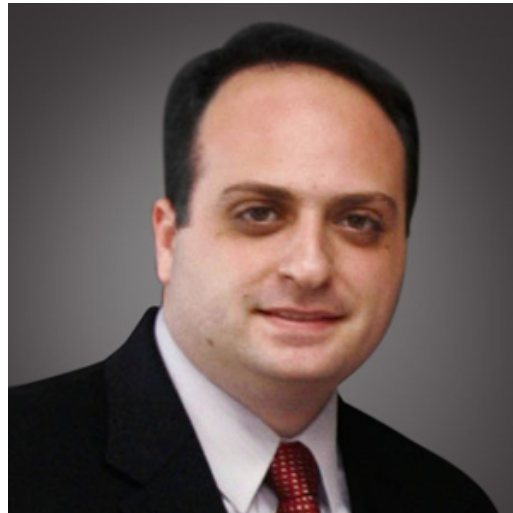


Working with Elastic Block Storage



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Storage Types



Instance
Store

- Ephemeral

S3

- Standard
- RRS

EBS

- GP-SSD
- PIOPS
- Magnetic

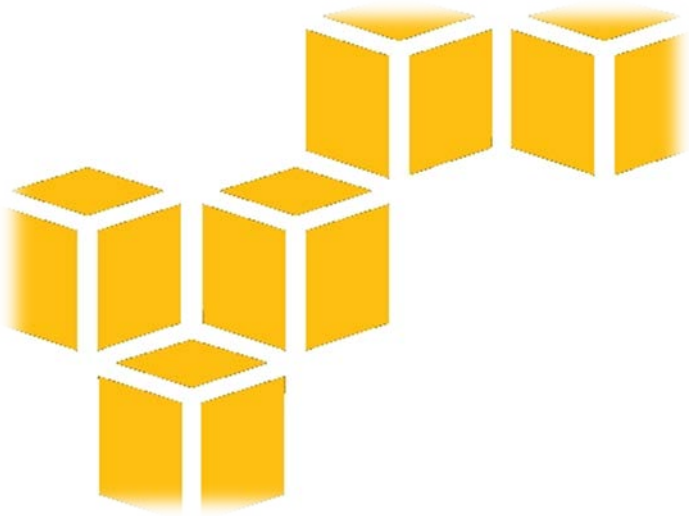
EFS

- Network
Attached
Storage

Pluralsight course:

Amazon Web Services (AWS) Fundamentals for System Administrators

Elastic Block Storage Characteristics



- Billed on storage capacity and I/O
- Does not need to be attached to an instance
- Can be transferred between AZ
- EBS volumes are designed for an annual failure rate (AFR) of between 0.1% - 0.2%
- EBS volume data is replicated across multiple servers in an Availability Zone
- SLA 99.95%

EBS Volume Types

Characteristic	General Purpose (SSD)	Provisioned IOPS (SSD)	Magnetic
Use Cases	<ul style="list-style-type: none">• System boot volumes• Virtual desktops• Small to medium DBs• Dev and test	<ul style="list-style-type: none">• I/O intensive• Relational DBs• NoSQL DBs	<ul style="list-style-type: none">• Infrequent Data Access
Volume Size	1 GiB - 16 TiB	4 GiB - 16 TiB	1 GiB - 1 TiB
Max. Throughput	160 MiB/s	3200 MiB/s	40 - 90 MiB/s
Max IOPS / volume	10,000	20,000	40 – 200
Max IOPS Burst	3,000 IOPS for volumes under 1,000 GiB	-	Hundreds
Max IOPS / instance	48,000	48,000	48,000
Max. Throughput / instance	800 Mbps	800 Mbps	800 Mbps
API / CLI Volume Name	gp2	io1	Standard

Amazon EBS Volume Types:

<http://aws.amazon.com/ebs/details/>

Increasing IOPS Performance



- Multiple striped gp2 or standard volumes (typically RAID 0)
- Multiple striped PIOPS volumes (typically RAID 0)
- Function of the guest OS

EBS-Optimized Instances

- Dedicated capacity for Amazon EBS I/O
- 500 Mbps – 4,000 Mbps
 - <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSOptimized.html>
- GP-SSD within 10% of baseline and burst performance 99.9% of the time
- PIOPS within 10% of provisioned performance 99.9% of the time
- EBS-optimized instances are designed for use with all EBS volume types
- Additional hourly fee
 - Amazon EC2 pricing page
 - http://aws.amazon.com/ec2/pricing/#EBS-Optimized_Instances

Summary



Storage Types

EBS Characteristics

EBS Volume Types

Increasing IOPS Performance

EBS-Optimized Instances