HashiCorp User Group
MILWAUKEE

TERRAFORM + AZURE

Milwaukee HashiCorp User Group
March 13th, 2019

ABOUT ME + INTROS

- Technology Professional Since 1998, consultant since 2003
- Primary focus on core infrastructure and automation
- Why did I start this group?
- Introduce yourself

HASHICORP OVERVIEW

- Started in 2012 by Mitchell Hashimoto and Armon Dadgar
- Provision, secure, connect apps and services across many providers
- Written in Go
- Open Source, Freemium model

HASHICORP PRODUCTS

Terraform

Consul

Vault

Packer

Vagrant

Nomad

PROCEDURAL **VS** DECLARATIVE INFRASTRUCTURE

Procedural

- Design then script
- Order matters
- If something fails, start over
- More worrying about how instead of what

Declarative

- Describe end-state in readable language
- State based
- Focus on what the environment should look like rather than how to configure it

TERRAFORM OVERVIEW

- Infrastructure as Code
- HCL or JSON
- Providers
- State
- Imports
- Outputs
- Change Preview
- IaaS or PaaS

TERRAFORM OR ARM?

Azure Resource Manager

- JSON based
- Infrastructure is state
- Limited to Azure

Terraform

- HCL or JSON
- Offline state tracking
- Multi-cloud in the same configuration
- Ordering and dependencies

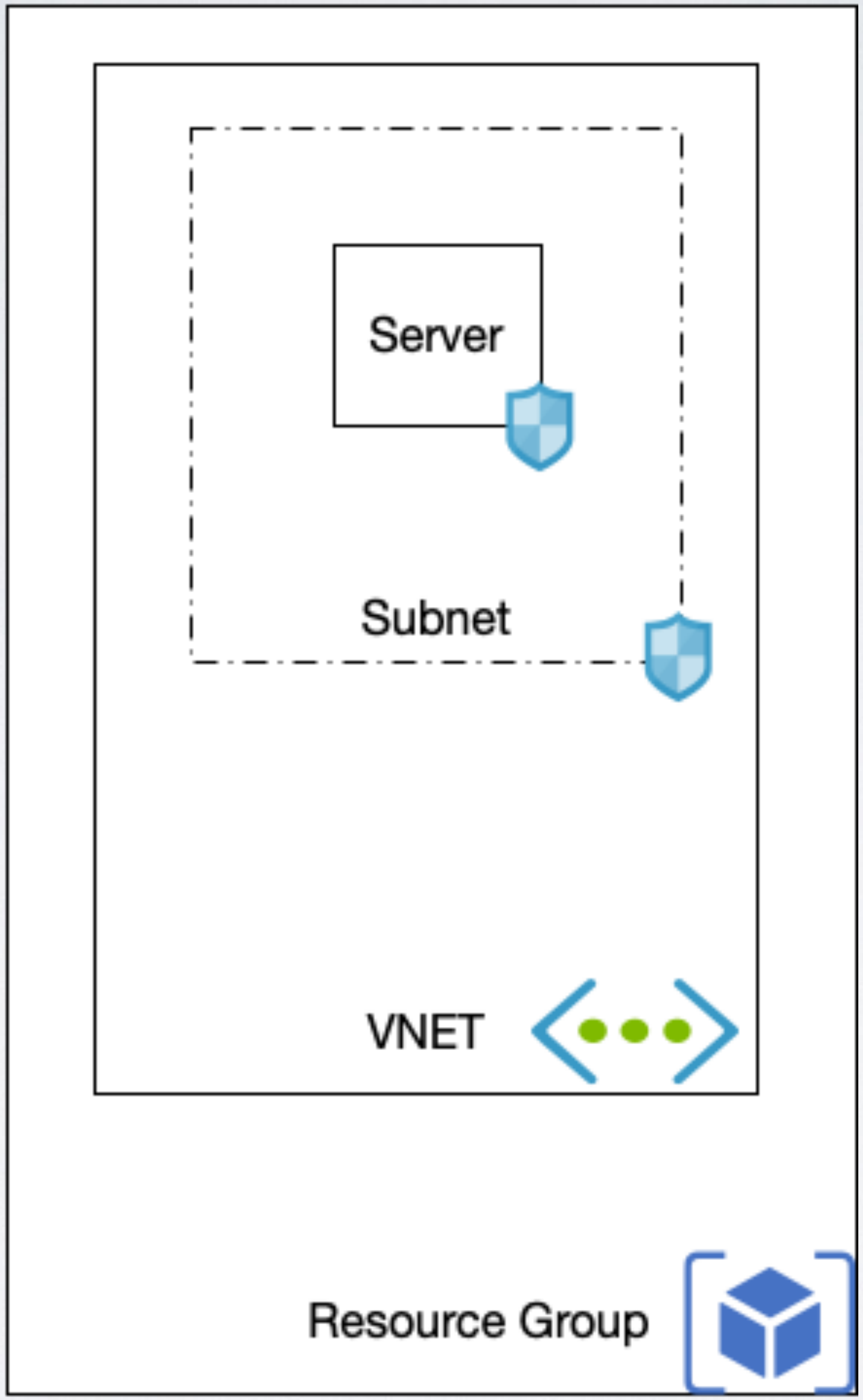
HCL OVERVIEW

- Stands for: HashiCorp Configuration Language
- Blocks – Item “Item_Name” { }
- Data Types – String, List
- Named Values – azurerm_resource_group.item_name.name
- Functions – element(azurerm_resource_group.*.item_name, count.index)
- Interpolation – value = “${azurerm_resource_group.item_name.name}”

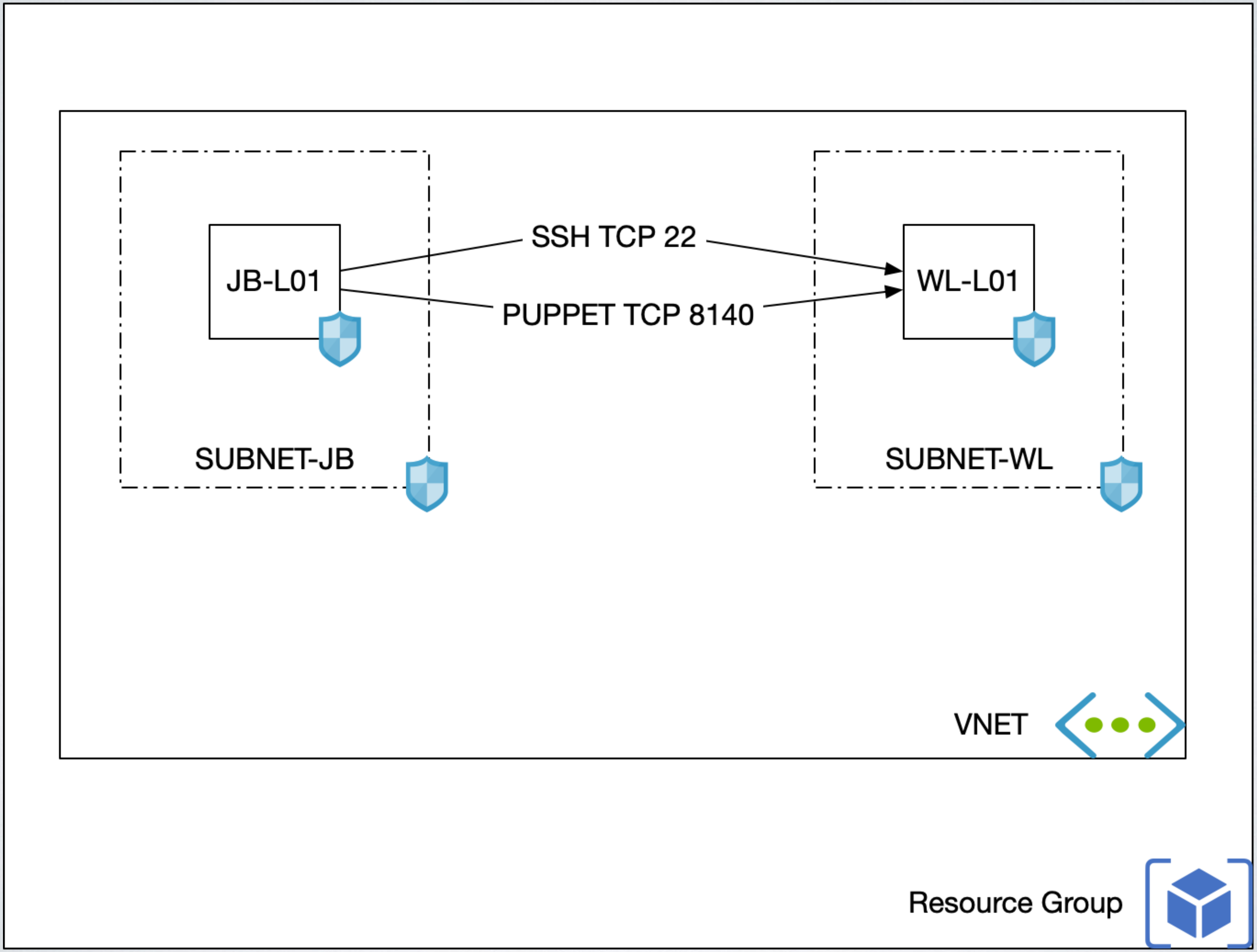
DEMO ENVIRONMENT

- Jumpbox Server(s)
- Workload Server(s)
- Network Security Groups
- Static IPs
- Internal + External DNS
- Bootstrap OS Config + Apps

Basic-Local



Advanced Local + Cloud



TOOLING

- Visual Studio Code - https://code.visualstudio.com
- GitHub - https://www.github.com
- Terraform - https://www.terraform.io/downloads.html
- Azure Subscription

BEST PRACTICES

- Pin configurations to provider versions
- Manage secrets, certificates, and keys properly
- Use source control