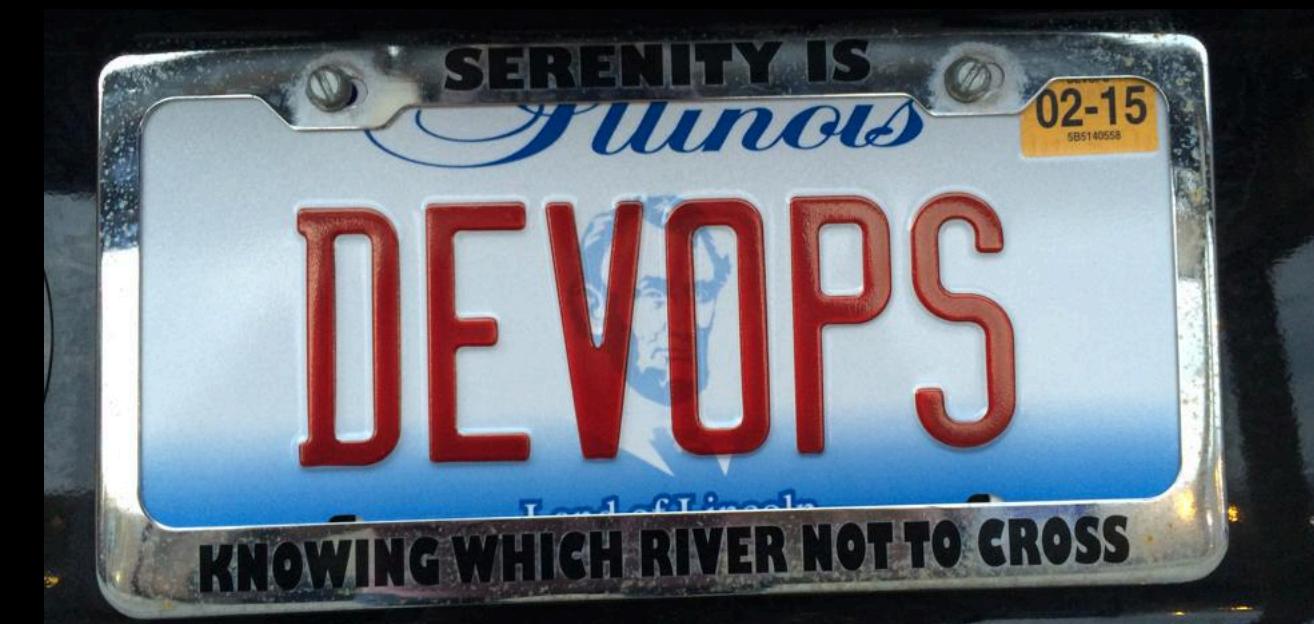


**MAKING INFRASTRUCTURE  
S'MORES WITH CHEF**

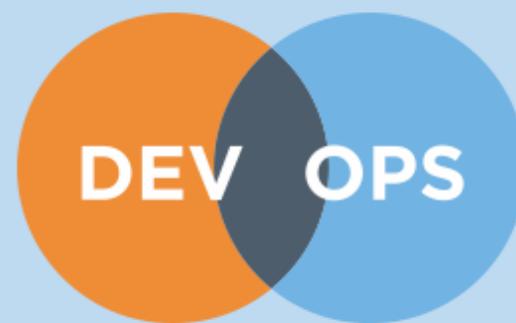
# WHOAMI



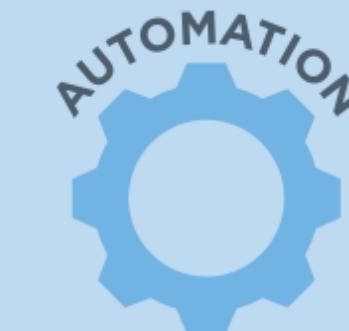
# WHAT IS CHEF?

- ▶ Define reusable resources and infrastructure state as code
  - ▶ Manages deployment and on-going automation
  - ▶ Community content available for all common automation tasks

```
▼ package "httpd" do
  action :install
end
▲
▼ template "/etc/httpd/httpd.conf" do
  source "httpd.conf.erb"
  mode 0755
  owner "root"
  group "root"
end
▲
▼ service "httpd" do
  action [:enable, :start]
end
```



begins with



needs

<CODE/>

<CODE/>

lets  
you

- [Icon: document with code] version infrastructure and runtime environments
- [Icon: terminal with code] create infrastructure and runtime envs consistently
- [Icon: checkmark] test automatically

just  
like



# DOMAIN EXPERTS

- ▶ Systems are complicated today
- ▶ Nobody can know everything about the stack
- ▶ Let your domain experts contribute their portion directly

A colorful cartoon illustration of a king. He has a large, ornate gold crown with a red jewel on top. He is wearing a red robe with a white collar and a small white bird is perched on his right shoulder. He is holding a large, curved sword with a brown hilt and a silver blade. The background is a light blue.

**ANYONE CAN DO ANYTHING?**



**OLD WAY**  
**COMMUNICATE VIA TICKETS**

**NEW WAY  
COMMUNICATE VIA CODE**



**I drive the new hotness.**

# CONFIGURATION DRIFT



# DON'T DO THINGS BY HAND

Every time someone logs onto a system by hand,  
they jeopardize everyone's understanding of the  
system

– Mark Burgess

PEOPLE MAKE  
MISTAKES  
THIS DOESN'T SCALE

# INFRASTRUCTURE AS CODE

Enable the reconstruction of the business from nothing but a source code repository, an application data backup, and [compute] resources

– Jesse Robins

**VERSIONED  
MODULARIZED  
TESTED**

**EXECUTABLE  
DOCUMENTATION**



- I'VE MADE A HUGE MISTAKE.

HOW DO I MAKE SURE  
NOBODY MESSES STUFF  
UP?

**TESTING IS ESSENTIAL**

**COMMUNICATE  
THROUGH CODE  
(REDUX)**



**WHAT HAPPENS WHEN YOU  
HAVE ONE GROUP WRITING  
ALL THE AUTOMATION?**







**HOW DO WE SOLVE THIS?**

**USE A PIPELINE**

**ENCOURAGE  
LOCAL TESTING  
WITH  
FOODCRITIC**



**FOODCRITIC**

# EXAMPLE FOODCRITIC CUSTOM RULE

```
rule 'COMP001', 'Do not allow recipes to mount disk volumes' do
  tags %w{recipe compliance}
  recipe do |ast|
    mountres = find_resources(ast, :type => 'mount').find_all do |cmd|
      cmd
    end
    execres = find_resources(ast, :type => 'execute').find_all do |cmd|
      cmd_str = (resource_attribute(cmd, 'command') || resource_name(cmd)).to_s
      cmd_str.include?('mount')
    end
    mountres.concat(execres).map{|cmd| match(cmd)}
  end
end
```

# ERROR OUTPUT FROM FOODCRITIC

```
$ foodcritic -I /afs/getchef.com/foodcritic-rules/rules.rb .
COMP001: Do not allow recipes to mount disk volumes: ./recipes/default.rb:20
COMP001: Do not allow recipes to mount disk volumes: ./recipes/default.rb:26
```

**CHEF AUDIT MODE AS THE FINAL TEST**

# EXAMPLE OF AN AUDIT COOKBOOK

```
control '6.9 Ensure FTP Server is not enabled' do
  it 'is not running the vsftpd service' do
    expect(service('vsftpd')).to_not be_running
    expect(service('vsftpd')).to_not be_enabled
  end

  it 'is not listening on port 21' do
    expect(port(21)).to_not be_listening
  end
end
```

A man in an orange jumpsuit is performing a series of Tai Chi movements in a prison corridor. He is barefoot and wearing a grey sweatband on his head. His arms are extended wide, and he is in a low, crouching position. The background shows the dark, tiled floor and walls of the prison. The lighting is dramatic, highlighting the man's form against the shadows.

**SECURITY AND COMPLIANCE SHOULD BE  
FIRST-CLASS CITIZENS**

**TRUST, BUT VERIFY**

**SEPARATION OF CONCERNS IS  
A THING**

**AKA**  
**"MY TESTS ARE FAILING, SO I'LL REMOVE  
THEM"**

A photograph of two people cheering. On the left, a man with curly hair and a white t-shirt has his right arm raised with a fist. On the right, a woman with dark hair and a black jacket over a white t-shirt has her mouth open as if shouting and her arms raised. They are outdoors with a blue sky and some foliage in the background.

**DEMO TIME**

# TO REVIEW

- ▶ Trust (but verify) your domain experts
  - ▶ Share the cooking
  - ▶ Foodcritic is your friend
- ▶ Use your production audit cookbooks in your pipeline
  - ▶ Did I mention test?

# QUESTIONS?



# RESOURCES

- ▶ Sidney Dekker - Field Guide to Human Error
  - ▶ foodcritic.io
  - ▶ learn.chef.io
- ▶ <http://jtimberman.housepub.org/blog/2015/04/03/chef-audit-mode-introduction/>

# MOAR RESOURCES

- ▶ [twitter.com/mattstratton](https://twitter.com/mattstratton)
- ▶ [speakerdeck.com/mattstratton](https://speakerdeck.com/mattstratton)
- ▶ [github.com/mattstratton/infrastructure-smores](https://github.com/mattstratton/infrastructure-smores)
- ▶ [github.com/mattstratton/speaking](https://github.com/mattstratton/speaking)
- ▶ [arresteddevops.com](https://arresteddevops.com)