



Lowering AWS Costs with DigitalOcean

WHITE PAPER



Introduction

Since the introduction of cloud computing, businesses have been leveraging dynamic infrastructure to quickly scale without the burden of significant capital expense.

According to the [Rightscale State of the Cloud 2018 Report](#), 92% of SMBs leverage cloud solutions and 50% spend more than \$10,000 a month. Of these SMBs, 76% plan to spend more in 2018 and 72% say that managing costs is a top challenge with cloud adoption.

While many of these businesses use AWS for cloud infrastructure, with 1300 new choices introduced this year according to [Datamation](#), AWS can be difficult to navigate. According to [Concurrency Labs](#) the price variations of AWS regions can result in costs that are much higher than expected. These complexities can drive up business costs and lower developer productivity. Rightscale estimates that up to 35% of cloud spend is wasted due to under-utilized or un-optimized cloud resources.

DigitalOcean aims to provide an easier cloud platform to deploy, manage, and scale applications of any size, often resulting in **savings of up to 67% compared to AWS** (see *figure 2*). DigitalOcean keeps pricing simple by including commonly used resources like storage and bandwidth, and by setting consistent pricing across data center regions.

Since 2012 DigitalOcean has been focused on providing the best price-to-performance cloud with a focus on simplicity. By offering cloud compute, storage, and networking products with leading pricing and performance, DigitalOcean helps your business scale while lowering your cloud costs.

Typical Cloud Cost Drivers

Total Cost of Ownership (TCO) can be difficult to calculate because of AWS's regional price variations and thousands of product choices. AWS customers typically need to consider the following to estimate cloud costs:

- Regions where you deploy your application
- Application usage patterns - number of hits, network traffic, amount stored
- Capacity planning time and expertise to find lowest pricing, which can change based on
 - Number of reserved instances needed
 - Number of spot instances needed
 - Upfront AWS fees for reserved instances
- Support fees from 3% to 10% of total bill
- Availability of AWS certified developers, solutions architects, and devops engineers
- Early termination fees by product

Cost Comparison Methodology

To compare the total costs of deploying an application to AWS and to DigitalOcean, we will look at average deployment sizes for small, medium, and large applications. Costs include all resources and time needed to deploy compute, storage, and networking functions. Some businesses deploying to AWS may want to use developers with AWS certifications for specific products. According to quora, AWS certification can take [1-6 months](#), depending on the experience of your developers. While this is an optional cost, we will break out the cost of spending 120 hours to gain AWS certification.

We looked at three common deployment configurations for businesses to illustrate how DigitalOcean can lower total costs by up to 67% compared to AWS (*see figure 2*). Note that in many cases, the exact configuration is not available on AWS, so we have picked the nearest comparable AWS EC2 instance.

	SMALL		MEDIUM		LARGE	
	DigitalOcean	AWS	DigitalOcean	AWS	DigitalOcean	AWS
COMPUTE	25 4GB Standard Droplets	25 T2.Medium (4GB RAM)	75 4GB Optimized Droplets	75 c5.Large (4GB RAM)	150 4GB Optimized Droplets	150 c5.Large (4GB RAM)
STORAGE	2TB Local 1TB Block 2TB Object	3TB EBS 2TB S3	1.875TB Local 7TB Block 2TB Object	8.875TB EBS 2TB S3	3.75TB Local 14TB Block 4TB Object	17.75TB EBS 4TB S3
BANDWIDTH	1TB	1TB	3TB	3TB	4TB	4TB

Figure 1. DigitalOcean and AWS products used for comparison of different applications sizes

We evaluated small applications based on DigitalOcean Standard Droplets vs AWS EC2 T2 Instances for businesses that have small applications with less predictable workloads. DigitalOcean Standard Droplets offer a healthy balance of CPU and RAM to meet the needs of these applications without having to worry about CPU credit utilization that is inherent with AWS T2.Instances.

For large workloads we compared DigitalOcean Optimized Droplets to AWS C5.Instances for workloads that are more CPU intensive and need consistent performance from dedicated vCPUs. DigitalOcean's Optimized Droplets provide up to **37.3% better CPU performance** than Standard Droplets and offer consistent CPU performance.

Savings by using DigitalOcean

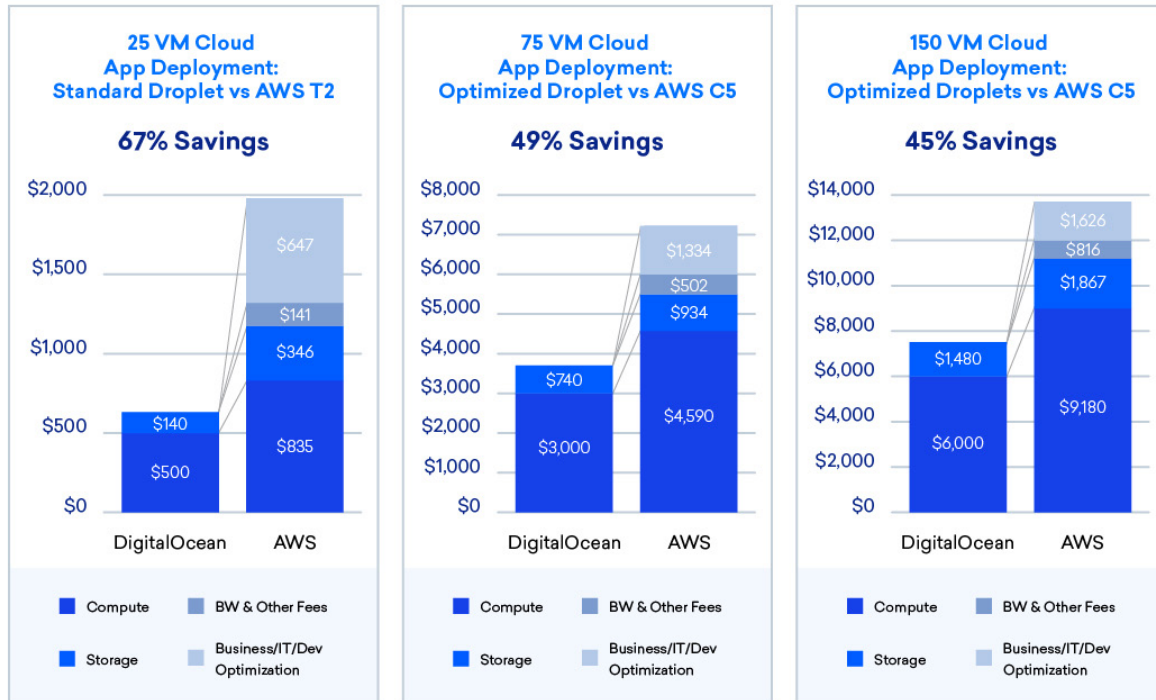


FIGURE 2. Cost comparison by application size

In each deployment configuration, DigitalOcean provides significant savings compared to AWS, ranging from 45% to 67%.

The drivers of these savings are lower unit costs from DigitalOcean's for compute, storage and bandwidth products. Additionally, DigitalOcean does not bill for a variety of fees that AWS charges (e.g. per hit fees, variable regional pricing, contract length price variations, etc.). Here are the details.

1. DigitalOcean Droplets can save 34% to 53% versus AWS EC2

- In the example application sizes from figure 1, the Compute server pricing alone provides savings of up to 53%. And while AWS adds incremental costs for reserved instances, premiums per region, higher costs if you want to pay as you go, and incremental costs for short term contracts, DigitalOcean pricing eliminates those fees to make your cost lower and more predictable.

2. Save 20% to 59% on Storage with DigitalOcean

- Applications require some amount of local or attached storage to run efficiently. With DigitalOcean each Droplet includes significant amounts of **local SSD** storage, with the ability to attach block storage volumes as needed. In addition, you can use DigitalOcean Object storage for your persistent storage needs. With AWS, you typically must add block storage, which is generally slower than local SSD, to your standard EC2 instances.

3. Bandwidth to the Internet is 9x more expensive on AWS than DigitalOcean

- The rate card for bandwidth from the US East AWS region out to the Internet starts at \$0.09/GB¹, although it can vary, and is often higher in other AWS regions. While AWS bandwidth pricing can go lower based on transfer volume, the lowest published rate for AWS bandwidth out to the Internet is \$0.05/GB.
- DigitalOcean includes between 1 and 12 TB of bandwidth with each Droplet, always pooled across your account (versus 1GB included with each AWS account). For most applications, this means you will not need to worry about bandwidth charges. However, if your application requires more bandwidth, DigitalOcean overage bandwidth pricing is \$0.01/GB, which is 9x lower than AWS US East pricing. In addition, DigitalOcean does not charge premiums based on regions, so your bandwidth costs are much lower and more predictable.

By keeping Compute Server prices low, including significant amounts of local SSD and bandwidth with each server, and eliminating add-on costs, your bill from DigitalOcean is much lower and simpler compared to AWS. And if your application requires more resources in a given month, DigitalOcean overage rates are generally several times lower than AWS.

As every application is different and our small/medium/large examples may not reflect your application characteristics, below is a comparison of DigitalOcean cloud servers to similarly configured AWS EC2 servers. As DigitalOcean Droplets include significant amounts of storage and bandwidth, we have added comparisons for similar resources from AWS.

¹ Based on AWS published rate card in June 2018



DIGITALOCEAN	AWS	VM	VM + STORAGE	VM + STORAGE + BANDWIDTH
s-1vcpu-1gb	t2.micro	-40%	-54%	-95%
s-1vcpu-2gb	t2.small	-40%	-54%	-95%
s-2vcpu-4gb	t2.medium	-40%	-52%	-95%
s-4vcpu-8gb	t2.large	-40%	-52%	-93%
s-6vcpu-16gb	t2.xlarge	-40%	-52%	-89%
s-8vcpu-32gb	t2.2xlarge	-40%	-52%	-84%
c-2-4GiB	c5.large	-35%	-37%	-91%
c-4-8GiB	c5.xlarge	-35%	-37%	-86%
c-8-16GiB	c5.2xlarge	-35%	-37%	-80%
c-16-32GiB	c5.4xlarge	-35%	-37%	-72%
c-32-64GiB	c5.9xlarge	-42%	-44%	-68%

FIGURE 3. Cost Comparison of DigitalOcean Compute Servers to similar AWS products. Pricing is based on publicly available information as of June, 2018

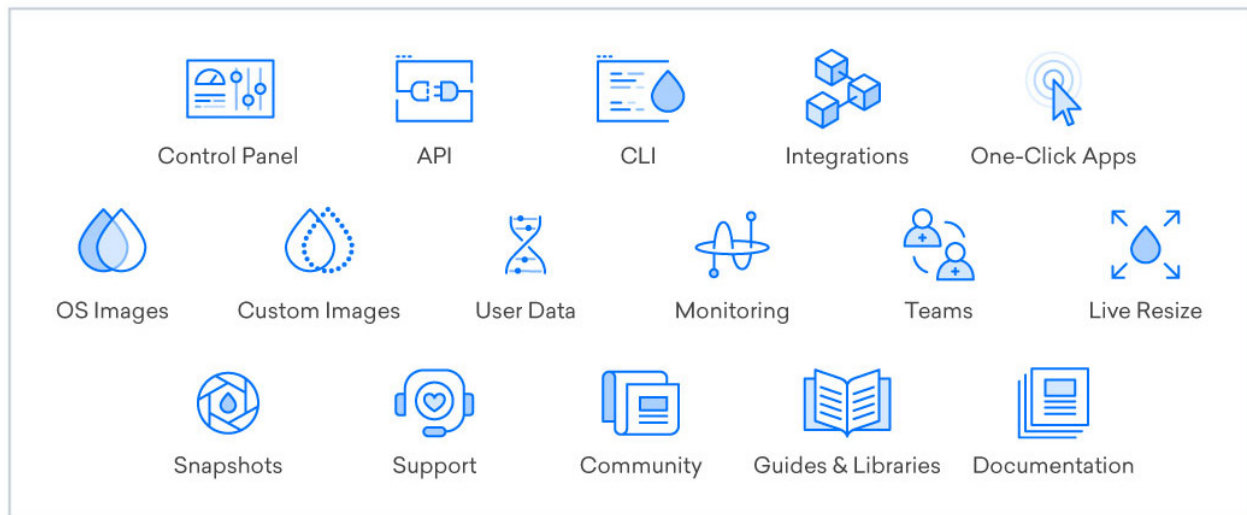
In addition to the savings directly attributed to compute, storage and bandwidth products, DigitalOcean also includes features that cost significantly more on AWS, for example

- Customer support at no incremental cost
 - AWS typically charges support fees of 3% to 10% of your monthly usage for AWS support, with minimums between \$29/mo and \$15,000/mo depending on your business
- Monitoring services for each Droplet
 - AWS CloudWatch's pricing varies by number of dashboards, number of instances, number of metrics, number of alarms, number of API request, amount of logs, etc.

DigitalOcean also includes features in our Control Panel to enable team collaboration with your businesses cloud infrastructure, and we have designed our products to be simple enough that your developers do not require costly product certifications.

Conclusion

DEVELOPER TOOLS



PRODUCTS

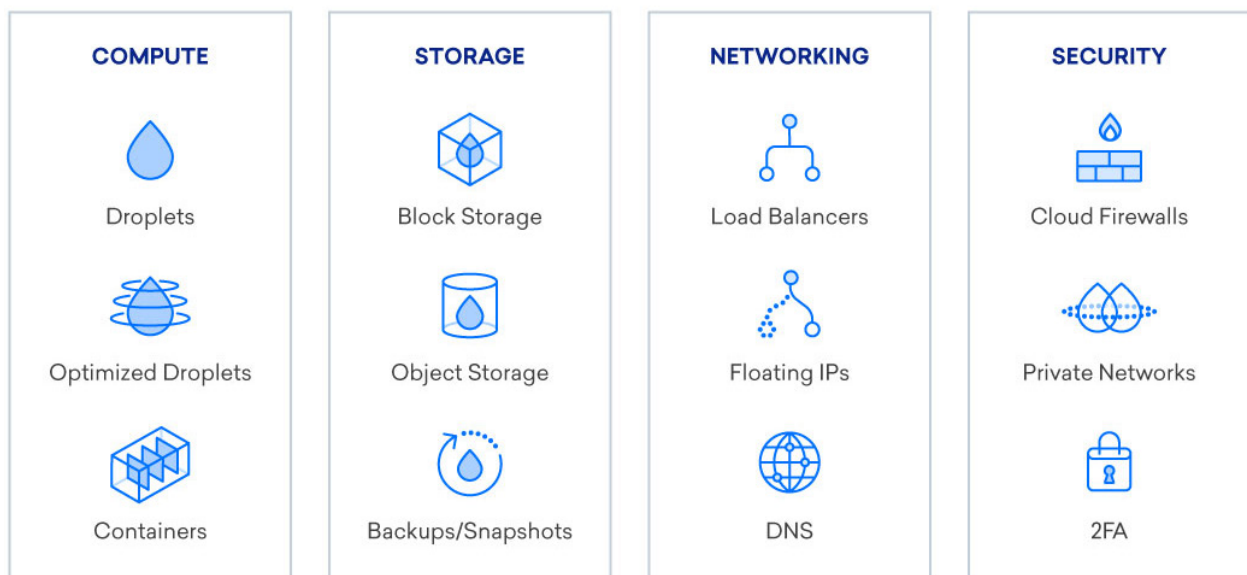
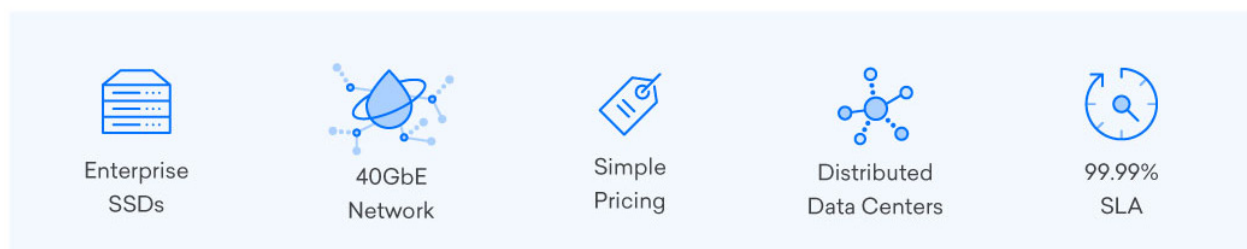


FIGURE 4. The DigitalOcean Platform



DigitalOcean provides the easiest cloud platform to run and scale applications for small and medium businesses. From robust compute, storage, and networking services to developer tools that streamline administration and workflow, DigitalOcean provides an all-in-one cloud platform with predictable and affordable pricing.

Businesses can save **45% to 67%** or more compared to AWS by using DigitalOcean, providing industry leading price-performance and predictable costs across all global datacenter regions.

