DEPLOYING THE LEAGUE OF LEGENDS DATA PIPELINE WITH CHEF

TROTTER CASHION Engineering Manager | November 2013







2009 LAUNCH

TEAM ORIENTED ONLINE PC GAME

100+ CHAMPS LIVE PLAYERS VS. LIVE PLAYERS





SEMI-GLOBAL Deployment **O** DOWNTIME

RUNS IN CLOUD (AWS) + DATACENTER



OVERVIEW

BASED ON REAL WORLD USAGE

Big Data Team from April 2012 to June 2013

Also incorporates subsequent work with Player Accounts team

OVERVIEW

WHAT DO WE WANT FROM AUTOMATED INFRASTRUCTURE?

OVERVIEW

WHAT DO WE WANT TO BE ABLE TO DO FOR PLAYERS?



CORE: Always up, easy to deploy











UNDERLYING COMPONENTS

EC2 ELB VPC VPC

CORE CONCEPTS

UNDERLYING COMPONENTS

EC2 ELB VPC VPC VGW CORE CONCEPTS

UNDERLYING COMPONENTS

EC2 ELB VPC VPC VGW VPN DC

CORE CONCEPTS
















































CORE CONCEPTS

LIMITED TO 2 ACTIONS:

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IMMUTABLE SERVER:

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IMMUTABLE SERVERS CORE CONCEPTS LIMITED TO 2 ACTIONS: 1) Start & provision server 2) Kill it WITH IMMUTABLE SERVERS, YOU CAN'T SSH INTO BOX & CHANGE THINGS No snowflakes **BENEFITS**: Easy rollbacks **Cleaner deploys**



CHEF SOLO

WHAT'S REQUIRED

- All cookbooks in one tarball
- Somewhere to put the tarball
- Tell instances how to provision with the tarball

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PACKAGING

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- S3
 - `s3cmd` makes it easy to upload to S3
- Internal asset server

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PROVISIONING

- userdata.sh
 - Get cookbooks off s3 and untar to /var/chef/ cookbooks

CHEF SOLO

- Get first-boot.json off s3 -> /etc/chef/firstboot.json
- Get solo.rb off s3 -> /etc/chef/solo.rb
- Run ` chef-solo`

CHEF SOLO: PROs VS CONs

CHEF SOLO

WHERE IT WORKS

- Good when your Chef run is fast
- Easy to set up
- No single point of failure

WHERE IT FAILS

- When Chef runs occasionally fail
- Configuration changes
- Service discovery



CHEF SOLO

RECOMMENDATION:

• Use chef-solo approach to get started

• Stop when you have multiple applications



WHAT'S REQUIRED

- Chef Server
- Cookbooks uploaded to Chef Server
- Tell instances how to provision with Chef Server

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RUNNING CHEF SERVER

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PROVISIONING

- userdata.sh
 - Fetch validation.pem

CHEF SERVER

- Fetch first-boot.json
- Fetch client.rb
- Run ` chef-client ...`

CHEF SERVER: PROs VS CONs

CHEF SERVER

WHERE IT WORKS

- Updating feature flag configuration
 - Warning: Can affect rolling deploys!

WHERE IT FAILS

- Single point of failure in Chef Server
- Long Chef runs cause problems
- Can cause problems in large organizations where multiple teams depend on the same cookbook



RECOMMENDATION:

- Use chef-server when managing feature flags
- Not bad when you have multiple applications to deploy
- Pro tips:
 - Use a shutdown script to remove instances from the chef server
 - Only use chef in daemon mode if you're certain only feature flags will change



GOLDEN IMAGES

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- Configuration management

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 - Build an RPM
 - Cookbook installs RPMs
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Configuration Management

- Archaius (on disk config)
- Chef

CHEF SOLO: PROs VS CONs

GOLDEN IMAGES

WHERE IT WORKS

- Rollbacks are perfect and instances always boot
- Boot times are very fast

WHERE IT FAILS

- Need another method for configuration management
- Need another method for service discovery
- Releasing patches requires entire new build



GOLDEN IMAGES

RECOMMENDATION:

- Use when auto scaling is a must
- Requires an up-front effort to get going
 - Make sure you can afford it
- Pro tip:
 - Use the Netflix stack: Asgard, Aminator, and Archaius

THANK YOU! QUESTIONS?

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