Web severs with load balancer in Azure cloud and deploying start page with Jenkins

EPAM DevOps Autumn 2021

About me

- IT infrastructure manager and engineer

  - 15 years experience as a system administrator

  - 10 years experience as 2-3 level support team lead and IT system manager in Ukrainian retail

  - Management skills and technical background

  - Creating fault-tolerant, high-load on-premise IT infrastructure. Using HP and Dell enterprise equipment with cluster hypervisors systems as MS Hyper-V and VMware vSphere.

  - Strong Linux/Windows OS and networking skills

  - Rapid learning of new technologies and improve skills

  - Good problem solving abilities

About project

- Project scheme
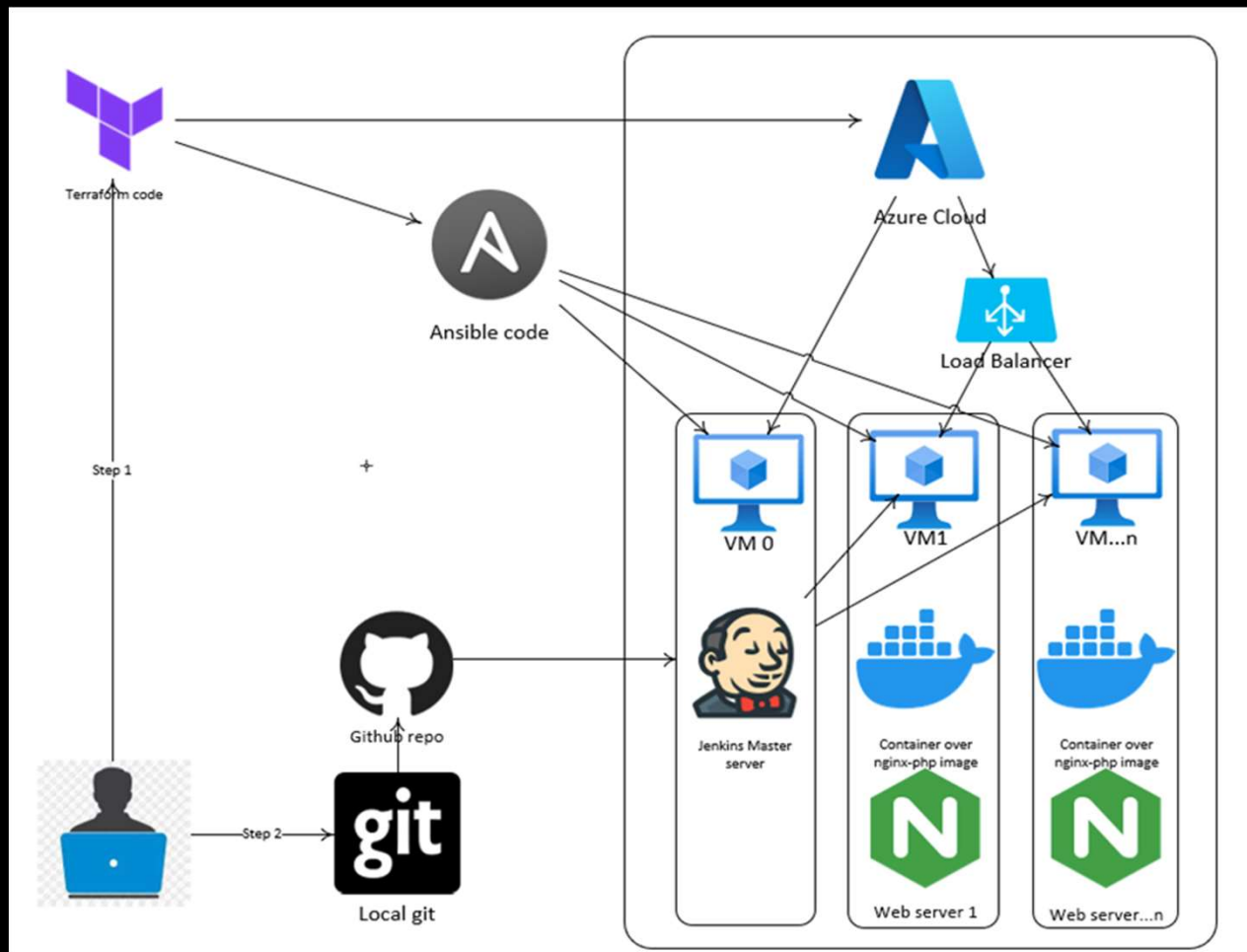
About project

- This solution provide fast creation high availability frontend web server

- The project covers most of the lecture materials of this training course

- Project environment is created automatically by one command which starting terraform and ansible code

- The amount of web servers are set by a variable

- Web servers start in containers running over docker image - webdevops/php-nginx

- Deployment process copying start page to servers by Jenkins job

Demonstration - Build infrastructure

Variable "node count" set amount of virtual machines

Login to Azure subscription
$ az login --use-device-code
$terraform plan -out=tfplan
$terraform apply "tfplan"

```
variables.tf M ×
infrastructure > variables.tf > variable "node_count"
 1  variable "my_tenant_id" {
 2    default = "2f6cfcdb-b0fe-417f-b8d9-0c6623467e0f"
 3  }
 4  variable "my_subscription_id" {
 5    default = "f8a4d934-9d37-4994-b69c-c7f4c4b9cc72"
 6  }
 7  variable "resource_prefix" {
 8    default     = "tf-"
 9    description = "Use also for fqdn. Only lowercase letters, numbers and hyphens"
10  }
11  variable "resource_location" {
12    default = "West Europe"
13  }
14  variable "node_count" {
15    default     = "3"
16    description = "First will be Jenkins, other NGINXes"
17  }
18  variable "vm_size" {
19    default = "Standard_B1s"
20  }
21  variable "host_admin" {
22    default = "vmadm"
23  }
24  variable "environment" {
25    default = "My_test_task"
26  }
27  variable "vnet_space" {
28    default = "10.10.10.0/24"
29  }
```

```
Apply complete! Resources: 24 added, 0 changed, 0 destroyed.

Outputs:

full_domain_name = [
  "tf-jenkins-00.westeurope.cloudapp.azure.com",
  "tf-target-01.westeurope.cloudapp.azure.com",
  "tf-target-02.westeurope.cloudapp.azure.com",
]
full_domain_name_load_balancer = "tf-lb-target.westeurope.cloudapp.azure.com
public_IP_addresses = [
  "20.107.72.4",
  "20.123.134.221",
  "20.71.224.87",
]
tls_private_key = <sensitive>
```

Demonstration - Build infrastructure

Show all recourses on AZURE portal

There is one Jenkins host and two target NGINX hosts
Requests for targets is sent to load balancer fqdn
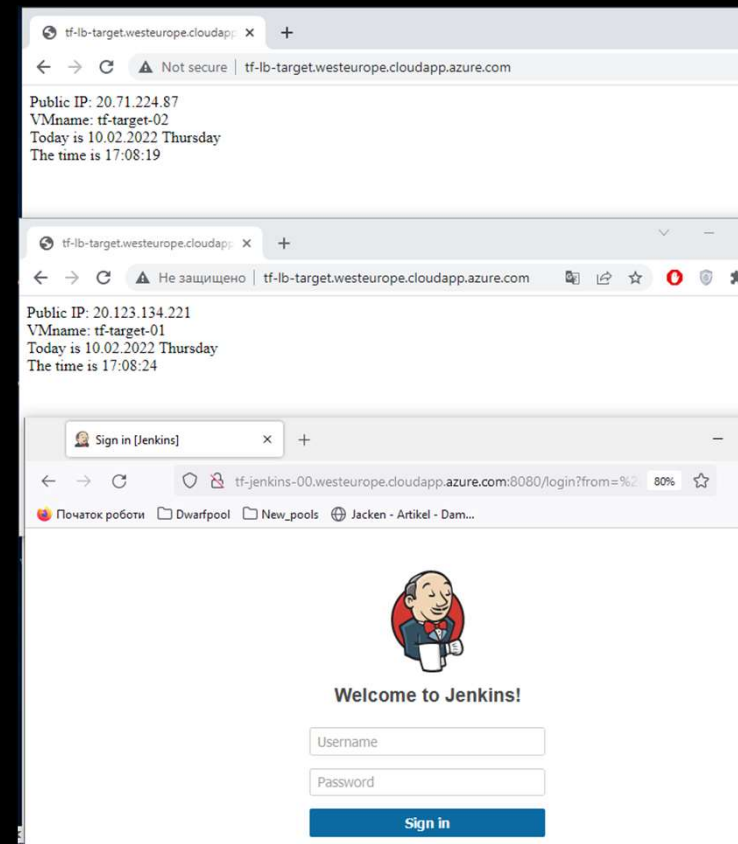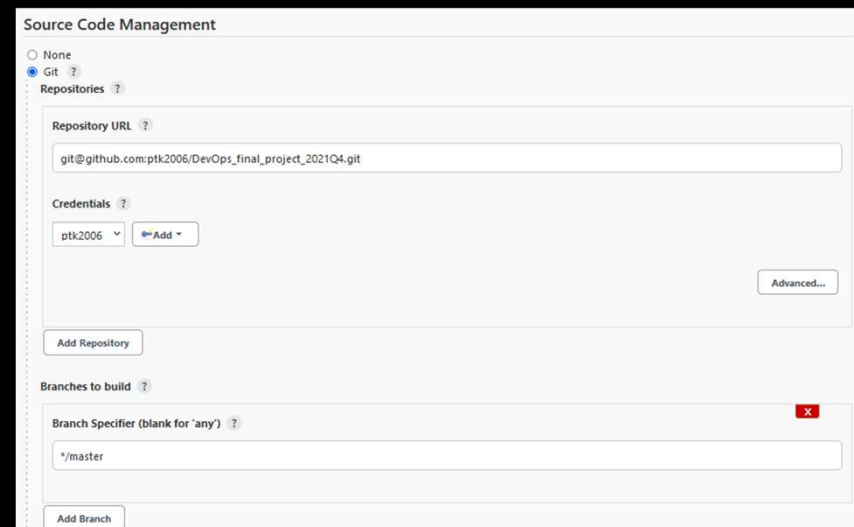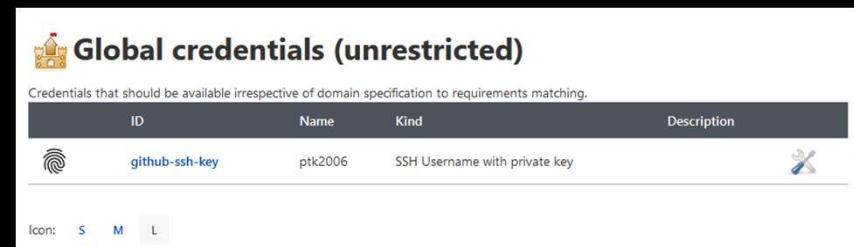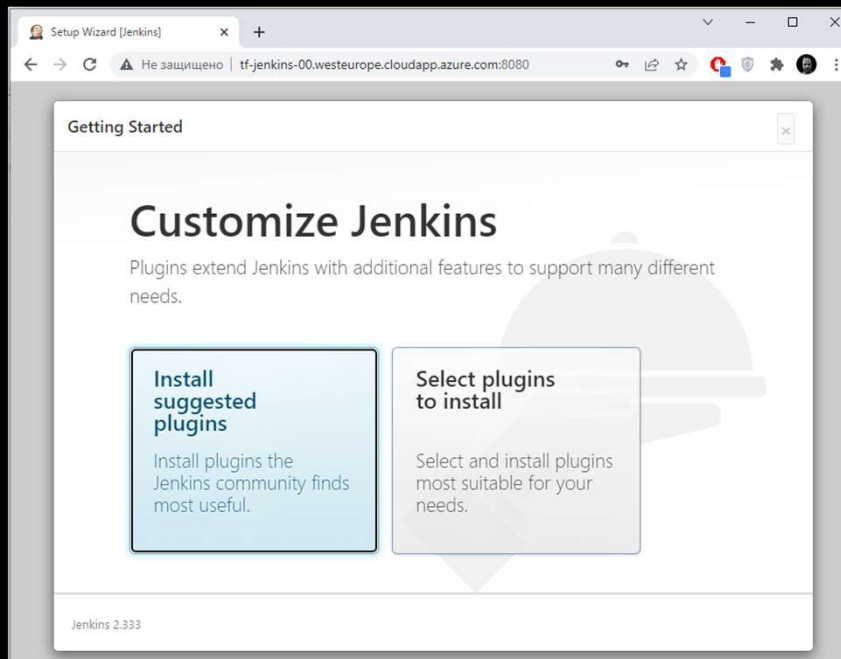
Demonstration - Build infrastructure

Docker container and image on target hosts

Demonstration - Manual configure

There is no initial password. Credential sets in ansible playbook for Jenkins.

Create ssh credential for github hook

Demonstration - Results

Linux shell scp command for all target hosts
Activate ChuckNorris plugin

Changing index.php on local host
$ git commit –a
$ git push origin master
Chuck Norris says OK!

Demonstration - Results

GitHub Hook log
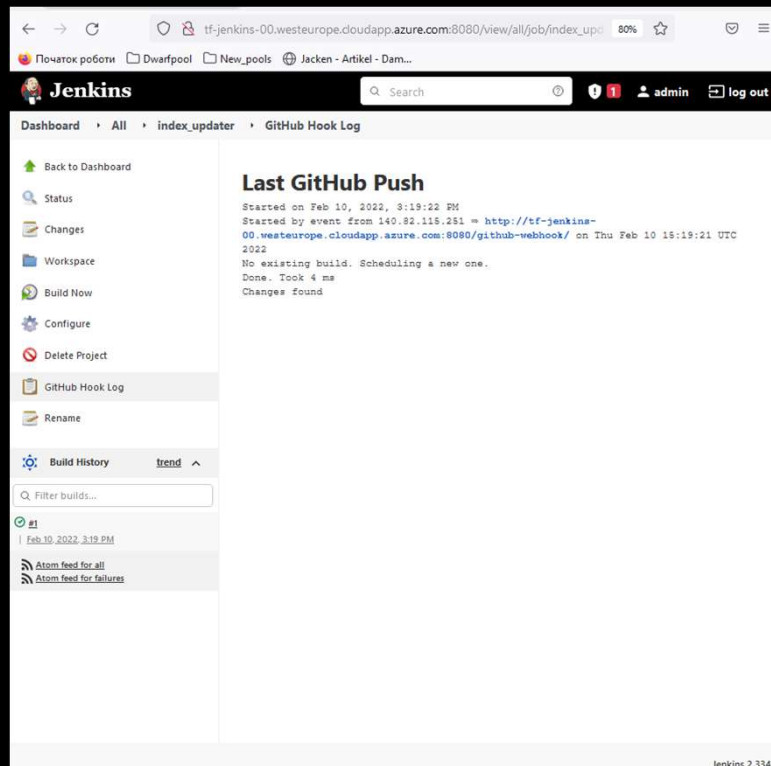
Changes on web pages
Add new string:
"It works!!! Job has done!!!"

Thanks everyone!