



IBM **Spectrum Storage**

Spectrum Scale on AWS Marketplace

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>

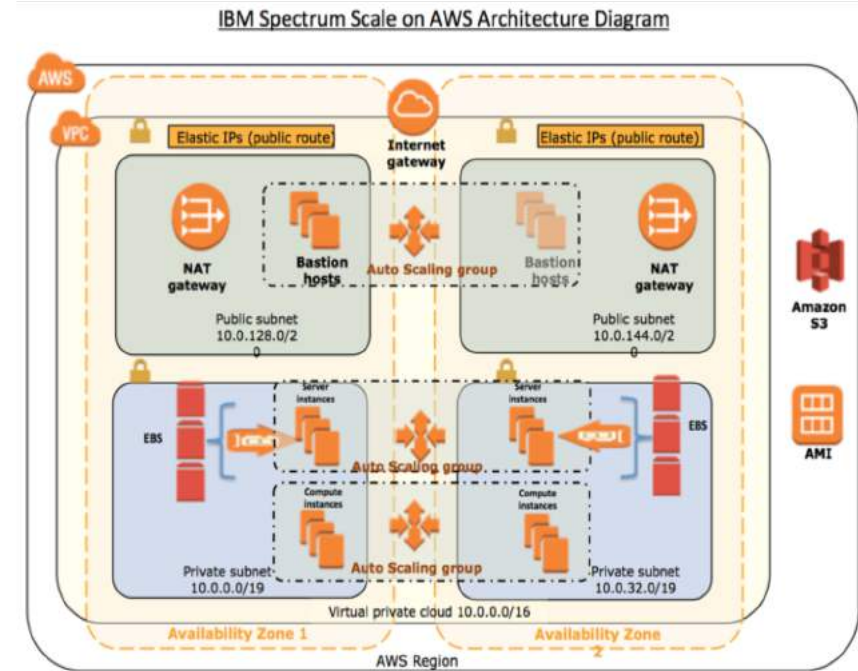
AWS Quickstart

- 90 day trial version
- Available since Sept 2017

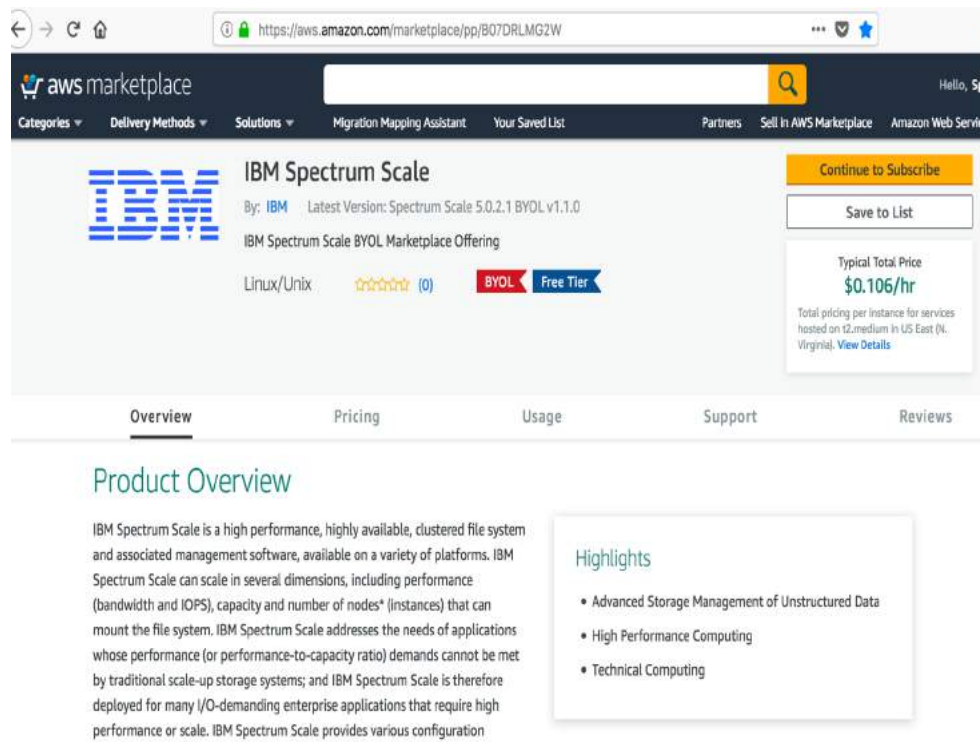
Offering WOW: A cluster of 16 EC2 instances can be launched and configured with a shared filesystem mounted on all nodes in less than an hour (& does not require any Spectrum Scale Admin Skills).

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



aws marketplace

Categories ▾ Delivery Methods ▾ Solutions ▾ Migration Mapping Assistant Your Saved List Partners Sell in AWS Marketplace Amazon Web Service

IBM IBM Spectrum Scale

By: IBM Latest Version: Spectrum Scale 5.0.2.1 BYOL v1.1.0

IBM Spectrum Scale BYOL Marketplace Offering

Linux/Unix ★★★★★ (0) **BYOL** Free Tier

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Typical Total Price
\$0.106/hr

Total pricing per instance for services hosted on t2.medium in US East (N. Virginia). [View Details](#)

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Product Overview

IBM Spectrum Scale is a high performance, highly available, clustered file system and associated management software, available on a variety of platforms. IBM Spectrum Scale can scale in several dimensions, including performance (bandwidth and IOPS), capacity and number of nodes* (instances) that can mount the file system. IBM Spectrum Scale addresses the needs of applications whose performance (or performance-to-capacity ratio) demands cannot be met by traditional scale-up storage systems; and IBM Spectrum Scale is therefore deployed for many I/O-demanding enterprise applications that require high performance or scale. IBM Spectrum Scale provides various configuration

Highlights

- Advanced Storage Management of Unstructured Data
- High Performance Computing
- Technical Computing

Easy configuration through cloud formation

Parameters

File System Configurations:

Block Size File system block size.

GPFS Mount Point The mount point for the Spectrum Sc

NSD Configurations:

EBS Type EBS volume type for each NSD server node NSD disk. Options are: General Purpose SSD (gp2 HDD(e1), Cold HDD (sc1) and EBS Magnetic (standard).

Disk Per Node Number of disks attached to each NE

Disk Size Disk size of each NSD server node, in

Server Node Configurations:

Server Node Count Number of EC2 instances to launch f

Server Instance Type Instance type to use for the NSD Sen

Successful Stack Creation

AWS
Services ▾
Resource Groups ▾

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Mumbai ▾
Support ▾

CloudFormation ▾
Stacks

Create Stack ▾
Actions ▾
Design template

↻
⚙️

Filter: Active ▾ By Stack Name
Showing 4 stacks

	Stack Name	Created Time	Status	Description
<input checked="" type="checkbox"/>	Spectrum-Scale-Stack-Clust... NESTED	2018-08-13 12:37:40 UTC+0550	CREATE_COMPLETE	This template creates spectrum scale cluster and filesystem into an existing VP...
<input type="checkbox"/>	Spectrum-Scale-Stack-Basti... NESTED	2018-08-13 12:32:17 UTC+0550	CREATE_COMPLETE	This template is intended to be deployed into an existing VPC with two public s...
<input type="checkbox"/>	Spectrum-Scale-Stack-VP... NESTED	2018-08-13 12:28:07 UTC+0550	CREATE_COMPLETE	This template creates a Multi-AZ, multi-subnet VPC infrastructure with managed...
<input type="checkbox"/>	Spectrum-Scale-Stack	2018-08-13 12:28:00 UTC+0550	CREATE_COMPLETE	This template deploys the AWS IBM Spectrum Scale Quick Start. See the depla...




Overview
Outputs
Resources
Events
Template
Parameters
Tags
Stack Policy
Change Sets
Rollback Triggers

Key	Value	Resolved Value
BastionSecurityGroupID	sg-0698795b73b83293f	
BlockSize	4M	
ComputeInstanceType	t2.micro	
ComputeNodeCount	2	
DataReplica	2	
DiskPerNode	1	
DiskSize	500	
EBSType	gp2	

🗨 Feedback
🌐 English (US)
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AWS EC2 Instance View Of Spectrum Scale Cluster

Launch Instance ▾
Connect
Actions ▾

1 to 6 of 6

<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IP)
<input type="checkbox"/>	LinuxBastion	i-029cda326f8a59e45	t2.micro	ap-southeast-1a	● running	✔ 2/2 checks ...	None	ec2-13-251-74-
<input checked="" type="checkbox"/>	scale-Cluster...	i-03f0241fbb9b63661	t2.micro	ap-southeast-1a	● running	⌚ Initializing	● No Data	
<input type="checkbox"/>	scale-Cluster...	i-055b3189a6d731b...	t2.micro	ap-southeast-1a	● running	✔ 2/2 checks ...	● No Data	
<input type="checkbox"/>	scale-Cluster...	i-075999897cb955150	t2.micro	ap-southeast-1a	● running	⌚ Initializing	● No Data	
<input type="checkbox"/>	scale-Cluster...	i-0e27d9b7b4d9ad9...	t2.micro	ap-southeast-1a	● running	✔ 2/2 checks ...	● No Data	
<input type="checkbox"/>	scale-Cluster...	i-0feacb6928a59f84b	t2.micro	ap-southeast-1a	● running	⌚ Initializing	● No Data	

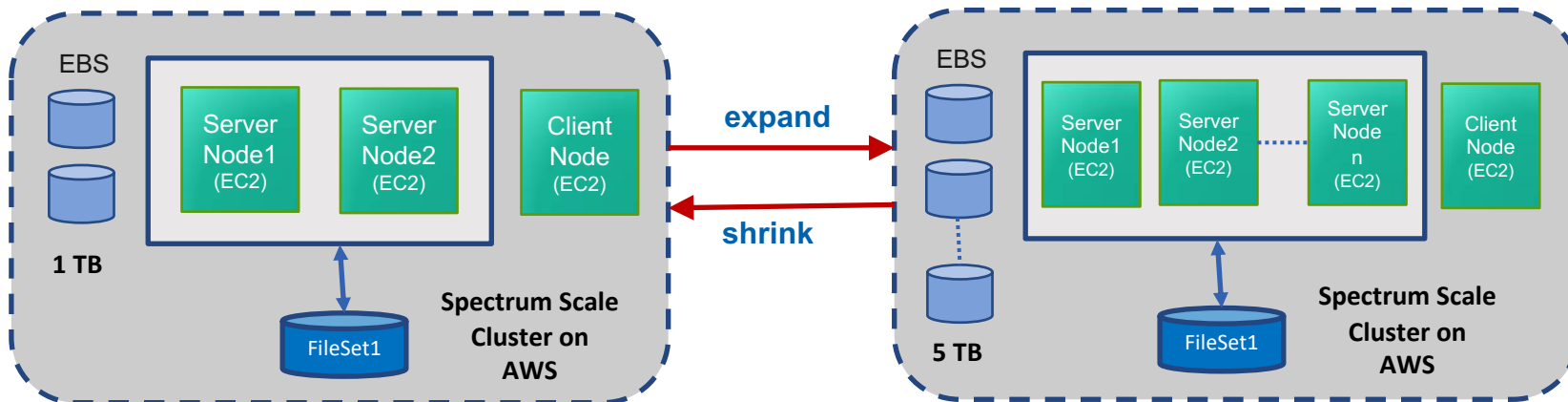
Instance: i-03f0241fbb9b63661 (scale-ClusterStack-U65JQVH2A3QQ-ServerNode-Admin) Private IP: 10.0.1.223

Description
Status Checks
Monitoring
Tags
Usage Instructions

Add/Edit Tags

Key	Value	
Name	scale-ClusterStack-U65JQVH2A3QQ-ServerNode-Admin	Hide Column
SpectrumScaleVersion	5.0.2.1	Show Column

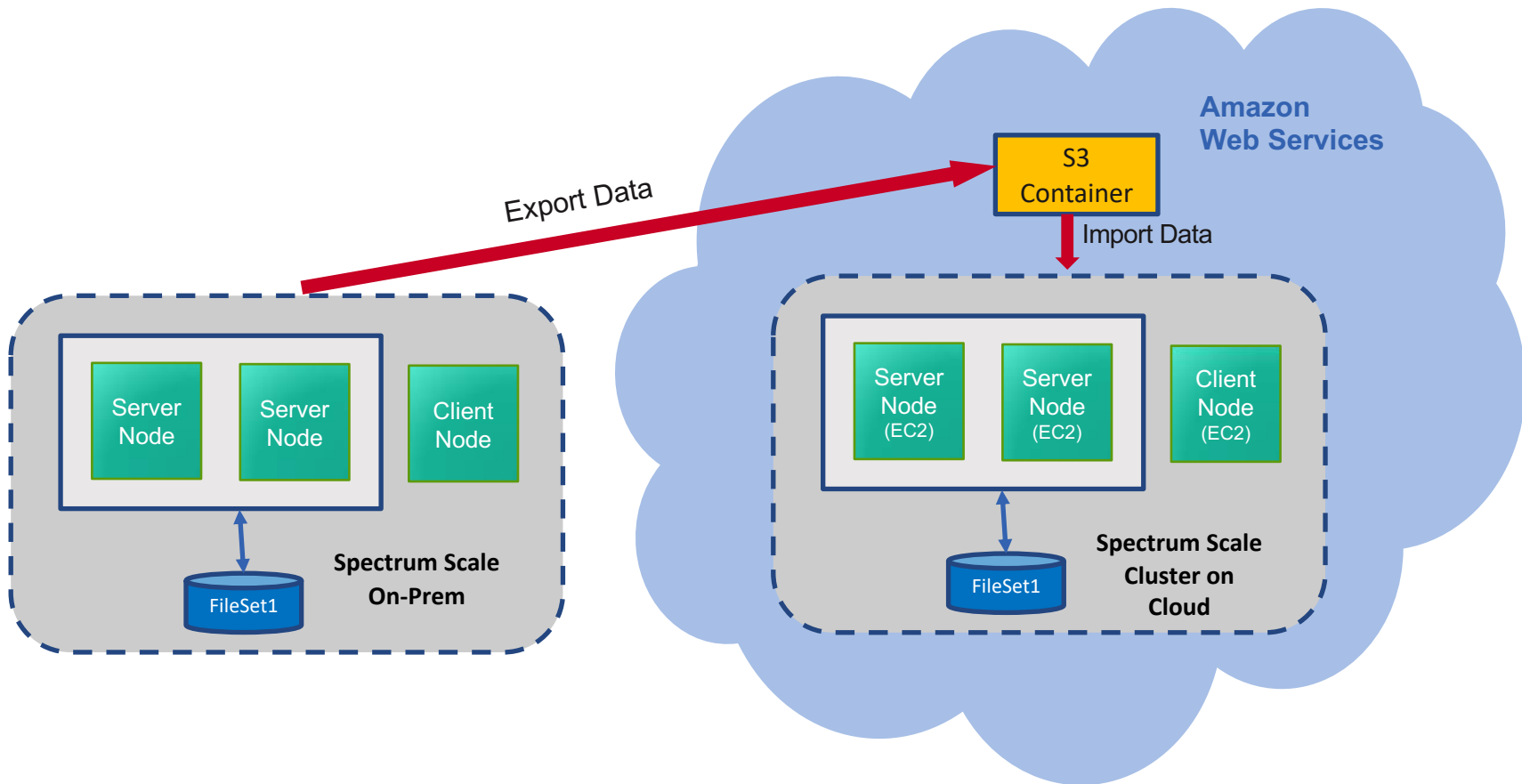
Demo Use Case : Scaling In Cloud



```
[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_1
2019-03-11 04:31:32,659 - mm_aws_add_rm_nodes - INFO - Operation (mmmout 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.