

RED HAT  
**SUMMIT**

# S99624 - A CONTAINER-PLATFORM APPROACH TO DIGITAL TRANSFORMATION AND DEVOPS

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# What you'll learn in this session

The 4 adoption patterns for evolving Digital Transformations and how to technologies such as Ansible and OpenShift make that possible with containers.

## **Key points to watch out for:**

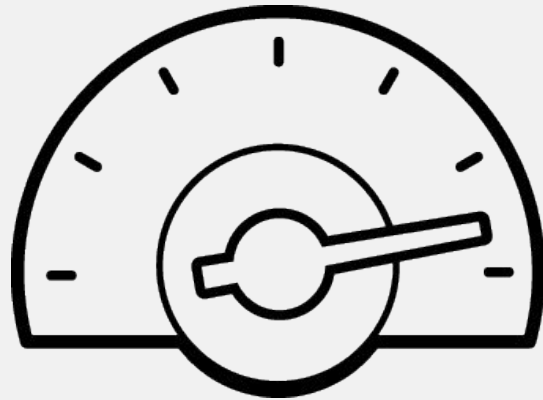
- Modern Business Success is based on Speed to Execute
- Digital Transformation is not just about Digital Native companies
- Technology transformations must match People and Process transformations
- Containers are a core technology for Digital Transformation

# WHAT IS DIGITAL TRANSFORMATION?



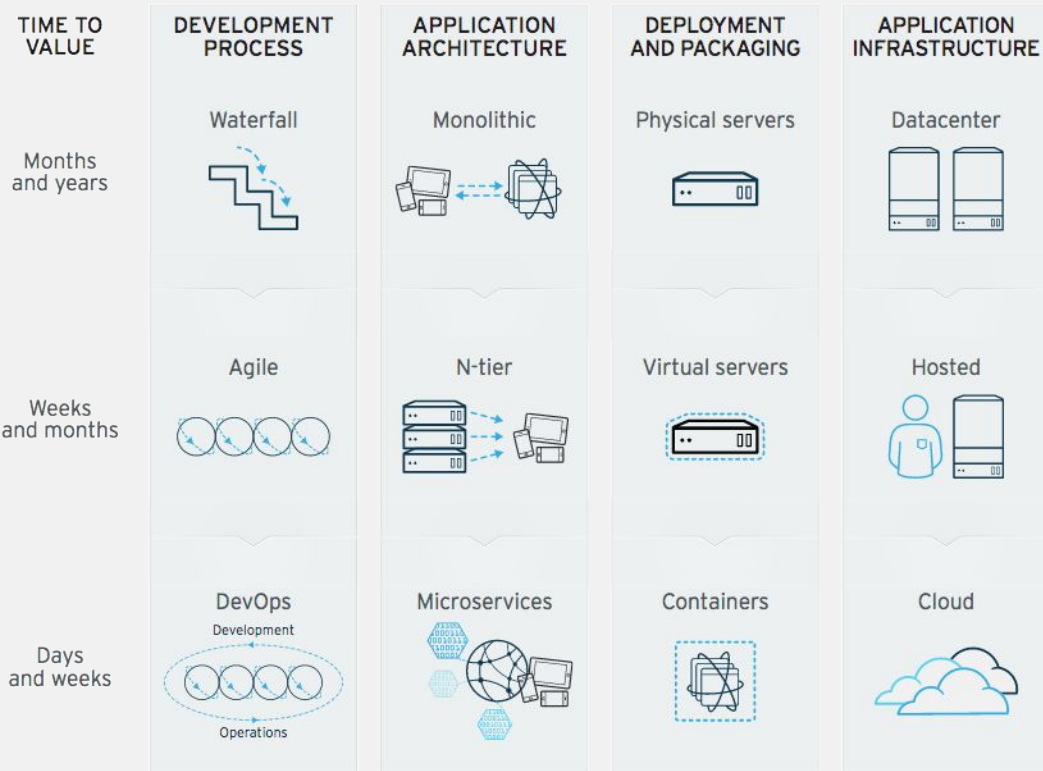
# MODERN BUSINESS CHALLENGE

Business wants more with less



**SPEED = REVENUE**

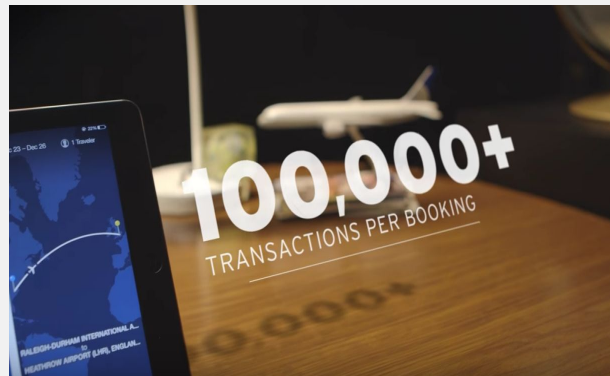
# IMPROVING TIME TO VALUE



# THE DISRUPTORS



# THE EVOLVERS



# DISRUPTORS

Emerging Customer Trends

Mobile

Web

Business Platform

Data Analytics

Developers | DevOps | SRE

# TRANSFORMERS

Existing  
Customer  
Trends

Emerging  
Customer  
Trends

Mobile

Web

Many Business Platforms

Data Silos

Conway's Law  
Org Charts



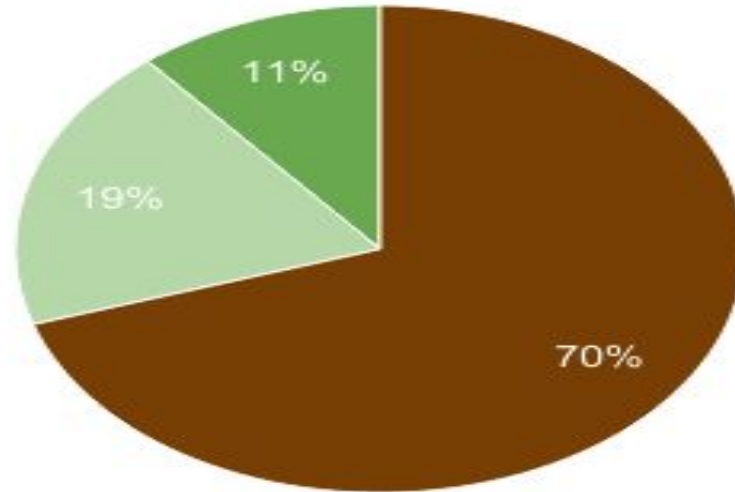
# TRANSFORMERS - THE DIGITAL TRANSFORMATION

# BUT THE CIO HAS A DILEMMA

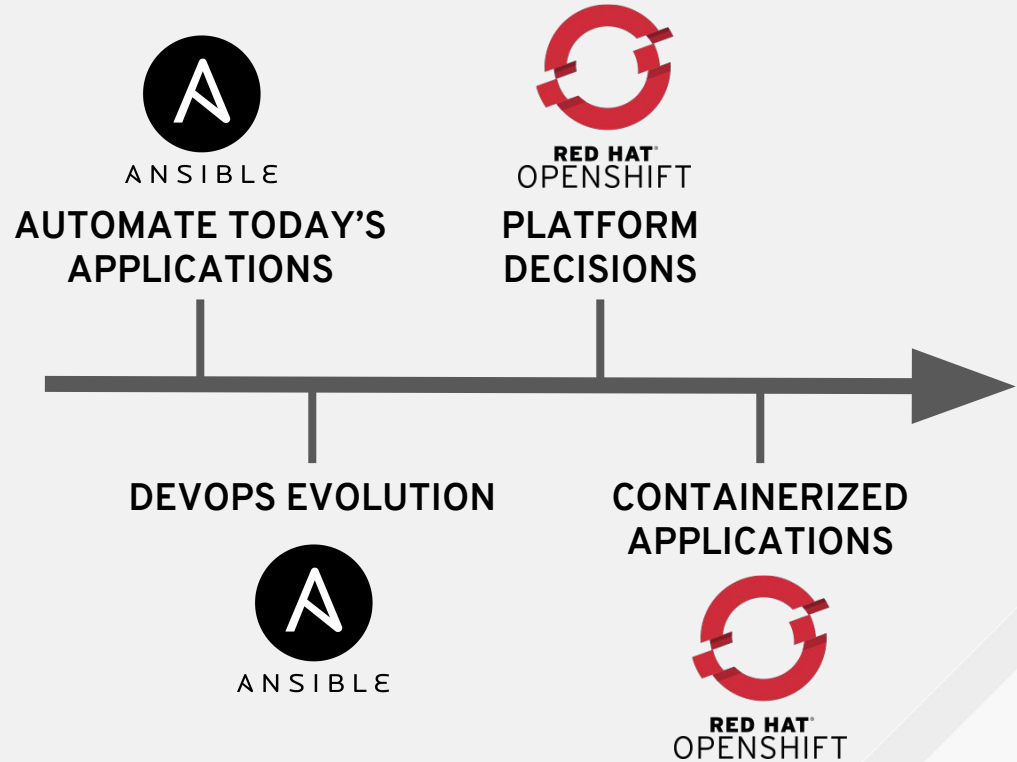
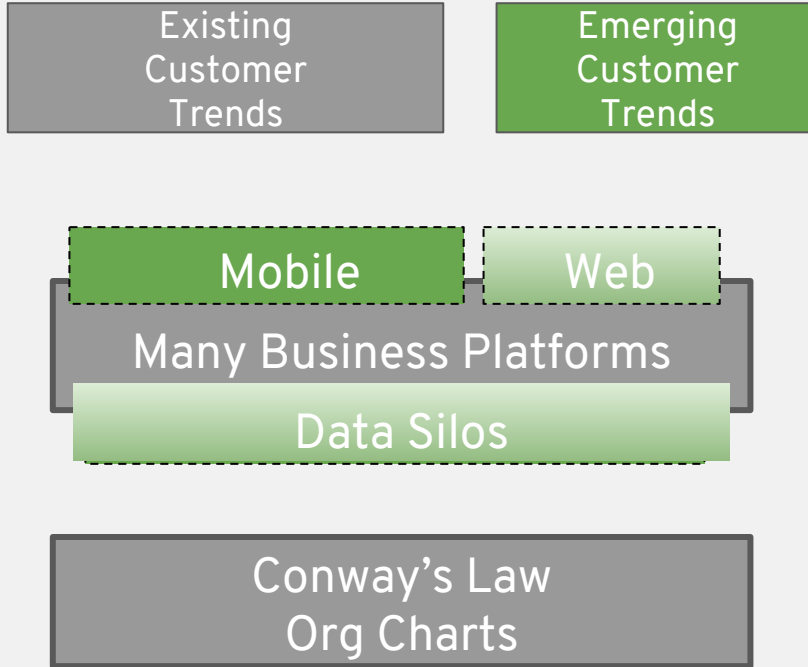
Maintain existing AND grow new capabilities

## Enterprise Application Portfolio

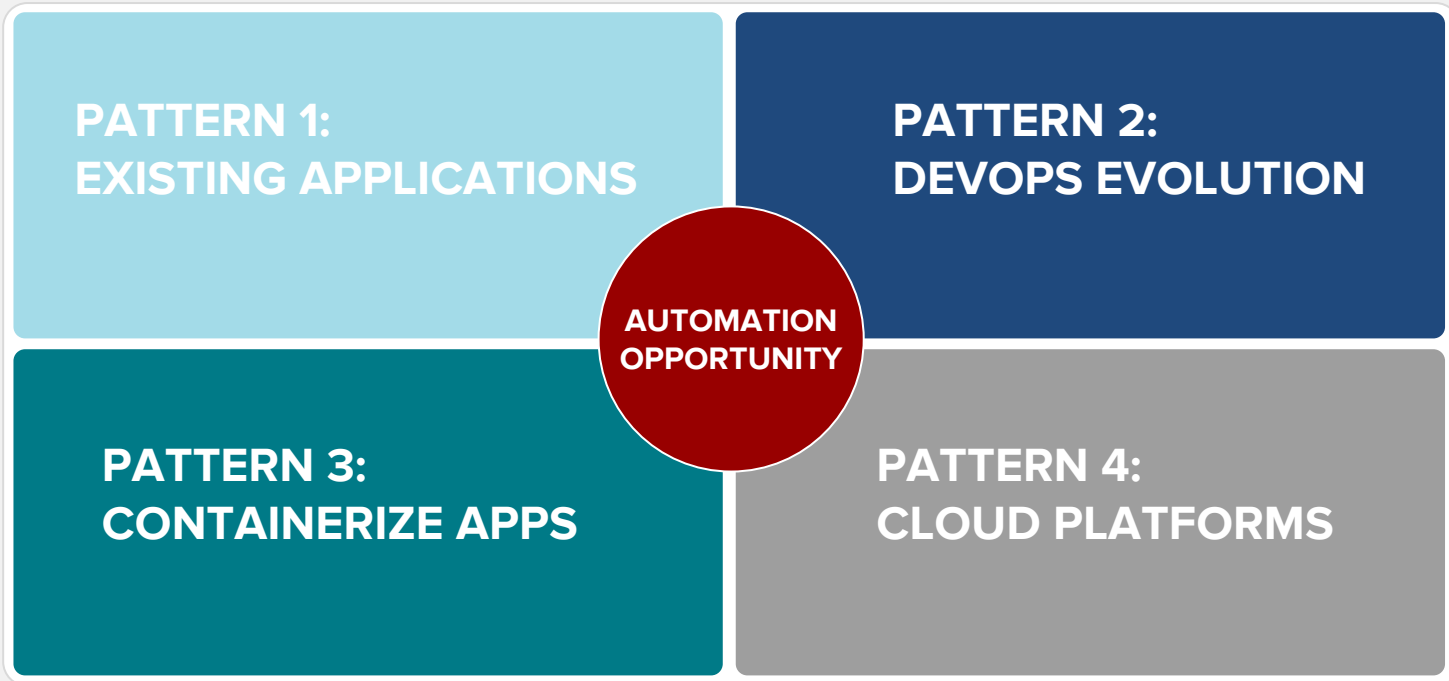
- Existing Applications
- Evolving Applications
- New Applications



# EVOLVING THE TRANSFORMERS



# AUTOMATION ADOPTION PATTERNS



# WHY ENTERPRISE-WIDE IT AUTOMATION IS ELUSIVE

## PEOPLE

### Skills gaps & org charts get in the way

- Developers should be developing apps & features, not maintaining environments
- IT & Network Admins have limited code-writing abilities
- Typical silos (ops, dev, network, etc.) aren't thinking holistically

## POINT TOOLS

### Proliferation of point solutions and vendor-specific tools

- Most automation approaches only solve one problem in one domain
- Most vendors offer tools that **ONLY** work with their products
- Many tools are too complicated and require programming or scripting

## PACE OF INNOVATION

### Automation requires integration across domains

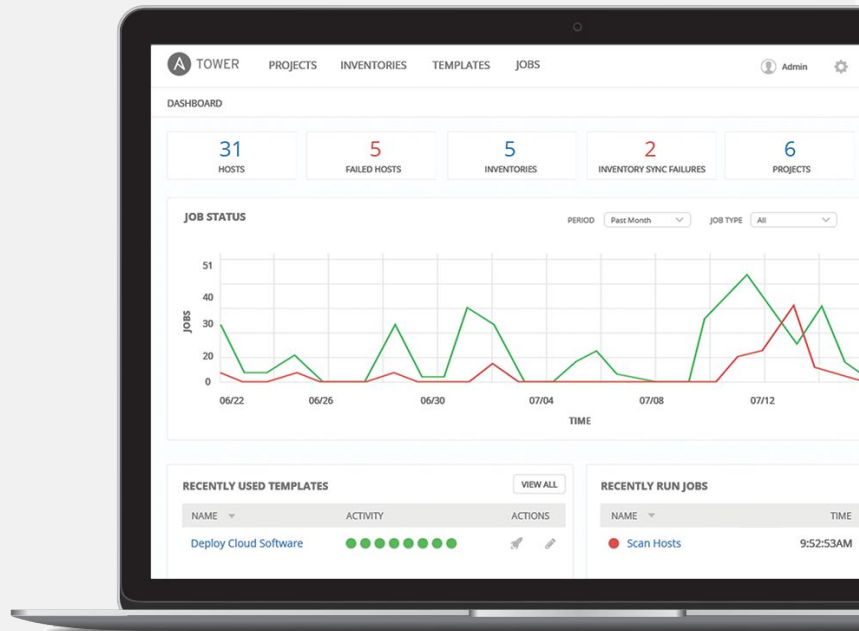
- Management tools are *always* constrained by available “adapters” for IT services
- Agent-based tools create even more headaches (planning, security, maintenance)
- Integrations need to be continuously updated and expanded

# WHAT IS ANSIBLE?

It's a **simple automation language** that can perfectly describe IT application environments in Ansible Playbooks.

It's an **automation engine** that runs Ansible Playbooks.

**Ansible Tower** is an enterprise framework for controlling, securing and managing your Ansible automation with a **UI and RESTful API**.



# WHY ANSIBLE?



## SIMPLE

Human readable automation

No special coding skills needed

Tasks executed in order

Usable by every team

**Get productive quickly**



## POWERFUL

App deployment

Configuration management

Workflow orchestration

Network automation

**Orchestrate the app lifecycle**



## AGENTLESS

Agentless architecture

Uses OpenSSH & WinRM

No agents to exploit or update

Get started immediately

**More efficient & more secure**

# ANSIBLE SHIPS WITH OVER 950 MODULES

## CLOUD

AWS  
Azure  
CenturyLink  
CloudScale  
Digital Ocean  
Docker  
Google  
Linode  
OpenStack  
Rackspace  
And more...

## VIRTUALIZATION AND CONTAINERS

Docker  
VMware  
RHEV  
OpenStack  
OpenShift  
Atomic  
CloudStack  
And more...

## WINDOWS

ACLs  
Files  
Commands  
Packages  
IIS  
Regedits  
Shell  
Shares  
Services  
Configs  
Users  
Domains  
And more...

## NETWORKING

Arista  
A10  
Cumulus  
Big Switch  
Cisco  
Cumulus  
Dell  
F5  
Juniper  
Palo Alto  
OpenSwitch  
And more...

## NOTIFY

HipChat  
IRC  
Jabber  
Email  
RocketChat  
Sendgrid  
Slack  
Twilio  
And more...



# AUTOMATE | MANAGE APPS - ANSIBLE TOWER



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

# CONTAINERIZE APPS - ANSIBLE CONTAINER

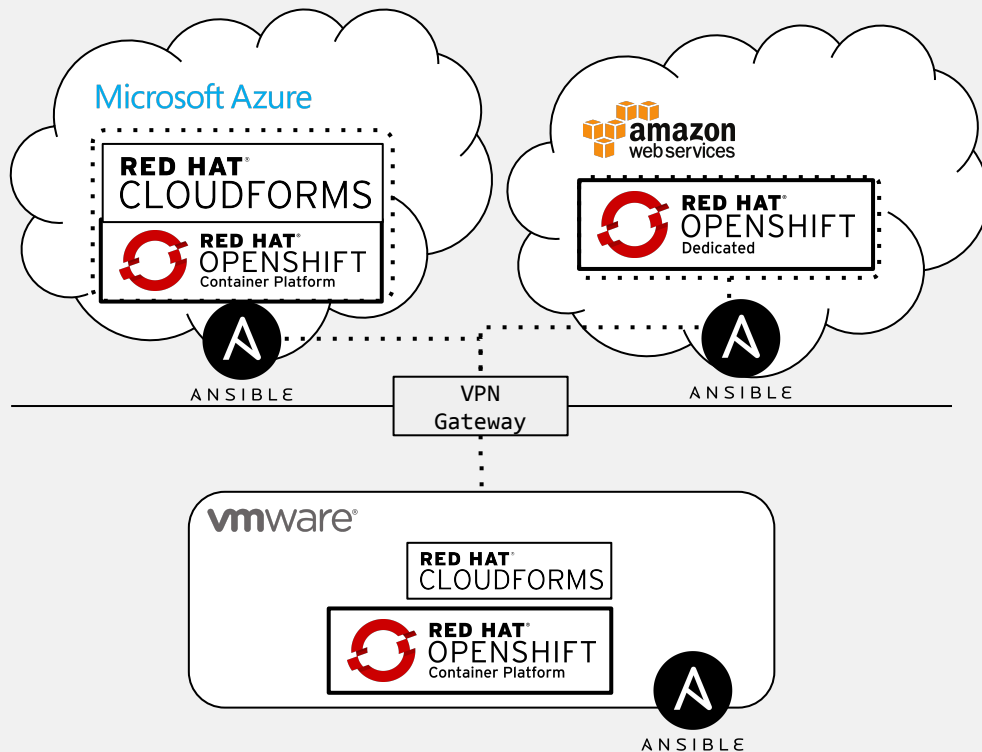
Use Ansible to define and build, orchestrate, container applications.

## WHY USE SHELL SCRIPTS TO DEFINE CONTAINER PAYLOADS?

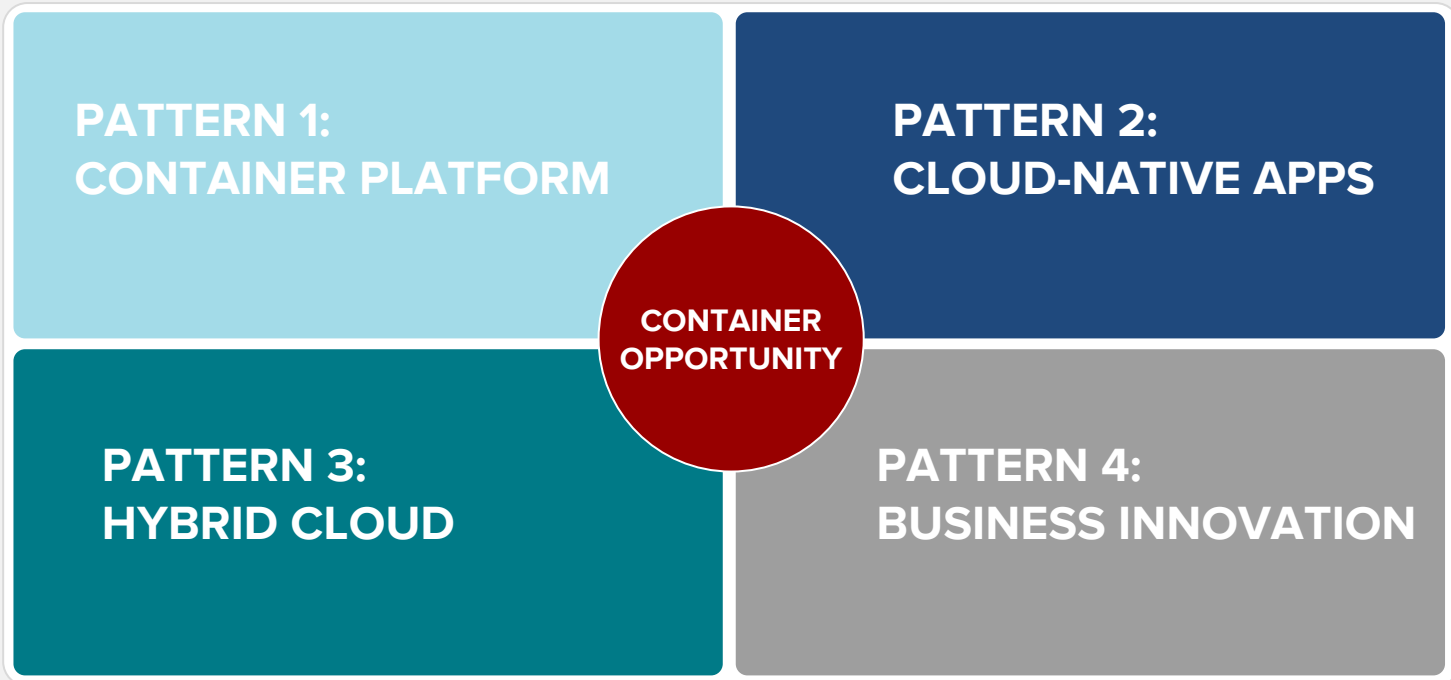
- Build images using Ansible Playbooks
- Orchestrate containers from your images, à la docker-compose up
- Push images to public or private registries
- Generate Ansible playbooks to deploy your applications to Kubernetes, OpenShift, etc.

```
373 Status: Downloaded newer image for centos:6.6
374 Attaching to ansible_ansible-container_1, ansible_apache24_rpmbuilder_1
375 ansible-container_1 | Host apache24_rpmbuilder running
376 ansible-container_1 |
377 ansible-container_1 | PLAY [apache24_rpmbuilder] *****
378 ansible-container_1 |
379 ansible-container_1 | TASK [apache24_rpmbuilder : create folder /tmp] *****
380 ansible-container_1 | ok: [apache24_rpmbuilder] => (item=/tmp)
381 ansible-container_1 | changed: [apache24_rpmbuilder] => (item=/tmp/RPMS/repo)
382 ansible-container_1 |
383 ansible-container_1 | TASK [apache24_rpmbuilder : Synch script files] *****
384 ansible-container_1 | changed: [apache24_rpmbuilder] => (item=u'src': u'/ansible-
  container/ansible/roles/apache24_rpmbuilder/templates/endpoint.sh.tpl', u'dst': u'/tmp/endpoint.sh')
385 ansible-container_1 | changed: [apache24_rpmbuilder] => (item=u'src': u'/ansible-
  container/ansible/roles/apache24_rpmbuilder/templates/httpd24_repo.tpl', u'dst': u'/tmp/RPMS/httpd24_repo')
386 ansible-container_1 |
387 ansible-container_1 | TASK [apache24_rpmbuilder : copy spec files] *****
388 ansible-container_1 | changed: [apache24_rpmbuilder] => (item=mod_security.spec)
389 ansible-container_1 |
390 ansible-container_1 | PLAY RECAP *****
391 ansible-container_1 | apache24_rpmbuilder : ok=3 changed=3 unreachable=0 failed=0
392 ansible-container_1 |
393 ansible_ansible-container_1 exited with code 0
394 Aborting on container exit...
395 Stopping ansible_apache24_rpmbuilder_1 ...
396 Stopping ansible_apache24_rpmbuilder_1 ... doneages...
397 Committing image...
398 Exported apache24_rpmbuilder-apache24_rpmbuilder with image ID sha256:99ef618a2844d868180807898983a114f8036d17a88fc32ab817c1636e9b
399 Cleaning up apache24_rpmbuilder build container...
400 Cleaning up Ansible Container builder...
```

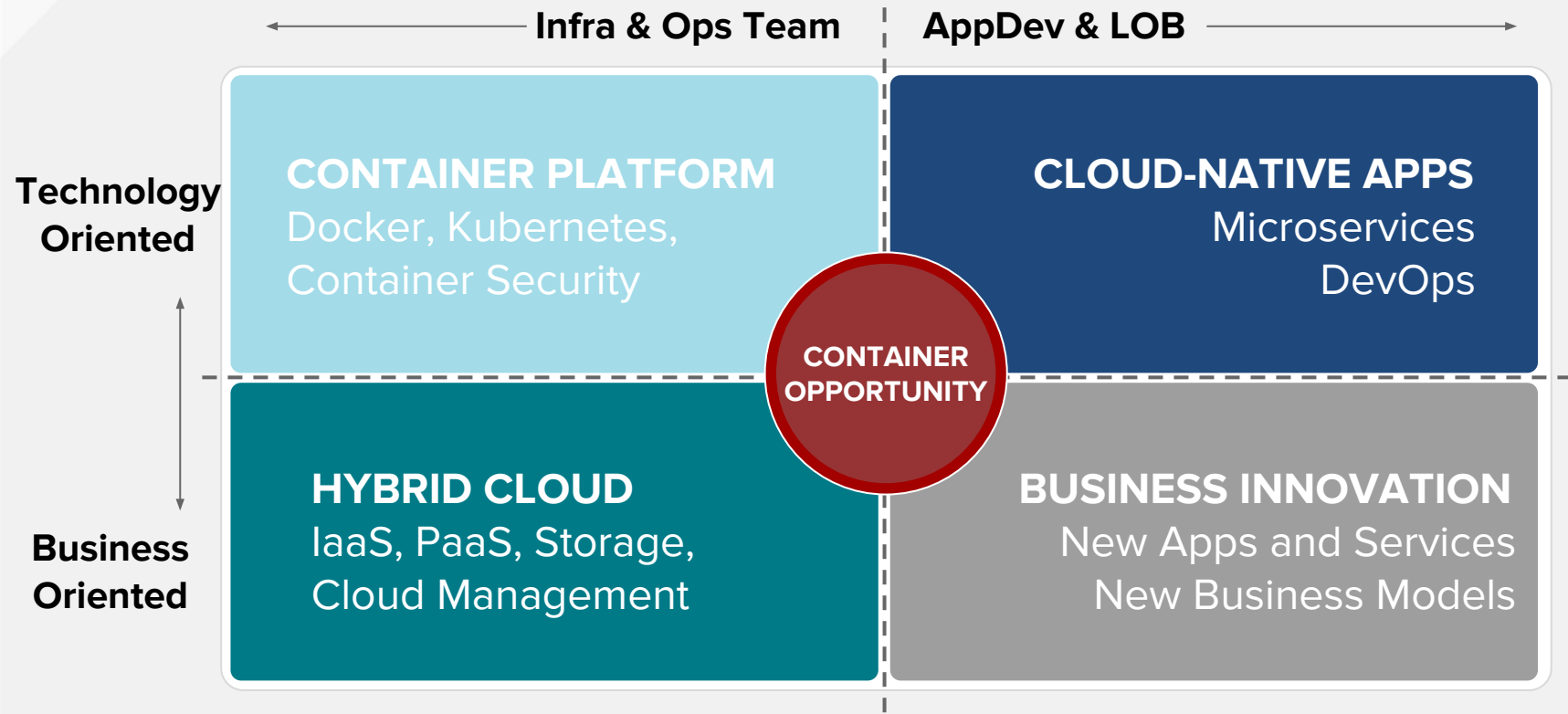
# MULTI-CLOUD CONTAINER DEPLOYMENTS



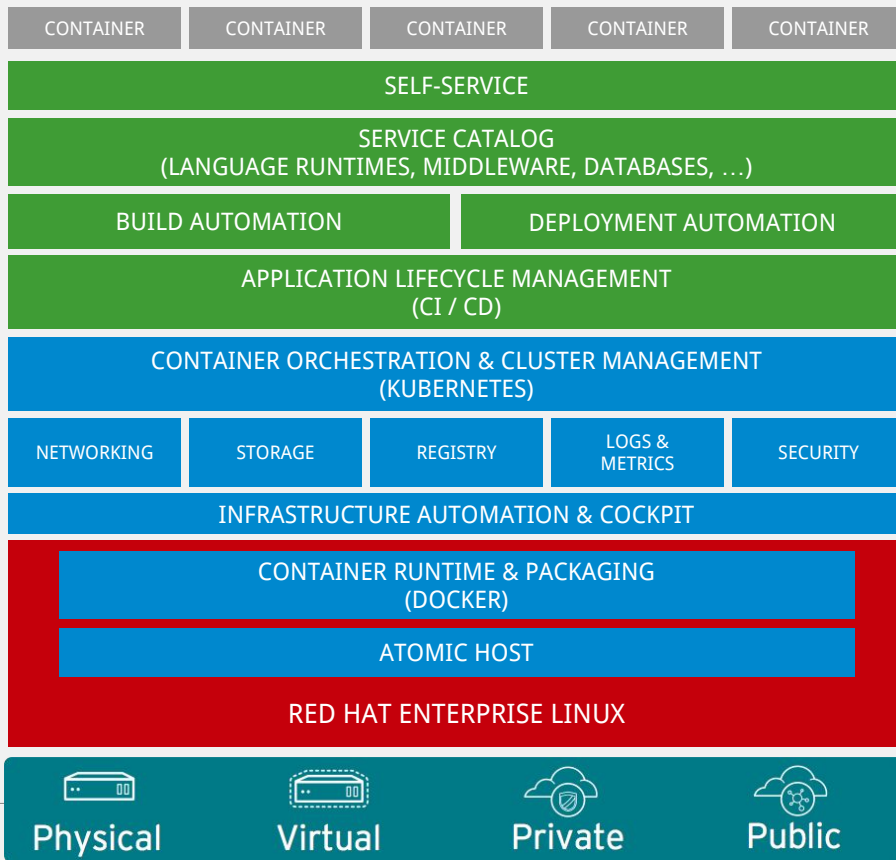
# CONTAINER ADOPTION PATTERNS



# CONTAINER PATTERNS ACROSS ORGANIZATIONS



# OPENS SHIFT = ENTERPRISE KUBERNETES++



# BUSINESS BENEFITS OF CONTAINERS AND DEVOPS WITH OPENSIFT



5 year ROI

**531%**



Average Annual Benefits per  
100 Developers

**\$1.29M**



Payback Period

**8 Months**

- 66% faster application development lifecycles
- 25% less IT staff required per app developed

# INNOVATION, THE RED HAT WAY

Community-founded, community-powered

**BUSINESS REQUIREMENTS** DRIVE THE NEED FOR INNOVATION

**OPEN SOURCE** ENABLES INNOVATION

**COMMUNITIES** ARE THE CATALYST FOR INNOVATION

**RED HAT** IS A LEADER IN OPEN SOURCE INNOVATION

RED HAT IS **COMMUNITY-POWERED INNOVATION**



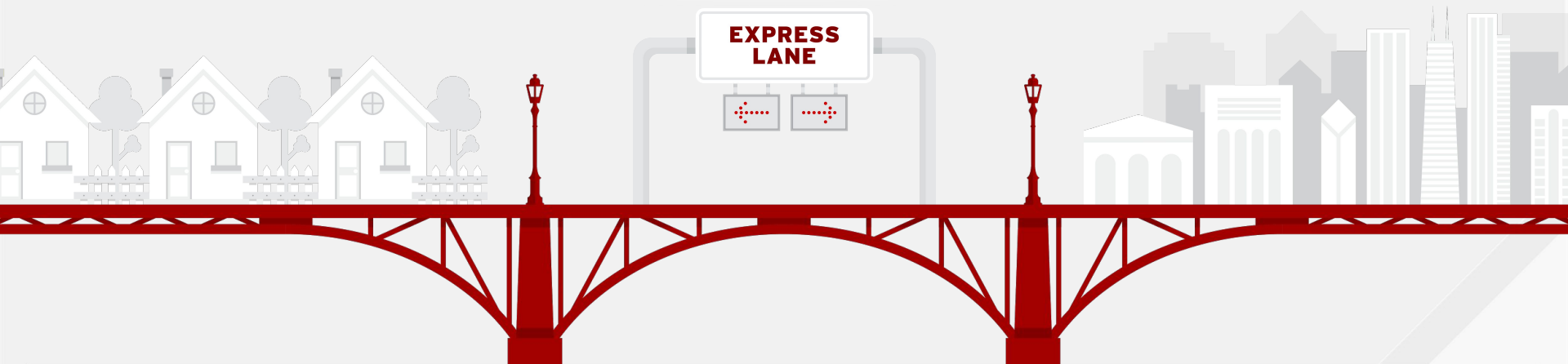
# BRIDGING THE GAPS

Accelerating innovation

TRADITIONAL  
LINEAR

**RED HAT  
OPEN INNOVATION LABS**

CONTEMPORARY  
NON-LINEAR



# RED HAT OPEN INNOVATION LABS

Three key components



## COLLABORATION

Space to work,  
innovate, and discuss



## RESIDENCY

An eight-week accelerated  
teaming engagement



## COMMUNITY INCUBATION

Communities  
supporting innovation



# THANK YOU



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**LEARN. NETWORK.  
EXPERIENCE  
OPEN SOURCE.**