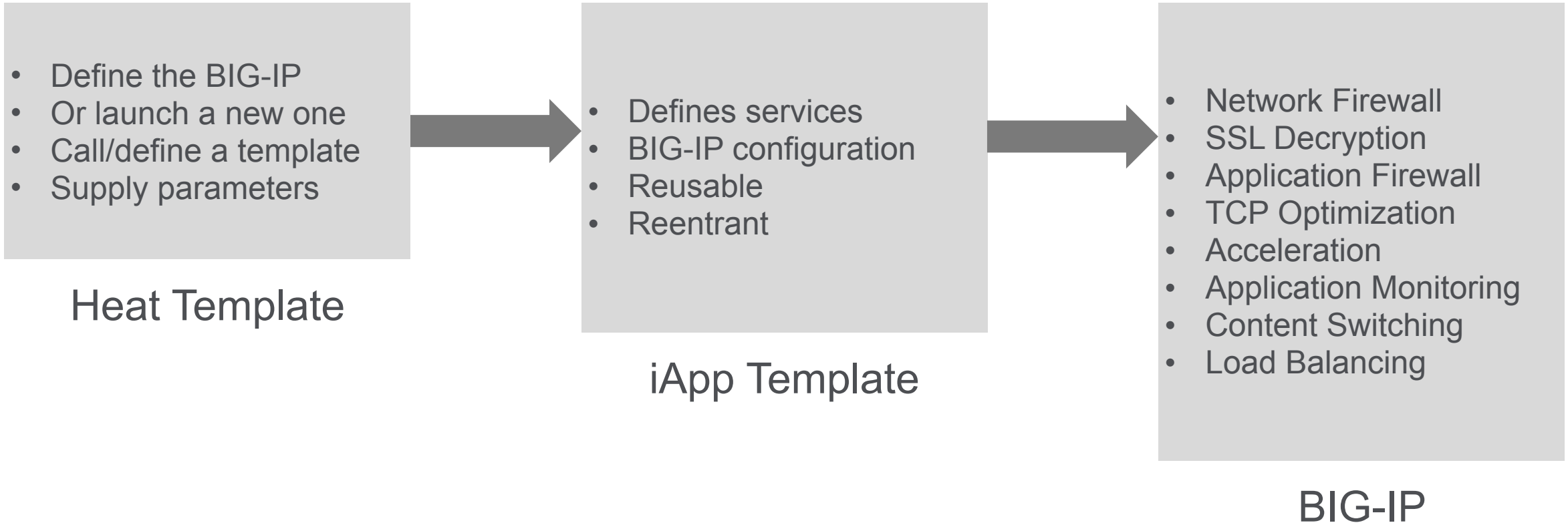
Heat Templates and iApp Templates



Simple deployment → Repeatable Template → Rich Configuration

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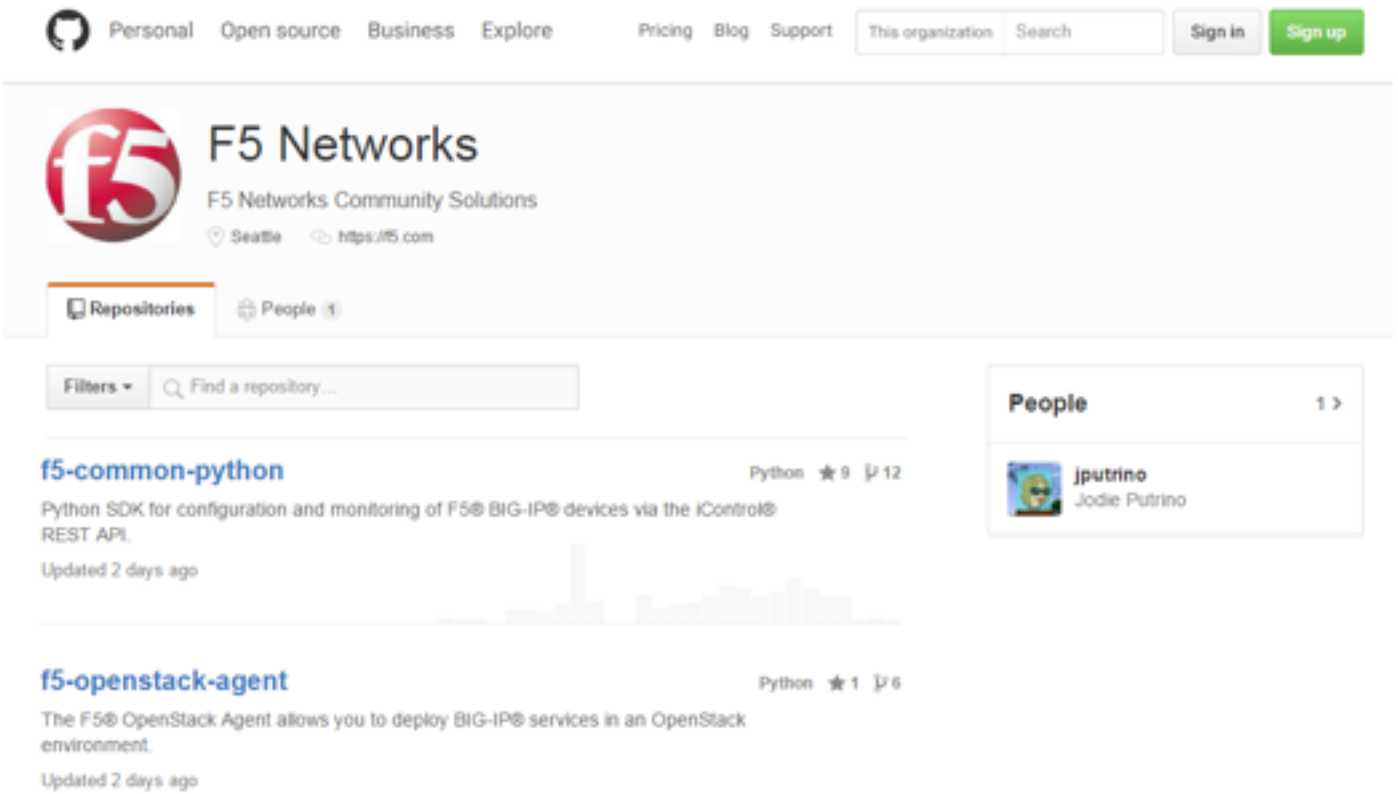
Solutions for Every Need

Load Balancer	Security App Delivery	Multi-Layer Security and Delivery Services
L4-7 Basic Load Balancing	**Heat**	L4-7 Basic Load Balancing
LBaaS	L4-7 Advanced App Delivery	**LBaaS + Heat**
	App Security + Firewall	L4-7 Advanced App Delivery
	Traffic Optimization	App Security + Firewall
	HTTP/2 Gateway	Traffic Optimization
		HTTP/2 Gateway

DEMO

Get it on GitHub

- Open source
- Documented
- Other F5 open source projects
- Ansible, Puppet, Chef
- Cloud Formation Templates
- Python
- More



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Enterprise Support for F5 in OpenStack

- 24x7 multi-lingual technical support
- Deep technical expertise
- ISO 9001:2008
- Search ‘GitHub’ on F5 Support site

OpenStack-Community Collaboration

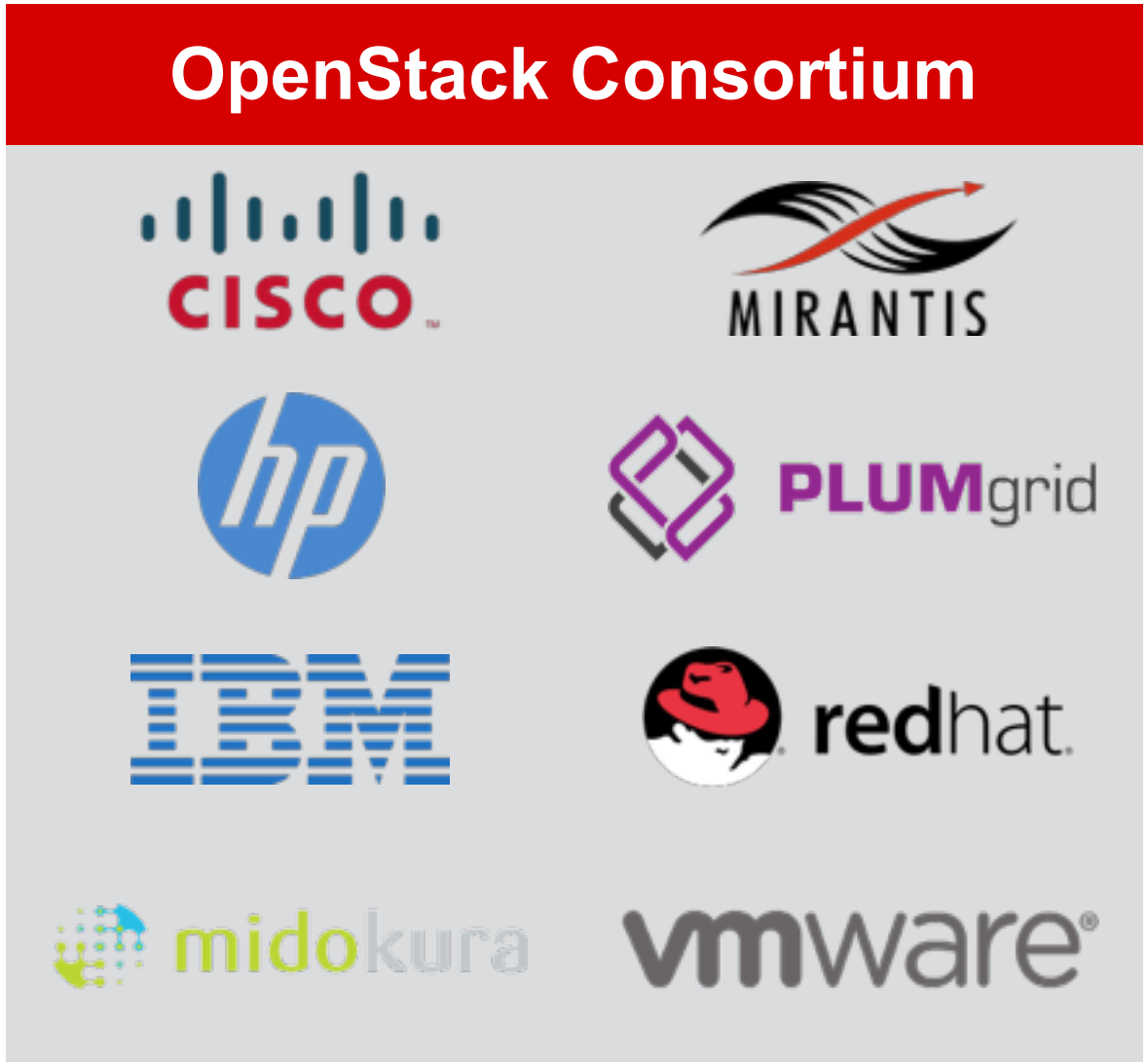
- Member of OpenStack foundation
- Open source LBaaS plug-in and Heat templates
- Certification with popular distributions
- GitHub—plugins, Heat template library, technical documentation

OpenStack Marketplace

StackForge

Certified Drivers

OpenStack Consortium



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OpenStack Ecosystem Certified Integrations

- Certified version RHAT OSP v6.0 April 2015
- Certification with OSP v7.0 in process

- Certified version HPE Helion Enterprise (HOS v2 / LBaaS v1)
- Certification of HPE Helion Carrier Grade in process

- Certification and Runbook Approved by Mirantis on 1/5/2016

- Validation Completed on 4/24
- Documentation to be posted shortly

Customer Use Cases

Large Transportation Customer

Their Challenge:

- Create an private cloud offering enterprise class application environments deployed with public cloud agility

The Solution:

- OpenStack private cloud - agility, scale and control
- F5 Application services with LBaaS and Heat templates

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F5 OpenStack Architecture

1 Orchestration and Management

- Heat orchestration system with a self-service catalog that allows users to select, provision, and deploy the needed app services
- Heat templates to deliver advanced F5 app and security services

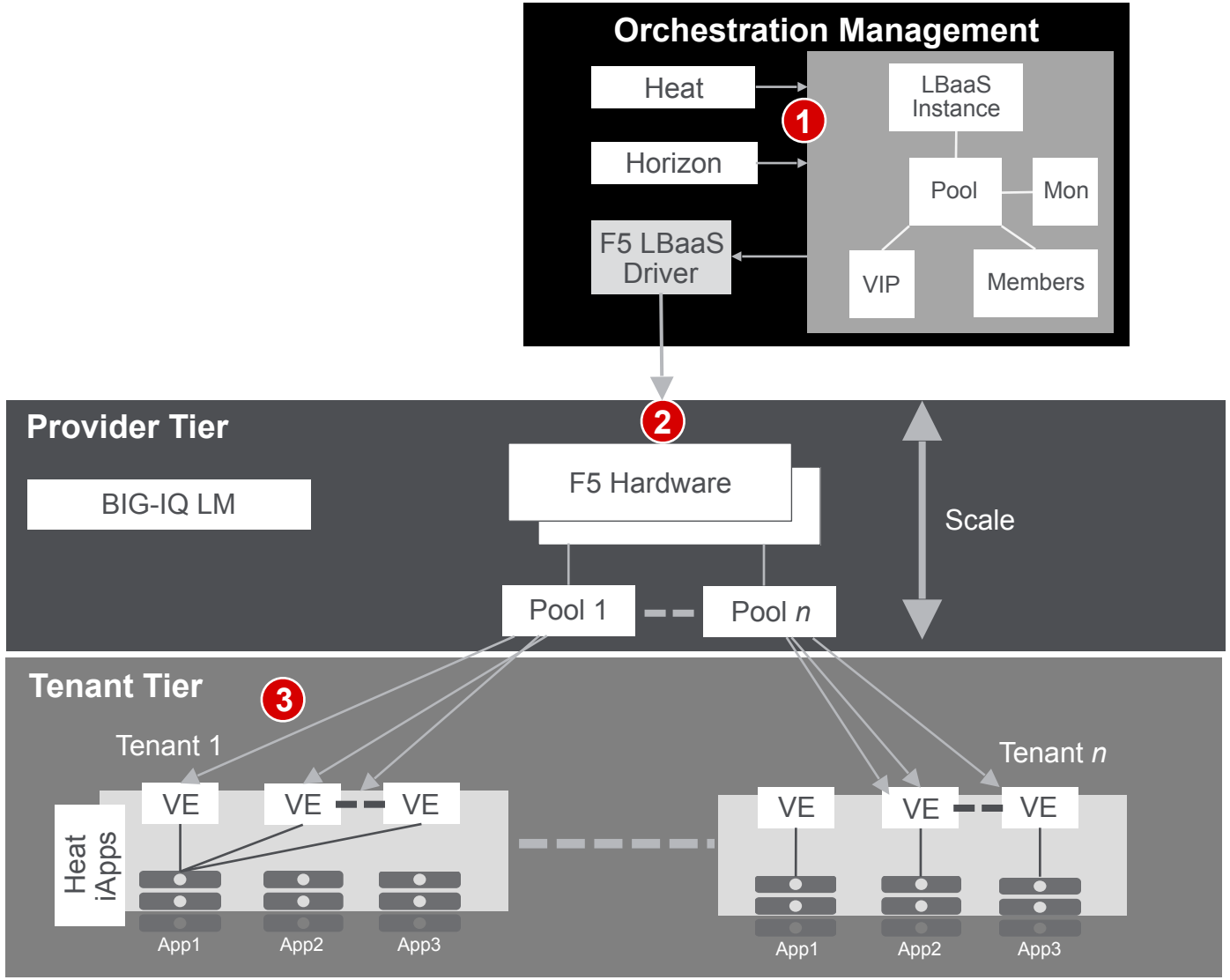
Provider Tier

2

- F5 L2–L4 Services
  - Router Services (NAT/SNAT)
  - Firewall
  - DDoS
- F5 L4–L7 Services
  - GSLB, DNS
  - SSL Offload
- F5 License Manager
  - Pools of Virtual edition licenses

3 Tenant Tier

- App delivery, management, protection services
  - Proxy, L7 optimization
  - WAF



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Managed Service Provider

Their Challenge:

- Offer a one-stop managed services solution for their large enterprise customers which includes development, test, deploy and management of apps
- Current customers are using advanced LB & WAF features

The Solution:

- OpenStack private cloud
- Heat templates and multi-tenant F5 Hardware, network overlay

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F5 OpenStack Architecture

1 **Orchestration and Management**

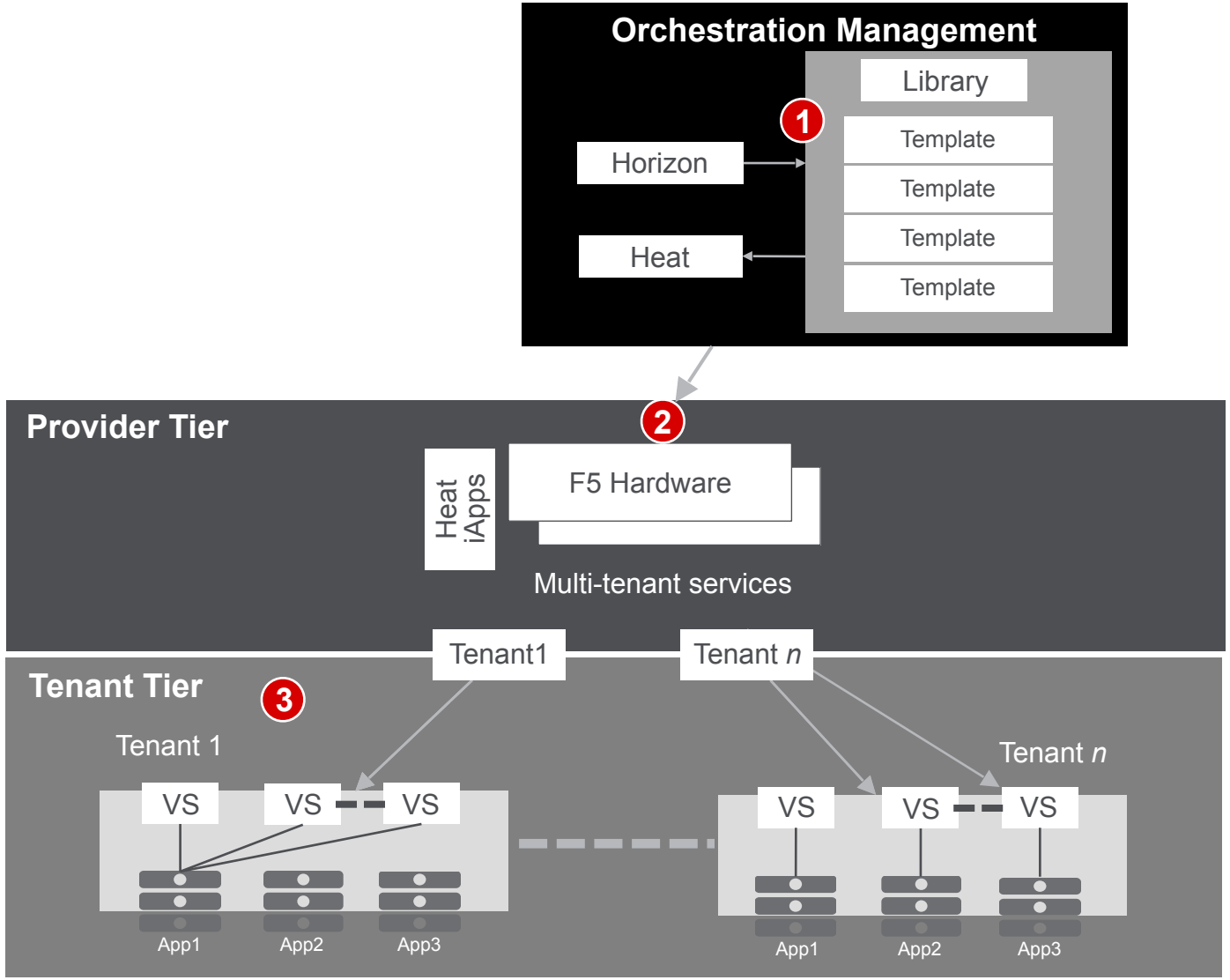
- Heat orchestration system with a self-service catalog that allows users to select, provision, and deploy the needed app services
- Heat templates to deliver advanced F5 app and security services

Provider Tier

2
- F5 Multi-tenant hardware
  - Traffic separated by overlay (VXLAN)
  - Route domains and admin partitions to separate config and IP space
- F5 L4–L7 Services
  - Advanced App delivery
  - SSL Offload
  - Web Application Firewall

Tenant Tier

3
- Deliver Application services
  - Virtual server insertion in tenant space
  - No F5 Virtual machine or admin access



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F5 and OpenStack

F5 has the right set of hardware/software for your tenancy model

- Deploy in the tenant project or provider space
- Same interface, same functionality
- Continue to utilize your F5 hardware

F5 Heat templates enables full integration with OpenStack

- Prepares stock VE images for OpenStack
- Deploys BIG-IP VEs onto OpenStack
- Can upgrade and cluster any set of BIG-IP products
- Follow Github.com/f5networks

F5 will continue to offer other networking and security capabilities

- Future Heat templates
- Additional Neutron plugins
- Building a wider ecosystem

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Resources

- On F5.com:
  - Cloud Computing page on F5.com
  - *How to Add F5 Application Delivery Services to OpenStack* whitepaper
  - OpenStack Partnerships
- Additional:
  - F5 Heat Templates on GitHub

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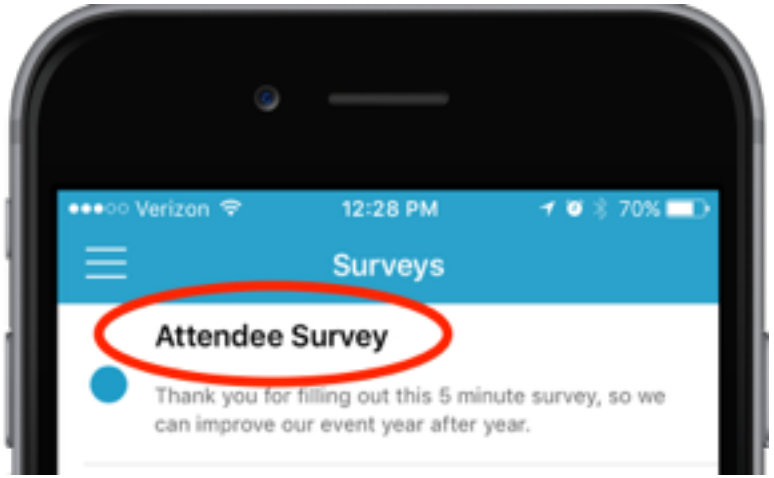
Q&A

Give Feedback – Get Points!

- Add class to your personal schedule.
- Survey will pop up in Mobile App.
- Answer the multiple choice.
- Submit your question to complete.
- Receive 5 points!



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