Spectrum Scale on AWS Marketplace

IBM

Spectrum Scale on Cloud - Background

- Workloads are moving to the cloud (private and public). We want to offer support for Scale in cloud environments that our customers are moving to (part of our hybrid strategy).
- There is need to have a cloud offering in order to participate in new customer opportunities which are not starting on on-prem.
- Key goal is to deliver Spectrum Scale's value proposition on existing Cloud Environments and expand the flexibility of our offerings to better support **hybrid environments**.
- Current focus on enablement on AWS

IBM Spectrum Scale on AWS value proposition

- Easily use a HA scalable filesystem on AWS with POSIX semantics
  - Deployment is available through Amazon Marketplace
  - On-demand provisioning, rapid (hours) deployment
  - No Spectrum Scale admin skills required!
- Targeted for HPC use on AWS
  - Move workloads to public clouds
  - Create cluster → ingest data → use by application → export data → destroy cluster
  - Global namespace across a set of AWS instances
- Try things without infrastructure investments (POCs, code evaluation, etc.)
  - Provides operational expense model focus (over capital expense model)
  - Lower costs for some (e.g. ‘bursty’) workloads
- Agile deployment configuration adoption for transient/temporary use cases

IBM Spectrum Scale Offerings On AWS

Marketplace Offering With BYOL

- Available since Sept 2018
- Provides an AMI (boot image) with Spectrum Scale Data management edition installed on RHEL
- Automated deployment
- Targeted for HPC use on AWS
- Only BYOL License Support (Bring Your Own License)
  - Customer still has to pay Amazon for AWS resources used and RHEL and other software they will consume.
- Current offering contains Spectrum Scale version 5.0.2.1
- Marketplace listing: https://aws.amazon.com/marketplace/pp/B07DRLMG2W

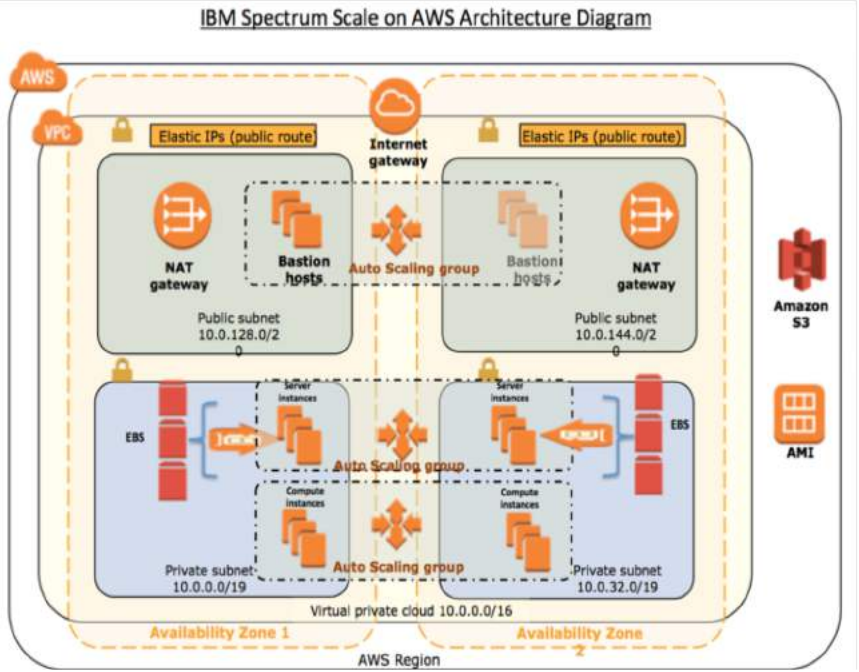
AWS Quickstart

- 90 day trial version
- Available since Sept 2017

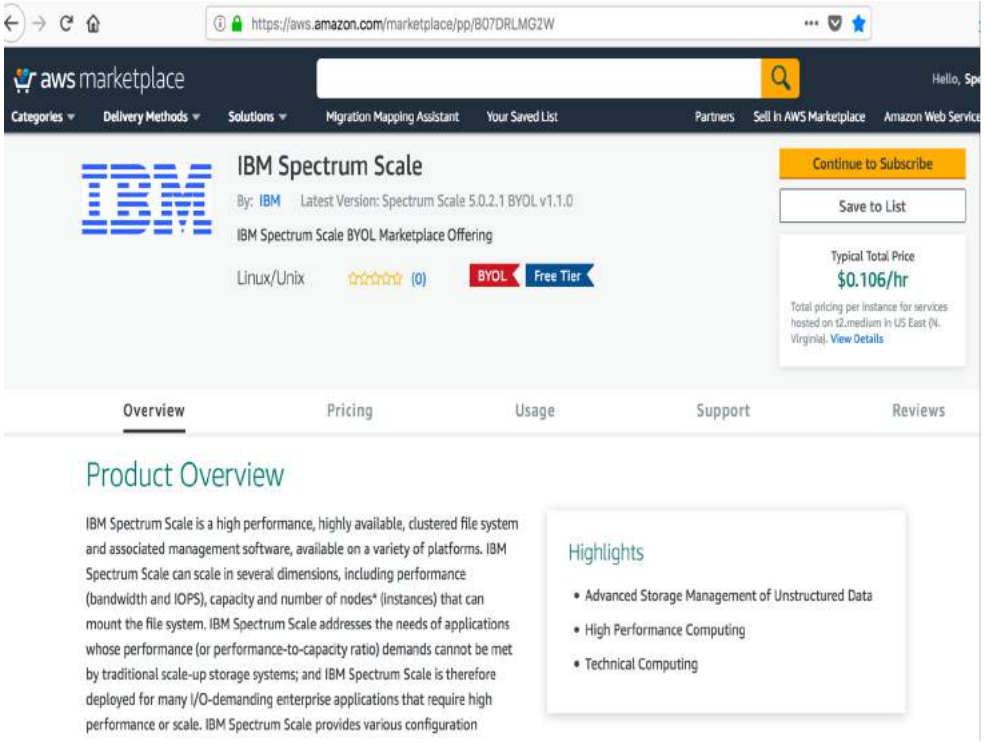
Offering WOW: A cluster of 16 EC2 instances can be launched and configured with a shared filesystem mounted on all nodes in less than an hour (& does not require any Spectrum Scale Admin Skills).

Spectrum Scale on AWS – Architecture

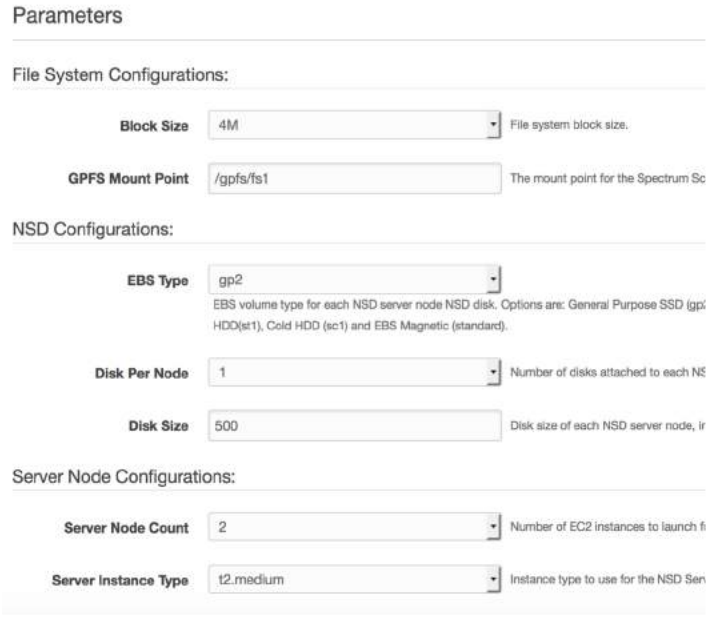
- Solution based on EC2 instances and EBS volumes
- NSD servers separate from “Compute” nodes that will mount the shared filesystem
- NSD servers using AWS EBS storage for Spectrum Scale
- Data is replicated across multiple availability zones
- Support for creation of new VPCs or launching instances into existing VPCs.
- Connection to these instances only via a Bastion Host (as per AWS best practices)
- Focuses on simplicity/usability of deployment (e.g. reduced config. options) and leverages Amazon features such as Cloud Formation templates and AMIs (Amazon Machine Image)



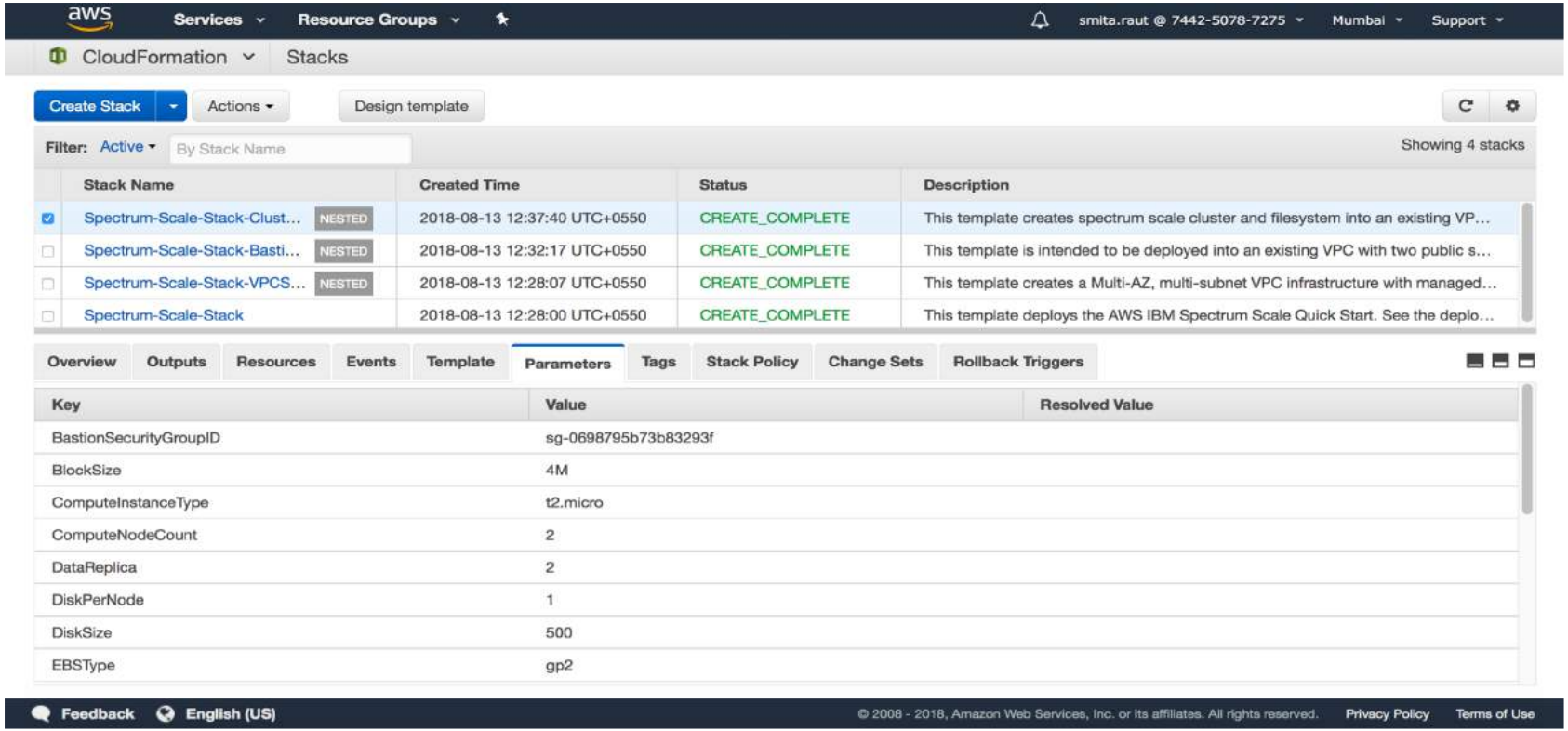
Spectrum Scale Listing On AWS Marketplace



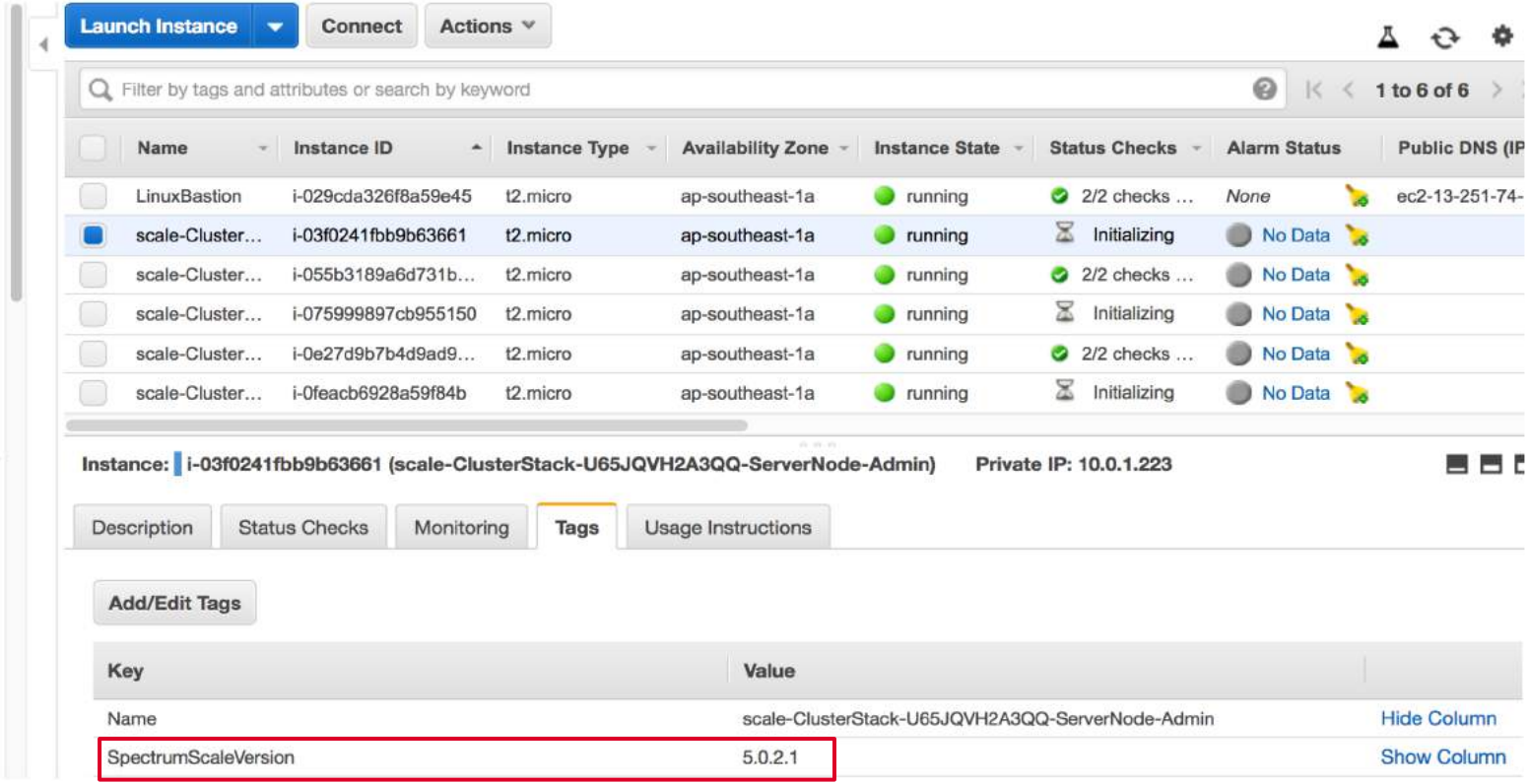
Easy configuration through cloud formation



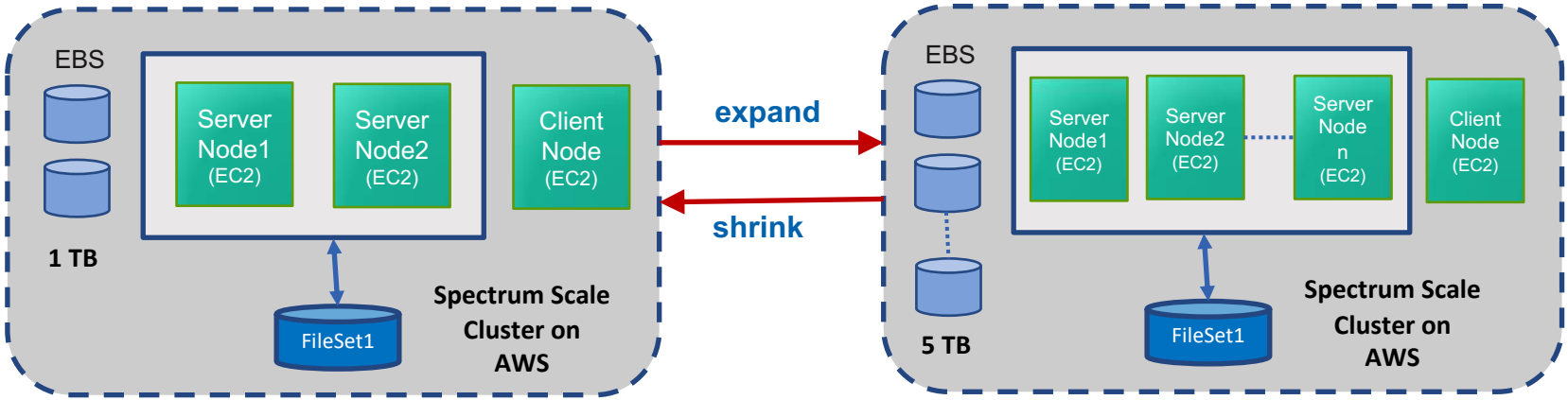
Successful Stack Creation



AWS EC2 Instance View Of Spectrum Scale Cluster



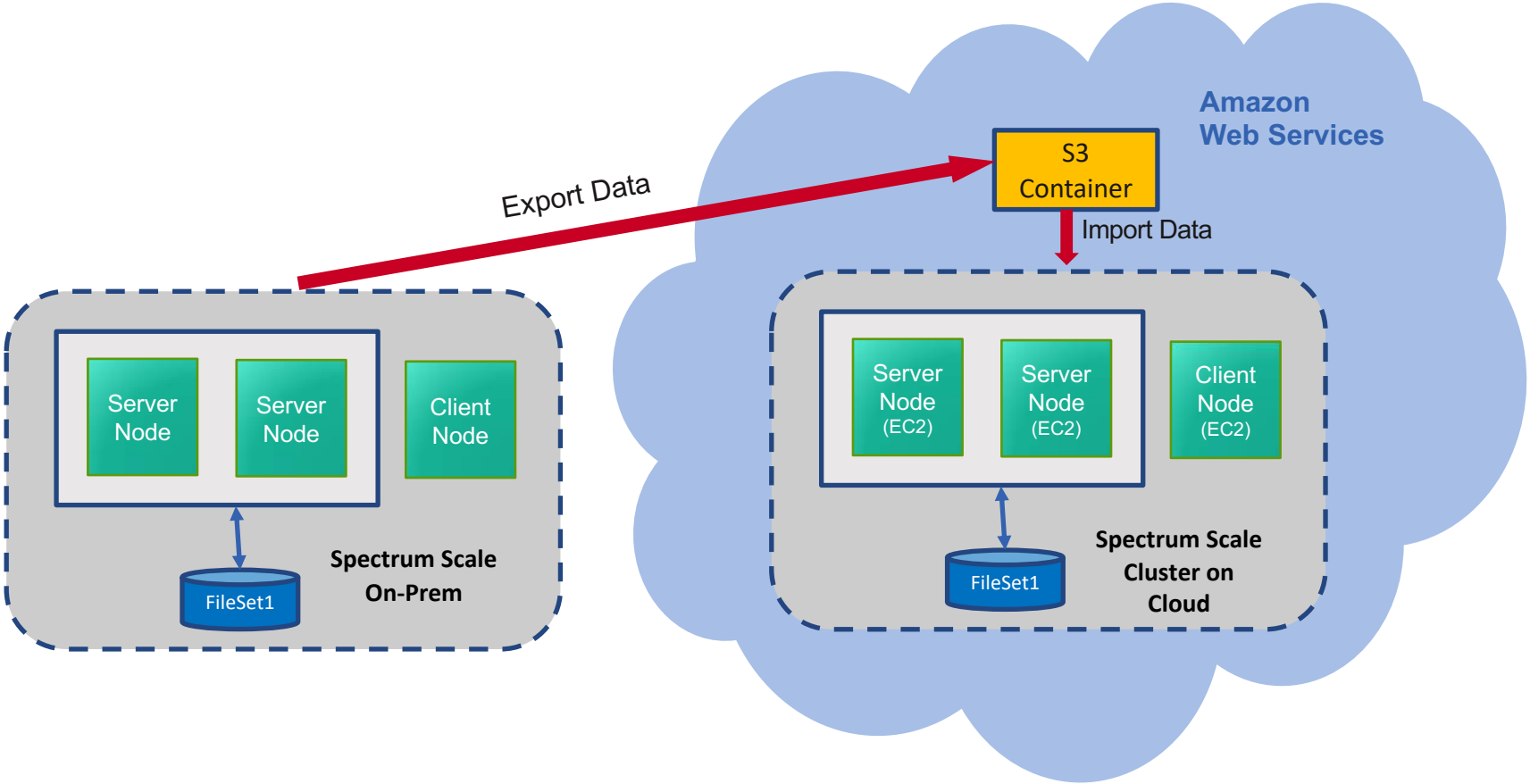
Demo Use Case ： Scaling In Cloud




```
[root@ip-10-0-1-223 ec2-user]# mmaws add_nodes --node-type server --num-instances 2
2019-03-11 04:24:23,617 - mm_aws_add_rm_nodes - INFO - Logging in to file: /var/adm/ras/aws_scale_l
2019-03-11 04:31:32,659 - mm_aws_add_rm_nodes - INFO - Operation (mmmount all -N 10.0.1.107,10.0.1.10) completed successfully.
2019-03-11 04:31:32,659 - mm_aws_add_rm_nodes - INFO - ************************************************************************
2019-03-11 04:31:32,659 - mm_aws_add_rm_nodes - INFO -  Adding new server instance(s) to cluster completed successfully.
2019-03-11 04:31:32,660 - mm_aws_add_rm_nodes - INFO - ************************************************************************
```

```
[root@ip-10-0-1-223 ec2-user]# mmaws remove_nodes --ip-addresses 10.0.1.107 10.0.1.10
2019-03-18 09:19:23,728 - mm_aws_add_rm_nodes - INFO - Logging in to file: /var/adm/ras/aws_scale_log
2019-03-18 09:27:08,915 - mm_aws_add_rm_nodes - INFO - ************************************************************************
2019-03-18 09:27:08,915 - mm_aws_add_rm_nodes - INFO -  Removal of specified server instance(s) from cluster completed successfully.
2019-03-18 09:27:08,915 - mm_aws_add_rm_nodes - INFO - ************************************************************************
```

Demo Use Case : CloudBurst



Thank You!

Backup

AWS Services / Components

- **VPC (Virtual Private Cloud):** Provision a logically isolated section of the AWS Cloud.
- **AMI (Amazon Machine Image):** It provides the information required to launch an instance.
- **S3 (object Storage) :** Object storage built to store and retrieve data from anywhere on the web
- **CloudFormation:** Allows user to use a simple text file to model and provision, in an automated and secure manner, all the resources needed for the applications across all regions.
- **AutoScaling:** Automatically launch or terminate instances based on user-defined policies, health status checks etc.
- **Auto Recovery:** Automatically recovers the instance if it becomes impaired due to an underlying hardware failure.
- **SNS:** Pub/Sub messaging and mobile notifications.
- **IAM Policies, Roles:** Identity-based policies are permission policies that can be attached to a principal (or identity),such as an IAM user, role, or group.
- **CloudWatch:** Monitoring service for AWS resources. Collect, track metrics and react immediately.
- **Lambda:** Compute micro service and runs code in response to events such as image uploads, in-app activity, website clicks, or outputs from connected devices.