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DevOps 2021:

- Basic Cloud Management Tools (awscli, azcli etc.)
- Terraform – Basics and Essentials Part2

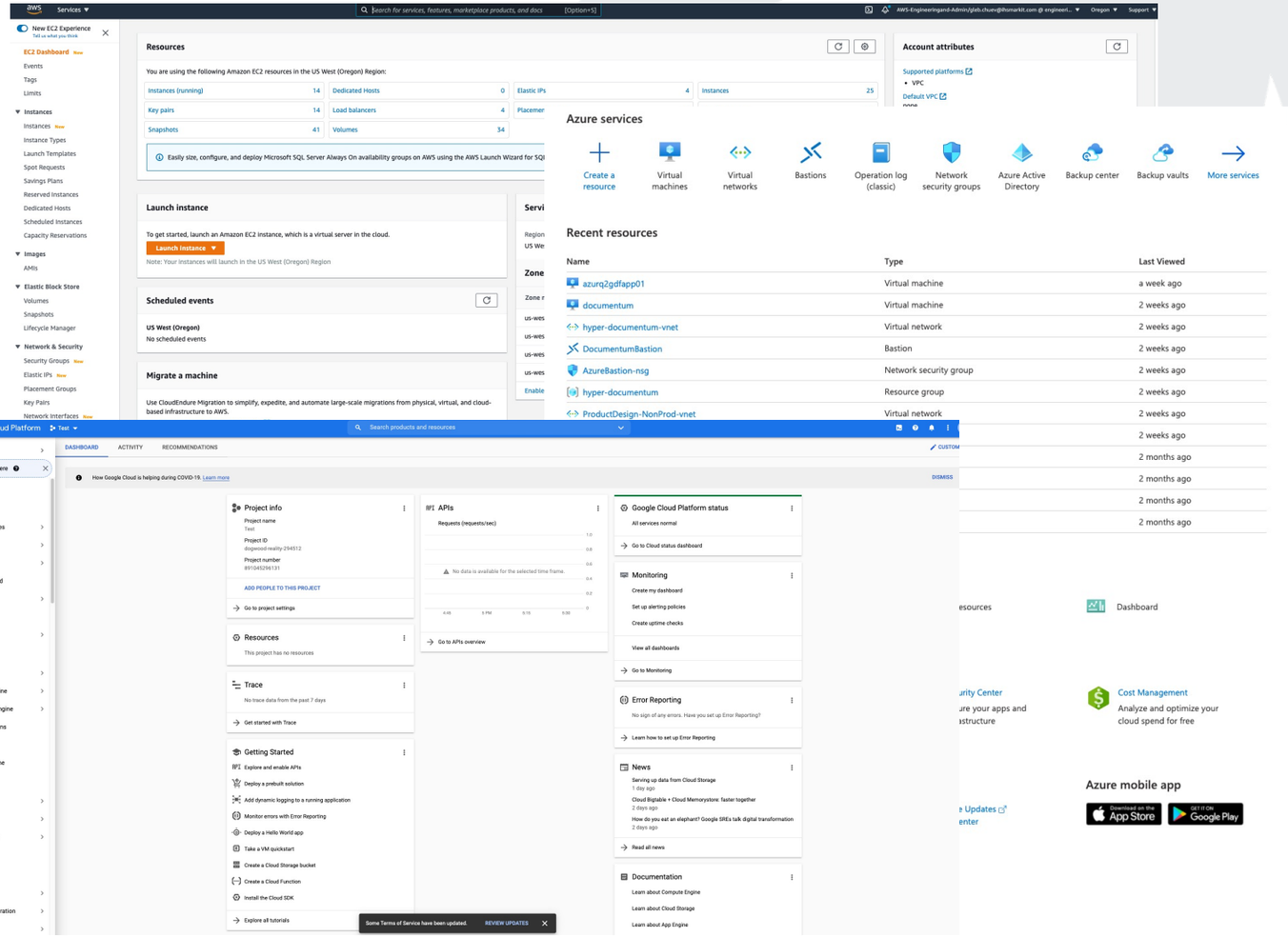
Чем будем маяться и чего узнаем :

- ***Basic Cloud Management Tools:***
  - ***AWS, Azure, GCP Consoles***
  - ***aws cli, az cli, gcloud Tools***
  - ***AWS, Azure Powershell***
- ***Terraform Basic and Essentials Part2***

Basic Cloud Management Tools

Cloud Consoles:

- ***Web UI***
- ***Manual resource audit and Management***
- ***Monitoring – eg CloudWatch***
- ***Most of the features available***
- ***AWS Cloud9***



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Programmatic Access Cli Tools:

- ***Use access key/secret or token to authorize***
- ***Use env variables in pipelines***
- ***Run operations in format $ {clitool} {resource_type} {action} {--parameters}***
- ***Jq tool or --query flags for filtering results.***
- ***--output json/text***

Use cases:

- ***CI\CD imperative operations, eks authorization***
- ***Scheduled/cron actions on instance/container, eg.: S_3 data retrieval, sync, put.***
- ***EC_2 User data actions such as downloading configs or software from s_3.***

AWS Cli Usage Examples:

- *aws configure - setup credentials*
- *aws s3 ls – list S3 buckets*
- *aws s3 cp s3://bucket_name/file.name ./file.name – copy file from s3 bucket*
- *aws s3 sync s3://bucket_name/bucket_prefix/ ./folder_name/ – sync s3bucket with local folder*
- *aws s3api create-bucket --bucket demo-non-prod-terraform-states --region eu-central-1*
- *aws ec2 describe-instances – describes all ec2 instances available*
- *aws ec2 describe-instances --region us-west-2 | jq -r '.Reservations[].Instances[] | select(contains({Tags: [{Key: "TagName"}, {Value: "TagValue"}]}) | not) | .InstanceId' – Get instance ids of instances with TagName:TagValue*
- *aws ssm get-parameter --region us-west-2 --name /parameter/test | --with-decryption --query Parameter.Value --output text*

AWS, Azure Powershell:

- *.NetCore Based Powershell Modules, good for pure windows Environments.*
- *Object Oriented*
- *Preinstalled in base Windows amis/images provided by cloud.*
- *Run operation in format $ {Action-ResourceType} {-parameters}*

Use Cases:

- *Same as for Cli tools*

AWS, Azure Powershell Examples:

AWS:

- ***Set-AWSCredential -AccessKey KeyID -SecretKey Secret – setup default credentials for AWS***
- ***Get-EC2Instance - describes all ec2 instances available***
- ***(Get-SSMParametersByPath -Path /parameters/path/ -WithDecryption $true -Recursive $true).Value – get SSM parameters by path and output decrypted values***

Azure:

- ***Connect-AzAccount – interactively login to azure account***
- ***Get-Command -Module Az.Compute -Name '*VM*' - List all cmdlets that contain VM in the Az.Compute module***
- ***Get-AzVM -ResourceGroupName "ResourceGroup11" -Name "VirtualMachine07" –Status – get VirtualMachine07 properties.***

Modules:

```
module ”<module_name>" {
    source = “../modules/module_name/”
    <module_variable1>=<value1>
}
```

Reference in templates:

module.<module_name>.<module_output_attribute>

Example:

```
module ”vpc" {
    source = “../modules/vpc/”
    cidr      = var.cidr
    …
}
resource "aws_instance" "foo" {
    ami = "ami-005e54dee72cc1d00" # us-west-2
    …
    vpc_id            = module.vpc.vpc_id
}
```

Conditional Expressions :

- condition ? true_val : false_val

Example:

```
locals {
    some_variable = var.a != “” ? var.a : “default value”
}
```

Loops:

```
Variable “instance_names” {
    default = [“foo”,”bar”,”mar”]
}

resource "aws_instance" "server" {
    count = length(var.instance_names)

    ami = "ami-a1b2c3d4"
    instance_type = "t2.micro"

    tags = {
        Name = var.instance_names[count.index]
    }
}
```

Домашка :

- *Напишите скрипт на **bash/powershell** с использованием либо **aws cli** либо **powershell**:*

Что должен делать скрипт:

1. *Собрать список **EBS SnapshotID** и соответствующее значение **StartTime***
2. *Показать список снапшотов старше **N** дней/часов/минут(как удобней для тестирования) и их размер.*
3. *Дополнительно можно добавить опцию параметром фильтровать снапшоты по **Tag**:**Value** и выводить ту же информацию.*
4. *Дополнительно добавить опцию заливки выбранных снапшотов в **s3**.*
5. *Можно придумать свой юзкейс)*

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Ref. Docs :

- https://cloud.google.com/sdk/docs/initializing
- https://docs.microsoft.com/en-us/cli/azure/install-azure-cli
- https://docs.aws.amazon.com/cli/latest/userguide/install-cliv2.html
- https://boto3.amazonaws.com/v1/documentation/api/latest/guide/credentials.html#guide-credentials
- https://docs.aws.amazon.com/cli/latest/userguide/cli-usage-filter.html
- https://docs.microsoft.com/en-us/cli/azure/query-azure-cli
- https://docs.aws.amazon.com/powershell/latest/userguide/pstools-getting-set-up-windows.html
- https://docs.microsoft.com/en-us/powershell/azure/install-az-ps?view=azps-5.6.0
- https://github.com/Azure/azure-powershell
- https://stedolan.github.io/jq/
- https://docs.aws.amazon.com/cli/latest/userguide/cli-usage-output-format.html