Test-Driven Infrastructure with Test Kitchen, Chef and DSC

Stuart Preston, Principal Engineer – Chef Software
Microsoft MVP (Azure)
stuart@chef.io @stuartpreston

Gael Colas
Microsoft MVP (CDM)
gaelcolas@synedgy.com @gaelcolas

Agenda

- Introduction
- What is Test-Driven Infrastructure?
- What tools did Chef create?
- Demos
- Recap and tools involved
- Questions/Feedback session

Deming Cycles

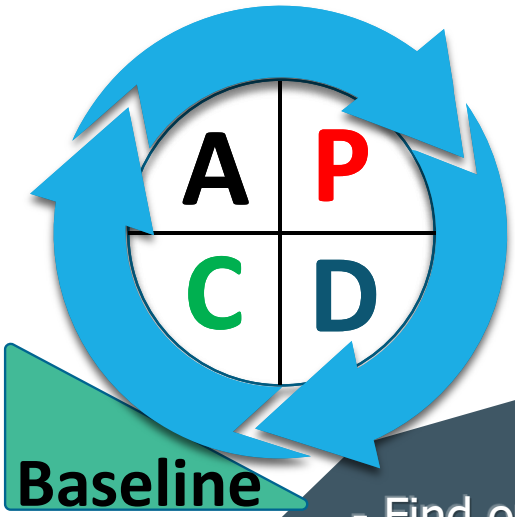
https://en.wikipedia.org/wiki/PDCA

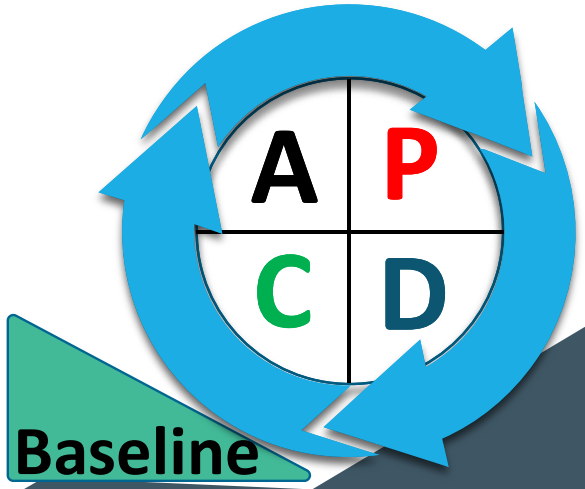
PLAN

DO

CHECK

ACT





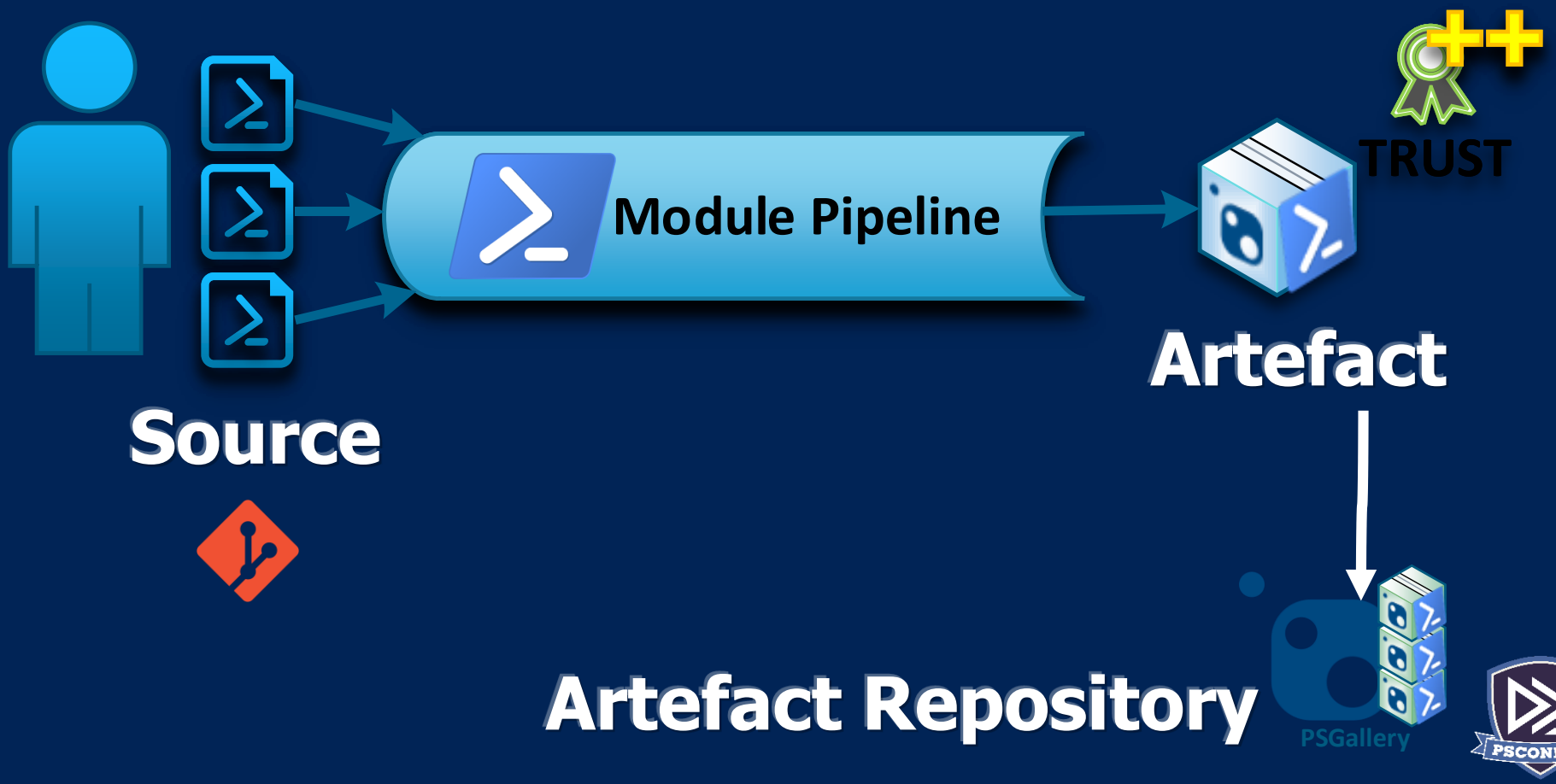
- Find out where you are
- Take a small step towards your goal
- Adjust your understanding based on what you learned
- Repeat

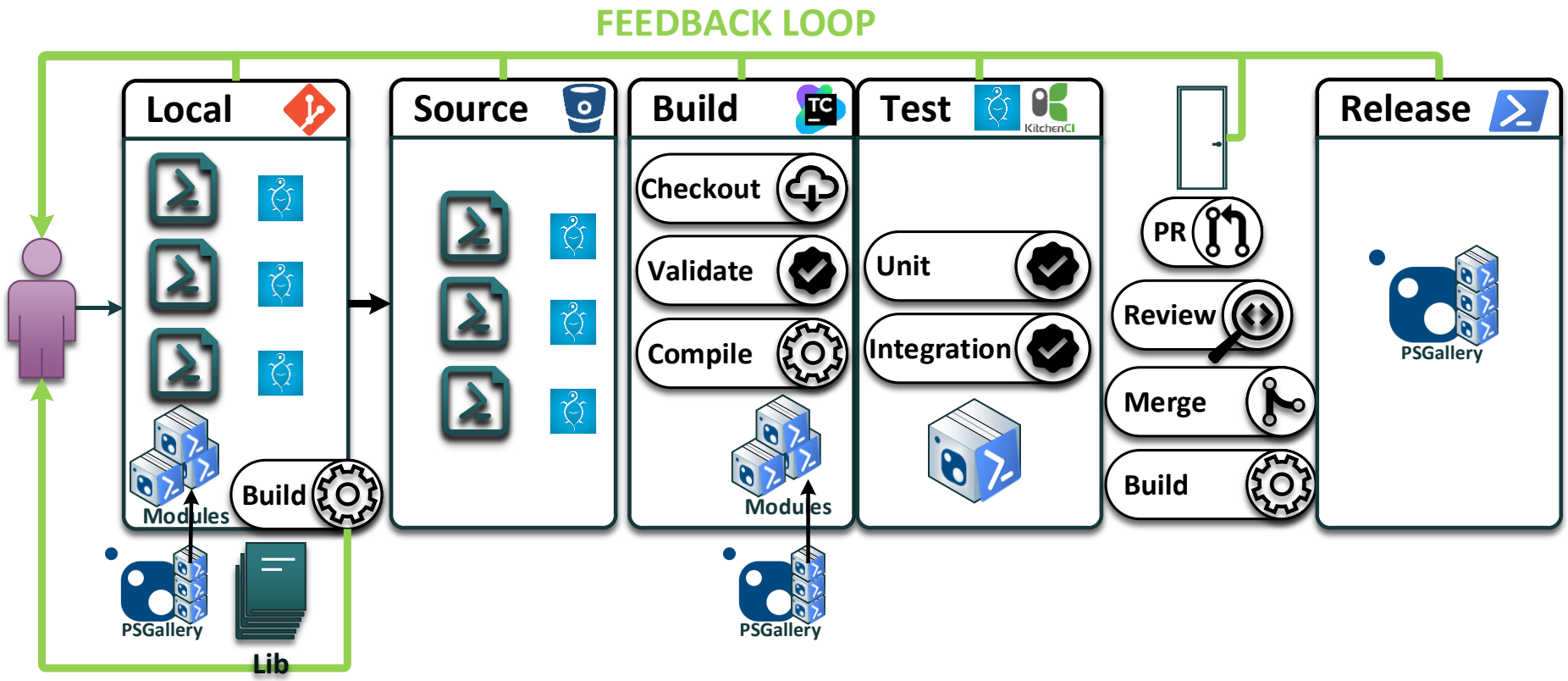
Dave Thomas

Module Pipeline - Overview

"The pipeline [...] applies its rules in a rigorous, unemotional way"

- Mark Schwartz, *The Art of Business Value*




FEEDBACK LOOP
Local
Source
Build
Test
KitchenCI
Release
Checkout
Validate
Compile
Unit
Integration
PR
Review
Merge
Build
Modules
Build
PSGallery
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Modules
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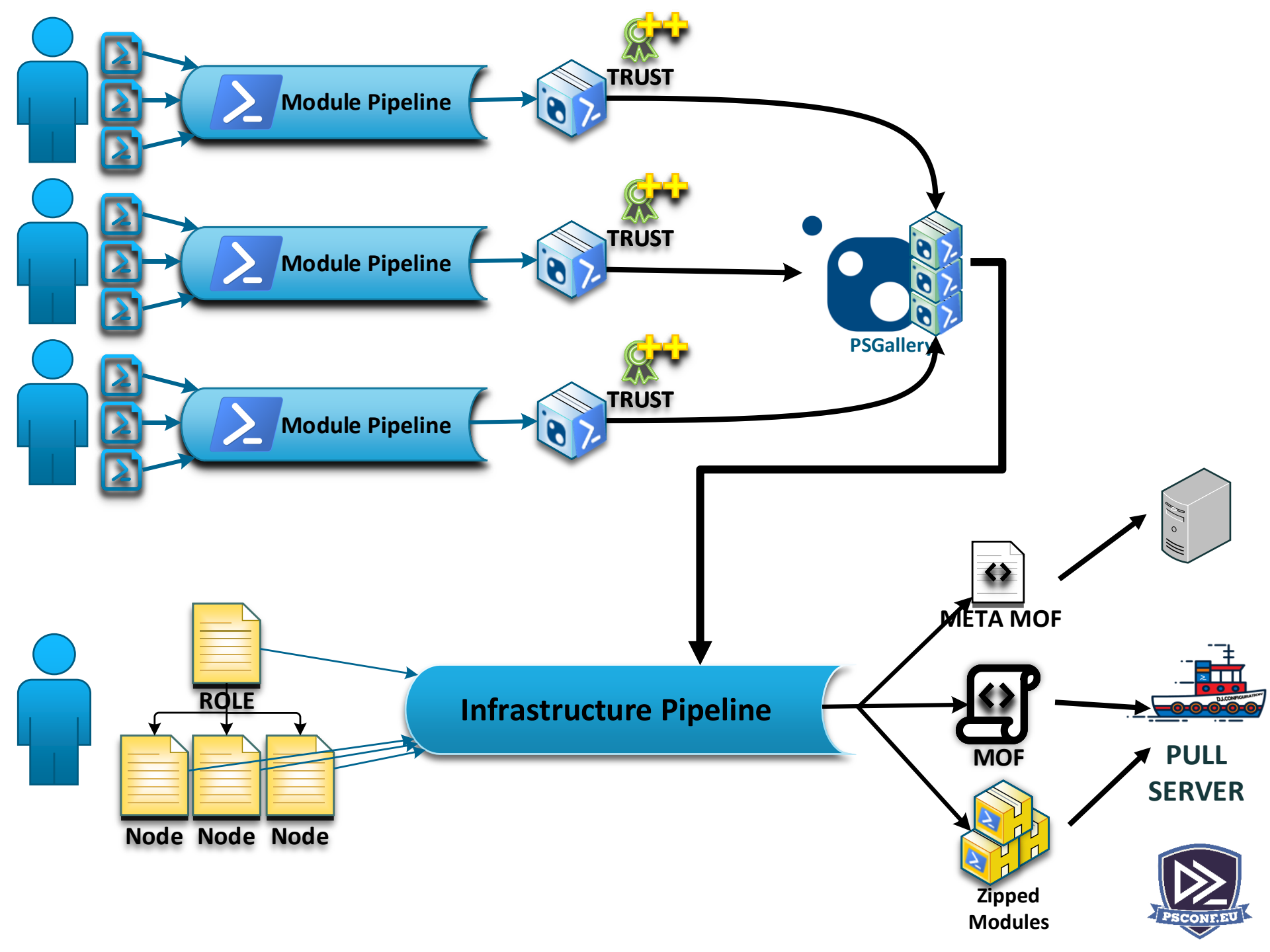
Module Pipeline
TRUST
Module Pipeline
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Module Pipeline
TRUST
PSGallery
ROLE
Node
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Infrastructure Pipeline
META MOF
MOF
Zipped
Modules
PULL
SERVER
PSCONF.EU

What is Test-Driven Infrastructure?

- Software behaves differently on different platforms
  - Windows 7 vs Windows 10
  - Windows Server vs Linux
  - Debian vs CentOS/RedHat
- Test your application or payload across multiple platforms
- Need to test the desired state of the application/payload to check we have the correct result
- We express those tests in code and use tools to execute the tests

What did Chef do about this?

- Chef built **Test Kitchen** in 2014
  - Windows support added in 2015
- Focus on testing "cookbook" across platforms
- Open Source – https://github.com/test-kitchen
  - Contributions from Puppet and Ansible
- "Configuration as code" - .kitchen.yml
- "Clean room" environment every execution
- Tests are copied from the workstation to the target

Demo[0]

Code is available at:
https://github.com/stuartpreston/psconfeu2018

Recap

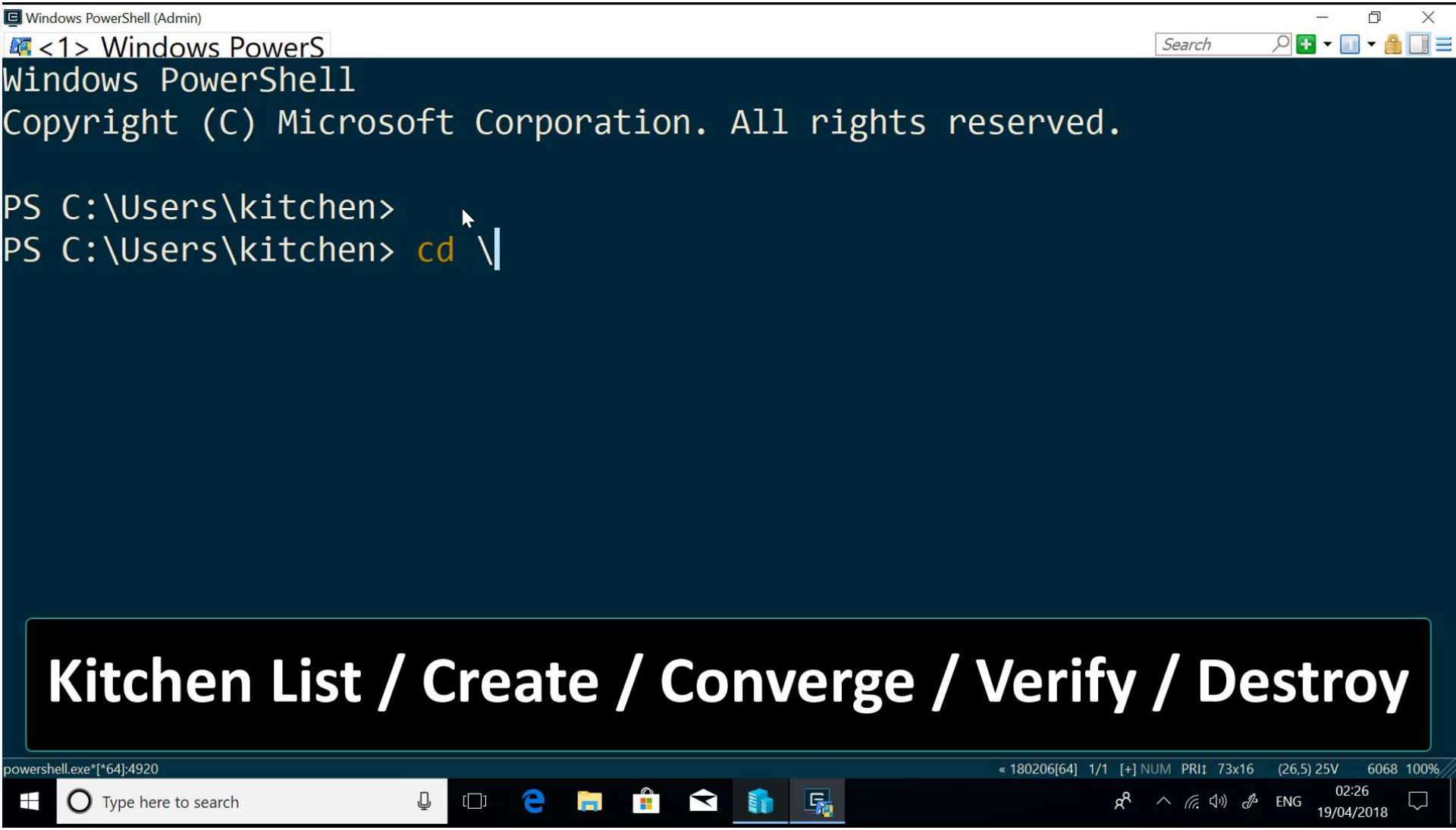
- Install Vagrant and Test Kitchen
  - https://vagrantup.com https://kitchen.ci
- Ensure Hyper-V is enabled
  - Use “Default Switch” on a workstation
- .kitchen.yml file drives configuration
  - Avoid temptation to test in parallel if possible
  - (makes debugging easier)
- Find Vagrant/Hyper-V “boxes”
  - https://app.vagrantup.com
- Check out other drivers (e.g. Azure)

Test Kitchen configuration

```
---
driver:
  name: vagrant

provisioner:
  name: chef_zero

platforms:
  - name: ubuntu-14.04
  - name: windows-2012r2

suites:
  - name: client
    run_list:
      - recipe[postgresql::client]
  - name: server
    run_list:
      - recipe[postgresql::server]
```

Demo [1]

Code is available at:
https://github.com/gaelcolas/kitchen_hyperV_dsc


Windows PowerShell (Admin)
<1> Windows PowerS
Search
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
PS C:\Users\kitchen>
PS C:\Users\kitchen> cd \
Kitchen List / Create / Converge / Verify / Destroy
powershell.exe*[*64]:4920
« 180206[64] 1/1 [+] NUM PRI↕ 73x16 (26,5) 25V 6068 100%
Type here to search
ENG
02:26
19/04/2018

Questions?

Further Reading

- https://gaelcolas.com/2016/07/11/introduction-to-kitchen-dsc/
- https://gaelcolas.com/2016/07/09/preparing-an-image-for-dsc-development/
- https://kitchen.ci
- https://app.vagrantup.com
- https://inspec.io
- https://docs.chef.io