# A DEVOPS STATE OF MIND

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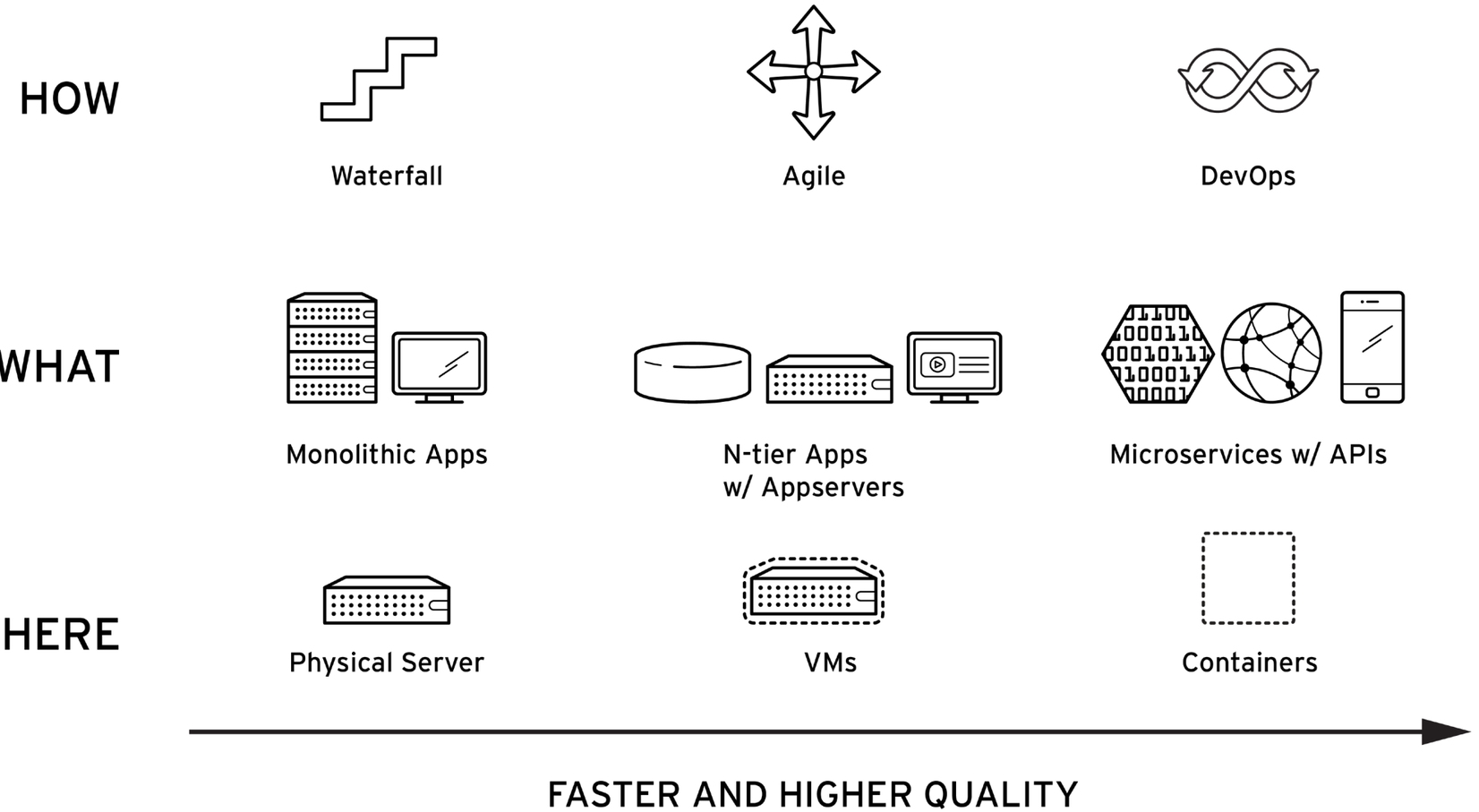
# THE NEED FOR SPEED

## THE ACCELERATION OF APPLICATION DELIVERY FOR THE BUSINESS



# BIMODAL IT

**To capture digital opportunities, CIOs need to deal with speed, innovation, and uncertainty. This requires operating two modes of enterprise IT: conventional and “nonlinear.”**

Gartner

*Executive Summary:*
*Taming the Digital Dragon: The 2014 CIO Agenda*

“In short, software is eating the world.”

- Marc Andreessen, Wall Street Journal, August 2011

# BUT DEMANDS ON I.T. ARE INCREASING AS BUSINESSES ARE REIMAGINED

Online, Mobile

CISCO

Software Defined Networks

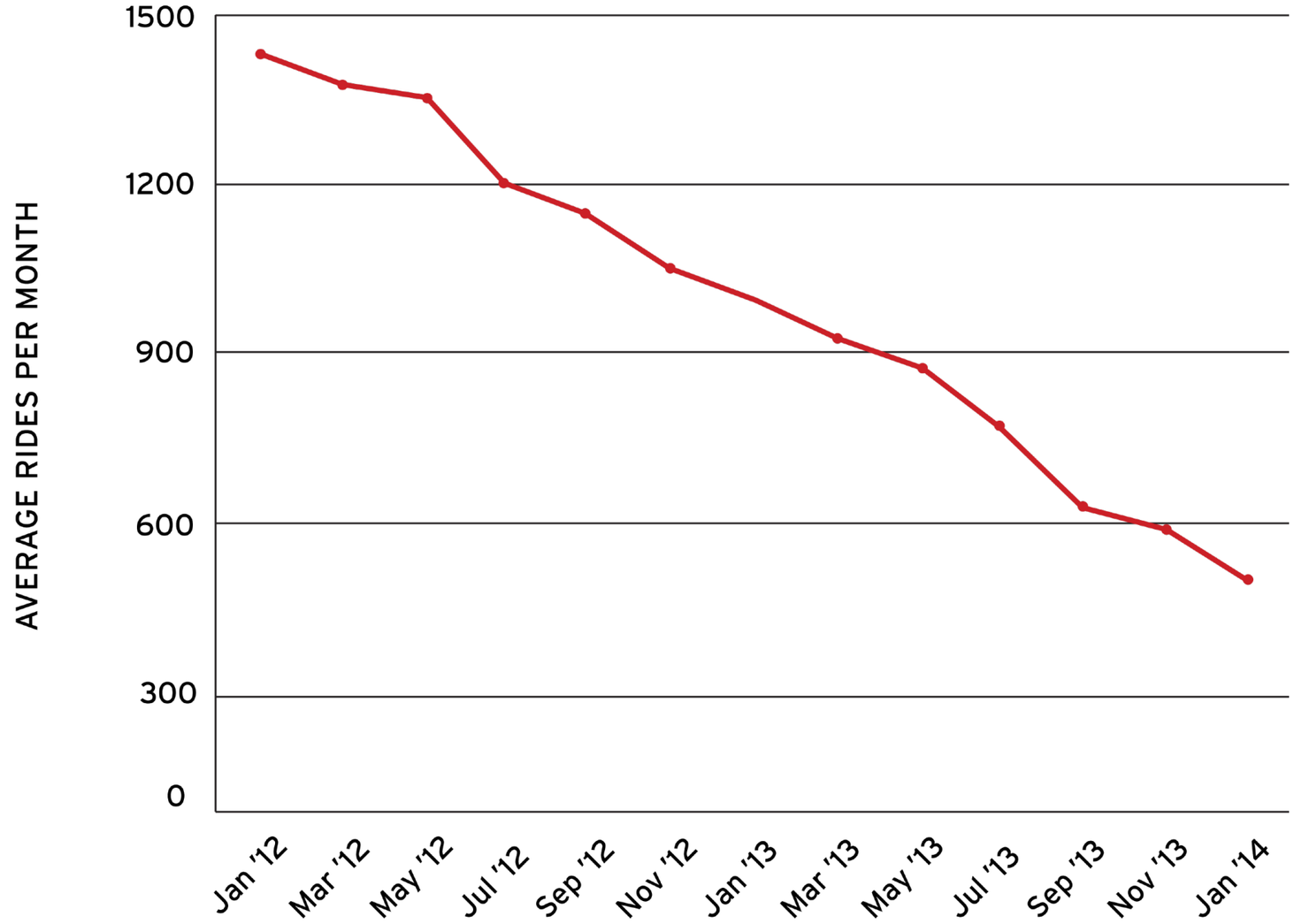
intuit

Desktop to Cloud

UnionBank

Online, Mobile

# UBER, LYFT FALLOUT: TAXI RIDES PLUNGE 65% IN SAN FRANCISCO

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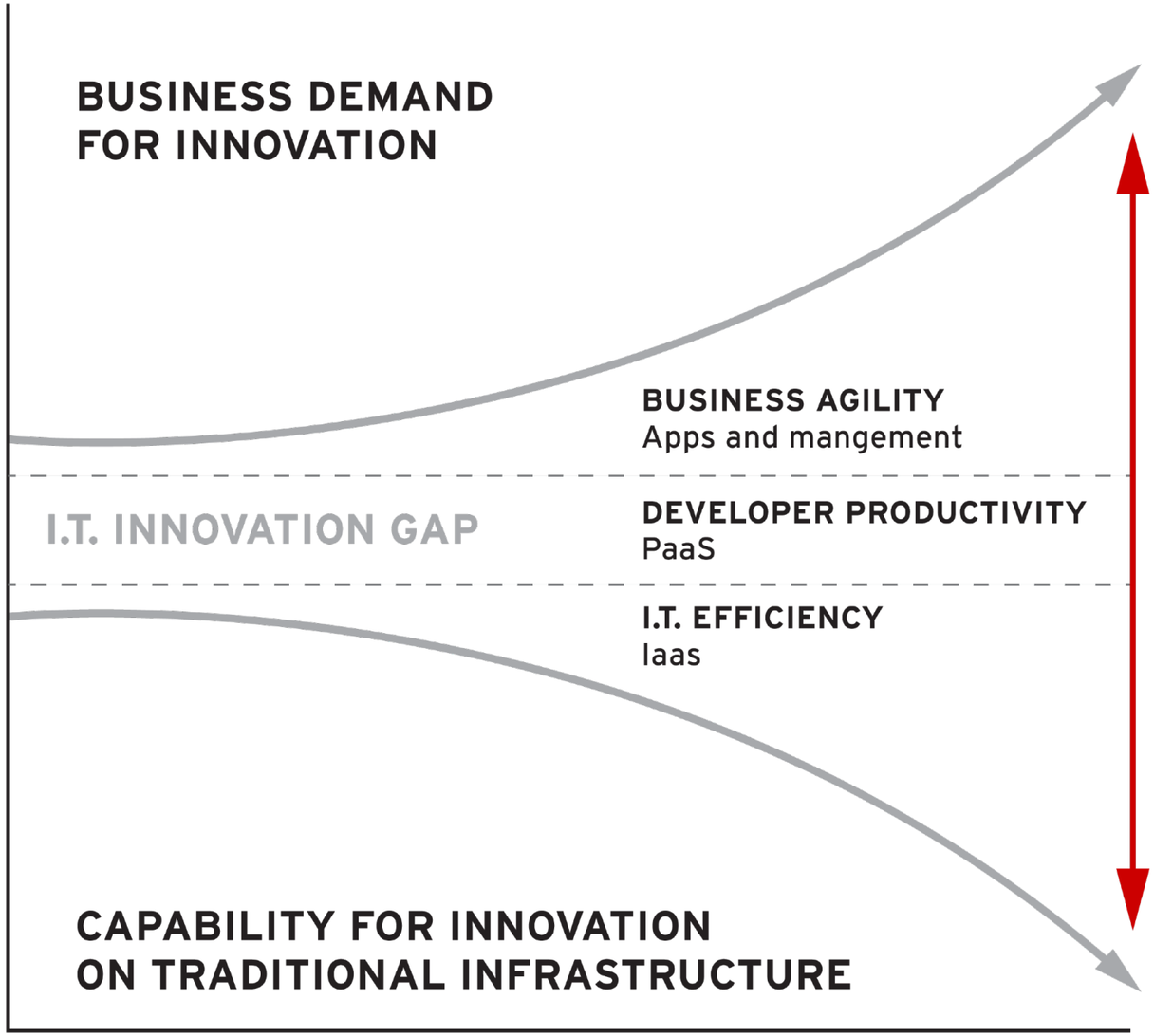
# CREATES AN I.T. INNOVATION GAP




**GARTNER**
**Exploit the new**

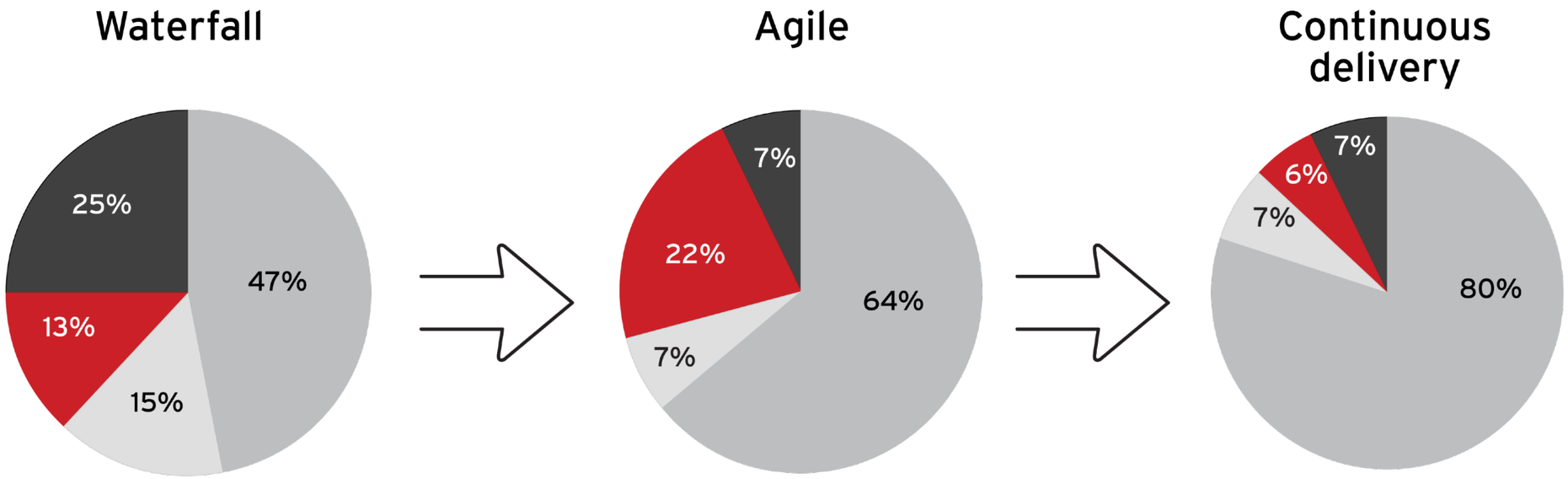
**GARTNER**
**Renovate the core**

# DELIVERING SOFTWARE TODAY: THE REALITY VS. THE GOAL

| BUDGET | TIME | VALUE |
| --- | --- | --- |
| **45%** OVER | **7%** OVER | **56%** LESS |

Source: Delivering large-scale IT projects on time, on budget, and on value
McKinsey & Company, October 2012

# DEVELOPMENT LIFECYCLE TRENDS




**Design**
Design and architecture

**Development**
Developement and documentation

**Test**
Automarket and manual tests

**Deployment**
Deployment to test and production

**More time spent on development**

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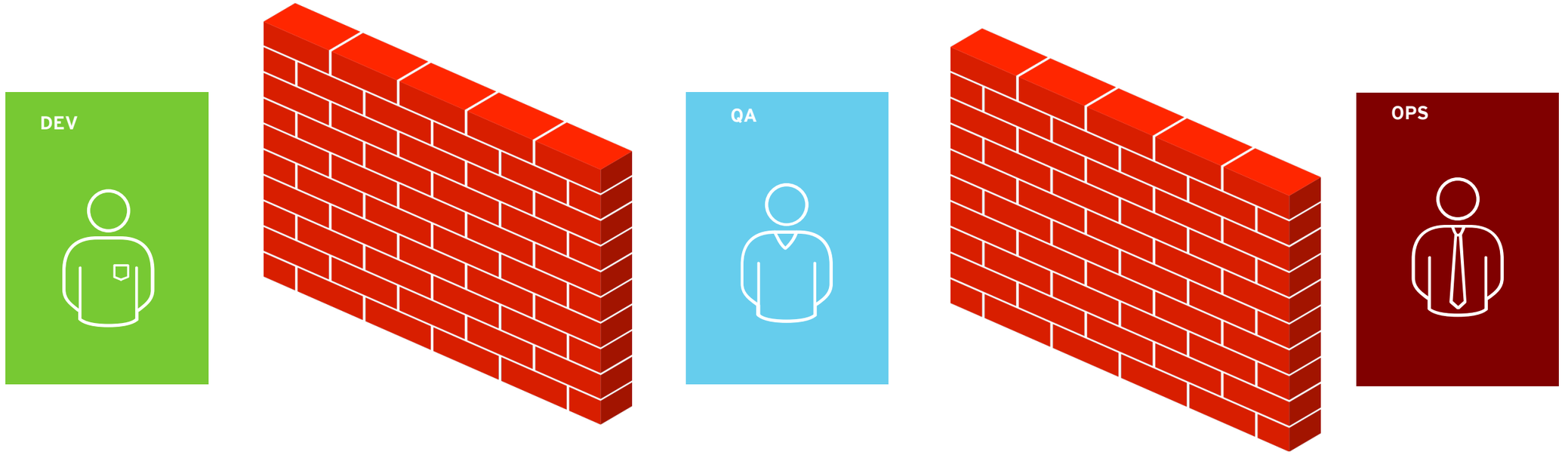
# “THROW IT OVER THE WALL”

Walled off people, walled off processes, walled off technologies



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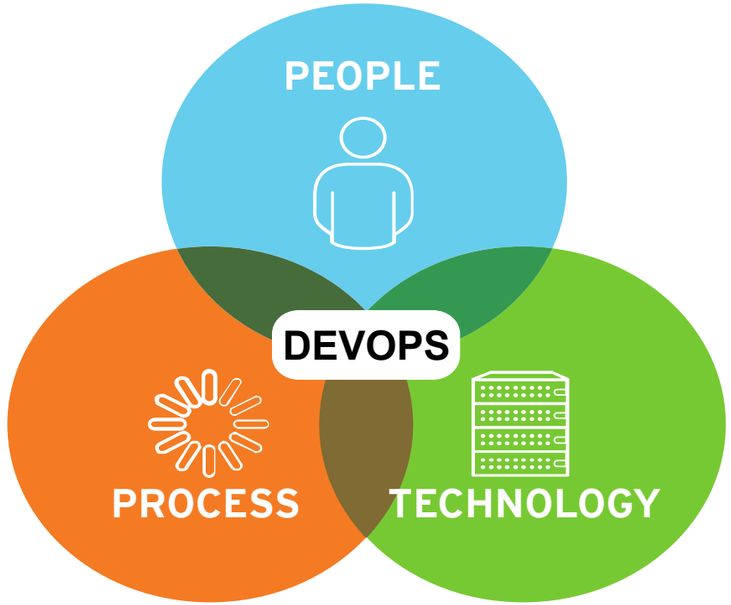
# WHAT CAN I.T. DO? I.T. CAN TURN OPS AND DEV INTO DEVOPS

“DevOps is a software development method that stresses communication, collaboration and integration between software developers and information technology (IT) professionals.”[1]

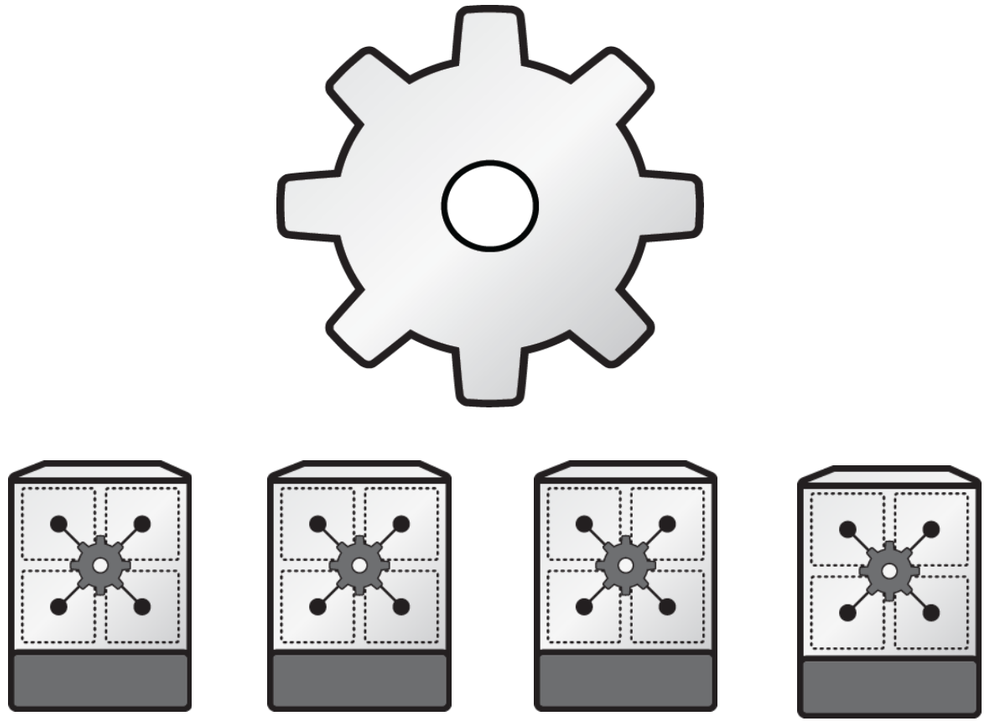



Applying many of the principles of Agile software development to the full application lifecycle and incorporating automation and monitoring with just a touch of Lean Manufacturing theory.

# WHAT ENABLES DEVOPS?

**“Configuration in code”**

- Standardized environments
- Linux containers
- Automated provisioning

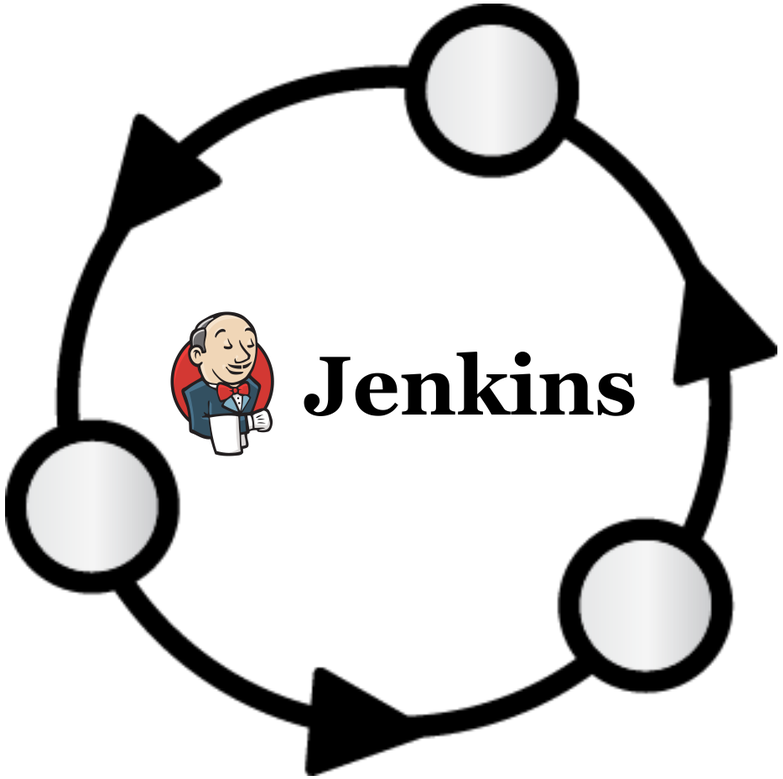


**KEY CONCEPT:** FAIL FAST AND RECOVER VS. NEVER FAIL

# WHAT ENABLES DEVOPS?

**CI/CD: Automated testing and deployment**

- Continuous integration
- Continuous delivery

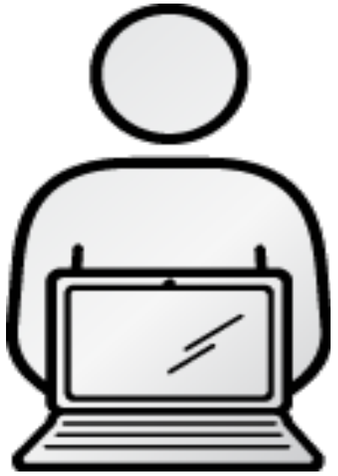


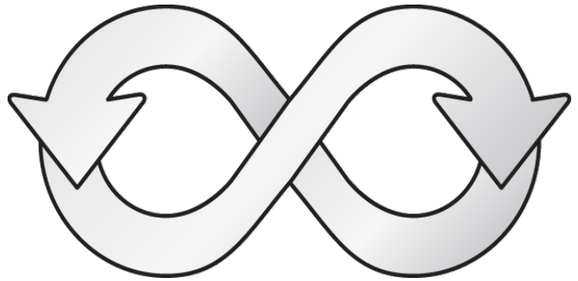

**KEY CONCEPT:** SMALL CHANGES = LESS RISK

# WHAT ENABLES DEVOPS?

**Continuous innovation**

- Developer self-service
- Rapid prototyping





**KEY CONCEPT:** CULTURE CHANGE = ACCEPTANCE OF FAILURE

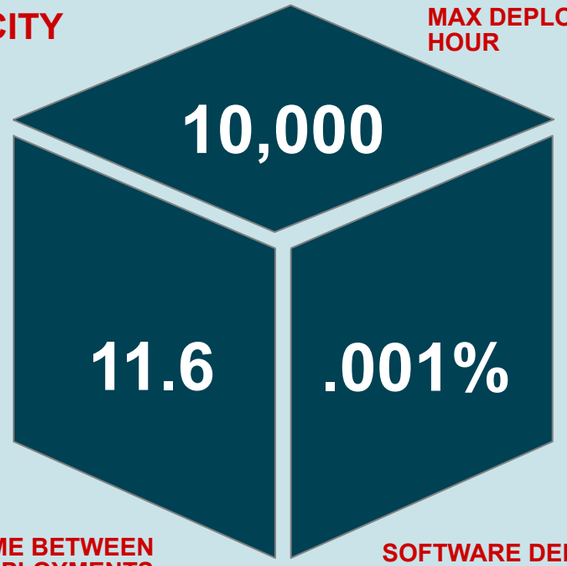
# ORGANIZATIONS IMPLEMENTING DEVOPS

**Better deployment quality** 63%

**Faster release frequency** 63%

**Improved process visibility** 61%

**DEVOPS VALUE IN ACTION: VELOCITY AT AMAZON AWS**




Source: 2014 State of DevOps Report
Puppet Labs, IT Revolution Press, ThoughtWorks

# ORGANIZATIONS IMPLEMENTING DEVOPS

"**30** innovations to the website deployed each day, … sometimes adding **millions** of dollars in sales"
Forbes, Apr'14

Etsy

"Taking a system that required a **full month** to release new features and turning it into one that pushes out updates **multiple times per day**."
Wired

# THREE KEY QUESTIONS FOR I.T. AND BUSINESS

| 1 | 2 | 3 |
| --- | --- | --- |
| How to quickly and reliably deliver new capabilities? | What kinds of new apps and services to deliver and support? | Where to create and run new apps and services? |

# DEVOPS IS PART OF A LARGER SHIFT

| HOW? | WHAT? | WHERE? |
| --- | --- | --- |
| DEVOPS + CONTAINERS | CLOUD APPS | OPEN HYBRID CLOUDS |

# DEVOPS + CLOUD = INDUSTRIALIZE

# DEVOPS FOR APPLICATIONS

What will you produce with your new cloud factory and DevOps manufacturing process?

# DEVOPS WORKFLOW

**OPS**

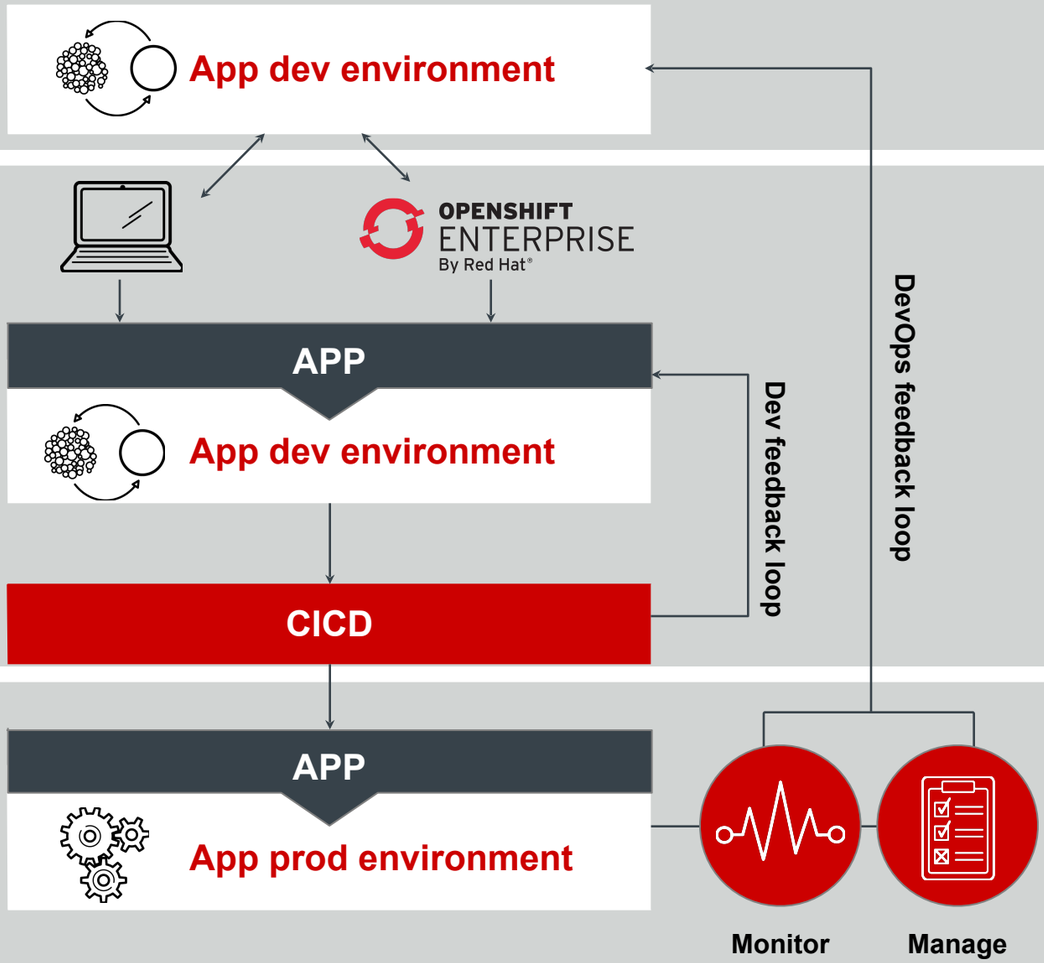
- Create containerized IaaS or PaaS development environment

**DEV**

- Provision environment locally or at OpenShift by Red Hat
- Write app as containerized microservices cluster and commit changes
- Push changes through CICD and automated testing system to containerized staging

**DEV OPS**

- Scheduler orchestrates and deploys app
- Monitor and operate app



# THE NEW APPLICATION

- Monolithic app container
- Scale up by adding hardware resources
- Limited scale out through clustering

- Distributed, networked, containerized services
- Scale out by orchestrating services
- *Faster iteration and release*
- *More robust*

SINGLE-HOST APPS

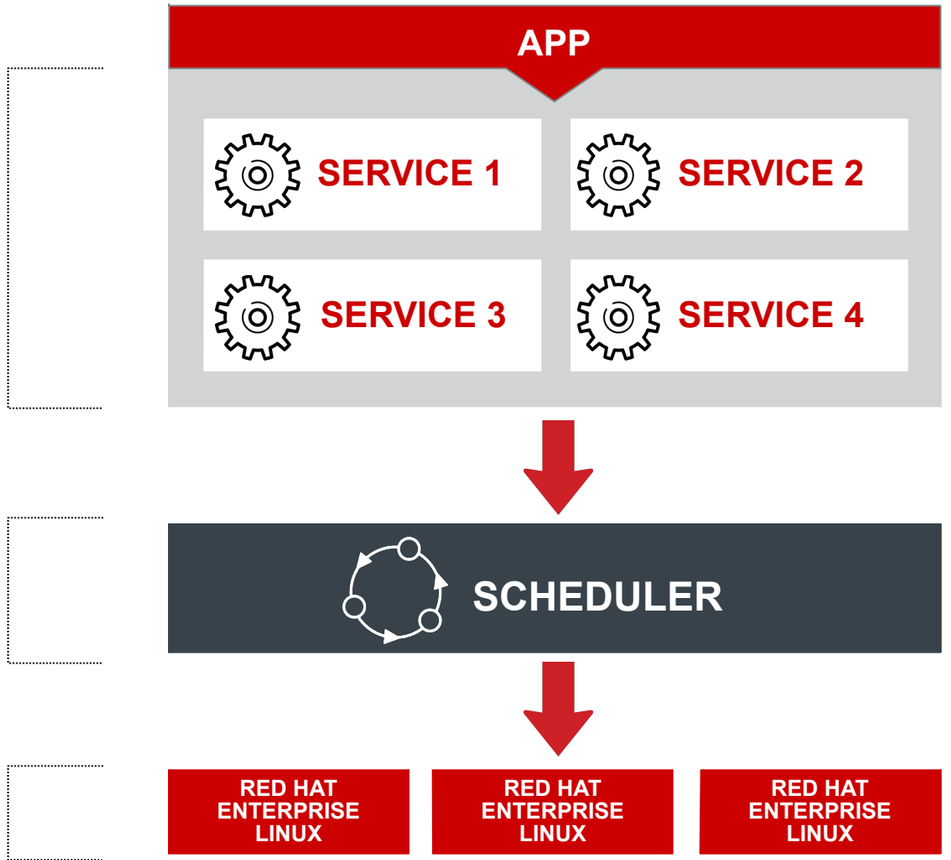
MULTI-HOST APPS

# THE NEW OPERATING SYSTEM

Orchestrator (Kubernetes): Model the app across multiple hosts/containers

Scheduler (Mesos): Provide service and APIs for placing the app onto resources

Container pool (Red Hat Enterprise Linux/ Docker): Provide resources to run app



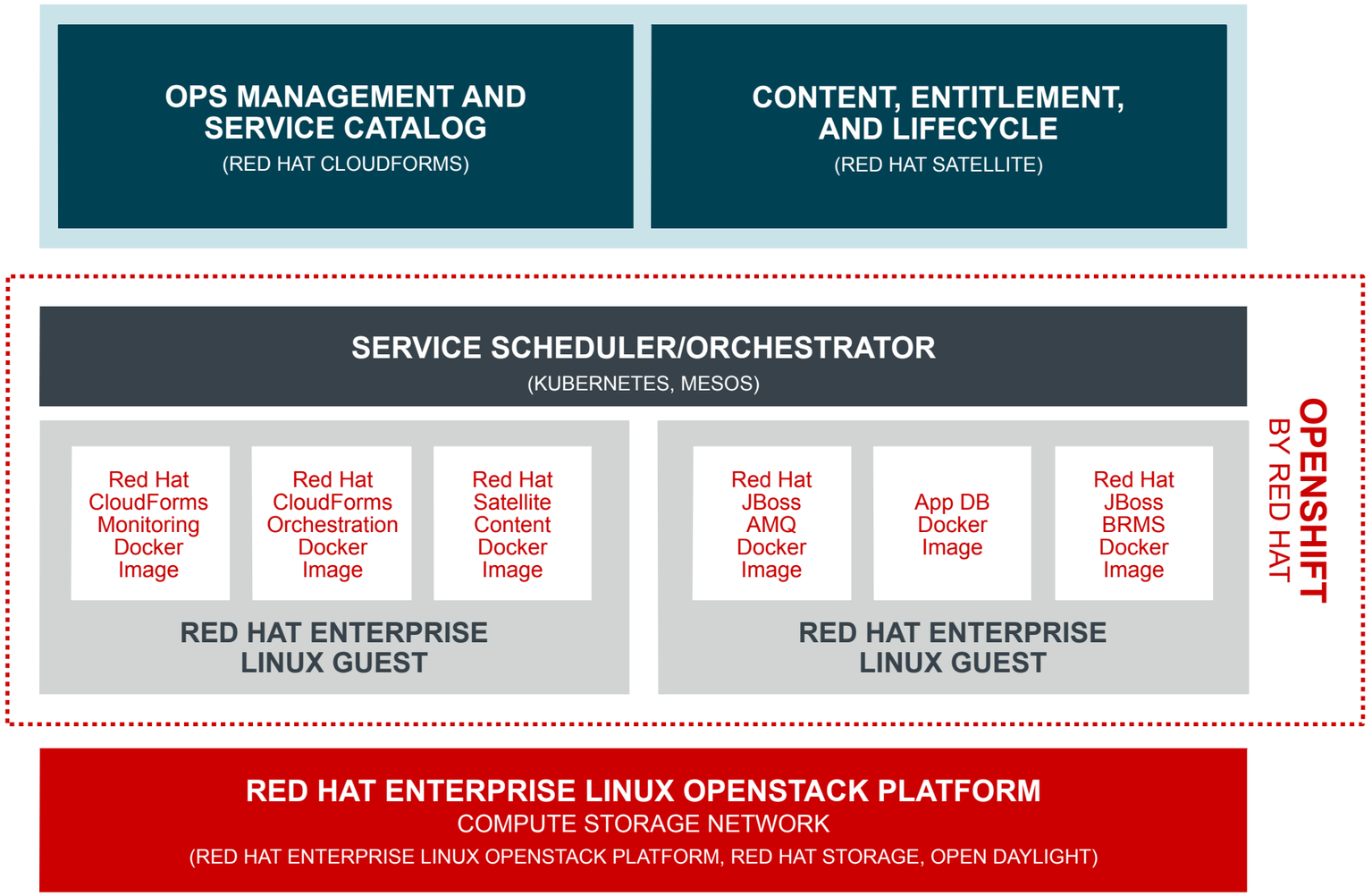
# THE NEW ECOSYSTEM

Provision apps from service catalog

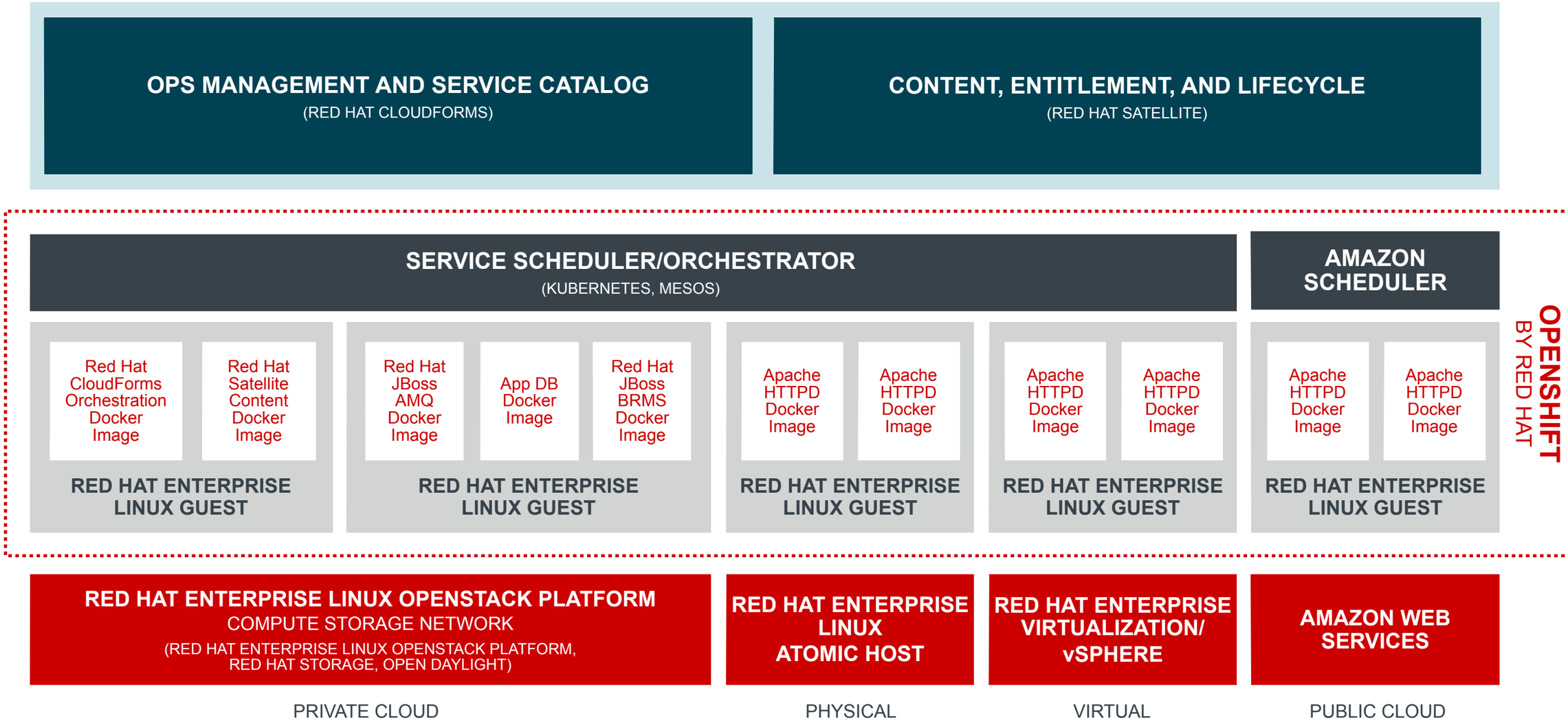
Orchestrate and place apps

Run composed microservices in containers

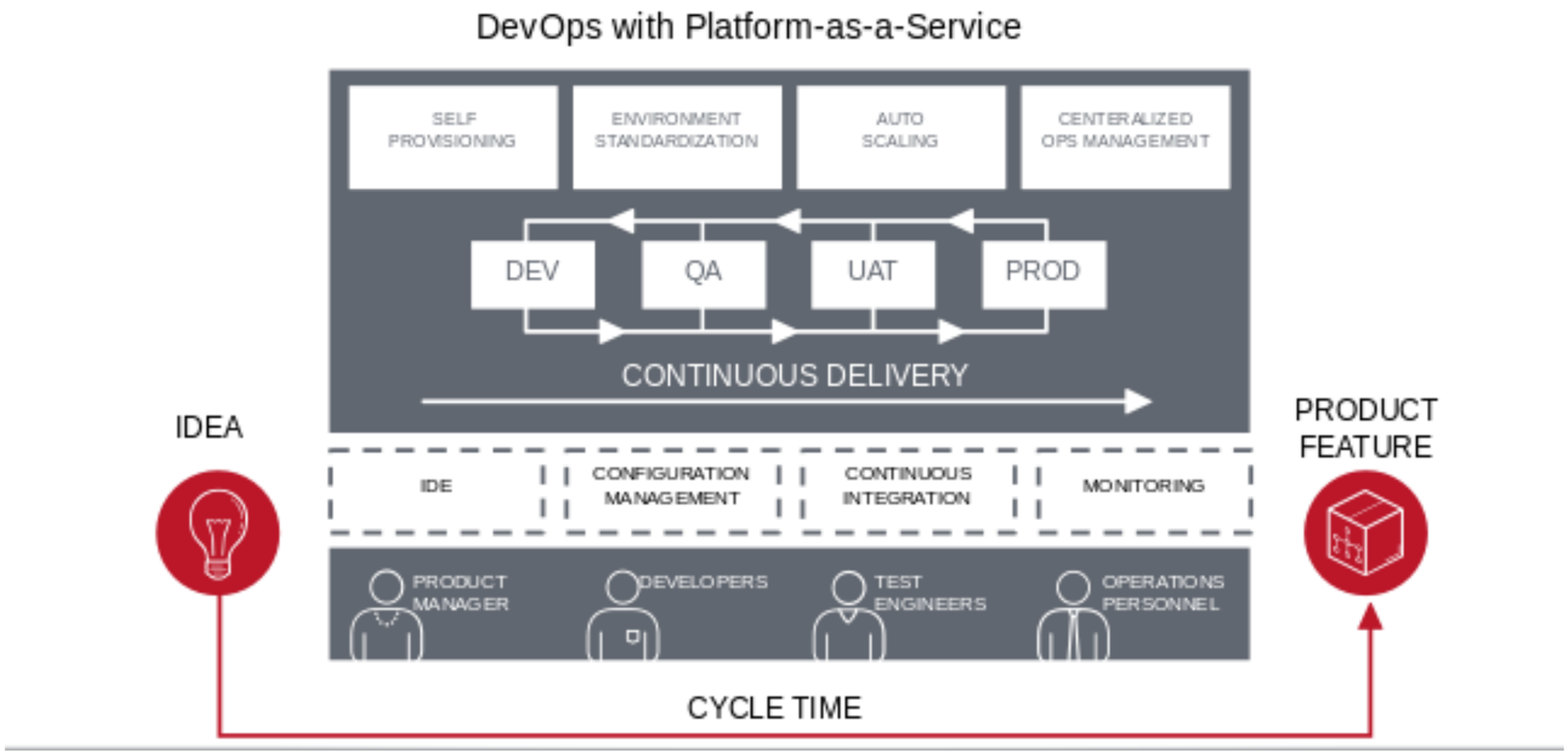
Provide dynamic, programmable infrastructure



# OPEN HYBRID CLOUD PLATFORM



# REDUCE CYCLE TIME FROM IDEA TO FEATURE
## DEVOPS WITH PaaS



# FINANCIAL SERVICES COMPANY

# FINANCIAL SERVICES COMPANY

"It could take 6 weeks to get a single word changed on the web site."

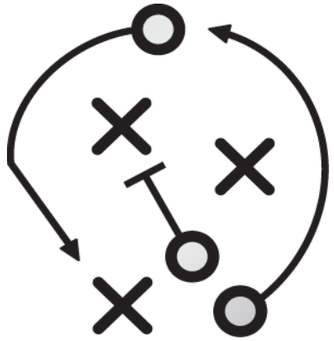
"It took 2 years after a competitive start-up launch to get a competing product to market."

"When developers work in Node.js, they can change the code they're working on, direct it to run, and see whether it works-in the blink of an eye."

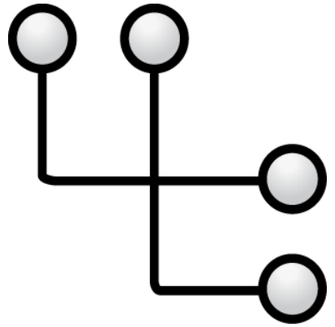
"The environment, while stable, didn't use the sexiest technologies, which made recruiting difficult."

# BUSINESS CHALLENGES

Growth

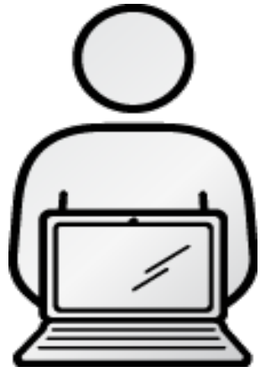


Competition



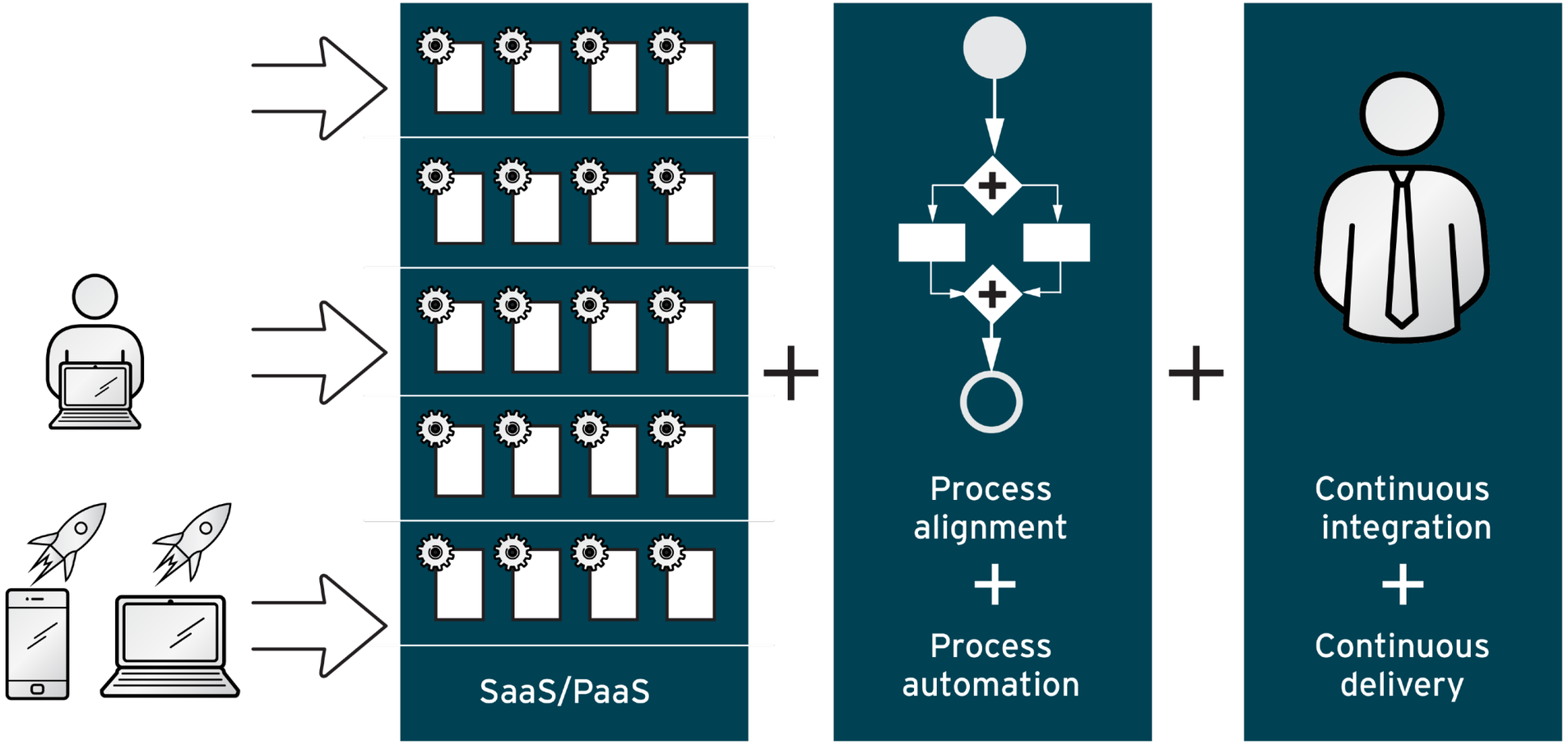
Agility

Predictability



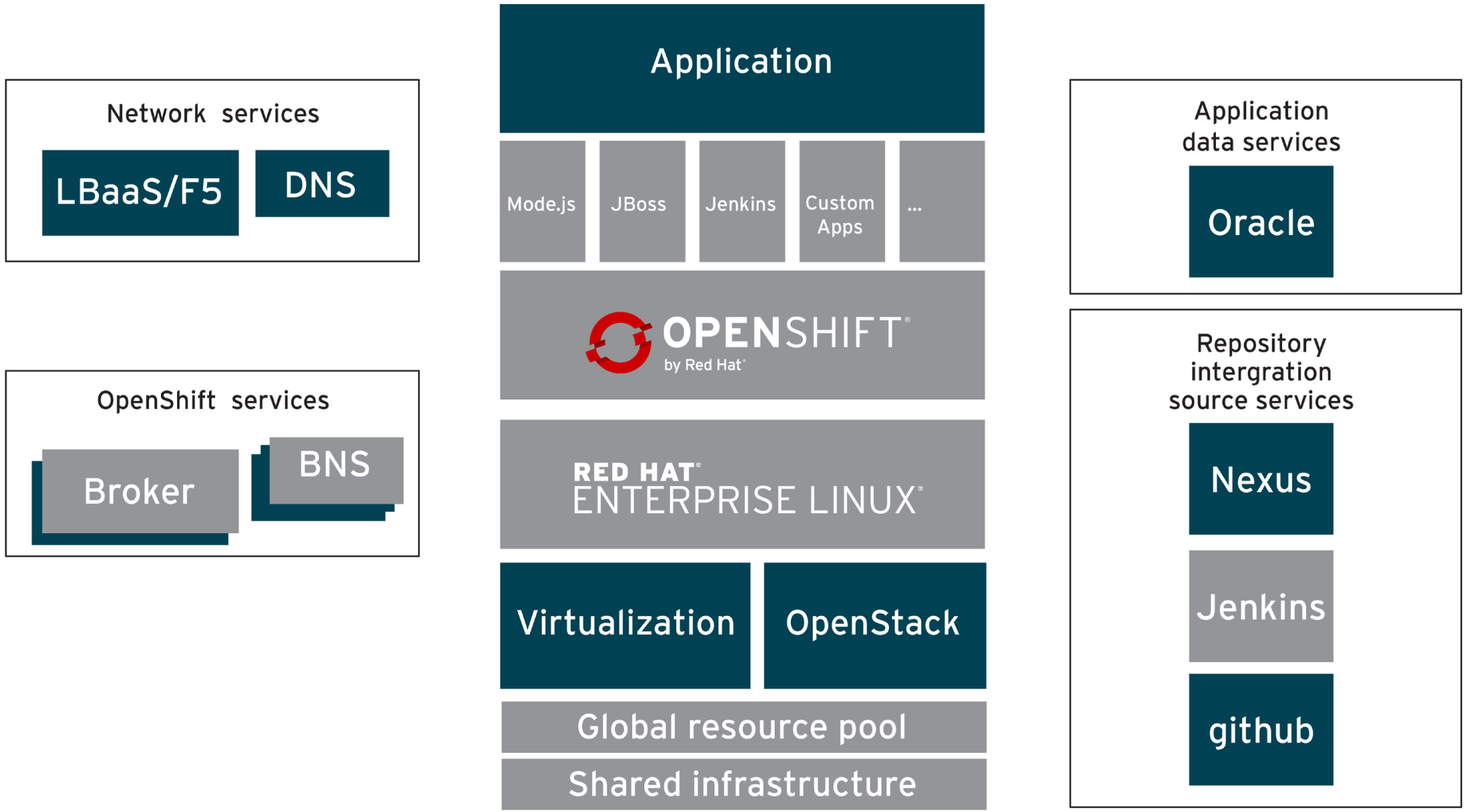
Recruiting

# DEVOPS SOLUTION APPROACH

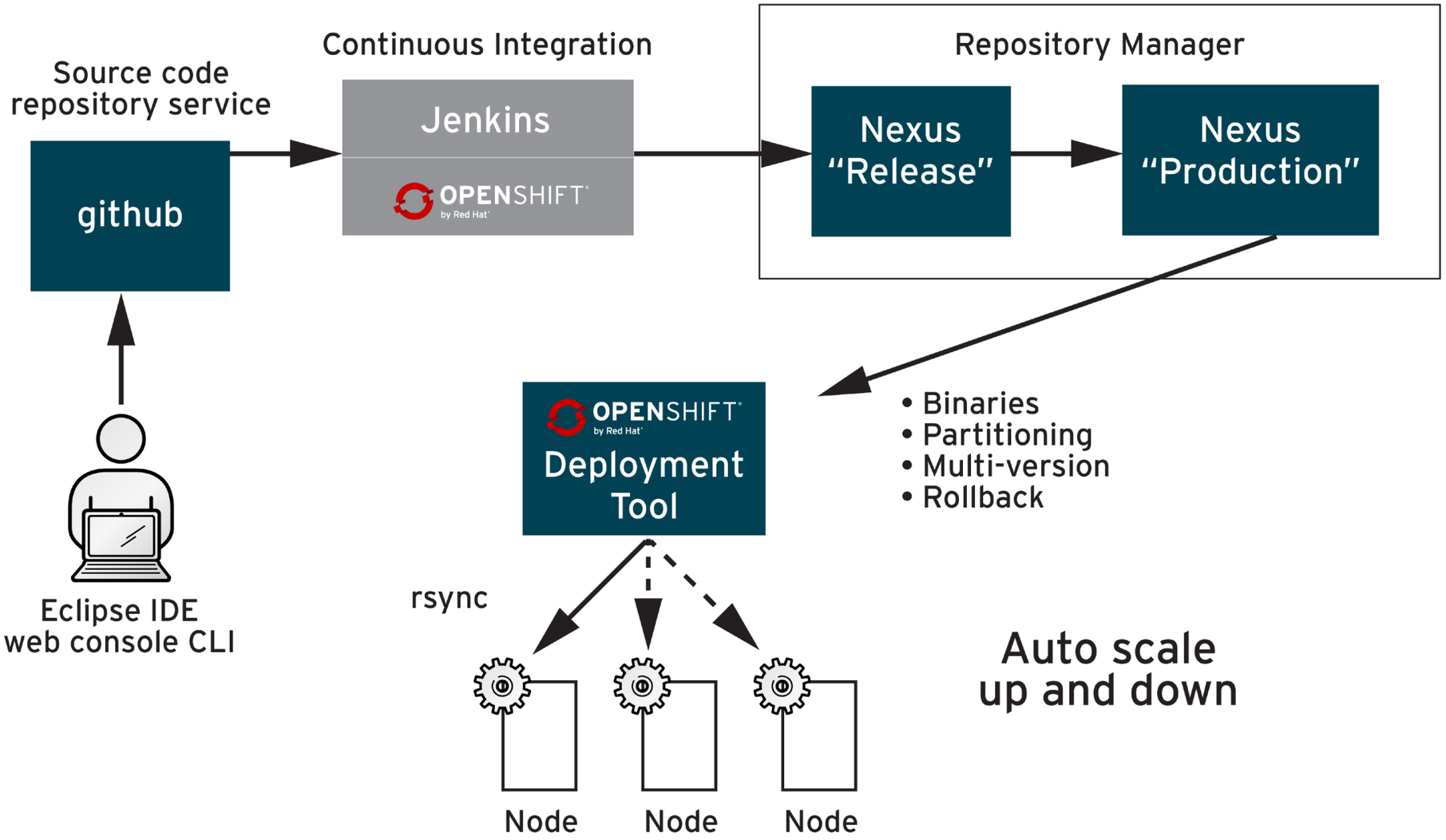



Leverage Automation Technologies Combined with Cloud Architecture

# ARCHITECTURE



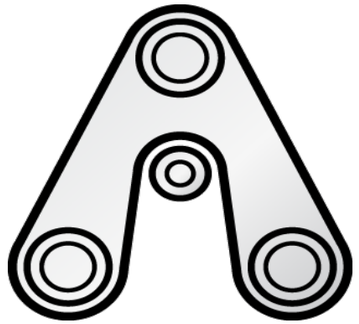
# DEVELOPMENT TO PRODUCTION IN <30 MINUTES



# DEVOPS ROI

Improve business agility

Improve developer productivity



Improve business predictability

Improve operational efficiency and costs

# THANK YOU