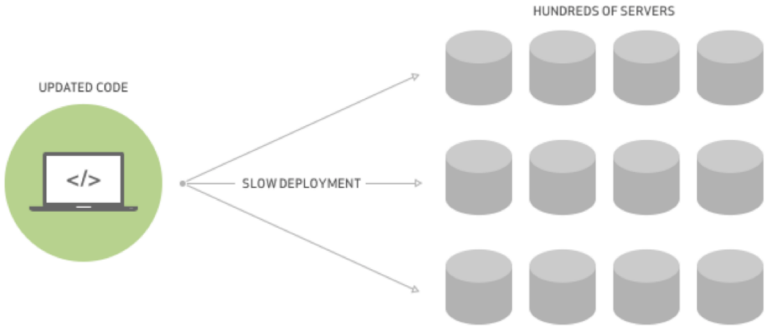
# Deployment Automation using Docker and Ansible

Ram Mohan Rao Chukka | JFrog

# The Challenges...

- In Early 2015, Our application deployments (**mostly manual**) used to take roughly 4 hours on a maintenance window over quarterly releases.




- Reproduction of PROD issues on DEV machines (locally) was a pain.

# The Challenges...

2015

**Manual processes**
Weeks to set up new systems of software

**Legacy systems and tools**
Inflexible, hard-to-change hardware and software

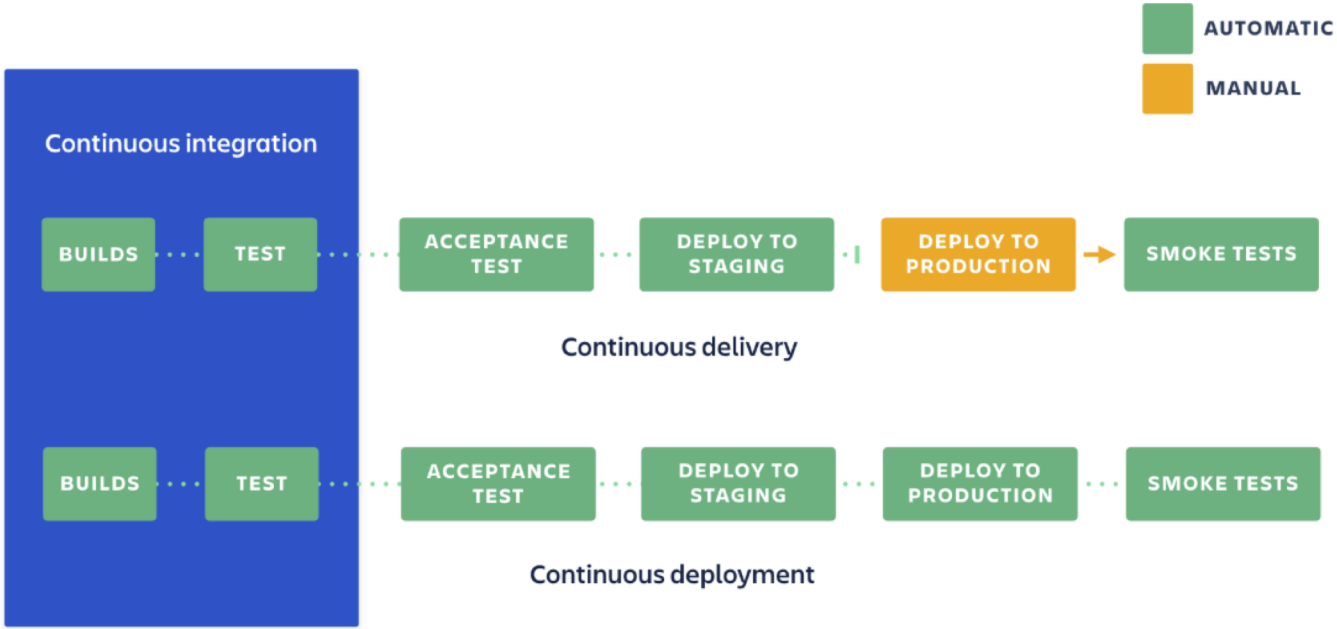
**Organizational silos**
Unwieldy divisions of responsibility

**Infrequent, large releases**
Fear of deployment due to risk to SLAs

**Regulatory burdens**
Compliance bottleneck at the end of a project

source: chef.io

# Goals ...




source: www.atlassian.com

# Ram Mohan Rao Chukka

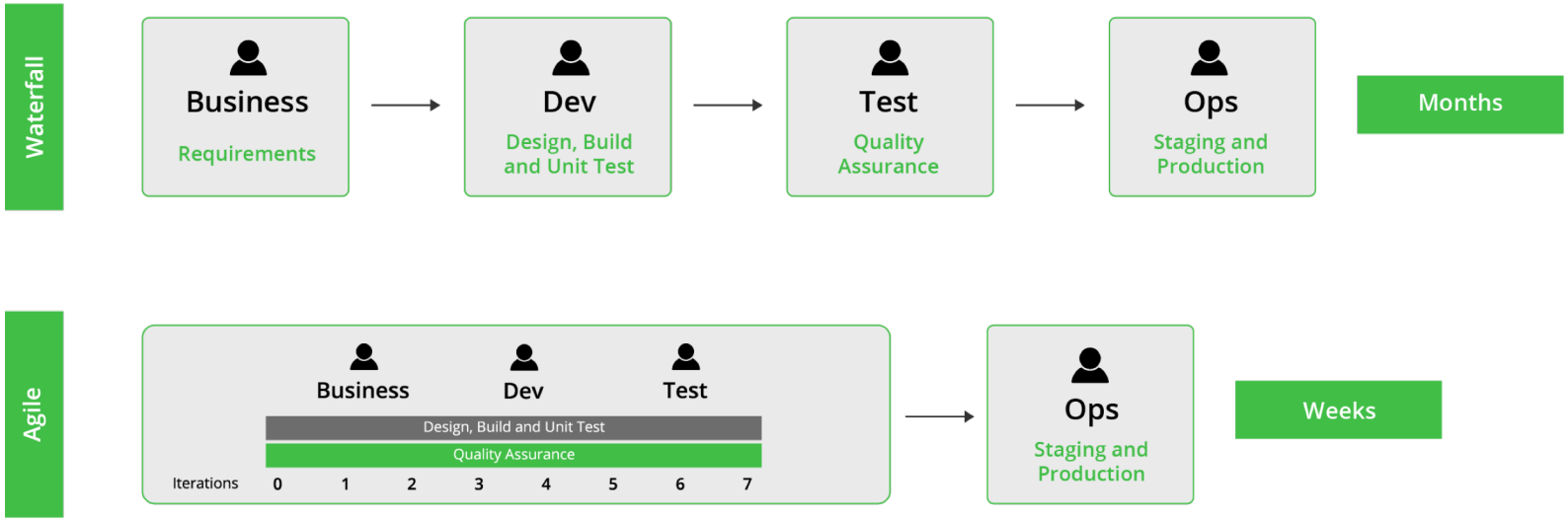
@ichukka

ichukka

**About Me**

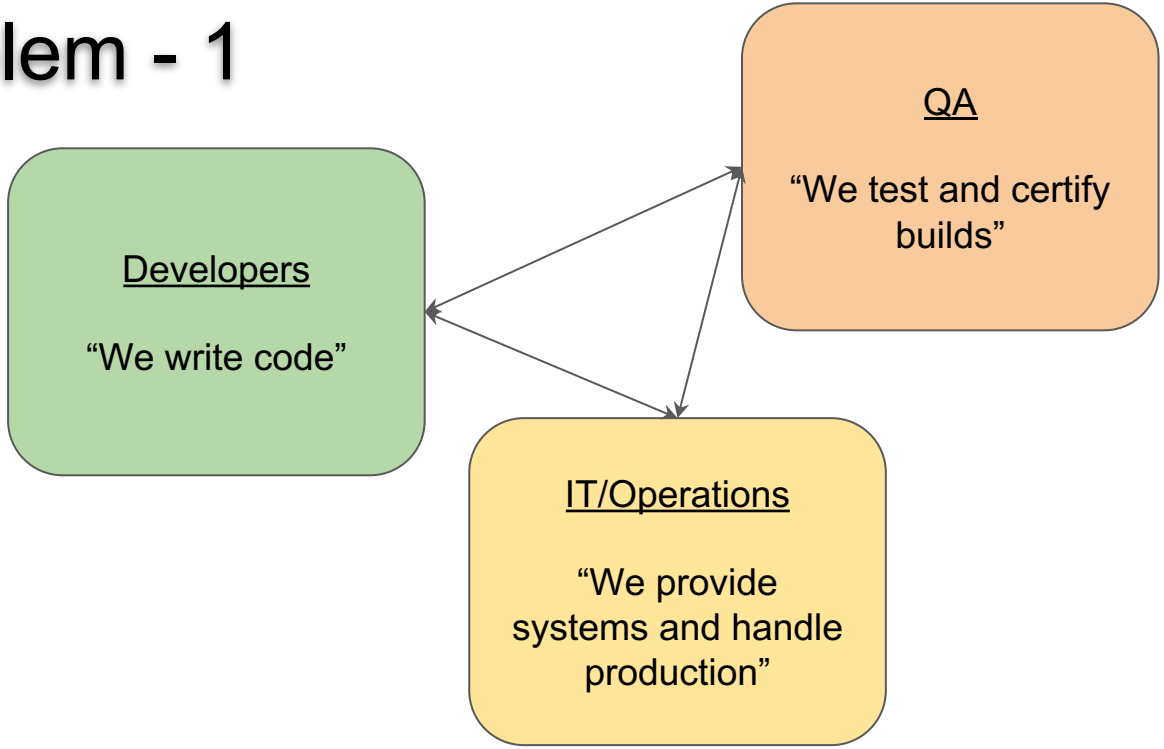
- **Software Developer @JFrog (R&D India)**
- **Passionate about  Automation, Linux, Open Source**
- **Loves playing Table Tennis ☺**

# Problem - 1



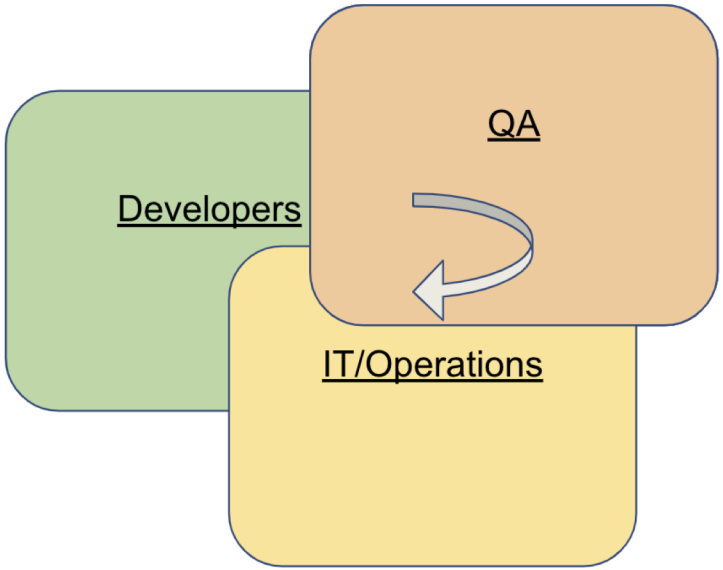

In the world of Waterfall/Agile software development, the **time to production is too long**

# Problem - 1



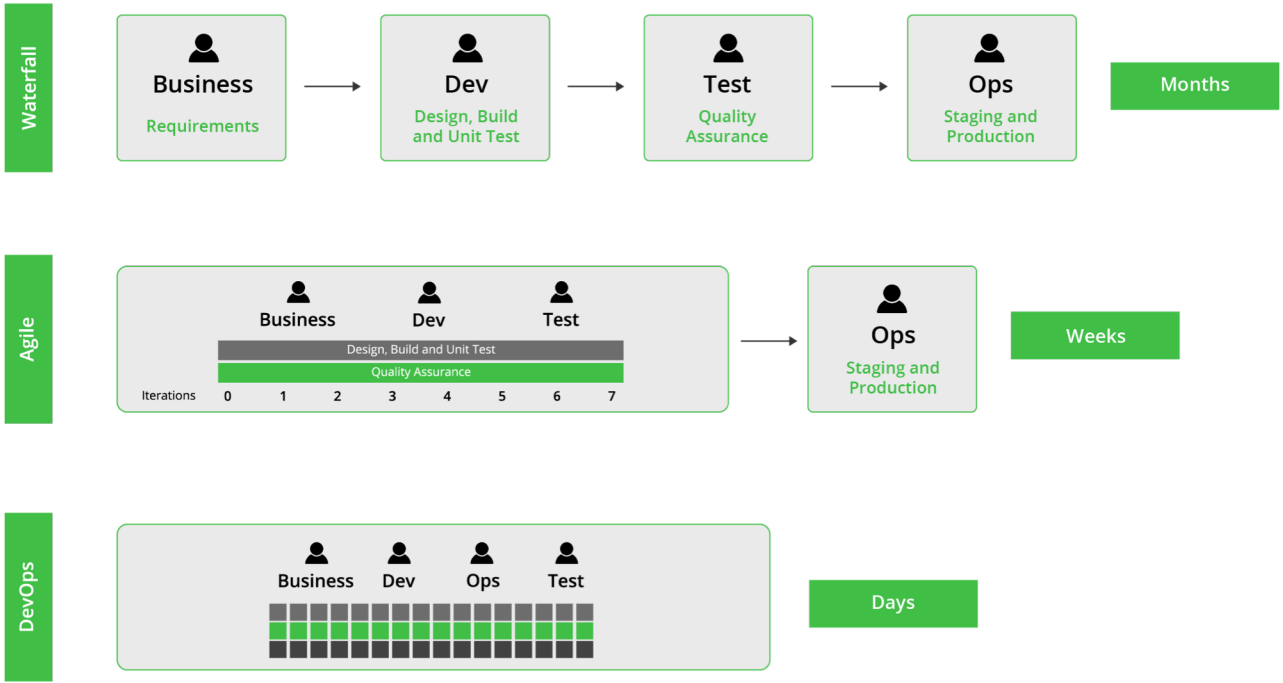

No tight collaboration among  different teams

# Solution ?

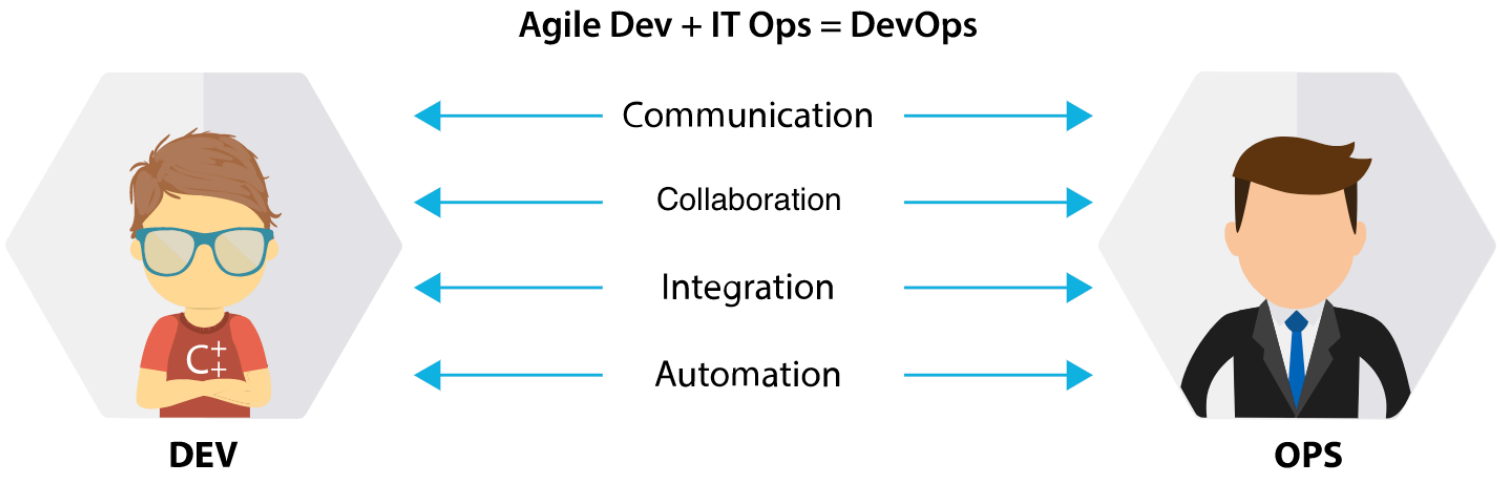



Improve processes by tight alignment and collaboration using Devops Model

# Solution ?


Waterfall
Business
Requirements
Dev
Design, Build and Unit Test
Test
Quality Assurance
Ops
Staging and Production
Months
Agile
Business
Dev
Test
Design, Build and Unit Test
Quality Assurance
Iterations 0 1 2 3 4 5 6 7
Ops
Staging and Production
Weeks
DevOps
Business
Dev
Ops
Test
Days

# What is DevOps ?



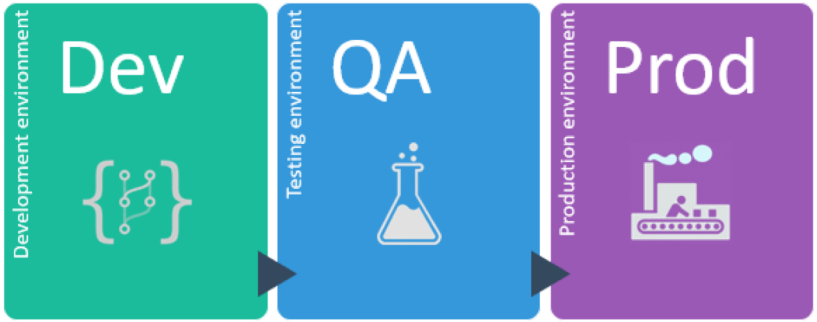
# What is DevOps ?

source: chef.io

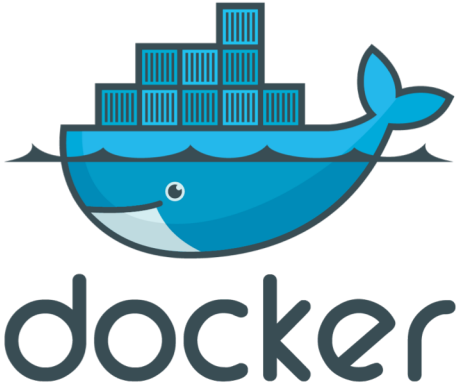
# Problem - 2

- Developed application is deployed differently in different environments

**DEV != QA != PROD**



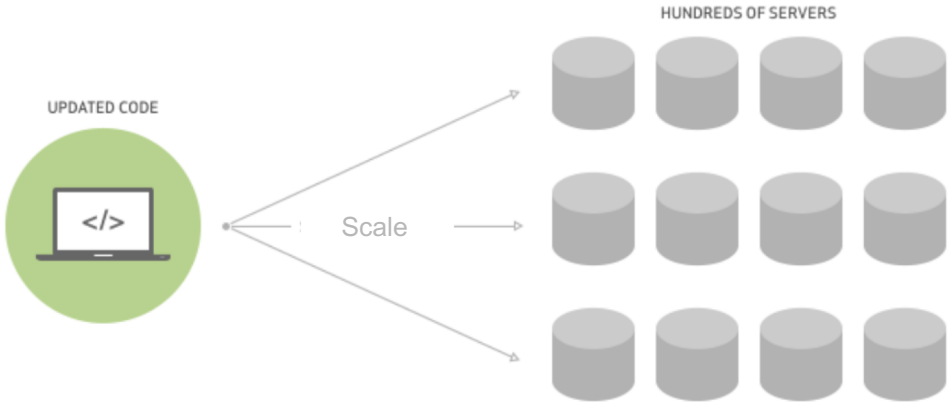
# Solution ?




**Note :** In 2015, We thought Docker was not production ready, So We used VMs in production and Containers for DEV/QA

# Problem - 3

- How do we do automate deployments at scale ?

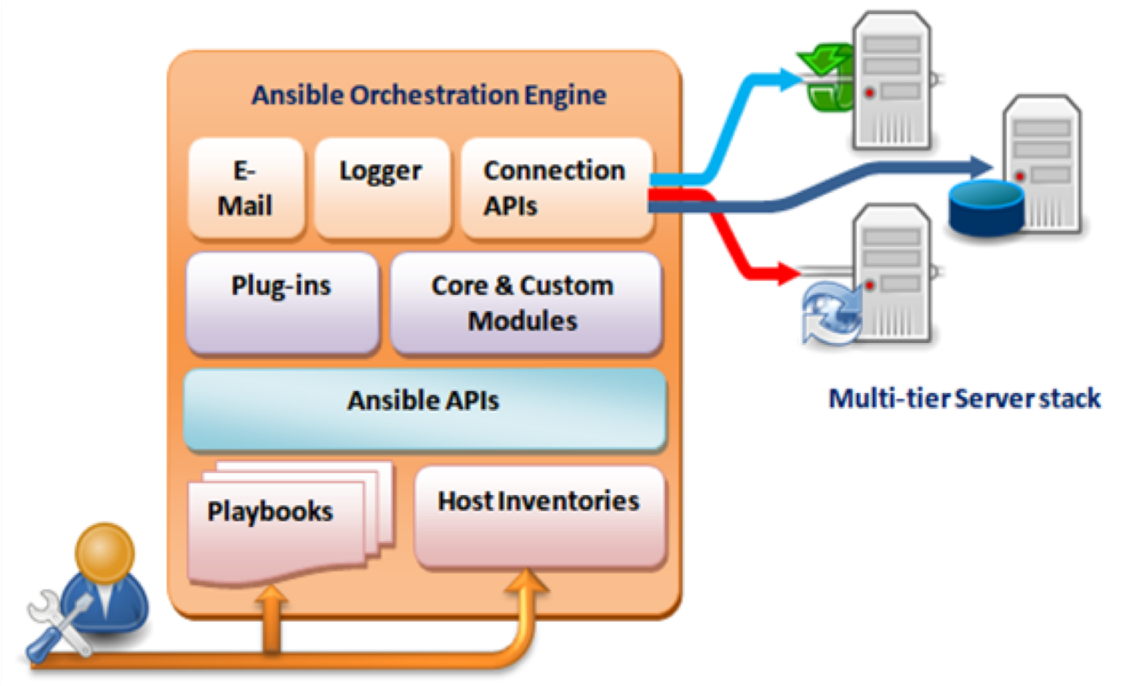


# Solution ?

# Why Ansible? Its Free & Community Driven

- **Agentless architecture**
- Uses **SSH**.
- Follows **YAML** format.
- Implements "**Infrastructure as Code**" concepts.
- Its **idempotent -** Can run multiple times safely

# Ansible

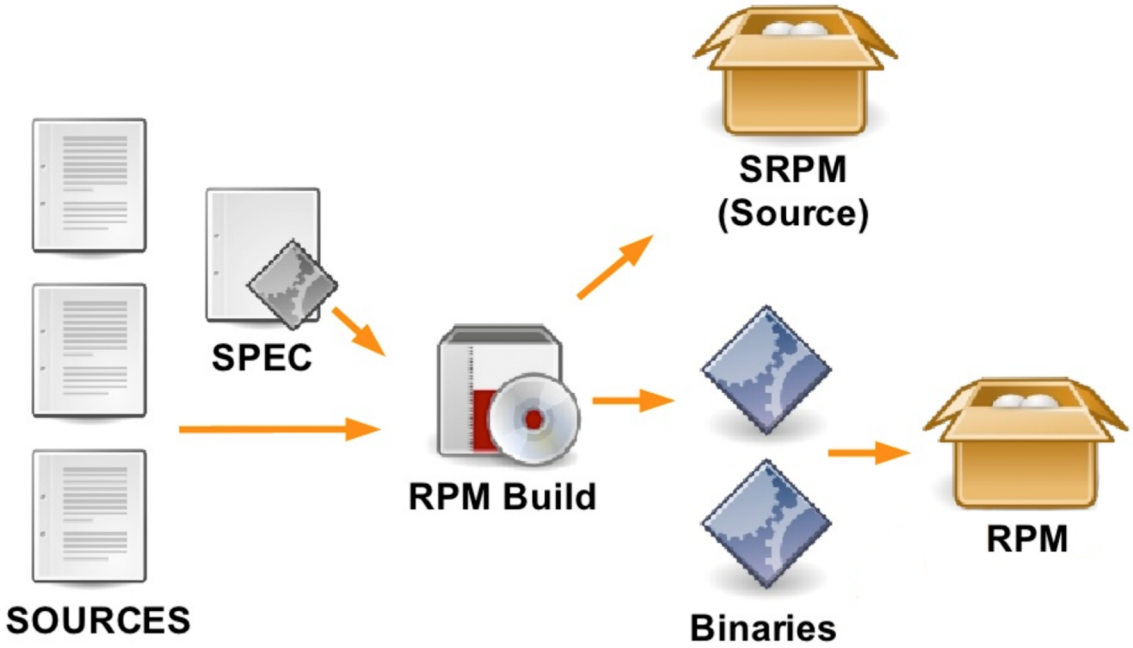

Ansible Orchestration Engine
E-Mail
Logger
Connection APIs
Plug-ins
Core & Custom Modules
Ansible APIs
Playbooks
Host Inventories
Multi-tier Server stack

# Architecture - Automation Workflow

# RPM- RedHat Package Manager

- Make your deploy :
  - Faster
  - Easy
  - Standard
  - Secure
  - **Predictable**
- Every time it’s the same deploy
  - **yum install**

# How to build an RPM ?



# DEV = PROD :)

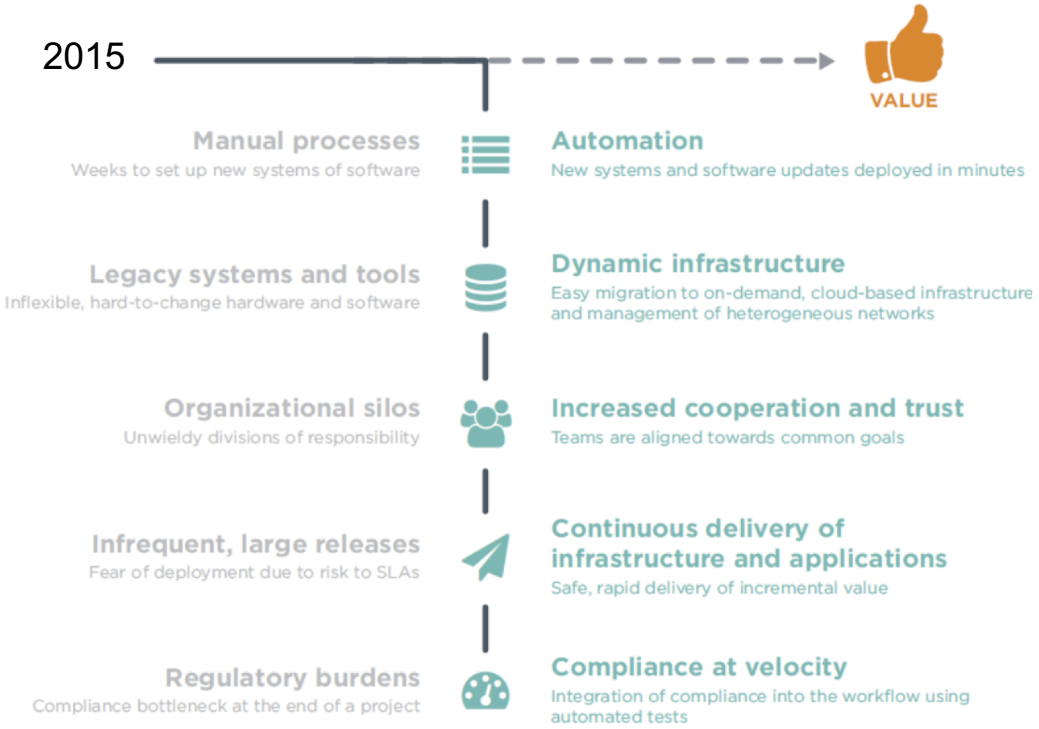
## Ideal Development Environment

Single click setup
~ Automation

Develop and test
locally

Cross-platform
environment

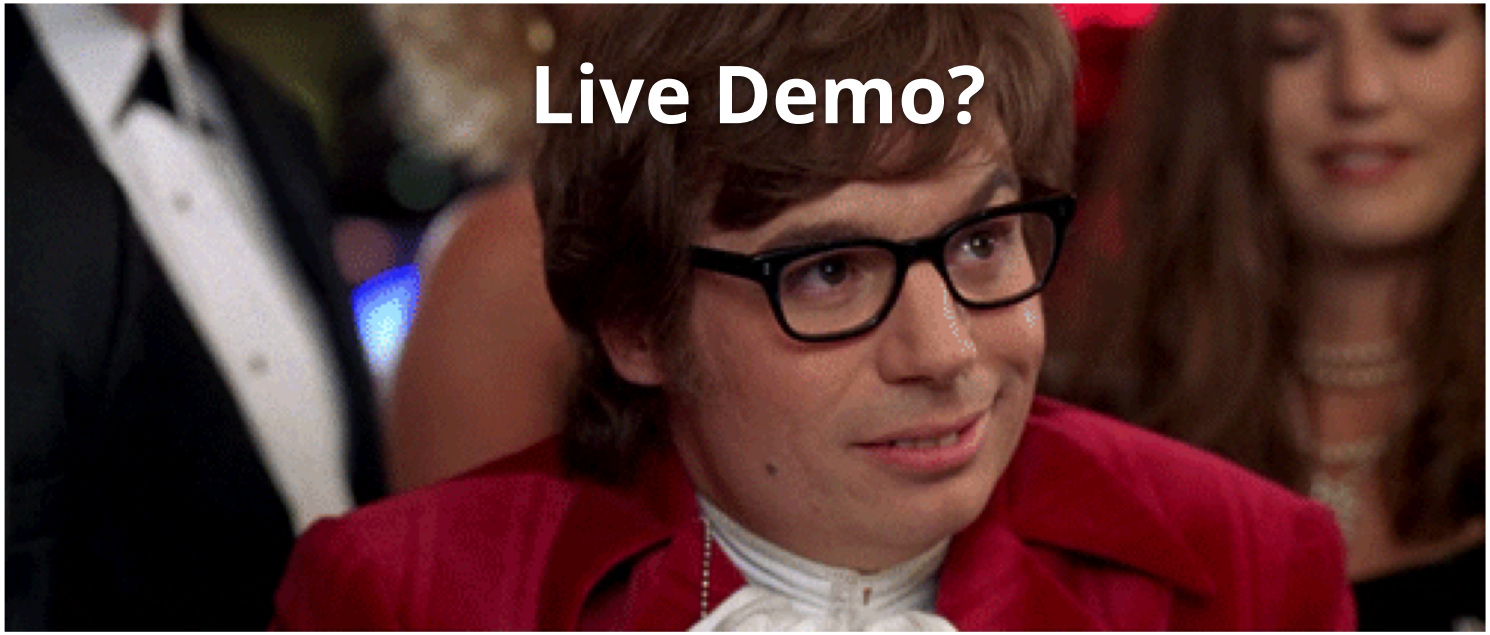
# Goals - Status



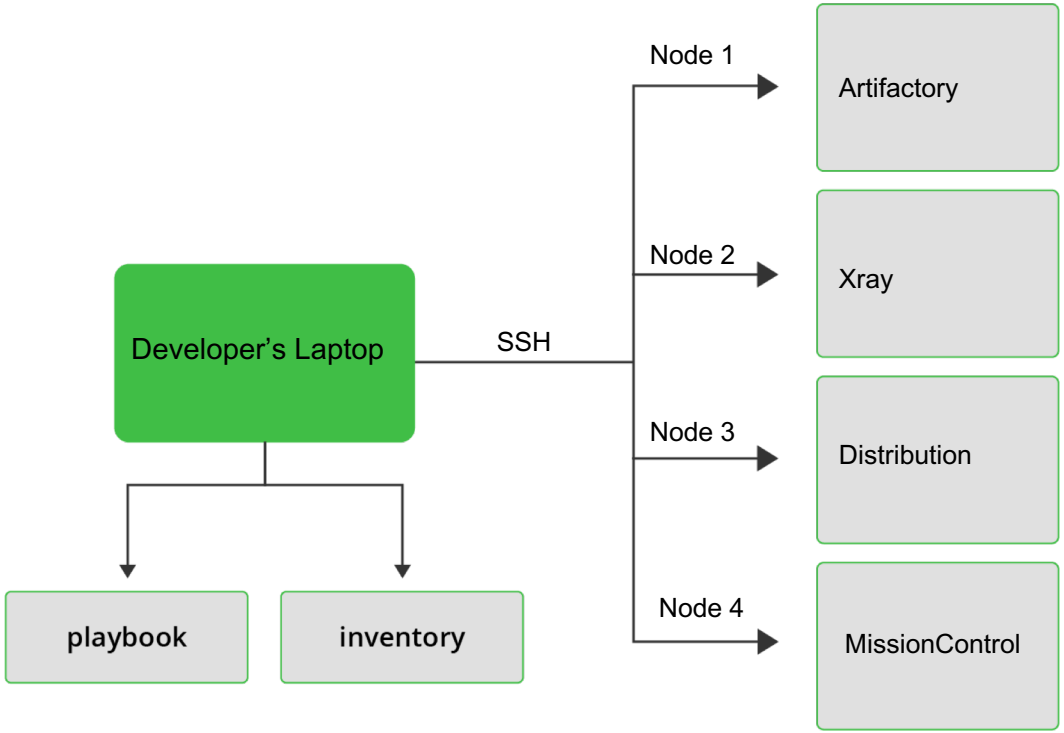
source: chef.io

# Goals - Status

- Post Automation :
  - Deployment time reduced from **4 hours** to **20 mins**
  - Push releases/fixes very frequently ->**Happy Customers**☺
  - Reproduce PROD issues on local environment with ease


Live Demo?

# Demo


Node 1
Artifactory
Node 2
Xray
Developer's Laptop
SSH
Node 3
Distribution
playbook
inventory
Node 4
MissionControl

NOW, ARE THERE
ANY QUESTIONS?

# Thank You !

Happy Valentine’s Day ☺



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