Creating a Cloud Infrastructure on AWS Using Terraform

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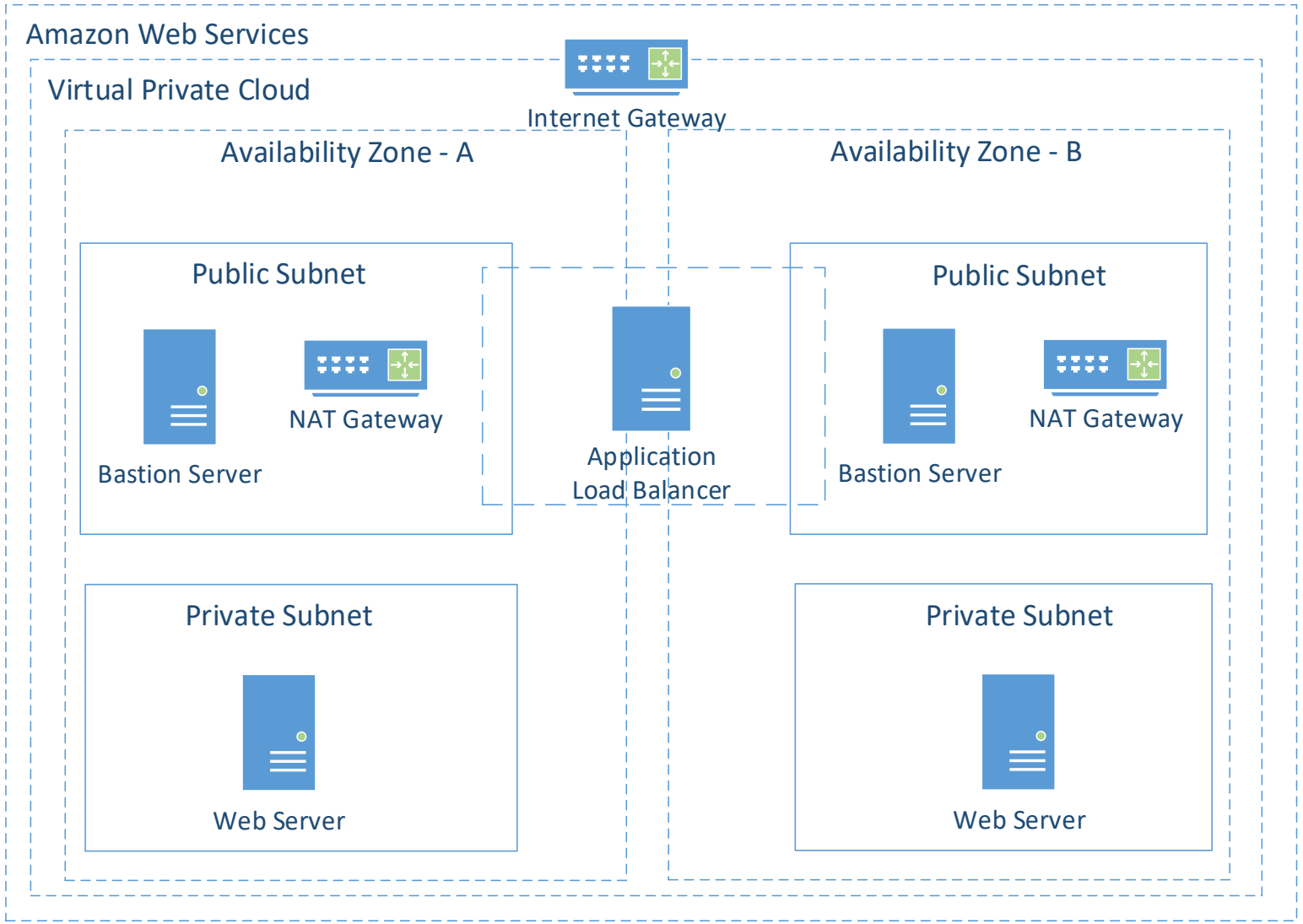
Goal, tasks

- Goal – create a cloud infrastructure on AWS according to the given requirements
- Tasks:
  - Examine the specified cloud infrastructure requirements
  - Development of the Terraform project structure
  - Implementation of the cloud infrastructure creation procedure

Specified Cloud Infrastructure Requirements



Terraform Project Structure

- project
  - modules
    - network
      - variables.tf
      - vpc.tf
      - servers.tf
      - user_data.tftpl
      - alb.tf
      - outputs.tf
  - main.tf
  - outputs.tf
  - server.pem

Implementation – Main Steps

- Creating an account on AWS
- Creating an user with required permissions using AWS IAM (manually)
- Generating ssh key pairs using AWS Key pairs (manually)
- Installing Terraform and Atom
- Creating Terraform module “Network”
- Creating “main” Terraform files
- Creating cloud infrastructure with the specified requirements on AWS
- Checking results

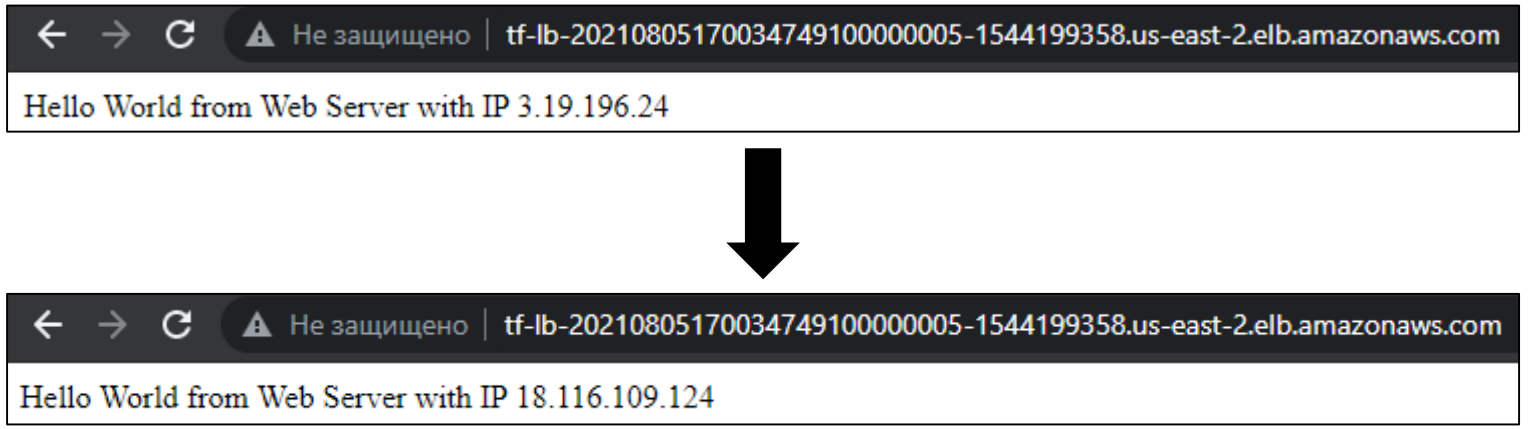
Demo - Results

```
Apply complete! Resources: 32 added, 0 changed, 0 destroyed.

Outputs:

alb_hostname = "tf-lb-20210805170034749100000005-1544199358.us-east-2.elb.amazonaws.com"
bastion_server_public_ip = [
  "18.219.61.219",
  "3.17.189.238",
]
elastic_ip_for_nat_gw_ids = [
  "eipalloc-06853a0d451df8e54",
  "eipalloc-04d9c364f6fd7ab7f",
]
igw_id = "igw-01f2ba066f1e2e351"
nat_gw_ids = [
  "nat-057a2a0c39181476e",
  "nat-01997ce8ea0d48307",
]
nat_gw_public_ips = [
  "3.19.196.24",
  "18.116.109.124",
]
private_route_table_ids = [
  "rtb-04308e842ce0f318c",
  "rtb-07e6a9079e7d28df0",
```

```
]
private_subnet_cidrs = [
  "10.10.101.0/24",
  "10.10.102.0/24",
]
private_subnet_ids = [
  "subnet-013c8d31aa9a752f8",
  "subnet-055eebf78942f0184",
]
public_route_table_id = "rtb-08befb12fff3cf2a3"
public_subnet_cidrs = [
  "10.10.1.0/24",
  "10.10.2.0/24",
]
public_subnet_ids = [
  "subnet-0cb4c9dfc70066dc2",
  "subnet-000f30fb7e44aa981",
]
vpc_id = "vpc-0fcb5d70b27898c4f"
web_server_private_ip = [
  "10.10.101.210",
  "10.10.102.165",
]
```



Conclusions

- To create a cloud infrastructure, it is advisable to use Terraform
- To implement the network subsystem, you can use the Terraform module
- To increase the fault tolerance of the cloud infrastructure, it is necessary to add new AWS availability zones

Thank You

Github repository:

https://github.com/mykshtompel/demo2