

# F5, Red Hat and Trace3 Automation for Everyone - Ansible

Email Ed for lab link - E.Rabago@f5.com

Lab guide:

<http://ansible-workshop.readthedocs.io>



# F5, Red Hat and Trace3 Automation for Everyone - Ansible

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PRESENTED BY:

Ed Rabago, F5 Channel SE

WE MAKE APPS  FASTER.  
SMARTER.  
SAFER.



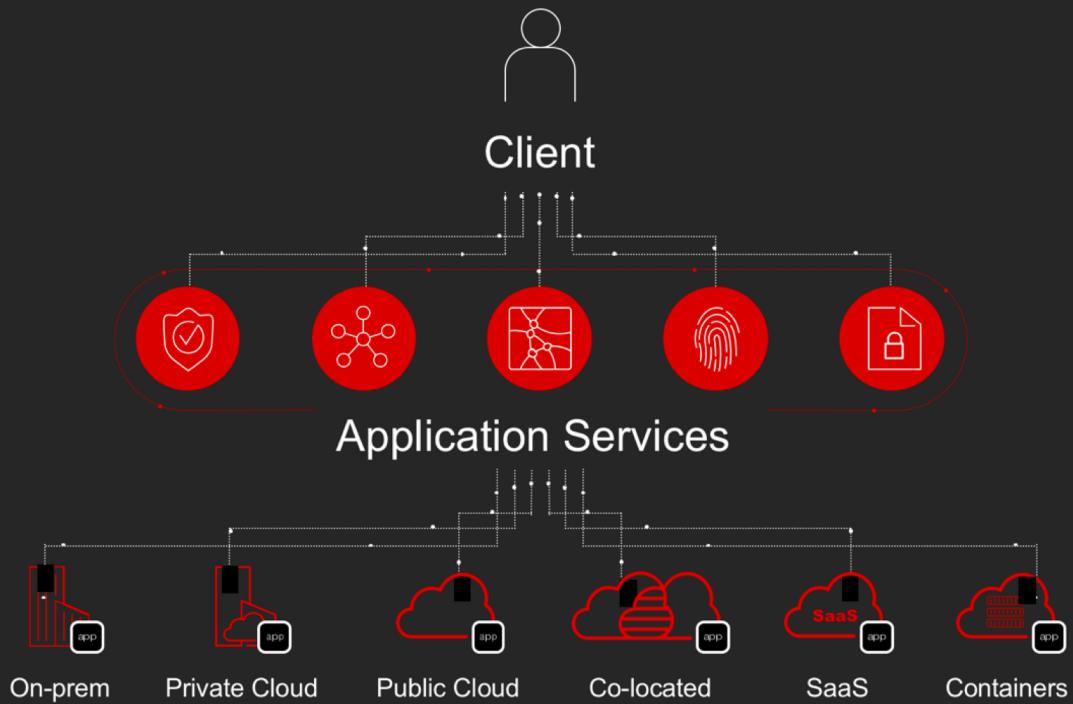
# WELCOME AND INTRODUCTIONS

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# F5's business proposition...

Making Apps Faster, Safer, Smarter

The  
Power  
of a  
Proxy



Reduce Risk

Increase Efficiency

FORTUNE  
-50-

49 / 50

Fortune 50  
companies

Don't be the  
one left out



14 / 15

Top US  
Commercial Banks



15 / 15

Executive Departments  
of US Cabinet



10 / 10

Largest Global  
Insurance Companies



10 / 10

"Best" US Retail  
Companies



15 / 15

Global Telecom  
Operations



9 / 10

Global Automotive  
Companies



10 / 10

US Security  
Companies



10 / 10

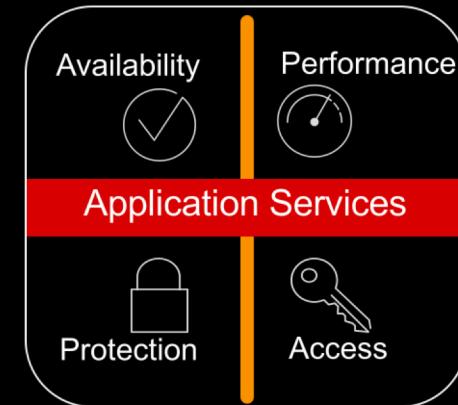
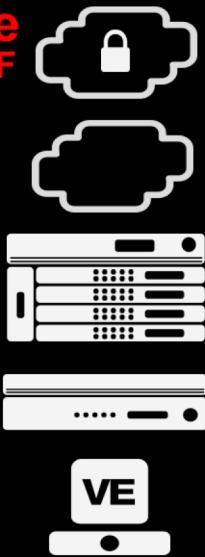
Telecommunications  
Companies

# App-centric Strategy

## Faster, Smarter, Safer

## The Power of a Proxy

**Silverline**  
DDoS & WAF



User

- DDoS Protection
- DNS / Global Load Balancer
- Firewall / Intrusion Prevention
- Traffic Management / Load Balancer
- SSL Visibility / Inspection / Analytics
- Identity Access / Multi-factor Auth / Single Sign-On
- Web Application Firewall / Fraud Prevention



Consistent Services  
Every App, Anywhere



NFW / WAF  
SSL / IPSEC



DCFW / WAF  
DDoS

# Ansible

- A python-based command line engine
- Interprets & executes “Playbooks” that contain one or more “plays” or tasks

## Ansible for network infrastructure

- Unify provisioning, configuration, and application deployment



Community with  
2900+ contributors



10k downloads/day



1450+ Ansible modules

# AUTOMATION & ORCHESTRATION

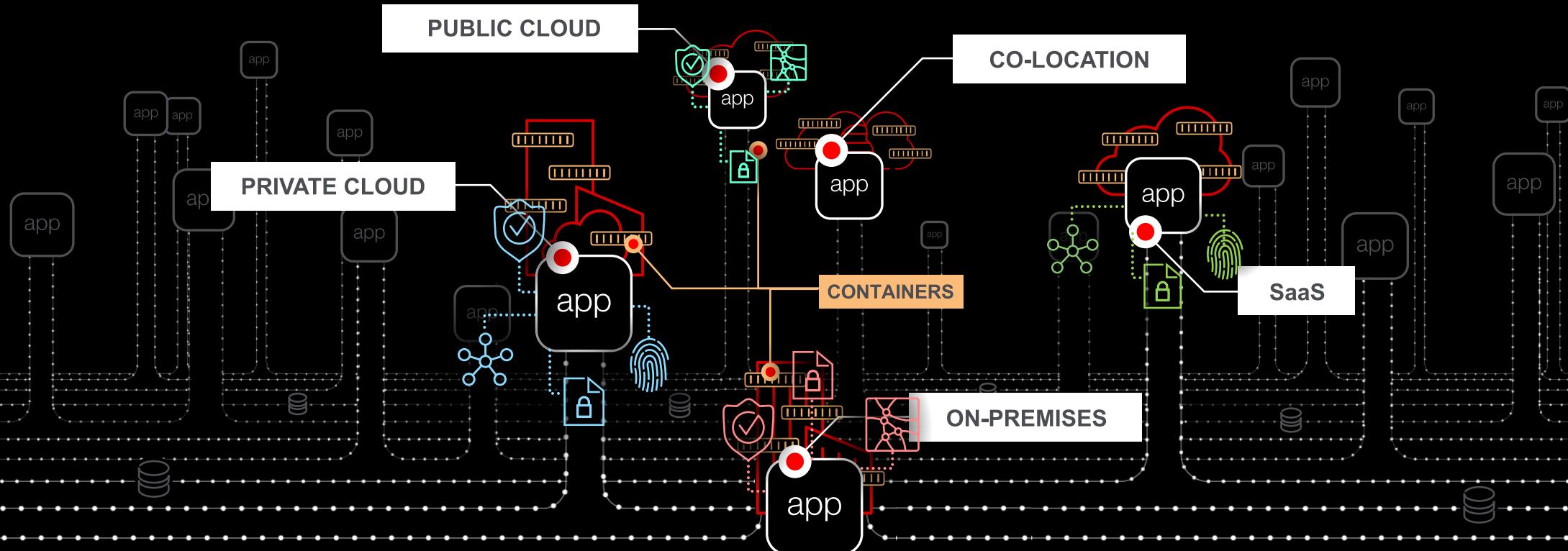
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## WHY SHOULD YOU CARE?

# Digital Economy Makes Apps the Center of Your World



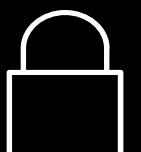
# Applications Are Everywhere



FAST

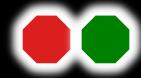


AVAILABLE



SECURE

# Methodology Transformation



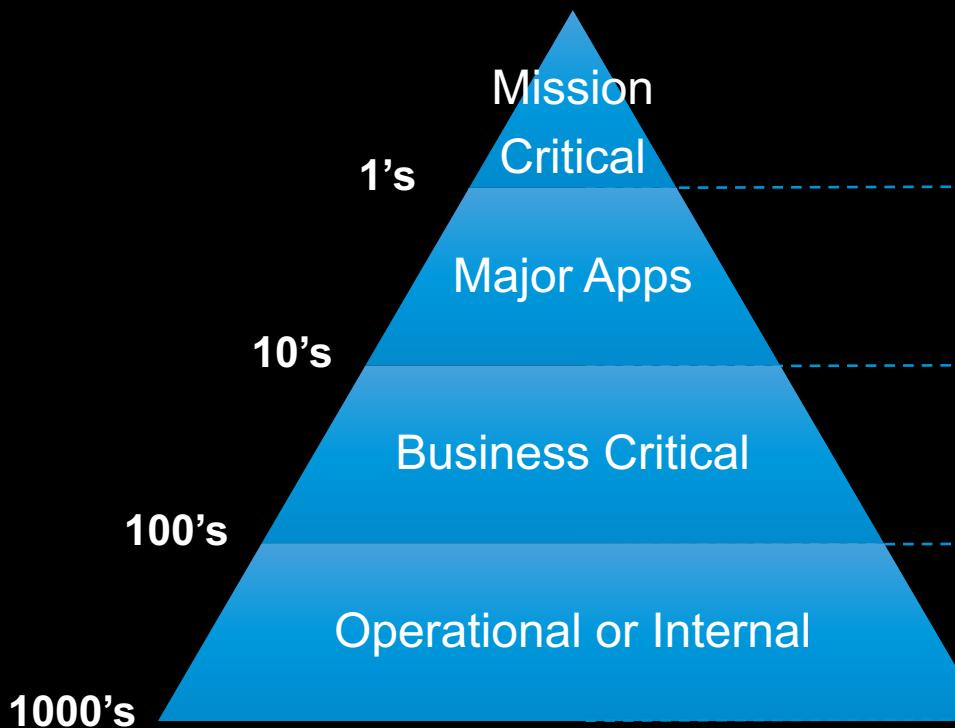
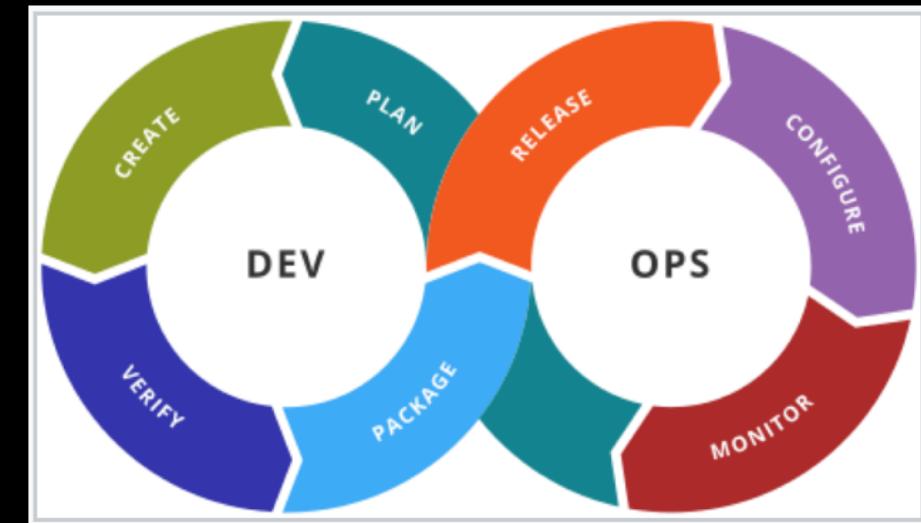
Traditional

- Organizational Silos
- Monolithic Processes
- Waterfall Development



Agile/Continuous

- Collaborative Teams
- Continuous Processes
- Agile Development



	-1 Year	Today	+1 Year	+2 Years
1's	①②	①②	①②	∞
10's	①②	①②	①②	∞
100's	①②	①②	∞	∞
1000's	∞	∞	①②	∞

# NetOps Happy Place

The OSI Model of Networking...

Please don't ask  
about this...

L7: Application

L6: Presentation

L5: Session

L4: Transport

L3: Network

L2: Data Link

L1: Physical



Black Magic



Oh Yeah... We Got  
this



What's the biggest  
challenge for DevOps?

*Applications*

What is NetOps  
biggest challenge?

*DevOps*



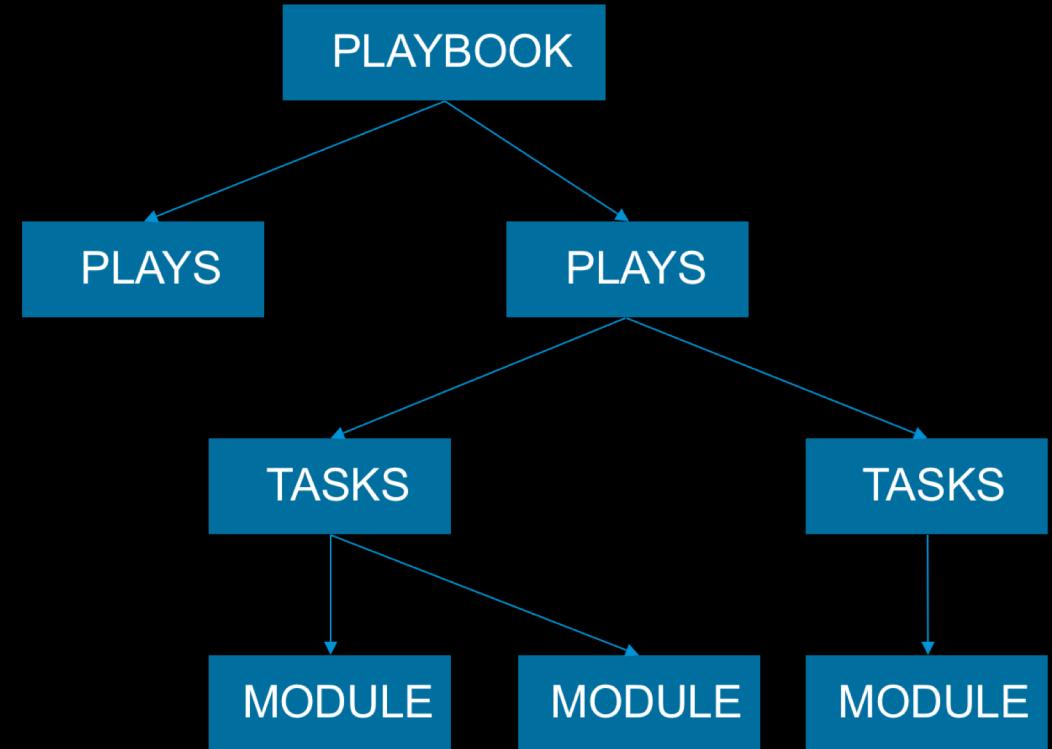
**DEVELOPERS CHOOSE**

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**ANSIBLE**

# Ansible Components

- **Ansible Core** - provides the Ansible runtime and allows execution of playbooks
- **AWX** - provides a web-based user interface, REST API, and task engine built on top of Ansible. It is the upstream project for Tower
- **Ansible Tower** - the management layer, that enhances team collaboration, extensibility, scalability and visibility. Ansible Tower also provides the ability to drive Ansible dynamically through APIs.
  - Scheduling and Backups
  - History & Reporting
  - Deployment state
  - Role Base Access Control



# Ansible Definitions

## ansible.cfg

- **Main Configuration file to change default behaviors**
- Local file takes precedence

Example:

```
[defaults]
inventory=./inventory
deprecation_warnings=False
#library=./library
#callback_plugins=./library/plugins
#library=/home/mike/library/library
#module_utils=/home/mike/library/library/module_utils
#ANSIBLE_LIBRARY=/home/mike/library/library
```

# Ansible Definitions

## Inventory

- **Groups and Lists of endpoints to perform tasks on**
  - Can be entered as IP addresses or resolvable FQDNs

Example:

```
[bigips]
10.1.1.245
```

```
[appservers]
10.1.20.17
10.1.20.20
```

```
[webservers]
10.1.20.15 ansible_user=root
10.1.20.16 ansible_user=root
```

# Ansible Definitions

## Playbook

- **Multiple tasks or plays written together in a single file**
- Written in YAML, a self-documenting language

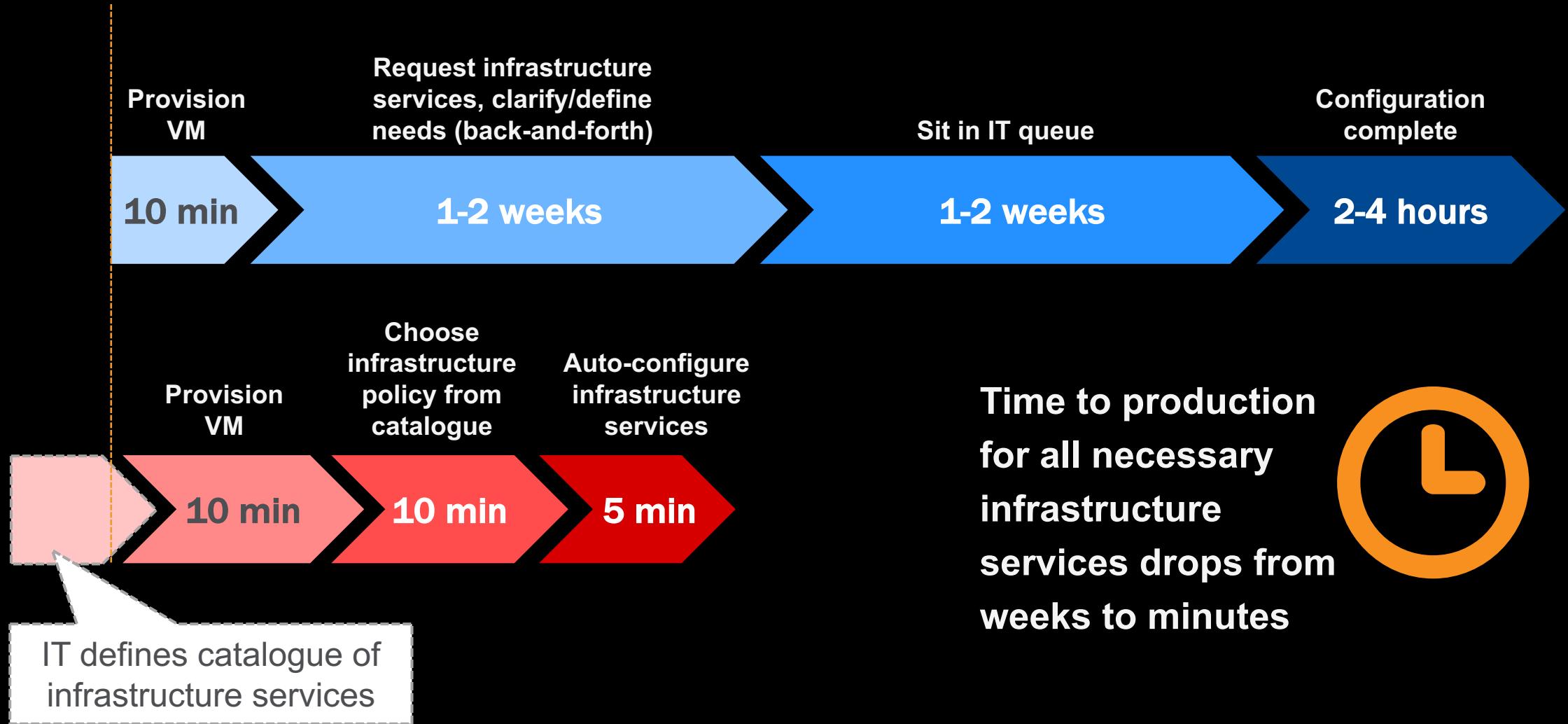
```
--
```

```
- name: Test bigip_facts
  hosts: bigip
  gather_facts: no
  connection: local

  tasks:
    - name: Get all of the facts from my BIG-IP
      bigip_facts:
        server: "{{ inventory_hostname }}"
        user: "admin"
        password: "admin"
        include: "system_info"
        validate_certs: "no"
```

# Operational Agility – Essential for Cloud

Infrastructure Services



# Lab 1 – Speed of Human

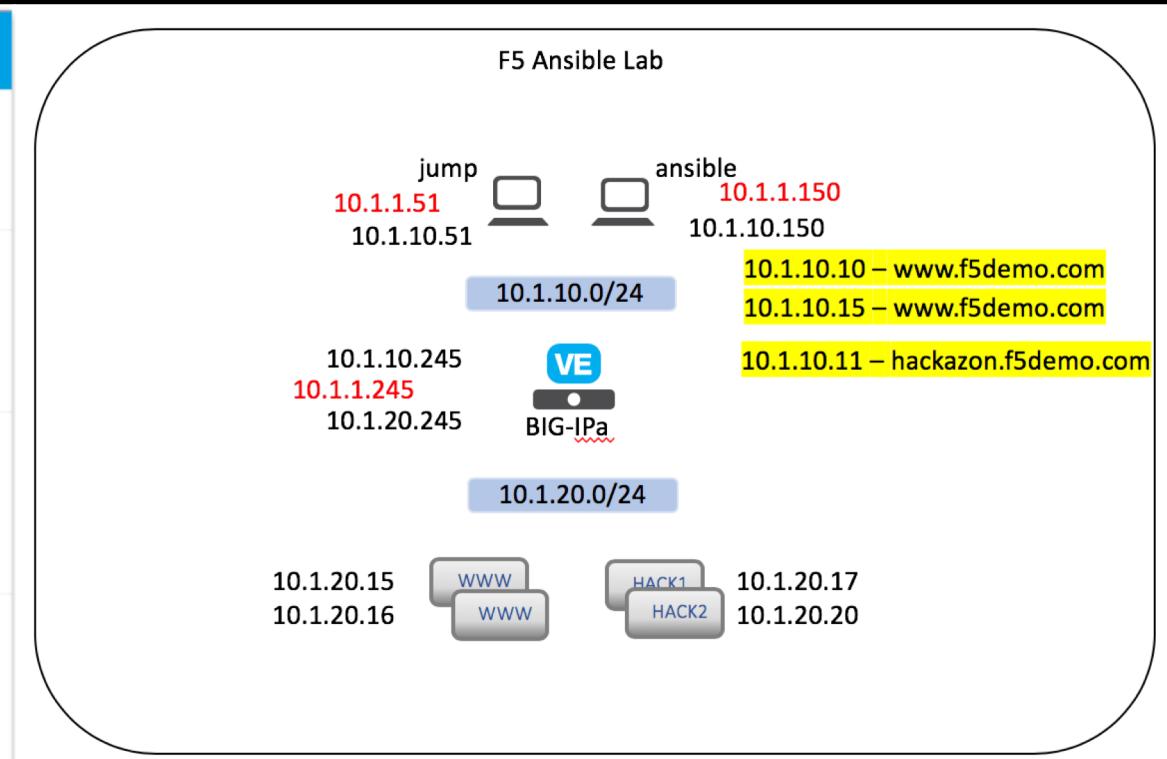
<http://ansible-workshop.readthedocs.io>

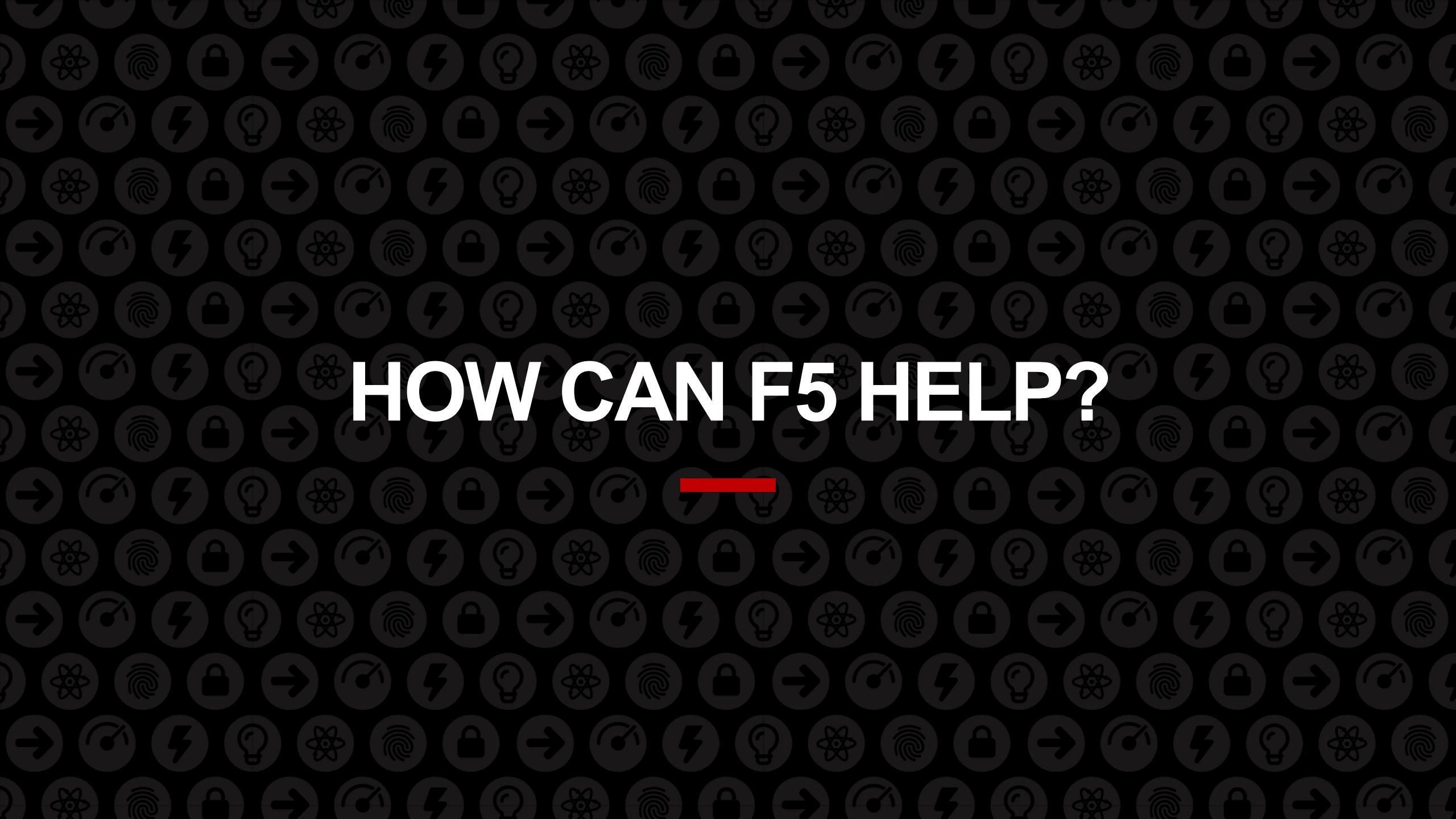
2.1.1. Task – Deploy app to webservers

2.1.2. Task – Configure F5 BIG-IP

2.1.3 Task – Configure F5 BIG-IP (iApp)

	VLAN/IP ADDRESS(ES)	CREDENTIALS
Jump Host	<ul style="list-style-type: none"><li>Management: 10.1.1.51</li><li>External: 10.1.10.51</li></ul>	<ul style="list-style-type: none"><li>f5student/f5DEMOs4u</li></ul>
Ansible Host	<ul style="list-style-type: none"><li>Management: 10.1.1.150</li><li>External: 10.1.10.150</li><li>Internal: 10.1.20.150</li></ul>	<ul style="list-style-type: none"><li>root/password</li><li>admin/password</li></ul>
BIG-IP01	<ul style="list-style-type: none"><li>Management: 10.1.1.245</li><li>External: 10.1.10.245</li><li>Internal: 10.1.20.245</li></ul>	<ul style="list-style-type: none"><li>admin/admin</li></ul>
Lamp Host	<ul style="list-style-type: none"><li>Management: 10.1.1.252</li><li>External: 10.1.10.252</li><li>Internal: 10.1.20.252</li></ul>	<ul style="list-style-type: none"><li>root/default</li></ul>





# HOW CAN F5 HELP?

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# Skills Transformation

Enabling NetOps to participate in DevOps

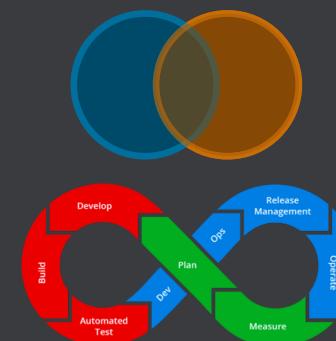
## Super-NetOps



- DevOps Concepts
- Infrastructure as Code
- Automation Toolchains

NetOps

Enablement



Super  
NetOps

DevOps

TRANSFORMATION



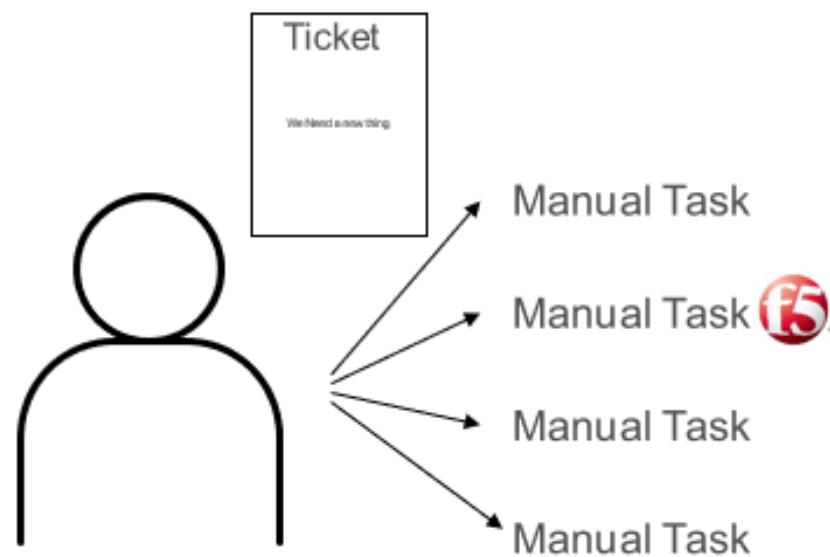
F5 Super-NetOps Training Series



WATCH THE VIDEO

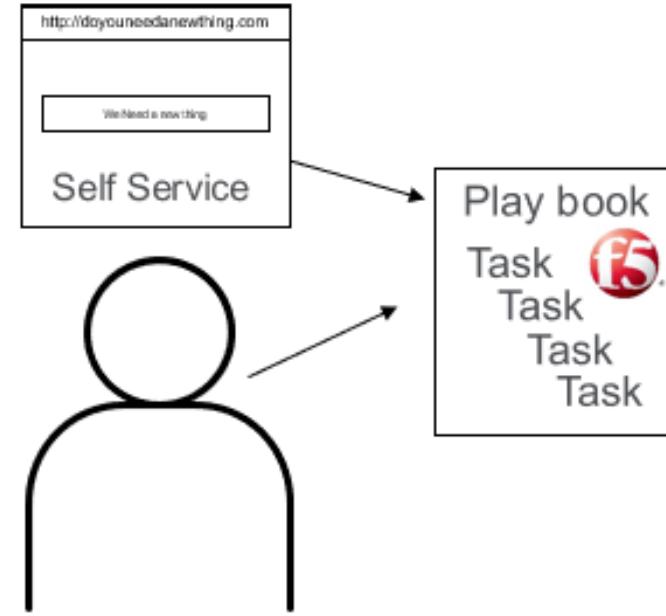
F5 is developing a free, on-demand version of our popular instructor-led automation courses. This training program is designed to help Network Operations professionals make the transition to Super-NetOps.

# Our Evolving Customers



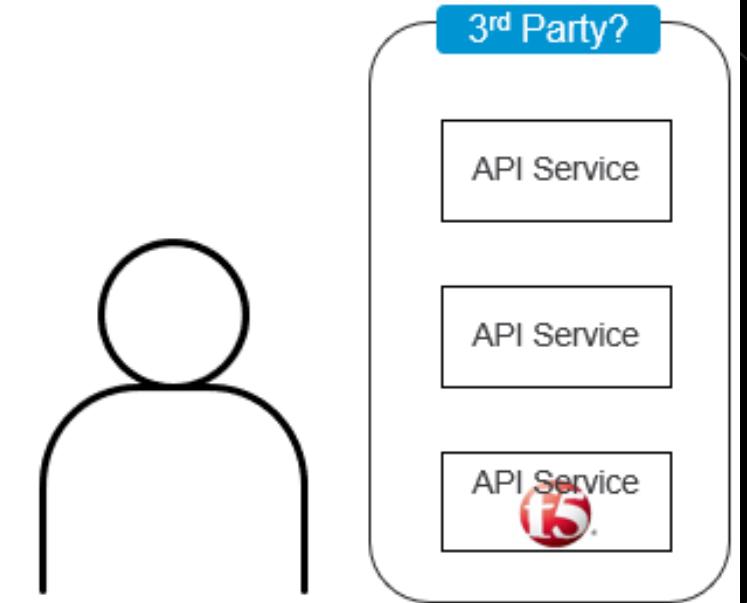
NetOps

- Manual Processes
- Bottleneck – Human Speed
- Inconsistent services
- Increase risk



Super-NetOps

- Create Automation playbooks
- Frictionless BIG-IP services
- Consistent services
- Minimize risk



NetSecDevOps

- Select Services
- Build Integrations
- More 'what' than 'how' plus the ability to enable consumption

# F5 + ANSIBLE

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# Which tool should I use?

Source control



CI



Artifact repositories



Deployment targets



Test tools



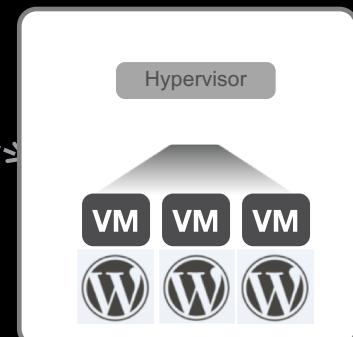
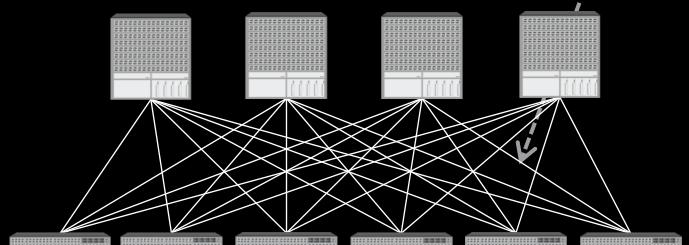
Infra prov/ config mgmt



Notifications



*DevOps Islands Of Automation*



# Why Ansible?



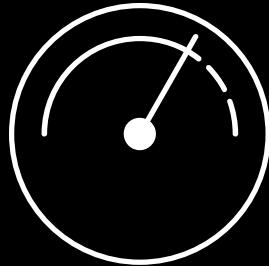
## SIMPLE For NetOps

Human readable automation

Minor coding skills needed

Tasks executed in order

**Get productive quickly**



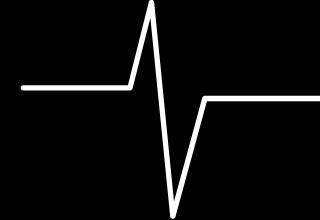
## POWERFUL For DevOps

App deployment

Configuration management

Workflow orchestration

**Orchestrate the app lifecycle**



## AGENTLESS Easy Integration

Agentless architecture

Uses OpenSSH & WinRM

No agents to exploit or update

**More efficient & more secure**

# F5 BIG-IP + Ansible

- **Ansible is a leading IT automation tool of choice**
- **Current Stable release is version 2.5**
- **BIG-IP 12.x and above**

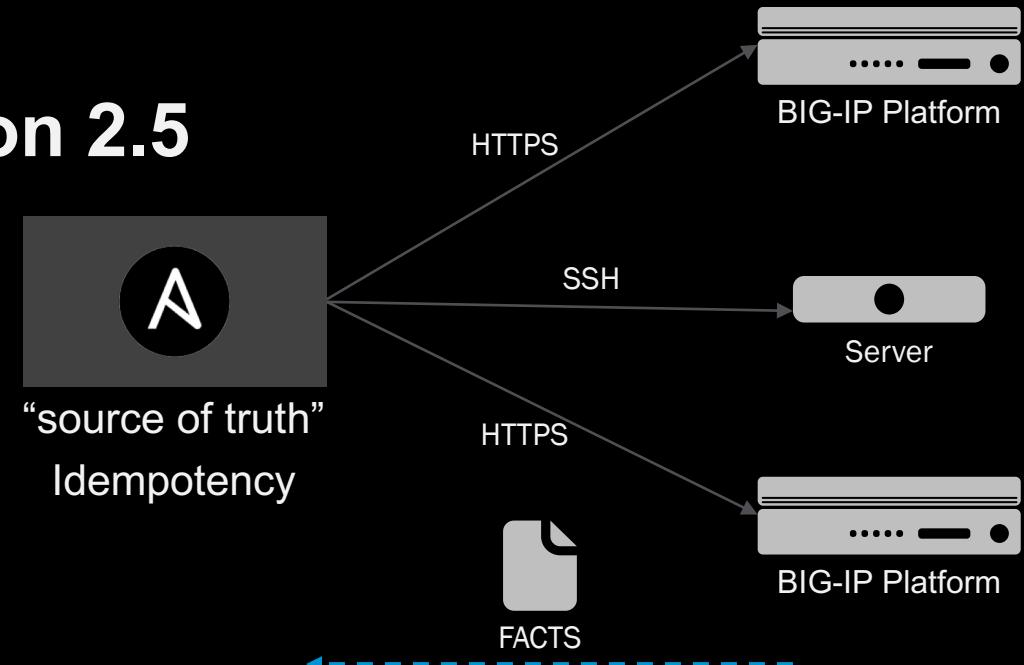
Ansible Modules:

F5 – 65 ( 96 in v2.6)

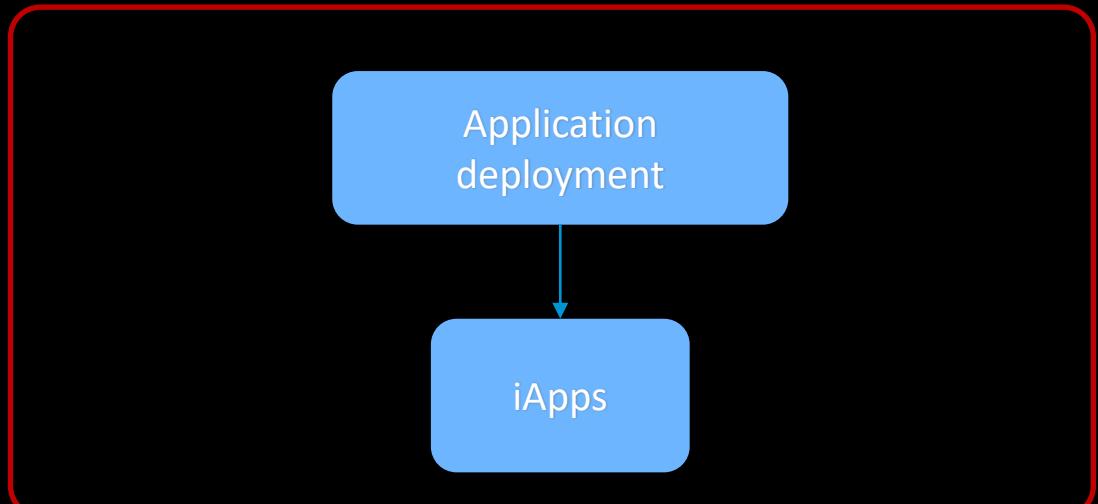
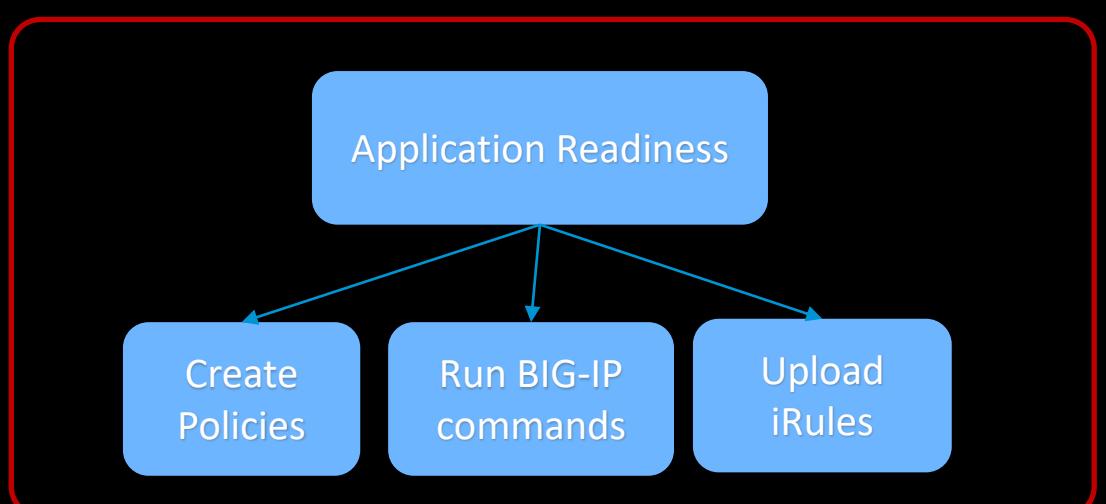
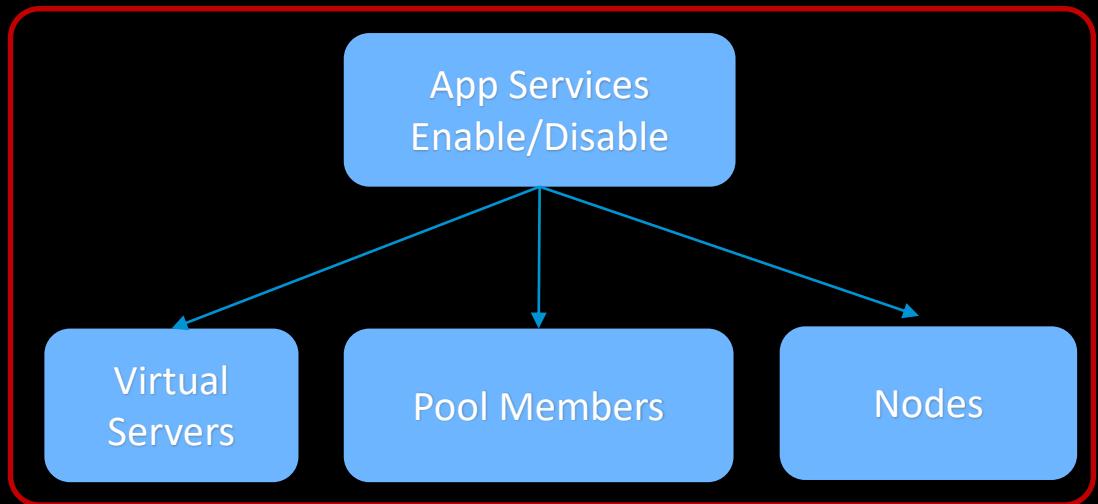
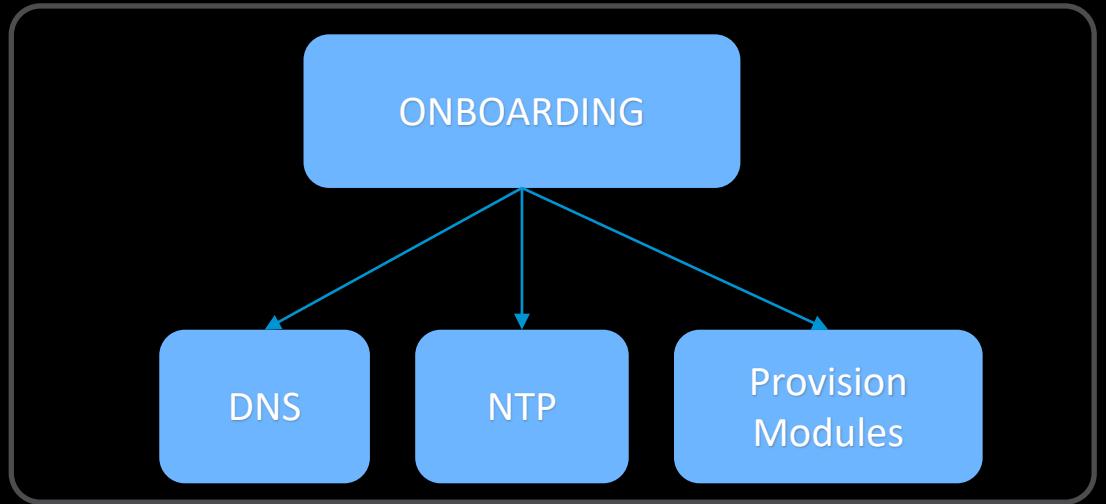
PAN – 24

Cisco Routes/Switches – 97

Cisco ACI – 51



# BIG-IP Administrative work in minutes



# F5 Playbook Example

## Playbook - Group of Plays

-- Play - Configure Networking on BIG-IP (*a set of tasks*)

-- Role – CreateNetworks

-- Task = "Create External VLAN" (*user given name*)

-- Module = bigip\_vlan (built by F5)

*Acts on parameters you define*

-- Task = "Create External SelfIP" (*user given name*)

-- Module = bigip\_selfip (built by F5)

*Acts on parameters you define*

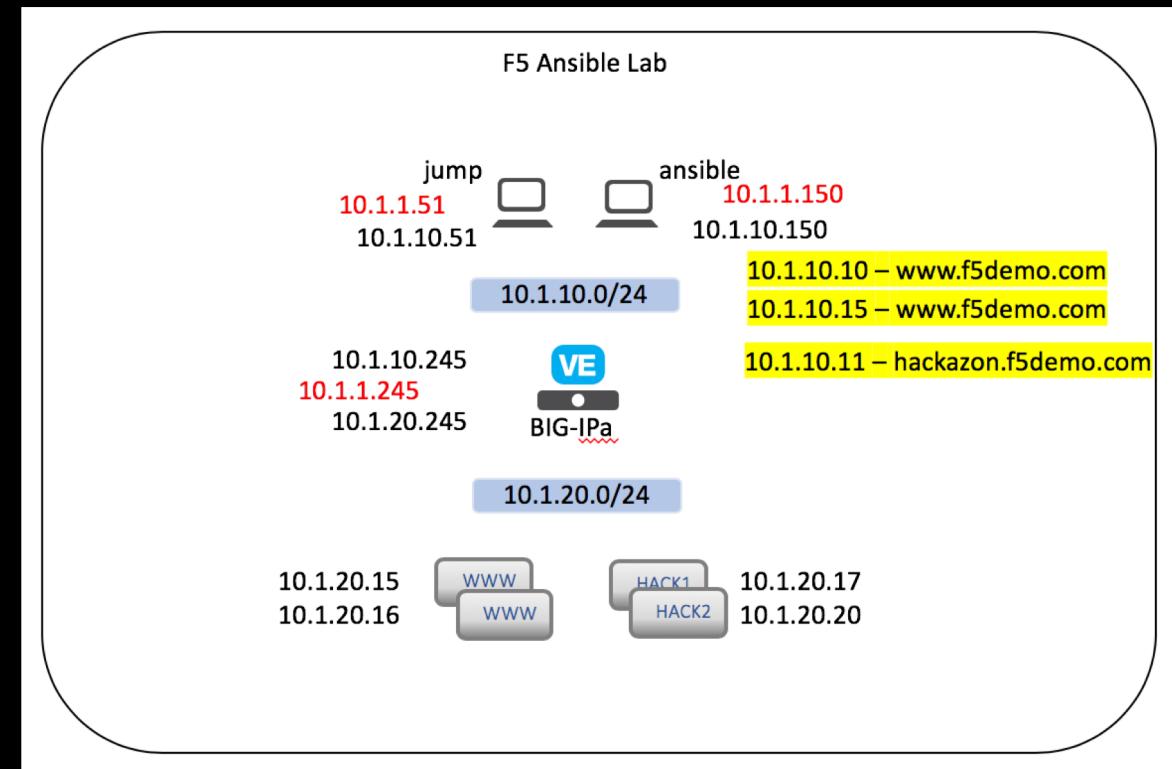
```
- name: Configure NTP server on BIG-IP
  bigip_device_ntp:
    server: "{{ inventory_hostname }}"
    user: "{{ username }}"
    password: "{{ password }}"
    ntp_servers: "{{ ntp_servers }}"
    validate_certs: False
  delegate_to: localhost

- name: Manage SSHD setting on BIG-IP
  bigip_device_sshd:
    server: "{{ inventory_hostname }}"
    user: "{{ username }}"
    password: "{{ password }}"
    banner: "enabled"
    banner_text: " {{ banner_text }}"
    validate_certs: False
  delegate_to: localhost

- name: Manage BIG-IP DNS settings
  bigip_device_dns:
    server: "{{ inventory_hostname }}"
    user: "{{ username }}"
    password: "{{ password }}"
    name_servers: "{{ dns_servers }}"
    search: "{{ dns_search_domains }}"
    ip_version: "{{ ip_version }}"
    validate_certs: False
  delegate_to: localhost
```

# Lab 2 – Speed of Automation

- 2.2.1. Deploy new app servers
- 2.2.2. Deploy F5 BIG-IP App Services
- 2.2.3. Modify pool member state
- 2.2.4. Simulate Blue/Green updates



# Threat Intelligence

## Report: Lessons Learned from a Decade of Data Breaches

Web App Attacks

53%

User / Identity

33%

Physical

11%

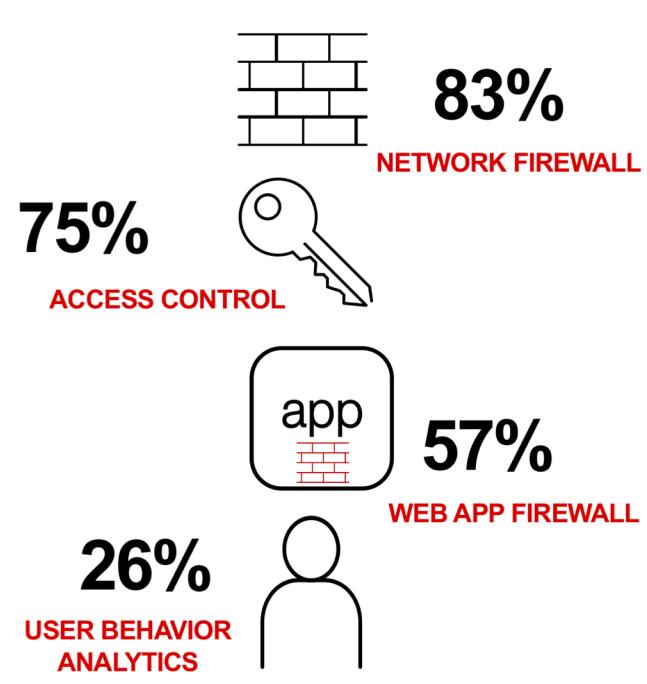
Other (VPN, PoS, infra.)

3%

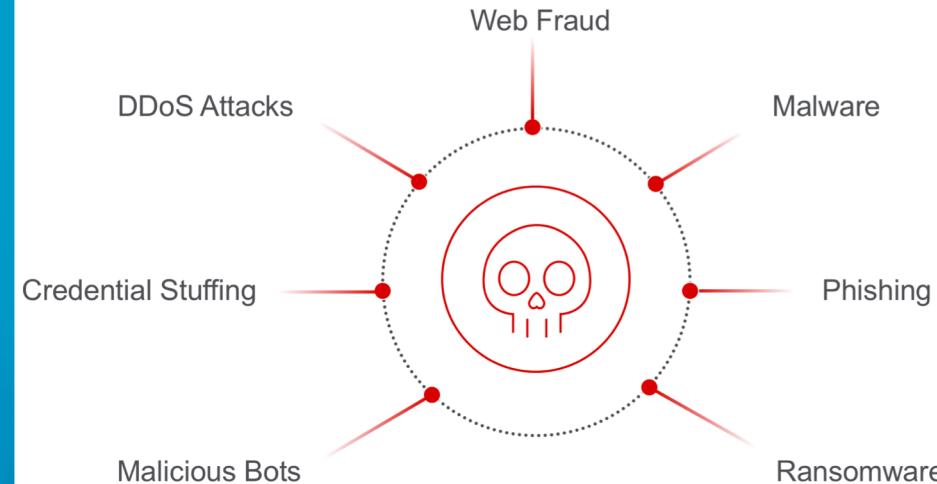


Web app attacks are the #1 single source entry point of successful data breaches...

What technologies do you use to protect apps?



What are today's common threats?



Which technology is best suited to mitigate these threats?



## TOWER EMPOWERS TEAMS TO AUTOMATE

### CONTROL

Scheduled and centralized jobs

### KNOWLEDGE

Visibility and compliance

### DELEGATION

Role-based access and self-service

### SIMPLE

Everyone speaks the same language

### POWERFUL

Designed for multi-tier deployments

### AGENTLESS

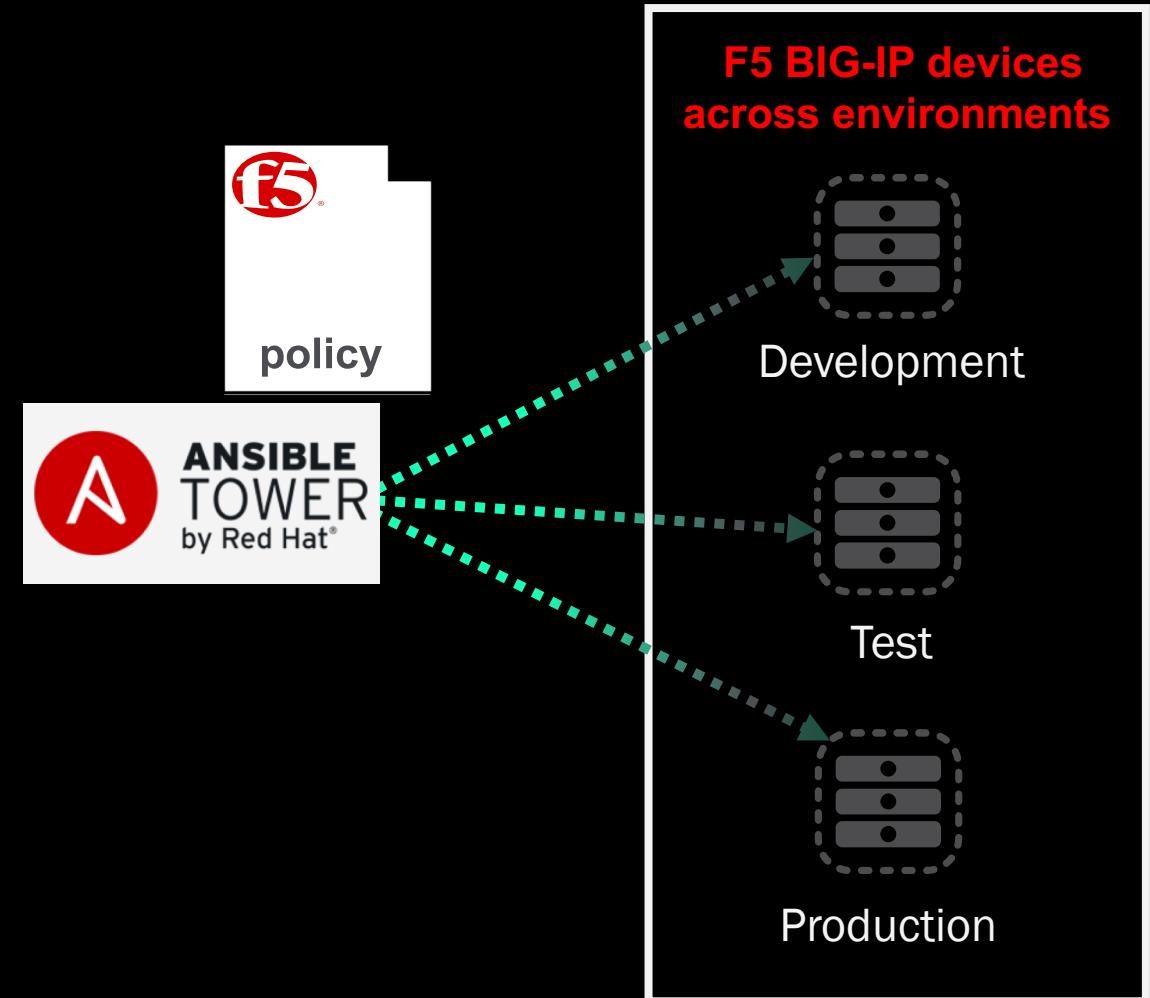
Predictable, reliable, and secure

AT ANSIBLE'S CORE IS AN OPEN-SOURCE AUTOMATION ENGINE

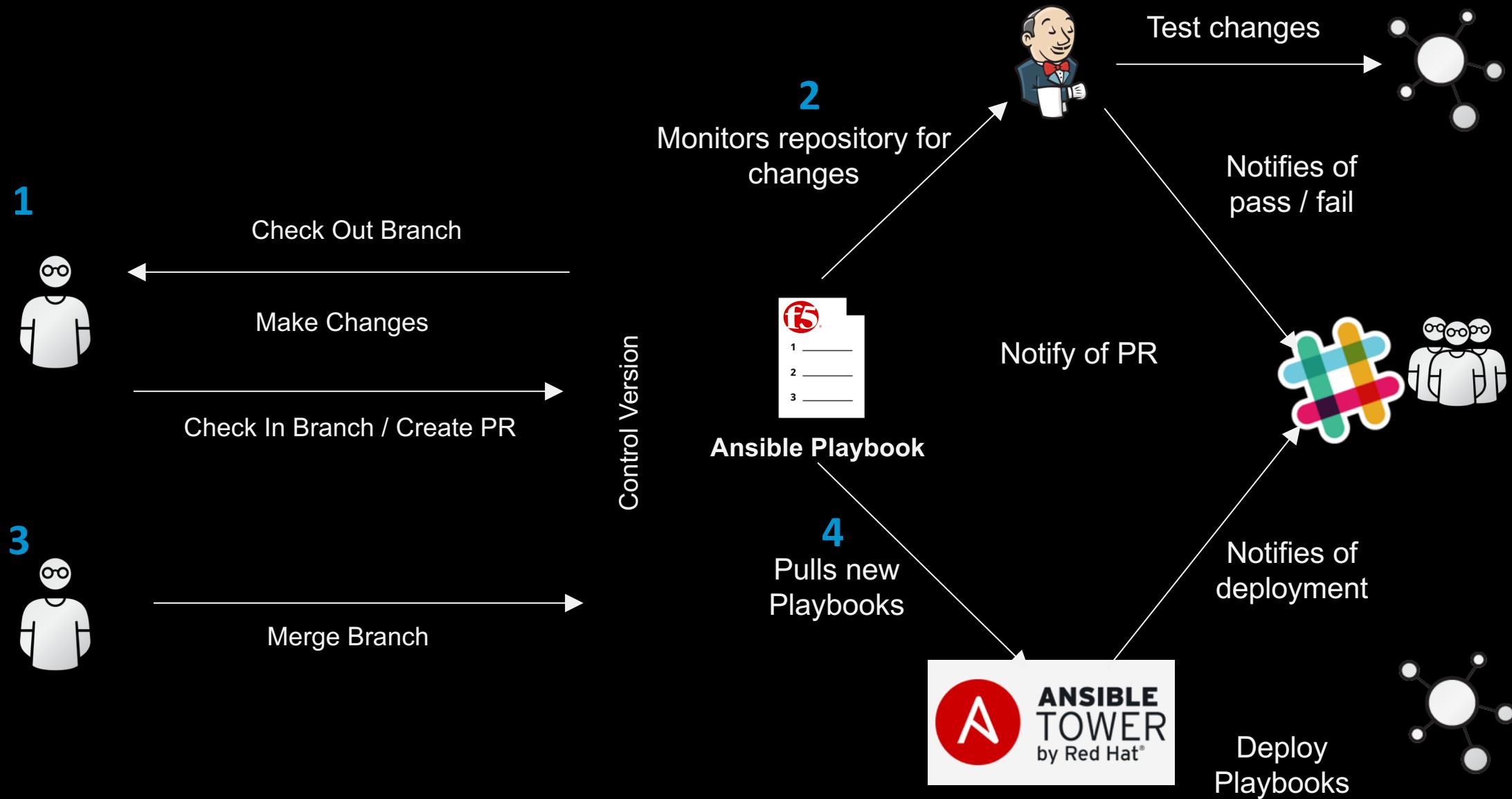
# Security Policy Management

**Build BIG-IP policies & deploy across environments with consistency using**

- Ansible F5 modules (LTM & ASM)
- App-services iApp (APM & AFM)

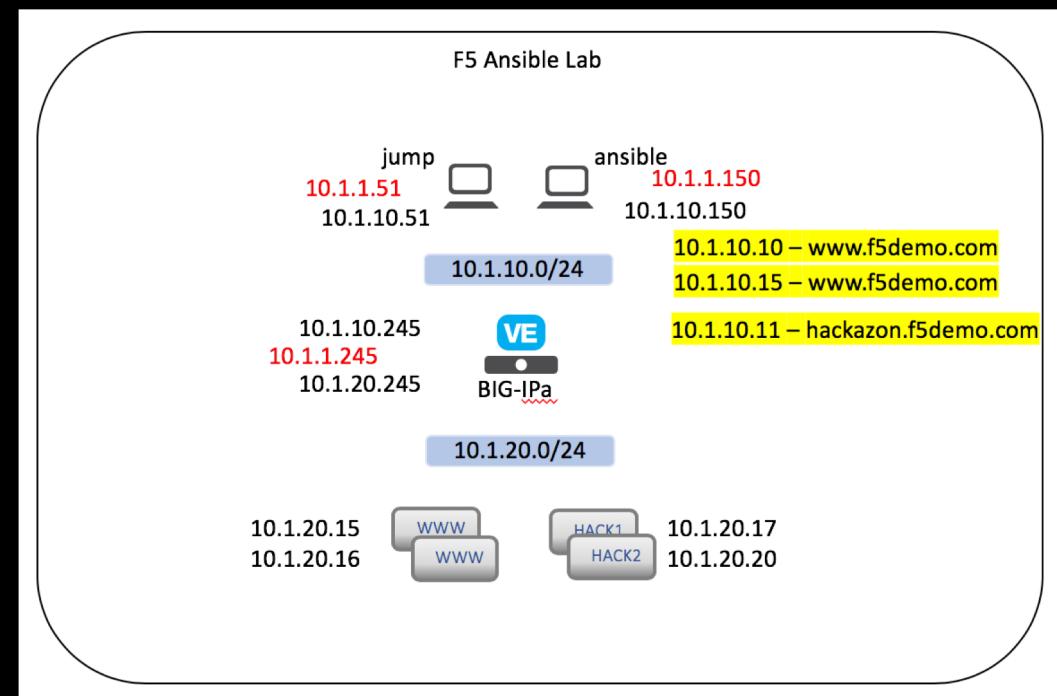


# F5 CI Workflow



# Lab 3 – F5 App Deployment Workflows

- 2.3.1. Task – Deploy F5 App Services using seed file
- 2.3.2. Task – Deploy F5 App Services using iApp
- 2.3.3. Task – Deploy F5 App Services using App Services 3 (AS3)



# Ansible Tower

## HTTP Application Deployment Demo

- Gather config info
- Create VS, Pool, Members
- Enable/Disable Pool Members
- Deploy VS with WAF



Hope it works...

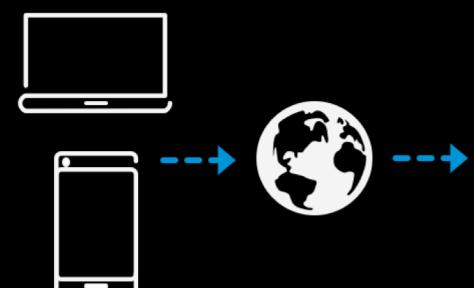
[https://www.flickr.com/photos/daniel\\_gies/5052886953](https://www.flickr.com/photos/daniel_gies/5052886953)

# Introducing BIG-IP Per-App VE

Frictionless Adoption by DevOps

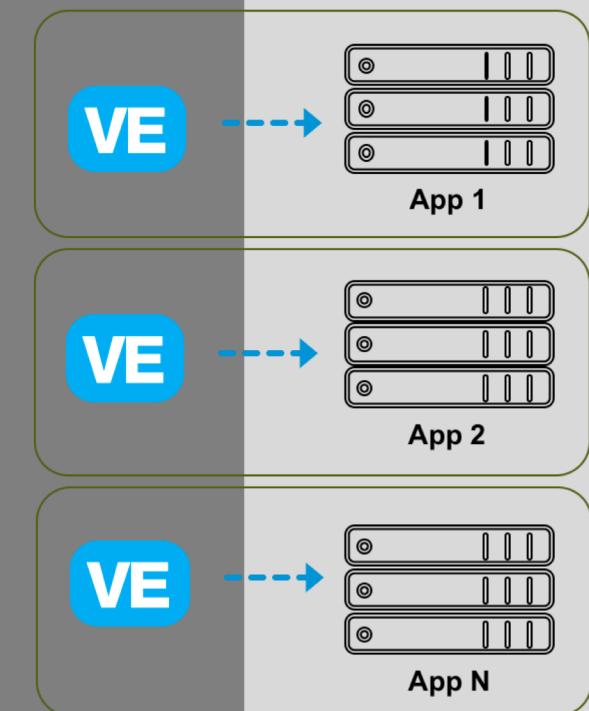
## Key Facts

- Supports 1 VIP (3-Virtual Servers)
- Available Services:
  - BIG-IP LTM
  - BIG-IP ASM (Advanced WAF)
- 25M and 200M Instances
- BIG-IP v13.1.0.2 and later
- Pricing starting at only \$695 per App  
(BYOL / Subscription / ELA)



## Per-App VE

L7 Traffic Mgmt  
and Security  
(LTM, WAF)



Customers can now provide the best app services for all their apps

## RELATED RESOURCES

<https://www.ansible.com/integrations/networks/f5>

### F5 OPEN SOURCE SPOTLIGHT BLOG

#### What's New for F5 in Ansible 2.5

[Read More](#)

### ON DEMAND WEBINAR

#### WWT: BUILDING A F5 SOLUTION WITH ANSIBLE TOWER

[Watch Video](#)

### ON DEMAND WEBINAR

#### Automating F5 BIG-IP Using Ansible

[Watch Video](#) [Read Webinar Q&A](#)

### SOLUTION BRIEF

#### Automate your network with F5 and Ansible

[Download PDF](#)

### WHITEPAPER

#### Automating the F5 BIG-IP Platform with Ansible

[Download PDF](#)

### ON DEMAND WEBINAR

#### Automating Your Network with Ansible

[Watch Video](#)

### F5 DEVCENTRAL BLOG

#### Getting started with Ansible

by Tim Rupp, Sr Software Engineer, F5

[Read More](#)

### ON DEMAND WEBINAR

#### Fast Application Deployment and Customer Use Case with Ansible and F5 BIG-IP

[Watch Video](#) [Read Webinar Q&A](#)



QUICK LINKS

USE CASES

PRODUCTS

RESOURCES

RELATED SITES

# Additional Resources

**F5 Super-NetOps Training:**

<https://f5.com/education/super-netops-training>

**F5 Github Repositories:**

<https://github.com/f5devcentral?utf8=%E2%9C%93&q=ansible&type=&language=>

<https://github.com/F5Networks/f5-ansible>

**F5 Ansible Getting Started:**

<https://clouddocs.f5.com/products/orchestration/ansible/develop/>

**Ansible Lightbulb Training Toolkit:**

<https://github.com/ansible/lightbulb>

# Why should You adopt DevOps

- Accelerate innovation by increasing the velocity of technology and application development and delivery
- Improve agility by integrating cross-functional teams that are better informed
- Encourage collaboration and shared ownership by developing an engaged and inclusive culture
- Increase effectiveness and efficiency by continuously learning and improving

# Thank You

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