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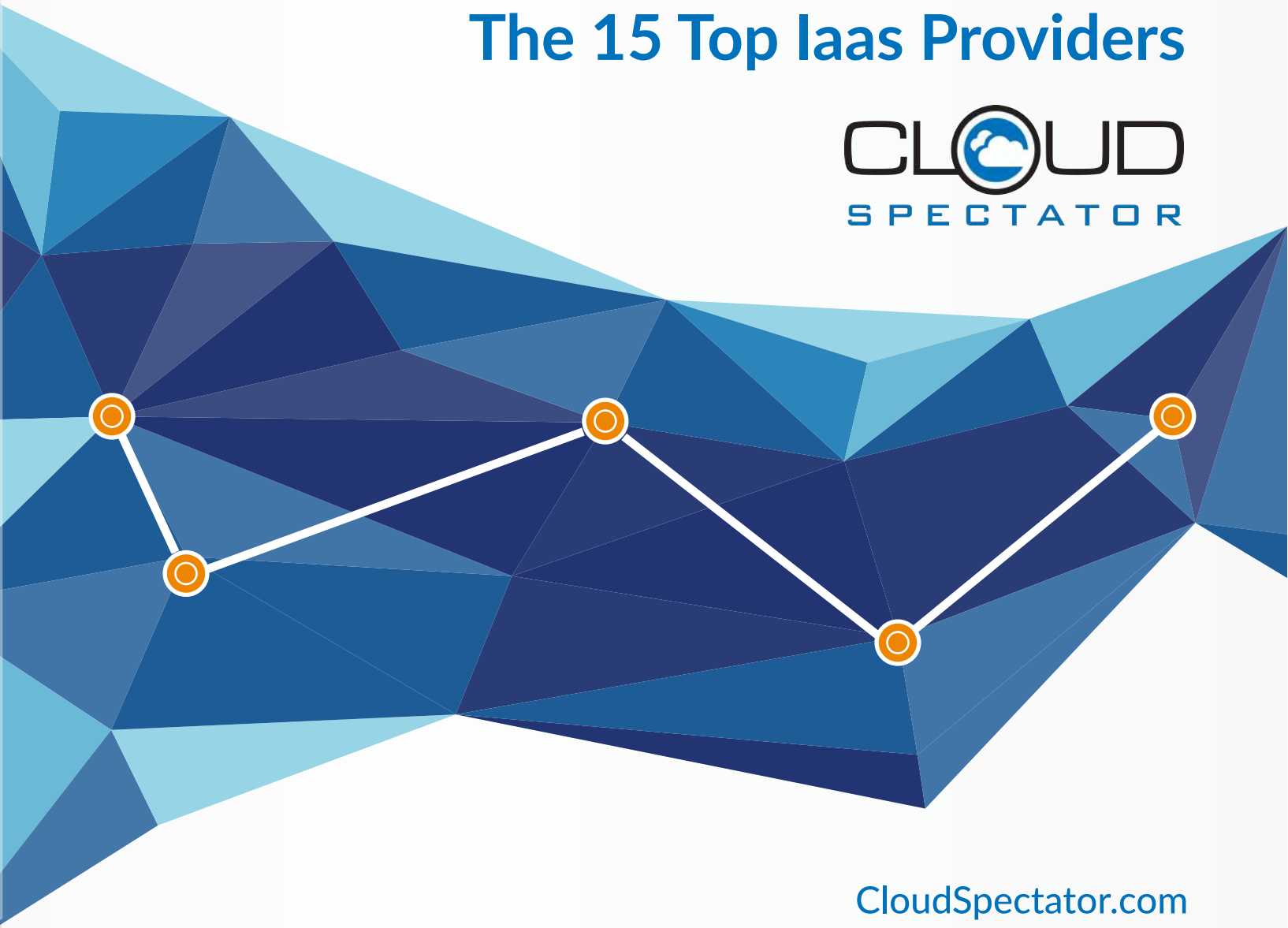
Cloud Vendor Benchmark 2015

Part 1A: Price Comparison Among The 15 Top Iaas Providers

CLOUD SPECTATOR



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Executive Summary

The cloud infrastructure industry is changing constantly. As the Infrastructure as a Service (IaaS) market gets increasingly competitive, price changes are common. For example, Amazon EC2 alone has changed its prices 44 times since 2006. Although other benefits are associated with cloud infrastructure, the low upfront costs and inexpensive payments for servers attract a large segment of customers and are always mentioned as major incentives for cloud adoption. It is important to understand provider pricing in this industry to make informed decisions on IT spending optimization.

Estimating Cloud Spending

When considering cloud infrastructure total cost of ownership, businesses should ask the following questions:

- What should the size of my virtual machines (VMs) be?
- How many VMs of each size do I need?
- How long do I want to be committed to this cloud provider?
- How many peripheral services on aspects such as storage, security, scaling, etc. am I looking for?
- What discounts are available to me?

Since pricing models vary across cloud providers, the above factors should be considered when estimating and comparing cloud prices.

About the Pricing Report

The IaaS Industry Pricing Comparison is intended to provide the tools to understand cloud vendor pricing, resulting in informed purchase decisions. The report takes an objective look at each of the listed 15 providers' VM prices for different server configurations over time. Term and volume discounts for some providers are also explored as well as block storage prices for different block sizes. Common pricing structures in the IaaS industry are discussed prior to the pricing analysis.

Price comparisons are broken down into hourly, monthly, annual, and 3-year pricing to observe each provider's pricing strategies and advantages across time. The Pricing Comparison does not account for performance factors; rather, it assumes equivalent performance among providers: e.g., one DigitalOcean core is equivalent to one SoftLayer core is equivalent to one CenturyLink core is equivalent to one Amazon vCPU etc. Price-performance analysis, which compares VMs from a performance and value perspective, is covered in Part 2 of this report series. Part 2 will take the pricing analysis from Part 1 and apply performance numbers to deliver a normalized value to help compare cloud providers. For more information on obtaining a custom price or price-performance comparison, please contact Cloud Spectator.

Key Findings

- CloudSigma, DigitalOcean, and ProfitBricks in general provide the lowest prices (DigitalOcean available for Linux OS only).
- AWS and ProfitBricks are the least expensive IaaS providers for hourly Windows-based VMs, with AWS less expensive on smaller-sized VMs and ProfitBricks less expensive on larger-sized VMs. For monthly, both CloudSigma, AWS and ProfitBricks offer the lowest pricing, with CloudSigma and AWS less expensive on smaller-sized VMs and ProfitBricks less expensive on larger-sized VMs.
- Amazon EC2 displays significant cost advantages in the longer terms (annual and 3-year pricing) with its reserved instances.
- IBM SoftLayer Endurance 3 block storage, Rackspace's SSD block storage and CenturyLink's Premium block storage are the most expensive block storage offerings, but can provide more value to the right types of users.
- Dimension Data and Microsoft Azure block storage employ non-linear pricing models, which charge lower unit costs with higher volume.
- DigitalOcean and Joyent do not have a block storage offering.
- Google, Microsoft Azure, and ProfitBricks offer the lowest block storage costs.
- IBM SoftLayer offers 5TB of outgoing data transfer with monthly subscriptions to its IaaS service.

The IaaS Providers

Amazon EC2	DigitalOcean	Google Cloud	Internap	ProfitBricks
CenturyLink Cloud	Dimension Data	HP Helion	Joyent	Rackspace Cloud
CloudSigma	GoGrid	IBM SoftLayer	Microsoft Azure	Verizon Cloud

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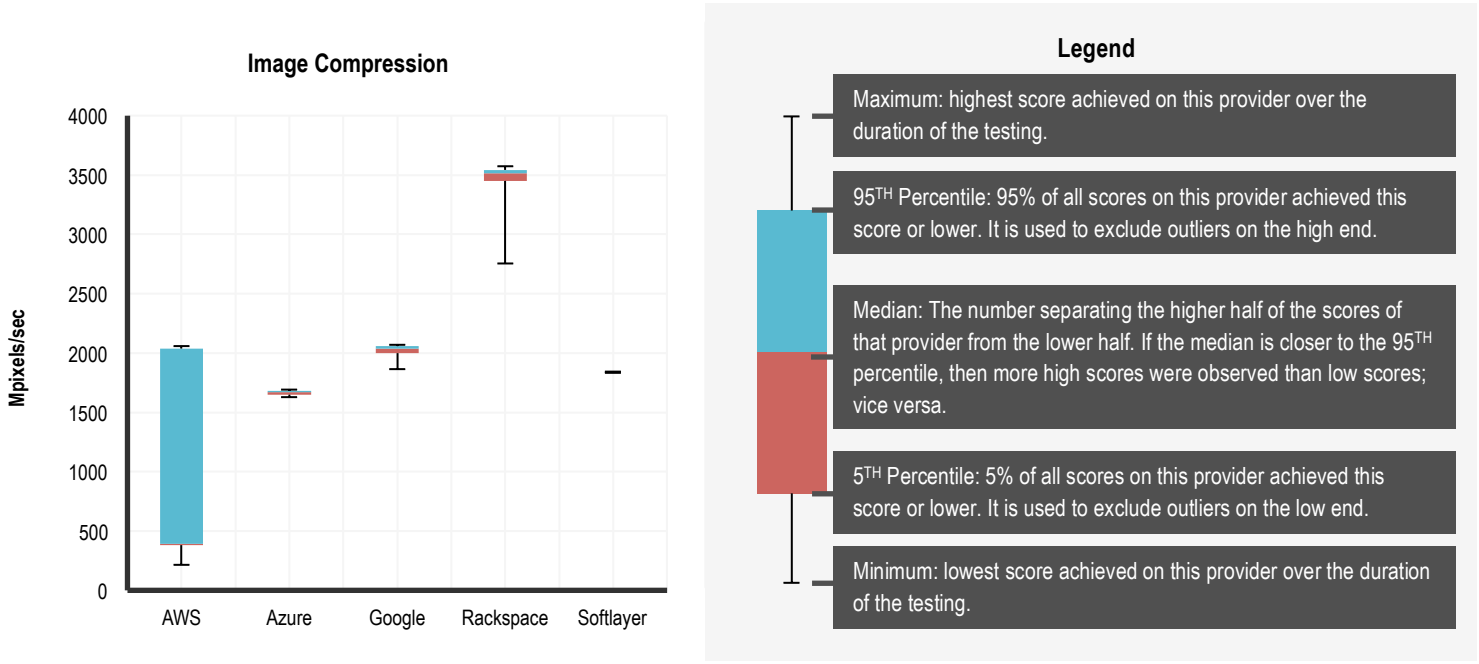
About the Upcoming Cloud Vendor Benchmark 2015: Part 2

This report, which is Part 1 of a series of 2015 benchmarks, compares price across vendors in the IaaS industry. This document does not assume performance differences across providers, which are very common and explored in depth in Part 2; for example, 1 vCPU on Amazon Web Services is considered equivalent to 1 vCPU on Rackspace Cloud. Comparisons are standardized by sets of minimum system requirements defined as Small, Medium, Large, Extra Large, and 2x Large.

Part 2 builds on top of the analysis conducted on Part 1 by taking the standardization methodology, pricing information, and information found in this report and applying vCPU & memory performance results from 24 hours of parallel testing across all 15 providers. As a result, 1,121,796 Linux OS (Ubuntu) data points were collected to examine the value provided across vendors in the market with respect to price, performance, and performance stability. More than 1,000,000 data points are expected to be collected for Windows OS using the same methodology. Part 2 will be the largest public-facing performance and price-performance report on the IaaS industry. A small sample of the report is outlined below:



A glimpse from the Linux OS results, seen in the chart above, shows 24 hours of continuous testing to compress PNG image files. AWS results from this sample display a low median very close to its 5TH percentile, which can indicate bursts in performance over the 24-hour period with a low baseline performance. In the case of AWS, the spikes are attributed to the controlled bursting found on its T2 Instances (the measured instance in this sample is the t2.small).

Rackspace exhibits much higher performance in the 24-hour period than the other providers, due to its advantage with more vCPUs for the small instance size (Azure and Rackspace have 2 vCPUs for the Small size tier, while AWS, Google, and SoftLayer have 1 vCPU). With the higher performance, a total of approximately 1 hour and 12 minutes of the 24-hour test period exhibited performance fluctuation that dipped below the 5TH percentile, which highly impacts the results. Despite the large fluctuation, though, Rackspace's Small VM Minimum resulted in higher performance than the maximum performance of AWS, Azure, Google, or SoftLayer over the 24-hour period.

Part 2 of the report will also apply the pricing from Part 1 with this type of performance information to analyze VM sizing based on price-performance value. By attributing the cost of the VM with its performance, a value score can be generated to more accurately rank providers based on price-performance, rather than price alone.

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Provider Characteristics

Pricing Structures

The chart below lists different payment options available for each provider. Checkmarks for the longer billing intervals offered for each provider indicate a discount with a commitment for that time interval. Discount information in this report is based on publicly available information.

- **Less than One Hour:** Some providers (Google, Microsoft, ProfitBricks and Rackspace) allow users to commit to subscriptions for less than one hour. Repeated burst jobs, such as batch processing and testing, may benefit from pricing that bills in minute intervals, rather than hour.
- **By Hour:** Most providers require users to commit hourly at a minimum for service. Hourly billing is the most common option for public cloud. Virtual machines that are not required to be up 24x7x365 may see advantages in hourly pricing. While some providers do not charge when the VM is in a stopped state (e.g., Amazon EC2), others require the user to entirely terminate the VM in order to avoid billing (e.g., Rackspace).
- **By Month:** Some providers such as IBM/SoftLayer provide discounts with a monthly commitment. Monthly commitments provide the possibility of discounts without contractual lock-in.
- **By Year:** Providers such as Amazon EC2 provide long-term discounts, while others offer volume discounts coupled with long-term commitment (e.g., Microsoft Azure, Rackspace, and Joyent).
- **By 3-Year:** Providers such as Amazon EC2 provide long-term discounts, while others offer volume discounts coupled with long-term commitment (e.g., Microsoft Azure, Rackspace, and Joyent).

PAYMENT OPTIONS	Amazon EC2	CenturyLink Cloud	CloudSigma[1]	DigitalOcean	Dimension Data	GoGrid[2]	Google Cloud	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure[3]	ProfitBricks	Rackspace Cloud[4]	Verizon Cloud
< 1 Hour	X	X	✔	X	X	X	✔	X	X	X	X	✔	✔	✔	X
Hour	✔	✔	X	✔	✔	✔	X	✔	✔	✔	✔	X	X	X	✔
Month	X	X	X	✔	X	✔	✔	X	✔	X	X	X	X	X	X
Year	✔	X	✔	X	X	✔	X	X	X	X	✔	✔	X	✔	X
3-Year	✔	X	✔	X	X	X	X	X	X	X	✔	X	X	✔	X

[1] For CloudSigma, users must first purchase credits. The credits are used to purchase VMs. Once credits run out, users must refill.

[2] GoGrid requires an annual subscription and a minimum spend of $250 per month for new accounts.

[3] Micrososft Azure's annual term discounts require an Enterprise Agreement (see Discounts section).

[4] Rackspace requires a minimum commitment of $5,000 for annual and 3-year term discounts (see Discounts section). Volume discounts also available.

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Service Level Agreements (SLAs)

Most providers offer a Service Level Agreement (SLA) to guarantee quality of service. Some providers offer SLAs for different services, such as network availability and hardware availability; the SLA table below reflects the conditions of hardware availability:

- **Uptime Guarantee**: The uptime guarantee refers to the uptime of the virtual machine as stated in each provider's SLA. Many larger providers offer different uptime guarantees for different services (e.g., CenturyLink's Standard vs. HyperScale offering) or components (e.g., network uptime). The uptime listed in the chart below refers to the VM component.
- **Cycles**: Cycles refer to the amount of time that must pass before downtime qualifies for reimbursement. A majority of providers examine downtime after a period of one month. Digital Ocean provides instantaneous credits for any downtime experience past its SLA threshold.
- **Reimbursement**: The percentage a cloud provider agrees to reimburse or credit to the user in a breach of the uptime guarantee. Many providers offer tiered reimbursement levels (i.e., Amazon EC2, Google Cloud, HP Helion, Microsoft Azure, and Rackspace Cloud) that grow with an increased amount of downtime. The amount of reimbursement ranged from 2-100%. In most cases, the reimbursement is based on the total monthly amount a user paid for the VM experiencing downtime; also check with a provider to see if that provider offers reimbursements in the form of refunds, money, or credits.

SERVICE LEVEL AGREEMENT OPTIONS	Amazon EC2	CenturyLink Cloud	CloudSigma	DigitalOcean	Dimension Data	GoGrid	Google Cloud	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace Cloud	Verizon Cloud*
Uptime Guarantee	99.95%	99.99%	100%	99.99%	99.999%	100%	99.95%	99.95%	100%	100%	100%	99.95%	99.95%	99.90%	-
Cycles	Monthly	15 Minutes	15 Minutes	Instant	26 seconds or greater	Instant	Monthly	Monthly	30 Minutes	30 Minutes	30 Minutes	Monthly	1 Hour	Monthly	-
Reimbursement	10-30%	Variable	50x	100%	2-100%	100x	10-50%	5-30%	5%	5%	5%	10-25%	5%	10-30%	-

*Verizon Cloud does not provide public-facing documentation on its SLA. Attempts to collect this information, including browsing the legal section for Enterprises, and calling Verizon Cloud, resulted with no clear information.

Customizability

Apart from payment options, each provider also gives a level of customizability for cloud server configurations (amount of vCPU, RAM, storage), shown in the chart below. Each provider only offers one category of customizability.

- **Fully Configurable:** The cloud servers are entirely customizable for cores, RAM, and hard disk space. Cores are customizable per core, RAM is customizable per GB, and hard disk space is customizable per GB as well.
- **Partly Configurable:** The cloud servers are limited in configuration; although the CPU, RAM, and/or hard disk may be independently customizable, those resources are only scalable in a pre-set bundle; e.g., disk space scalable in increments of 10GB.
- **Tiered:** Cloud servers come in pre-configured packages and hardware resources are not customizable. Scaling an individual resource up or down would require users to upgrade or downgrade to the closest available package meeting their updated requirements.

CLOUD CONFIGURATION OPTIONS	Amazon EC2	CenturyLink Cloud	CloudSigma	DigitalOcean	Dimension Data	GoGrid	Google Cloud	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace Cloud	Verizon Cloud
Fully Configurable	X	✔	✔	X	✔	X	X	X	X	X	X	X	✔	X	X
Partly Configurable	X	X	X	X	X	X	X	X	✔	X	X	X	X	X	X
Tiered	✔	X	X	✔	X	✔	✔	✔	X	✔	✔	✔	X	✔	✔

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Geographic Availability

The chart below is separated into data center location availability by continent. Data centers can be found in North America for all providers, and in Europe for all providers except HP Helion. While most providers have a presence in APAC, few have reach in South America apart from Amazon EC2, Dimension Data, IBM SoftLayer, Microsoft Azure, and Verizon Cloud. The numbers in the table represent the number of regions in which each provider has a data center in on each continent.

While the pricing examined in this report is reflective of US data centers, many providers offer cloud-enabled data center locations worldwide. For pricing analysis of different continents or specific regions, please contact Cloud Spectator by email at contact@cloudspectator.com or by phone at (+1) 617-300-0711.

GEOGRAPHIC AVAILABILITY	Amazon EC2	CenturyLink Cloud	CloudSigma	DigitalOcean	Dimension Data	GoGrid	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
North America	3	9	4	2	4	2	1	2	8	5	3	6	1	3	7
South America	1	X	X	X	1	X	X	X	1	X	X	1	X	X	1
Europe	2	3	1	2	2	1	1	X	4	1	1	2	2	1	2
APAC	4	1	X	1	5	X	1	X	7	1	X	8	X	2	1

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Methodology

Each provider's cost was calculated based on 5 separately sized server configurations. All data on the proceeding pages refer to the specific sizes listed in Table 1.1:

Table 1.1

SERVER	CPU CORES	RAM IN GB
Small	1	2
Medium	2	4
Large	4	8
XLarge	8	16
2XLarge	16	32

The above configuration sizes listed are treated as minimum requirements. Any provider server priced in this report must meet or exceed those requirements. The provider server with the lowest price that meets or exceeds the minimum requirements listed above is used. Variation in both the degree of server customizability among providers and in the configurations of tiered options can lead to different providers being the least expensive option for different configurations. **The values within this Pricing Report only apply to the listed configurations that are serving as minimum requirements. Different target configurations will yield different results, i.e. the most expensive providers with the listed configurations in this report may be the least expensive on other target configurations.** Server configurations vary limitlessly depending on business and application types. These configurations are selected to fall within the parameters of most providers. Local storage is not considered due to the significant variability in sizing across providers.

There is a separate chart for block storage costs. The block sizes used in this report are listed in Table 1.2:

Table 1.2

Block Size
1 TB
10 TB
100 TB
1,000 TB
10,000 TB

For monthly figures, months are calculated using 730 hours.

Scaling resources in a Tiered Package structure would require the user(s) to select the next available tier that would fulfill the configuration's requirements. This may mean more resources than necessary.

The application(s) that would hypothetically run on the server configurations listed in Table 1.1 are not assumed to be optimized for cross-server performance; thus, scaling resources in a Tiered Package structure would require the user(s) to select the next available tier that would fulfill the configuration's requirements. For example, the 2XLarge Server configuration of 16 vCPU cores and 32GB RAM would require a purchase of HP Helion's closest tiered package (CPU & RAM) that fulfills the requirements, which provides 16 vCPU cores and 120GB RAM.

Pricing is measured exclusively by the specification of cores and RAM. Though it is arguable that vCPU performance, RAM performance, and even overall server performance can alter costs based on each user's application's specific needs, the pricing report does not take performance into consideration. Price-performance comparisons will be included in Part 2 of this report series. For specific price-performance comparisons, please call or email Cloud Spectator at (+1) .617-300-0711 or contact@cloudspectator.com.

Data in this report is accurate as of April 1st, 2015. The report will continue to be accurate for an undetermined duration.

Key Considerations

Below are both general and provider-specific notes on how prices were calculated and what assumptions were made. The assumptions made for this report may differ from specific use cases, and thus, impact the relevancy of the given price figures.

General Considerations

- Ephemeral/local storage is not considered in this report due to high variability in the amounts of local storage.
- Price figures reflect those of US data centers only, and east cost data centers are used when pricing is different among US data centers.
- For monthly, annual and 3-year pricing, virtual servers are assumed to be running for 100% of each month.
- There are assumed to be 730 hours in each month. Therefore, monthly prices of some providers (e.g. Microsoft Azure, ProfitBricks, etc.) in this report may appear different from the listed prices on their websites.
- Windows price calculations were made using Windows Server 2012 Standard Edition when available. Other operating systems may yield different prices.
- Only base virtual machine prices are included. No add-ons that would affect pricing were considered.
- Virtual machine sizes meet or exceed the requirements listed above. The virtual machines with the lowest price that meets or exceeds the minimum requirements are used.
- Since the cloud instances offered by different providers had a wide range of vCPU, RAM and storage configurations, and since performance was not part of the analysis, the VM pricing comparison should be considered as a reference rather than a ranking.
- Hardware differences affect both virtual machine and block storage pricing and thus should be considered when viewing the results. Specific hardware information will be available in the *Cloud Vendor Benchmark 2015 Part 2: Price-Performance*.

Provider Considerations

Amazon EC2	CenturyLink Cloud	Google	IBM/SoftLayer
• US East data center pricing is used. • Reserved Instances (1-year, 3-year) is calculated with a 100% upfront payment. • T-Series (burstable CPU) machines are used for one and two vCPU machines.	• Only standard virtual machines are used (no Hyperscale machines).	• Pricing assumes 100% "full sustained usage" for each monthly, annual, and three-year period. Hourly prices assume VMs are running less than 25% of the month.	• Local 25GB storage is used as there is no additional cost for this. • The given hourly prices are used in hourly figures; monthly prices are used in monthly, annual and 3-year price figures.

Joyent	Microsoft Azure	Rackspace	CloudSigma
• On the smallest instance size, different VM sizes are used for Linux and Windows; some sizes are not available with Windows operating systems. • Term and volume discounts are not applied (see Discounts section).	• US East 2 data center pricing is used • Basic VM prices are used for one and two vCPU machines. • Term and volume discounts are not applied (see Discounts section). • Locally Redundant Storage (LRS) is used for Azure's block storage pricing.	• The "Managed Infrastructure" service level is used for the price figures. Minimum monthly service charges were not factored in. • Term and volume discounts are not applied (see Discounts section).	• CloudSigma does not have set hourly prices, and therefore the hourly prices are not included.[1] • For monthly subscriptions, CloudSigma offers 1GB RAM and 50GB storage for free. Therefore, for pricing analysis greater than the time period of 1 month, 50GB is included in CloudSigma data.

[1] CloudSigma uses an algorithm to calculate its hourly pricing – burst pricing, which is dynamic and can be greater than monthly pricing. Therefore CloudSigma's hourly pricing is not included in this report.

For any further questions or concerns regarding Cloud Spectator's *Cloud Vendor Benchmark 2012 Part 1: Pricing*, please contact us at (+1) 617 300 0711 or email us at contact@cloudspectator.com.

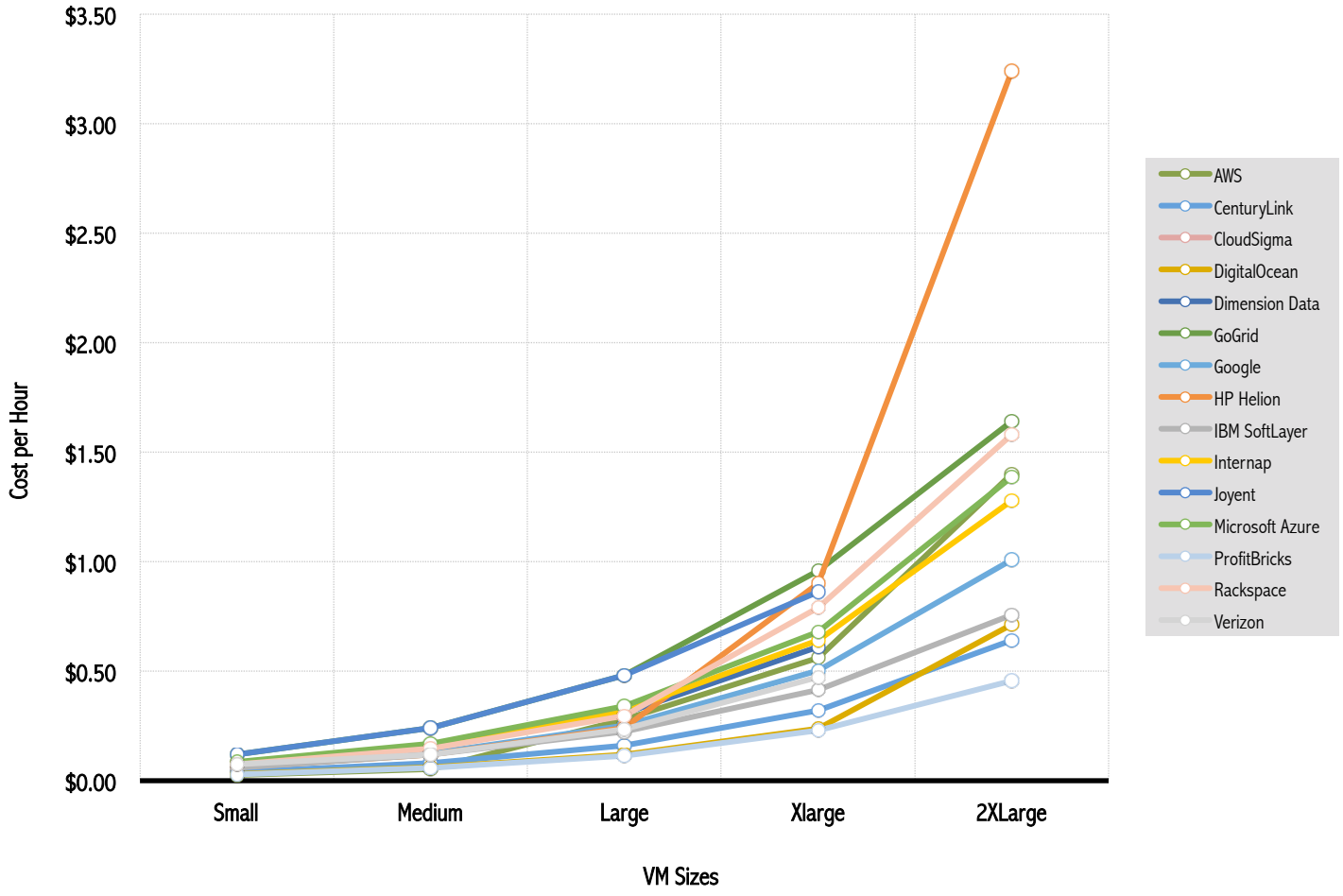
VM PRICE COMPARISON

The VM Price Comparison below displays the hourly, monthly, annually and 3-year cost per provider depending on each server configuration. For more information on the specific configurations of each server, please refer to Table 1.1 in METHODOLOGY. Both Linux prices and Windows prices are compared for each provider, except for DigitalOcean, which does not have a Windows offering.

HOURLY PRICE
Linux

	AWS	CenturyLink	CloudSigma **	DigitalOcean	Dimension Data	GoGrid*	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
Small	$0.026	$0.040	-	$0.030	$0.077	$0.120	$0.063	$0.060	$0.059	$0.080	$0.120	$0.085	$0.029	$0.074	$0.074
Medium	$0.052	$0.080	-	$0.060	$0.153	$0.240	$0.126	$0.120	$0.118	$0.160	$0.240	$0.170	$0.057	$0.148	$0.118
Large	$0.280	$0.160	-	$0.119	$0.306	$0.480	$0.252	$0.240	$0.224	$0.320	$0.480	$0.340	$0.114	$0.296	$0.236
XLarge	$0.560	$0.320	-	$0.238	$0.612	$0.960	$0.504	$0.900	$0.416	$0.640	$0.863	$0.680	$0.229	$0.790	$0.472
2XLarge	$1.400	$0.640	-	$0.714	-	$1.640	$1.008	$3.240	$0.756	$1.280	-	$1.387	$0.458	$1.580	-

**GoGrid's hourly price only applies once a user subscribes to an annual plan with a minimum of $250.00 per month usage.*
***CloudSigma's hourly pricing is not included because it is dynamic.*



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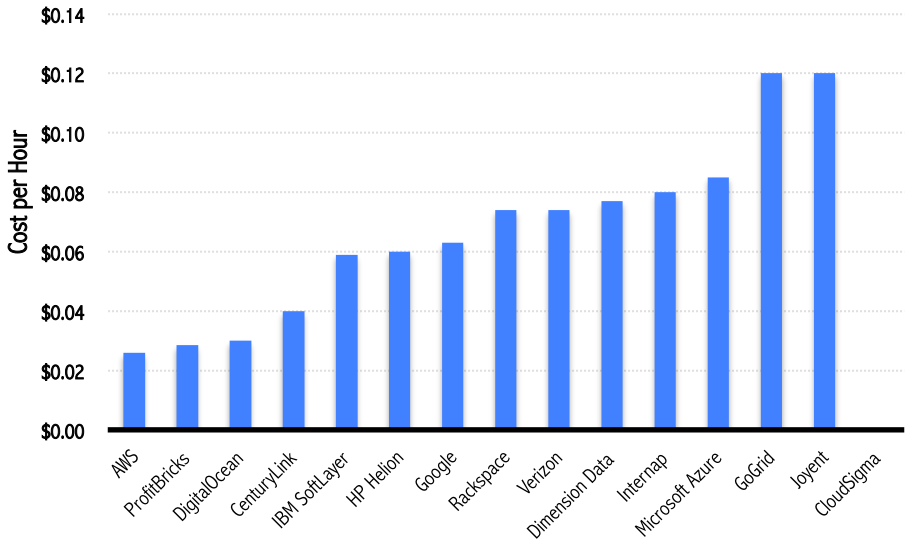
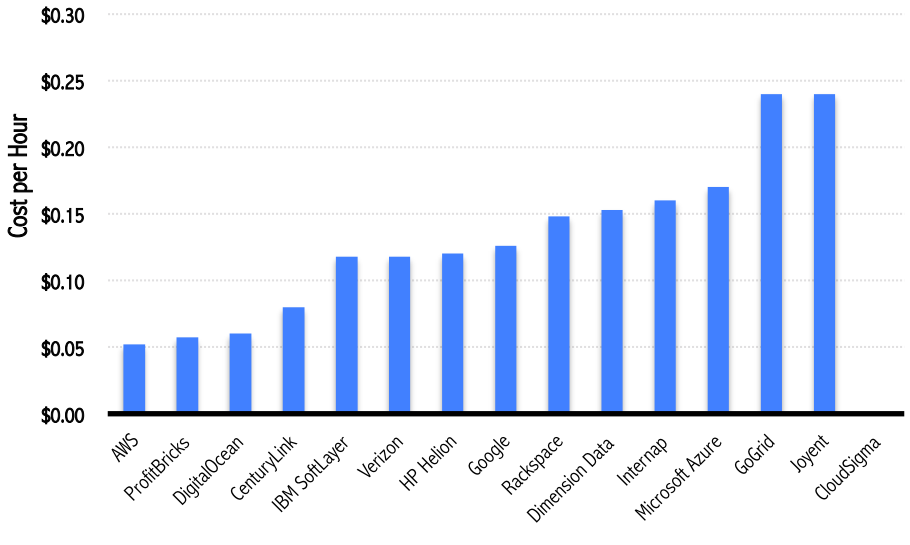
SMALL HOURLY INSTANCE (1 Core, 2GB RAM, LINUX)



SERVICE	HOUR
AWS	$0.026
ProfitBricks	$0.029
DigitalOcean	$0.030
CenturyLink	$0.040
IBM SoftLayer	$0.059
HP Helion	$0.060
Google	$0.063
Rackspace	$0.074
Verizon	$0.074
Dimension Data	$0.077
Internap	$0.080
Microsoft Azure	$0.085
GoGrid	$0.120
Joyent	$0.120
CloudSigma	-

MEDIUM HOURLY INSTANCE (2 Core, 4GB RAM, LINUX)



SERVICE	HOUR
AWS	$0.052
ProfitBricks	$0.057
DigitalOceans	$0.060
CenturyLink	$0.080
IBM SoftLayer	$0.118
Verizon	$0.118
HP Helion	$0.120
Google	$0.126
Rackspace	$0.148
Dimension Data	$0.153
Internap	$0.160
Microsoft Azure	$0.170
GoGrid	$0.240
Joyent	$0.240
CloudSigma	-

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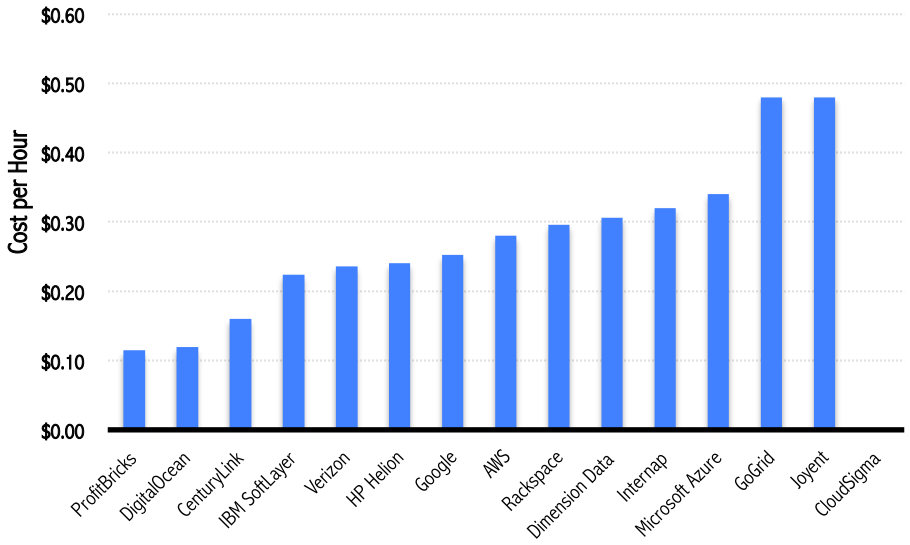
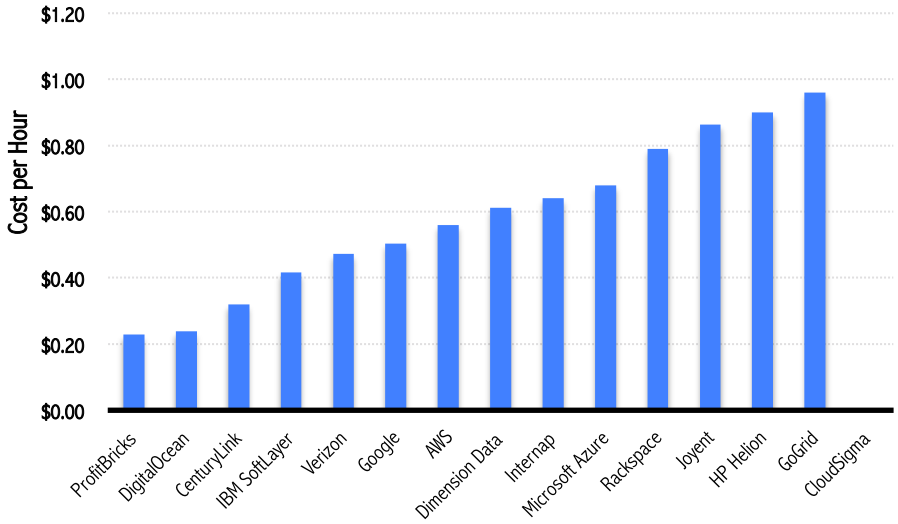
LARGE HOURLY INSTANCE (4 Core, 8GB RAM, LINUX)



SERVICE	HOUR
ProfitBricks	$0.114
DigitalOcean	$0.119
CenturyLink	$0.160
IBM SoftLayer	$0.224
Verizon	$0.236
HP Helion	$0.240
Google	$0.252
AWS	$0.280
Rackspace	$0.296
Dimension Data	$0.306
Internap	$0.320
Microsoft Azure	$0.340
GoGrid	$0.480
Joyent	$0.480
CloudSigma	-

XLARGE HOURLY INSTANCE (8 Core, 16GB RAM, LINUX)



SERVICE	HOUR
ProfitBricks	$0.229
DigitalOcean	$0.238
CenturyLink	$0.320
IBM SoftLayer	$0.416
Verizon	$0.472
Google	$0.504
AWS	$0.560
Dimension Data	$0.612
Internap	$0.640
Microsoft Azure	$0.680
Rackspace	$0.790
Joyent	$0.863
HP Helion	$0.900
GoGrid	$0.960
CloudSigma	-

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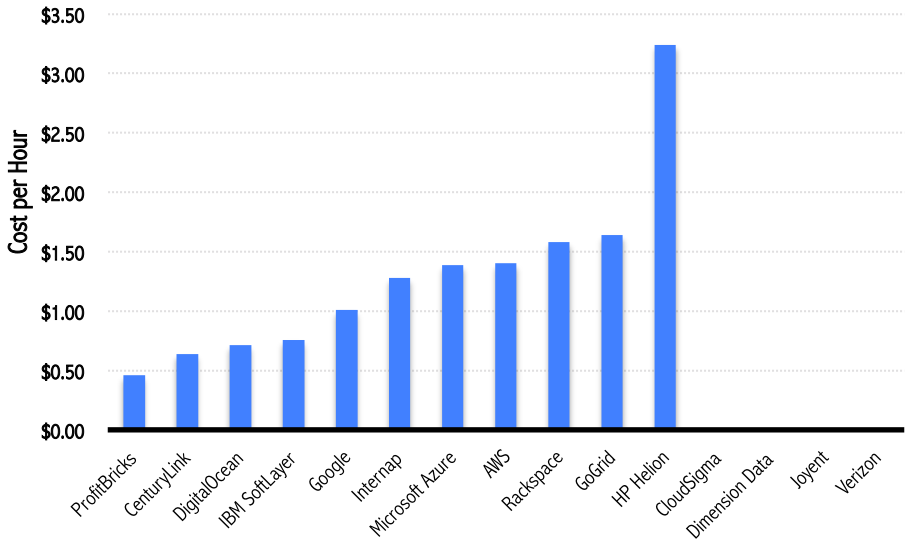
2XLARGE HOURLY INSTANCE (16 Core, 32GB RAM, LINUX)



SERVICE	HOUR
ProfitBricks	$0.458
CenturyLink	$0.640
DigitalOcean	$0.714
IBM SoftLayer	$0.756
Google	$1.008
Internap	$1.280
Microsoft Azure	$1.387
AWS	$1.400
Rackspace	$1.580
GoGrid	$1.640
HP Helion	$3.240
CloudSigma	-
Dimension Data	-
Joyent	-
Verizon	-

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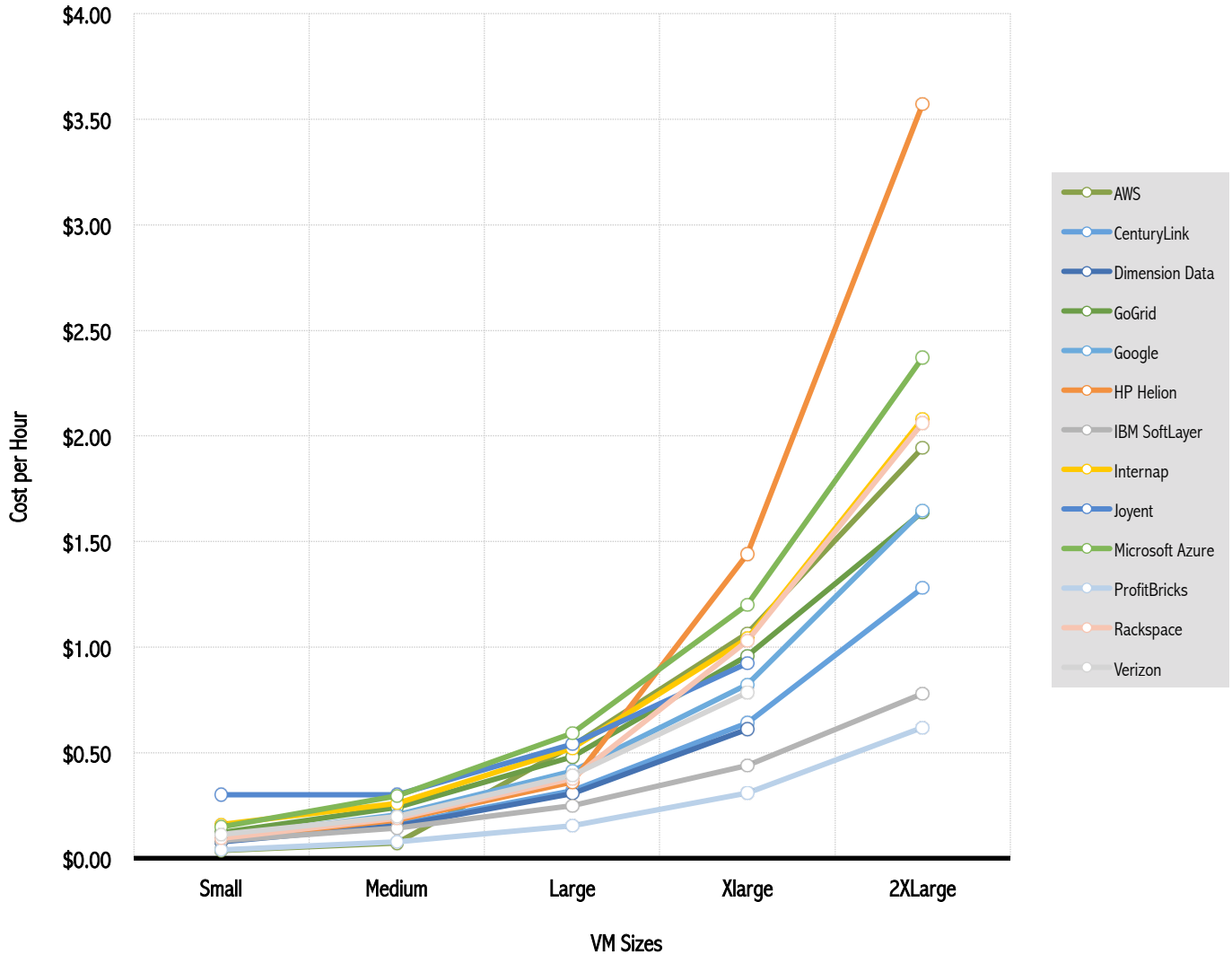
HOURLY PRICE
Windows

	AWS	CenturyLink	CloudSigma*	DigitalOcean**	Dimension Data	GoGrid***	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
Small	$0.036	$0.080	-	-	$0.077	$0.120	$0.103	$0.090	$0.083	$0.160	$0.300	$0.148	$0.039	$0.094	$0.113
Medium	$0.072	$0.160	-	-	$0.153	$0.240	$0.206	$0.180	$0.142	$0.260	$0.300	$0.296	$0.077	$0.188	$0.196
Large	$0.532	$0.320	-	-	$0.306	$0.480	$0.412	$0.360	$0.248	$0.520	$0.540	$0.592	$0.155	$0.376	$0.392
XLarge	$1.064	$0.640	-	-	$0.612	$0.960	$0.824	$1.440	$0.440	$1.040	$0.923	$1.200	$0.309	$1.030	$0.784
2XLarge	$1.944	$1.280	-	-	-	$1.640	$1.648	$3.570	$0.780	$2.080	-	$2.372	$0.618	$2.060	-

**CloudSigma requires a minimum of one-month Windows license purchasing.*
***Digital Ocean does not offer Windows operating systems.*
****GoGrid's hourly price only applies once a user subscribes to an annual plan with a minimum of $250 per month usage.*



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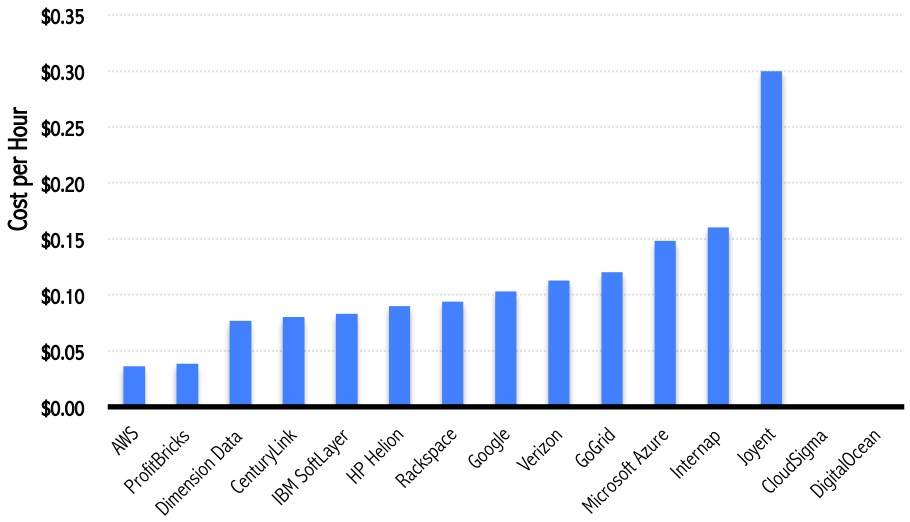
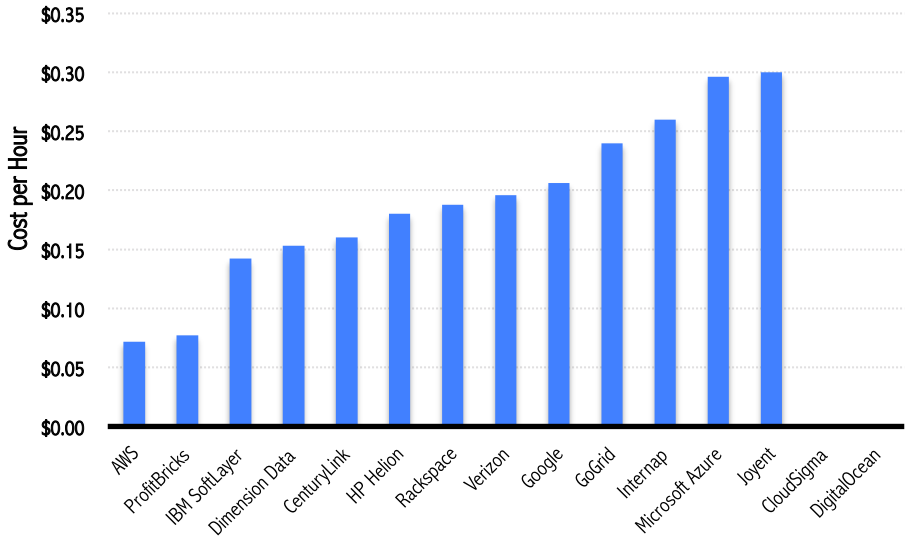
SMALL HOURLY INSTANCE (1 Core, 2GB RAM, WINDOWS)



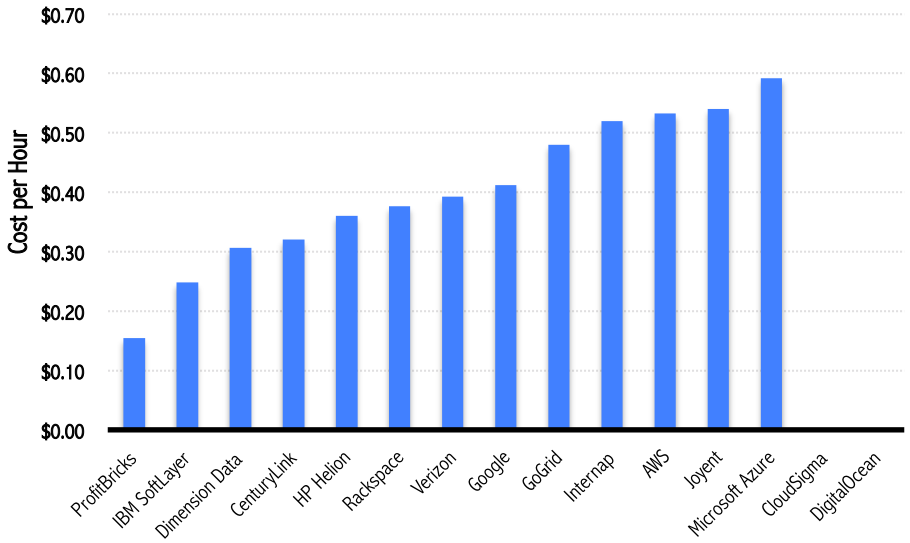
SERVICE	HOUR
AWS	$0.036
ProfitBricks	$0.039
Dimension Data	$0.077
CenturyLink	$0.080
IBM SoftLayer	$0.083
HP Helion	$0.090
Rackspace	$0.094
Google	$0.103
Verizon	$0.113
GoGrid	$0.120
Microsoft Azure	$0.148
Internap	$0.160
Joyent	$0.300
CloudSigma	-
DigitalOcean	-

MEDIUM HOURLY INSTANCE (2 Core, 4GB RAM, WINDOWS)



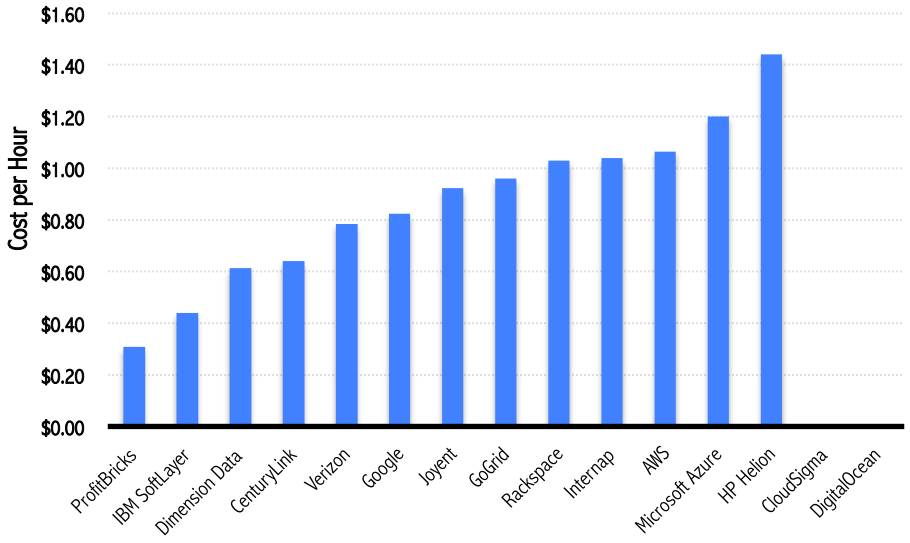
SERVICE	HOUR
AWS	$0.072
ProfitBricks	$0.077
IBM SoftLayer	$0.142
Dimension Data	$0.153
CenturyLink	$0.160
HP Helion	$0.180
Rackspace	$0.188
Verizon	$0.196
Google	$0.206
GoGrid	$0.240
Internap	$0.260
Microsoft Azure	$0.296
Joyent	$0.300
CloudSigma	-
DigitalOcean	-

LARGE HOURLY INSTANCE (4 Core, 8GB RAM, WINDOWS)



SERVICE	HOUR
ProfitBricks	$0.154
IBM SoftLayer	$0.248
Dimension Data	$0.306
CenturyLink	$0.320
HP Helion	$0.360
Rackspace	$0.376
Verizon	$0.392
Google	$0.412
GoGrid	$0.480
Internap	$0.520
AWS	$0.532
Joyent	$0.540
Microsoft Azure	$0.592
CloudSigma	-
DigitalOcean	-

XLARGE HOURLY INSTANCE (8 Core, 16GB RAM, WINDOWS)



SERVICE	HOUR
ProfitBricks	$0.309
IBM SoftLayer	$0.440
Dimension Data	$0.612
CenturyLink	$0.640
Verizon	$0.784
Google	$0.824
Joyent	$0.923
GoGrid	$0.960
Rackspace	$1.030
Internap	$1.040
AWS	$1.064
Microsoft Azure	$1.200
HP Helion	$1.440
CloudSigma	-
DigitalOcean	-

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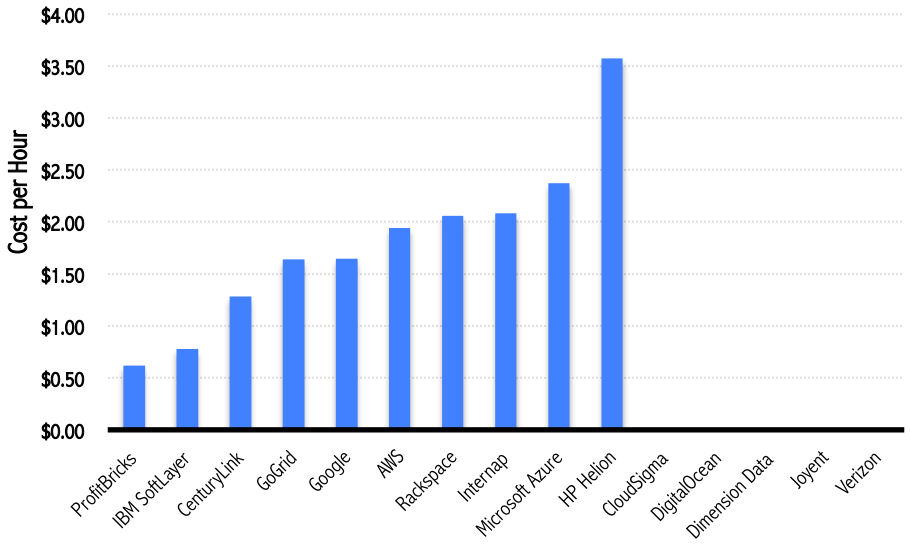
2XLARGE HOURLY INSTANCE (16 Core, 32GB RAM, WINDOWS)



SERVICE	HOUR
ProfitBricks	$0.618
IBM SoftLayer	$0.780
CenturyLink	$1.280
GoGrid	$1.640
Google	$1.648
AWS	$1.944
Rackspace	$2.060
Internap	$2.080
Microsoft Azure	$2.372
HP Helion	$3.570
CloudSigma	-
DigitalOcean	-
Dimension Data	-
Joyent	-
Verizon	-

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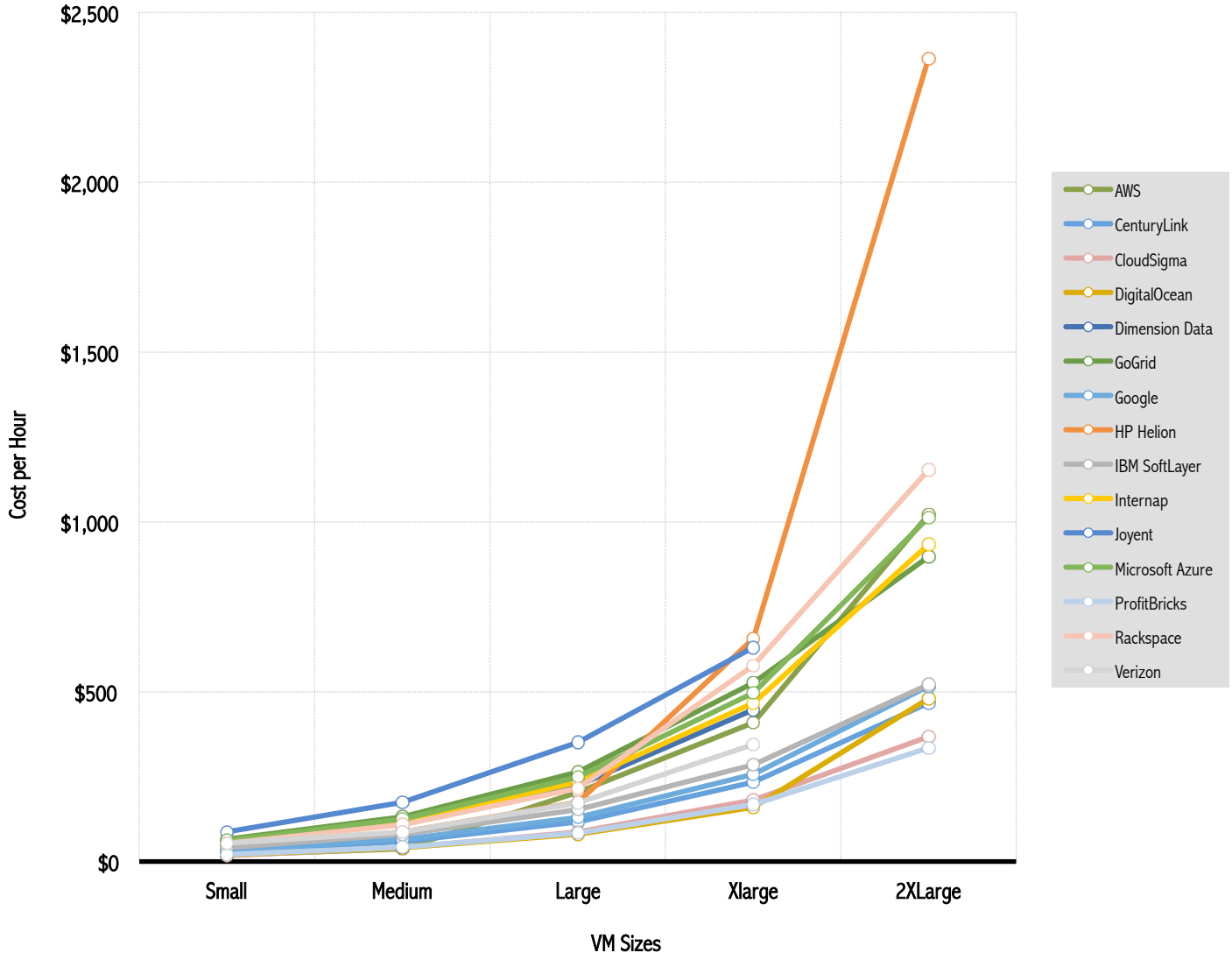
MONTHLY PRICE
Linux

	AWS	CenturyLink	CloudSigma	DigitalOcean	Dimension Data	GoGrid*	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
Small	$19	$29	$18	$20	$56	$66	$33	$44	$40	$58	$88	$62	$21	$54	$54
Medium	$38	$58	$41	$40	$112	$131	$65	$88	$80	$117	$175	$124	$42	$108	$86
Large	$204	$117	$88	$80	$223	$263	$129	$175	$154	$234	$350	$248	$84	$216	$172
XLarge	$409	$234	$181	$160	$447	$526	$258	$657	$286	$467	$630	$496	$167	$577	$345
2XLarge	$1,022	$467	$368	$480	-	$898	$515	$2,365	$521	$934	-	$1,013	$334	$1,153	-

**GoGrid's monthly price only applies once a user subscribes to an annual plan with a minimum of $250 per month usage.*
Prices in red are publicly available discounted prices.



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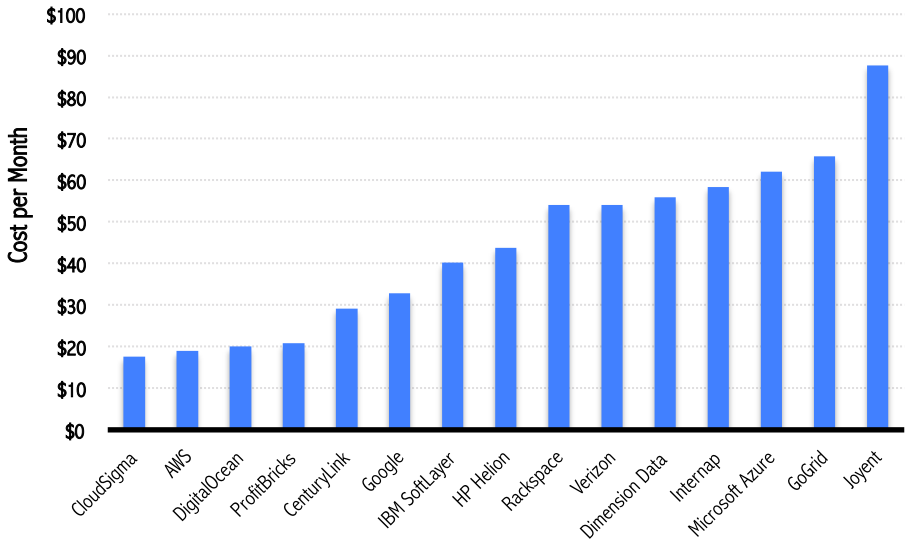
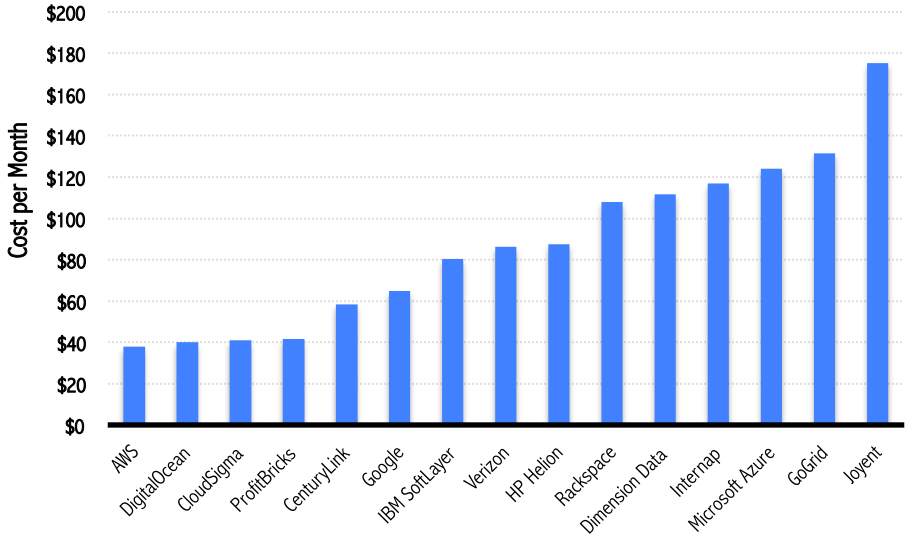
SMALL MONTHLY INSTANCE (1 Core, 2GB RAM, LINUX)



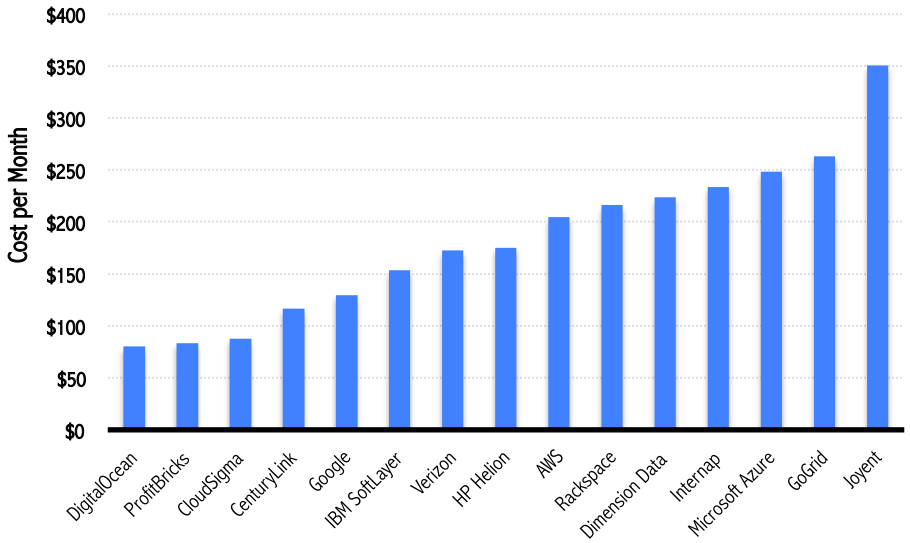
SERVICE	MONTH
CloudSigma	$17.63
AWS	$18.98
DigitalOcean	$20.00
ProfitBricks	$20.88
CenturyLink	$29.20
Google	$32.85
IBM SoftLayer	$40.20
HP Helion	$43.80
Rackspace	$54.02
Verizon	$54.02
Dimension Data	$55.85
Internap	$58.40
Microsoft Azure	$62.05
GoGrid	$65.70
Joyent	$87.60

MEDIUM MONTHLY INSTANCE (2 Core, 4GB RAM, LINUX)



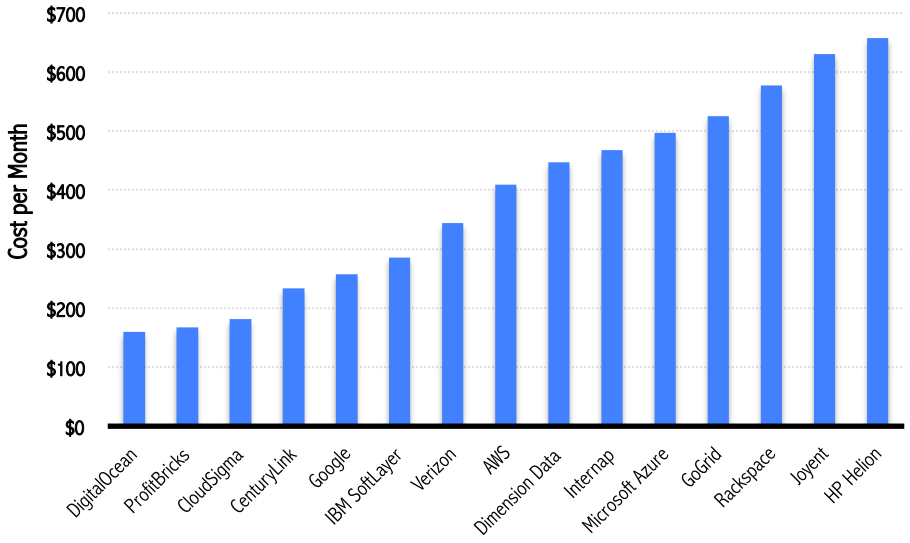
SERVICE	MONTH
AWS	$37.96
DigitalOcean	$40.00
CloudSigma	$40.99
ProfitBricks	$41.76
CenturyLink	$58.40
Google	$64.97
IBM SoftLayer	$80.40
Verizon	$86.14
HP Helion	$87.60
Rackspace	$108.04
Dimension Data	$111.69
Internap	$116.80
Microsoft Azure	$124.10
GoGrid	$131.40
Joyent	$175.20

LARGE MONTHLY INSTANCE (4 Core, 8GB RAM, LINUX)



SERVICE	MONTH
DigitalOcean	$80.00
ProfitBricks	$83.51
CloudSigma	$87.72
CenturyLink	$116.80
Google	$129.21
IBM SoftLayer	$153.60
Verizon	$172.28
HP Helion	$175.20
AWS	$204.40
Rackspace	$216.08
Dimension Data	$223.38
Internap	$233.60
Microsoft Azure	$248.20
GoGrid	$262.80
Joyent	$350.40

XLARGE MONTHLY INSTANCE (8 Core, 16GB RAM, LINUX)



SERVICE	MONTH
DigitalOcean	$160.00
ProfitBricks	$167.02
CloudSigma	$181.16
CenturyLink	$233.60
Google	$257.69
IBM SoftLayer	$285.60
Verizon	$344.56
AWS	$408.80
Dimension Data	$446.76
Internap	$467.20
Microsoft Azure	$496.40
GoGrid	$525.60
Rackspace	$576.70
Joyent	$629.99
HP Helion	$657.00

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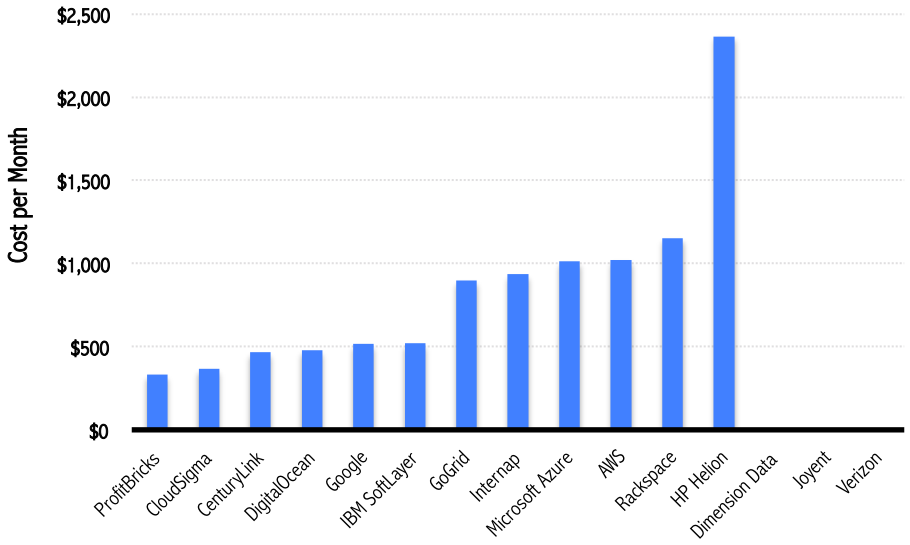
2XLARGE MONTHLY INSTANCE (16 Core, 32GB RAM, LINUX)



SERVICE	MONTH
ProfitBricks	$334.05
CloudSigma	$368.06
CenturyLink	$467.20
DigitalOcean	$480.00
Google	$515.38
IBM SoftLayer	$520.80
GoGrid	$897.90
Internap	$934.40
Microsoft Azure	$1,012.51
AWS	$1,022.00
Rackspace	$1,153.40
HP Helion	$2,365.20
Dimension Data	-
Joyent	-
Verizon	-

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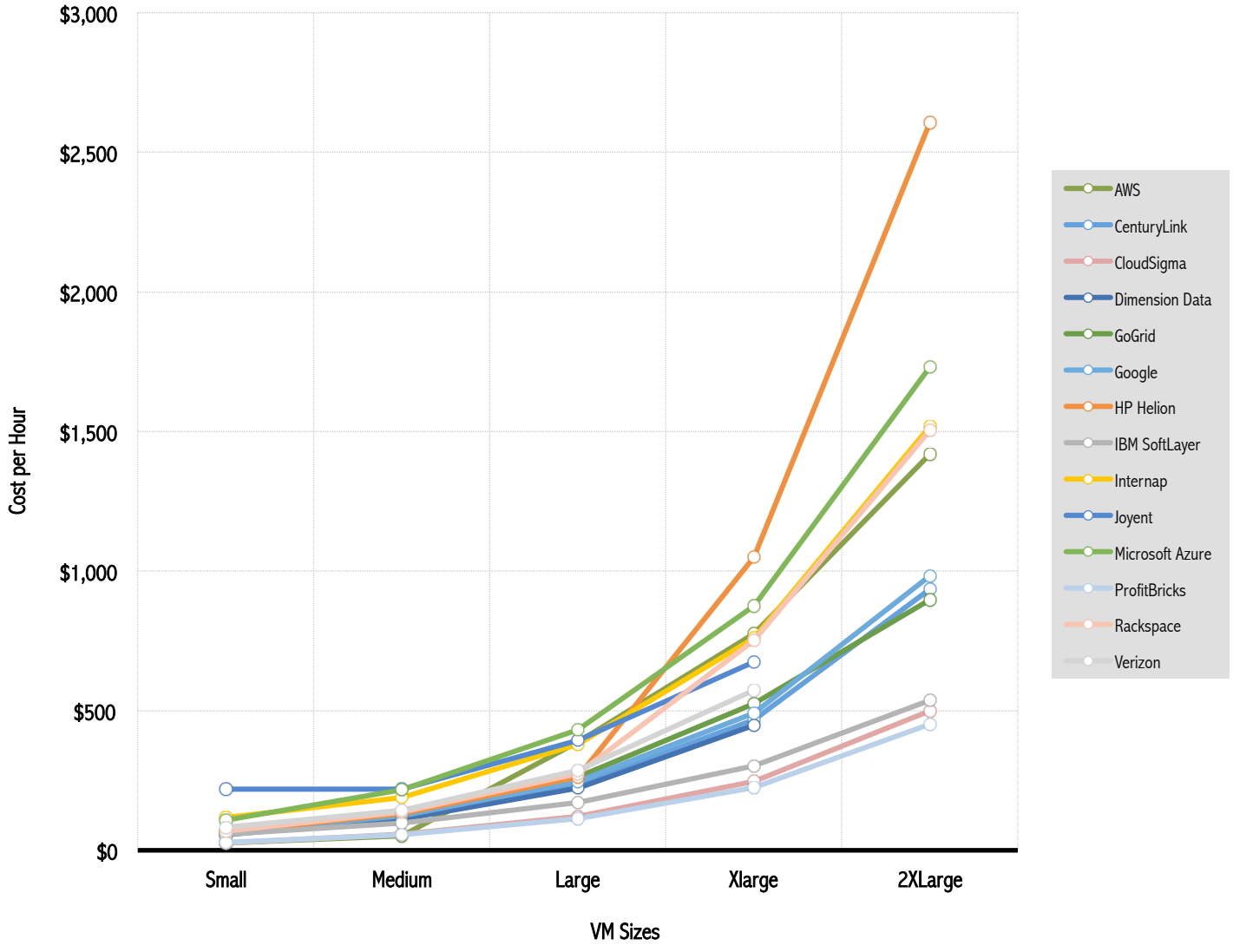
MONTHLY PRICE
Windows

	AWS	CenturyLink	CloudSigma	DigitalOcean*	Dimension Data	GoGrid**	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
Small	$26	$58	$26	-	$56	$66	$62	$66	$57	$117	$219	$108	$28	$69	$82
Medium	$53	$117	$57	-	$112	$131	$123	$131	$97	$190	$219	$216	$56	$137	$143
Large	$388	$234	$121	-	$223	$263	$246	$263	$171	$380	$394	$432	$113	$274	$286
XLarge	$777	$467	$247	-	$447	$526	$491	$1,051	$303	$759	$674	$876	$225	$752	$572
2XLarge	$1,419	$934	$499	-	-	$898	$983	$2,606	$538	$1,518	-	$1,732	$451	$1,504	-

**Digital Ocean does not offer Windows operating systems.*
***GoGrid's monthly price only applies once a user subscribes to an annual plan with a minimum of $250 per month usage.*
Prices in red are publicly available discounted prices.



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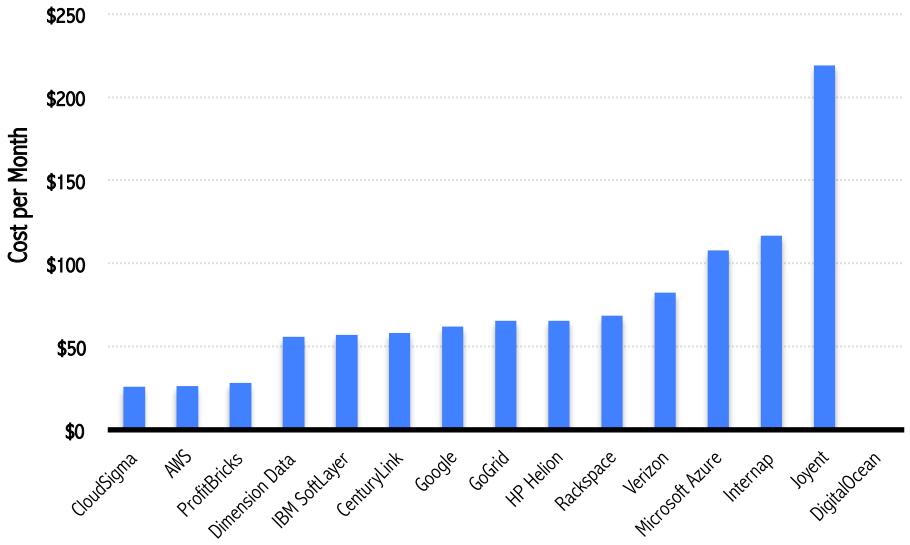
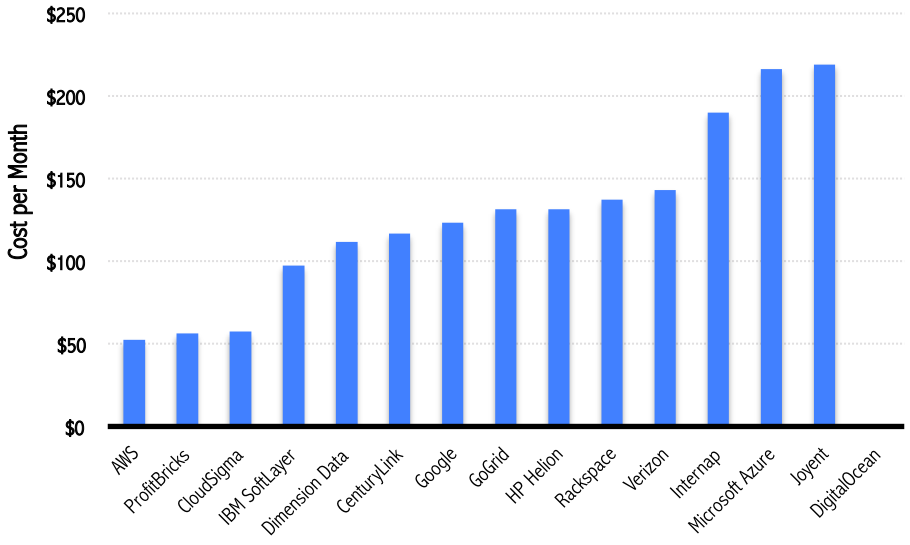
SMALL MONTHLY INSTANCE (1 Core, 2GB RAM, WINDOWS)



SERVICE	MONTH
CloudSigma	$25.83
AWS	$26.28
ProfitBricks	$28.18
Dimension Data	$55.85
IBM SoftLayer	$57.20
CenturyLink	$58.40
Google	$62.05
GoGrid	$65.70
HP Helion	$65.70
Rackspace	$68.62
Verizon	$82.49
Microsoft Azure	$108.04
Internap	$116.80
Joyent	$219.00
DigitalOcean	-

MEDIUM MONTHLY INSTANCE (2 Core, 4GB RAM, WINDOWS)



SERVICE	MONTH
AWS	$52.56
ProfitBricks	$56.36
CloudSigma	$57.38
IBM SoftLayer	$97.40
Dimension Data	$111.69
CenturyLink	$116.80
Google	$123.37
GoGrid	$131.40
HP Helion	$131.40
Rackspace	$137.24
Verizon	$143.08
Internap	$189.80
Microsoft Azure	$216.08
Joyent	$219.00
DigitalOcean	-

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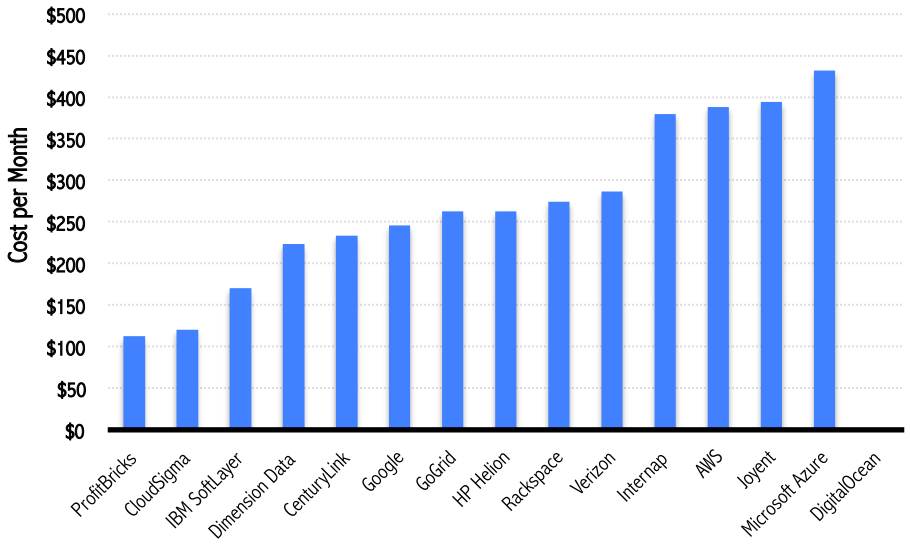
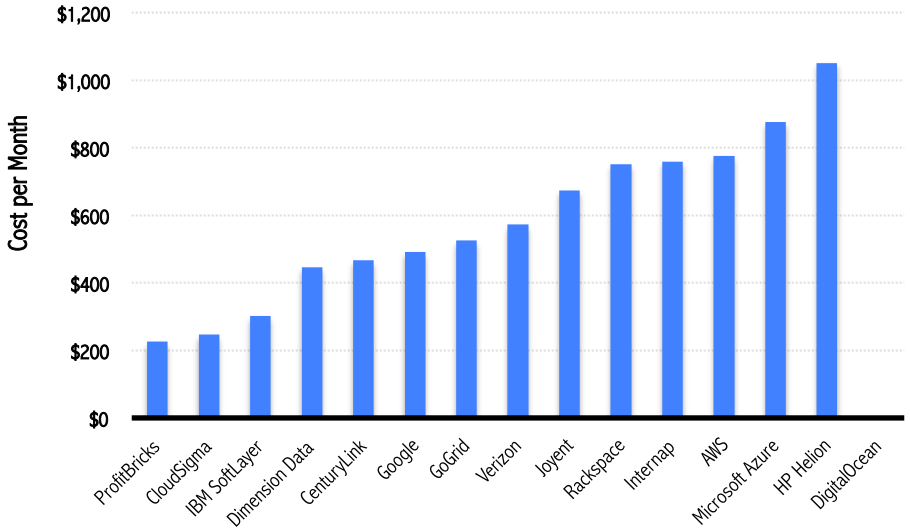
LARGE MONTHLY INSTANCE (4 Core, 8GB RAM, WINDOWS)



SERVICE	MONTH
ProfitBricks	$112.71
CloudSigma	$120.51
IBM SoftLayer	$170.60
Dimension Data	$223.38
CenturyLink	$233.60
Google	$246.01
GoGrid	$262.80
HP Helion	$262.80
Rackspace	$274.48
Verizon	$286.16
Internap	$379.60
AWS	$388.36
Joyent	$394.20
Microsoft Azure	$432.16
DigitalOcean	-

XLARGE MONTHLY INSTANCE (8 Core, 16GB RAM, WINDOWS)



SERVICE	MONTH
ProfitBricks	$225.42
CloudSigma	$246.74
IBM SoftLayer	$302.60
Dimension Data	$446.76
CenturyLink	$476.20
Google	$491.29
GoGrid	$525.60
Verizon	$572.32
Joyent	$673.79
Rackspace	$751.90
Internap	$759.20
AWS	$776.72
Microsoft Azure	$876.00
HP Helion	$1,051.20
DigitalOcean	-

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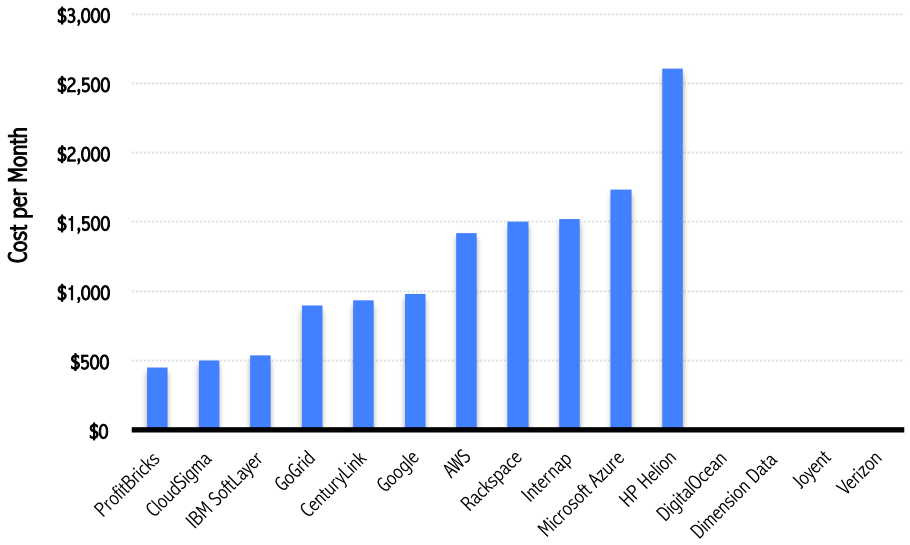
2XLARGE MONTHLY INSTANCE (16 Core, 32GB RAM, WINDOWS)



SERVICE	MONTH
ProfitBricks	$450.85
CloudSigma	$499.22
IBM SoftLayer	$537.80
GoGrid	$897.90
CenturyLink	$934.40
Google	$982.58
AWS	$1,419.12
Rackspace	$1,503.80
Internap	$1,518.40
Microsoft Azure	$1,731.56
HP Helion	$2,606.10
DigitalOcean	-
Dimension Data	-
Joyent	-
Verizon	-

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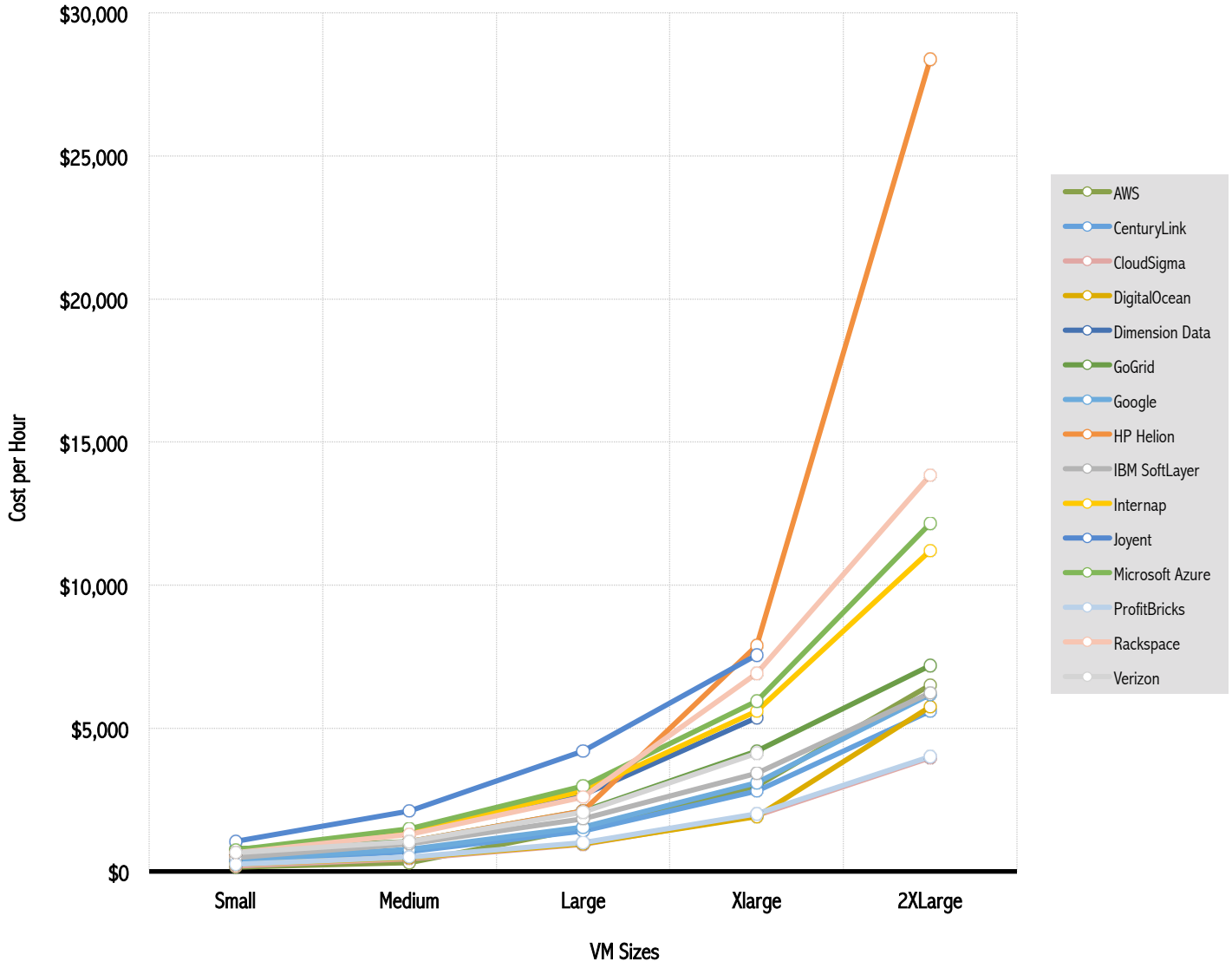
ANNUAL PRICE

Linux

	AWS	CenturyLink	CloudSigma	DigitalOcean	Dimension Data	GoGrid*	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
Small	$151	$350	$190	$240	$670	$526	$394	$526	$482	$701	$1,051	$745	$251	$648	$648
Medium	$302	$701	$443	$480	$1,340	$1,051	$780	$1,051	$965	$1,402	$2,102	$1,489	$501	$1,296	$1,034
Large	$1,503	$1,402	$947	$960	$2,681	$2,102	$1,551	$2,102	$1,843	$2,803	$4,205	$2,978	$1,002	$2,593	$2,067
XLarge	$2,989	$2,803	$1,957	$1,920	$5,361	$4,205	$3,092	$7,884	$3,427	$5,606	$7,560	$5,957	$2,004	$6,920	$4,135
2XLarge	$6,507	$5,606	$3,975	$5,760	-	$7,183	$6,185	$28,382	$6,250	$11,213	-	$12,150	$4,009	$13,841	-

**GoGrid's annual price only applies once a user subscribes to an annual plan with a minimum of $250 per month usage.*
Prices in red are publicly available discounted prices reflecting discounts from hourly pricing.



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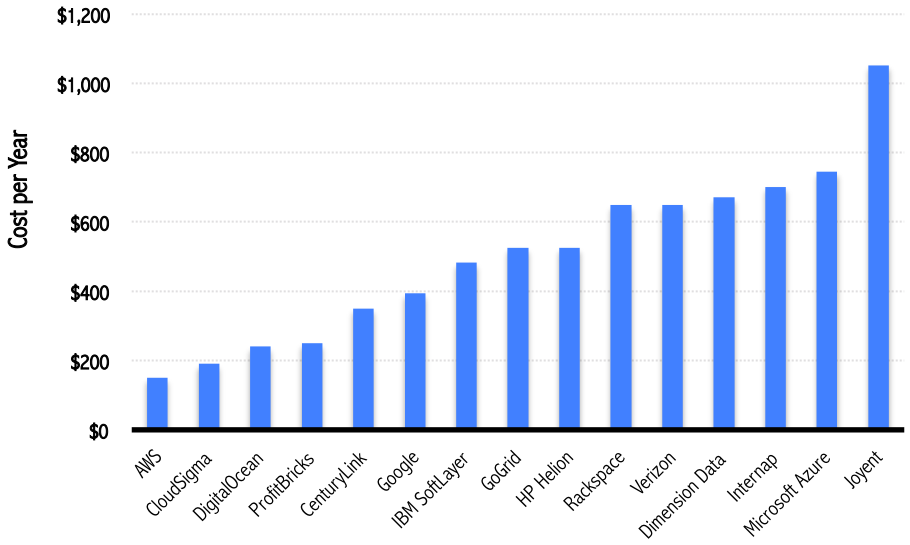
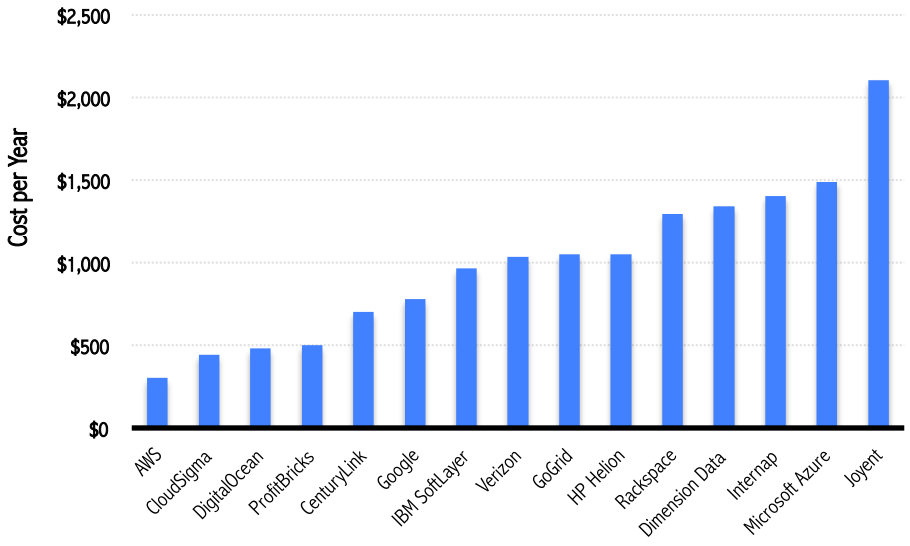
SMALL ANNUAL INSTANCE (1 Core, 2GB RAM, LINUX)



SERVICE	YEAR
AWS	$151
CloudSigma	$190
DigitalOcean	$240
ProfitBricks	$251
CenturyLink	$350
Google	$394
IBM SoftLayer	$482
GoGrid	$526
HP Helion	$526
Rackspace	$648
Verizon	$648
Dimension Data	$670
Internap	$701
Microsoft Azure	$745
Joyent	$1,051

MEDIUM ANNUAL INSTANCE (2 Core, 4GB RAM, LINUX)



SERVICE	YEAR
AWS	$302
CloudSigma	$443
DigitalOcean	$480
ProfitBricks	$501
CenturyLink	$701
Google	$780
IBM SoftLayer	$965
Verizon	$1,034
GoGrid	$1,051
HP Helion	$1,051
Rackspace	$1,296
Dimension Data	$1,340
Internap	$1,402
Microsoft Azure	$1,489
Joyent	$2,102

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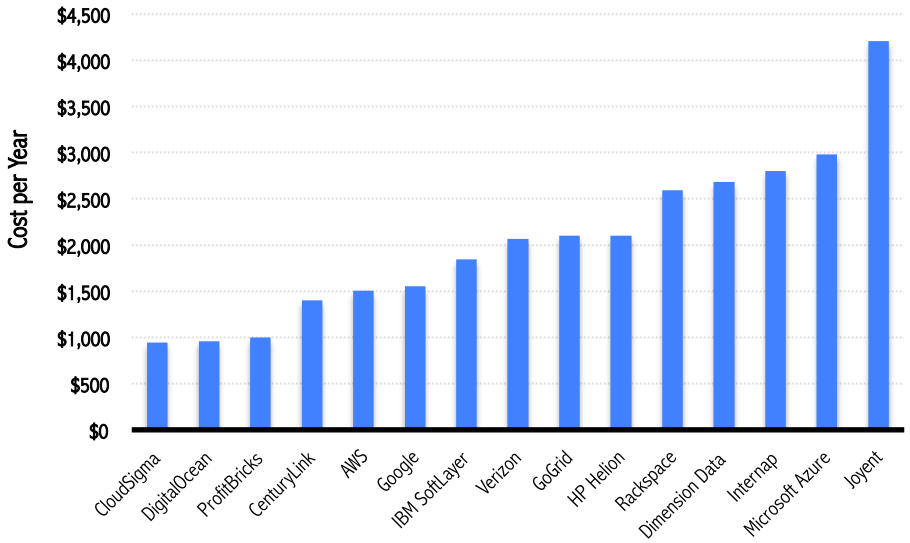
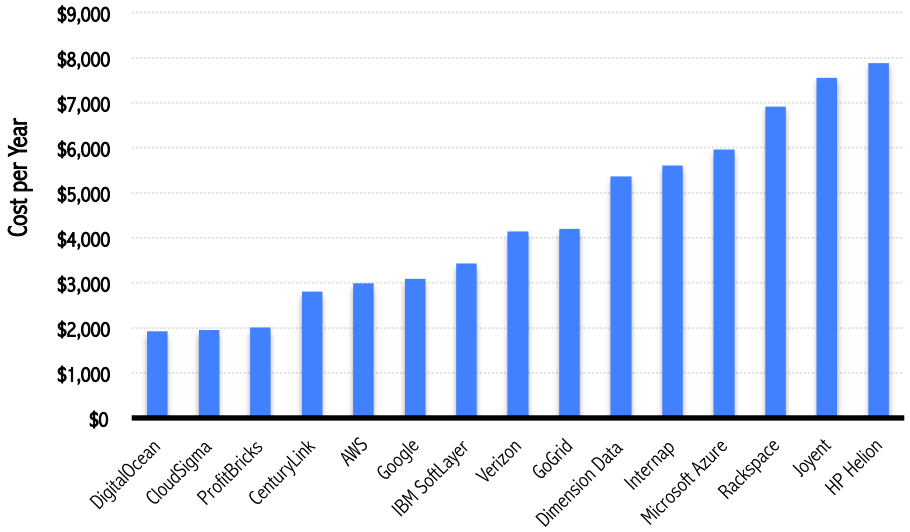
LARGE ANNUAL INSTANCE (4 Core, 8GB RAM, LINUX)



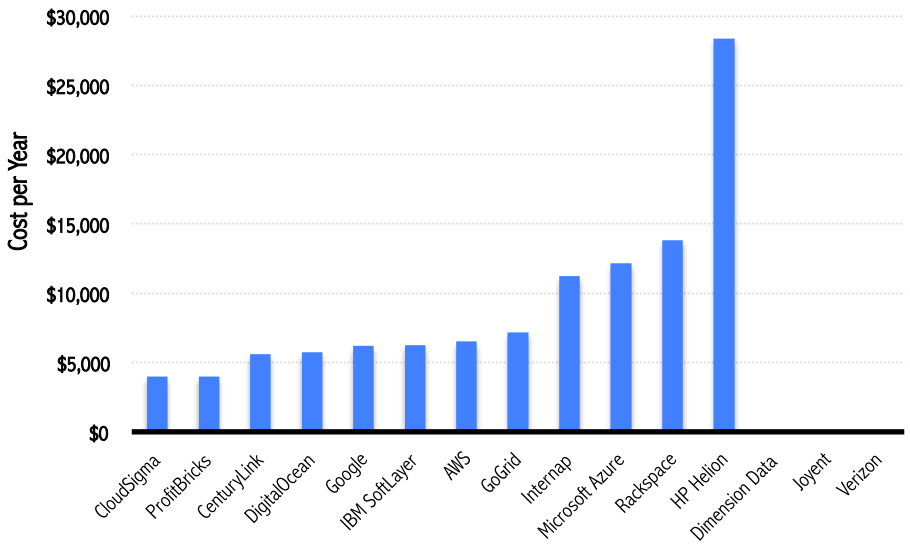
SERVICE	YEAR
CloudSigma	$947
DigitalOcean	$960
ProfitBricks	$1,002
CenturyLink	$1,402
AWS	$1,503
Google	$1,551
IBM SoftLayer	$1,843
Verizon	$2,067
GoGrid	$2,102
HP Helion	$2,102
Rackspace	$2,593
Dimension Data	$2,681
Internap	$2,803
Microsoft Azure	$2,978
Joyent	$4,205

XLARGE ANNUAL INSTANCE (8 Core, 16GB RAM, LINUX)



SERVICE	YEAR
DigitalOcean	$1,920
CloudSigma	$1,957
ProfitBricks	$2,004
CenturyLink	$2,803
AWS	$2,989
Google	$3,092
IBM SoftLayer	$3,427
Verizon	$4,135
GoGrid	$4,205
Dimension Data	$5,361
Internap	$5,606
Microsoft Azure	$5,957
Rackspace	$6,920
Joyent	$7,560
HP Helion	$7,884

2XLARGE ANNUAL INSTANCE (16 Core, 32GB RAM, LINUX)

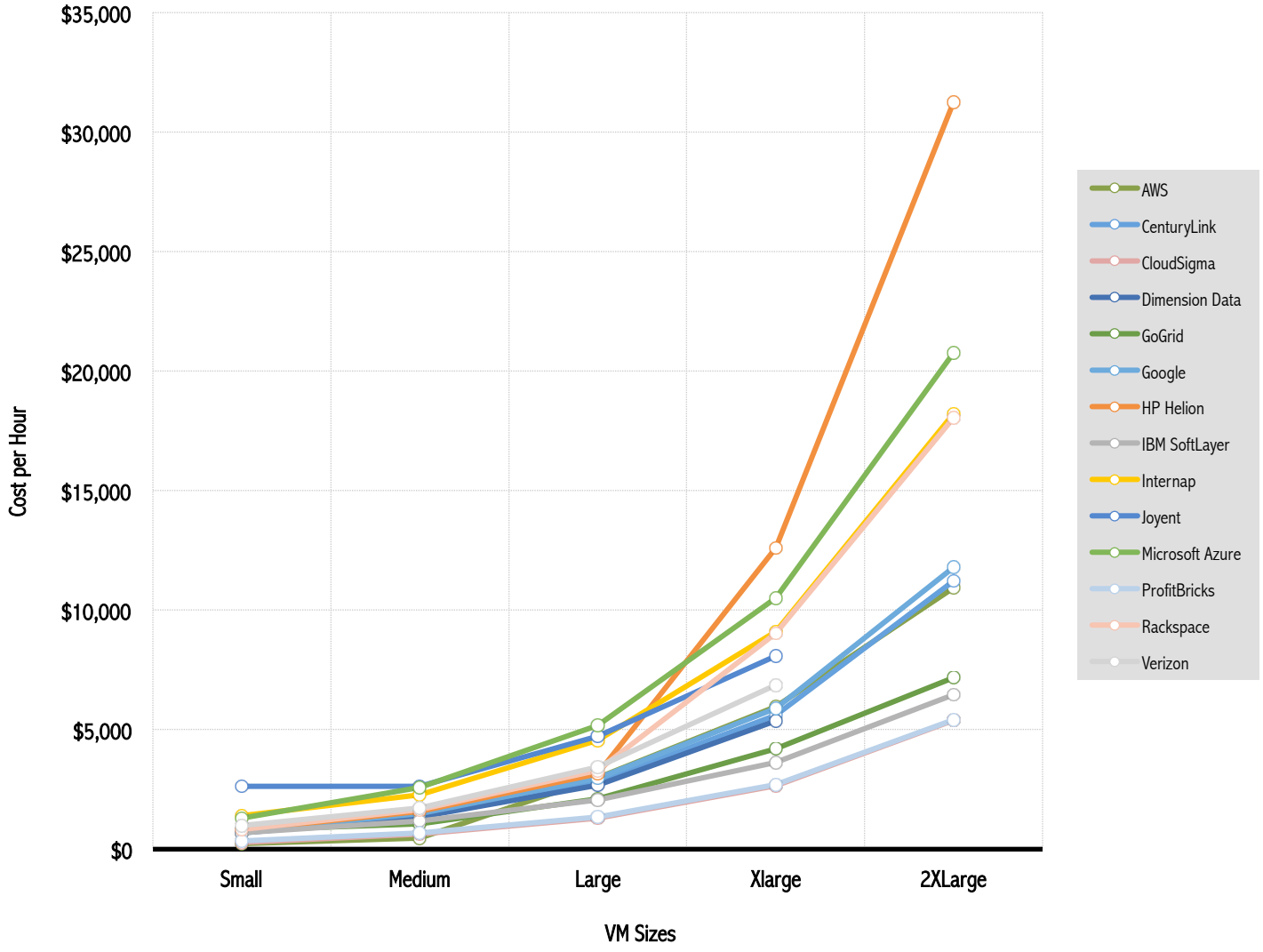


SERVICE	YEAR
CloudSigma	$3,975
ProfitBricks	$4,009
CenturyLink	$5,606
DigitalOcean	$5,760
Google	$6,185
IBM SoftLayer	$6,250
AWS	$6,507
GoGrid	$7,183
Internap	$11,213
Microsoft Azure	$12,150
Rackspace	$13,841
HP Helion	$28,382
Dimension Data	-
Joyent	-
Verizon	-

ANNUAL PRICE
Windows

	AWS	CenturyLink	CloudSigma	DigitalOcean*	Dimension Data	GoGrid**	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
Small	$232	$701	$279	-	$670	$526	$745	$788	$686	$1,402	$2,628	$1,296	$338	$823	$990
Medium	$455	$1,402	$620	-	$1,340	$1,051	$1,480	$1,577	$1,169	$2,278	$2,628	$2,593	$676	$1,647	$1,717
Large	$2,987	$2,803	$1,301	-	$2,681	$2,102	$2,952	$3,154	$2,047	$4,555	$4,730	$5,186	$1,353	$3,294	$3,434
XLarge	$5,965	$5,606	$2,665	-	$5,361	$4,205	$5,895	$12,614	$3,631	$9,110	$8,085	$10,512	$2,705	$9,023	$6,868
2XLarge	$10,932	$11,213	$5,392	-	-	$7,183	$11,791	$31,273	$6,454	$18,221	-	$20,779	$5,410	$18,046	-

**Digital Ocean does not offer Windows operating systems.*
***GoGrid's annual price only applies once a user subscribes to an annual plan with a minimum of $250 per month usage.*
Prices in red are publicly available discounted prices reflecting discounts from hourly pricing.



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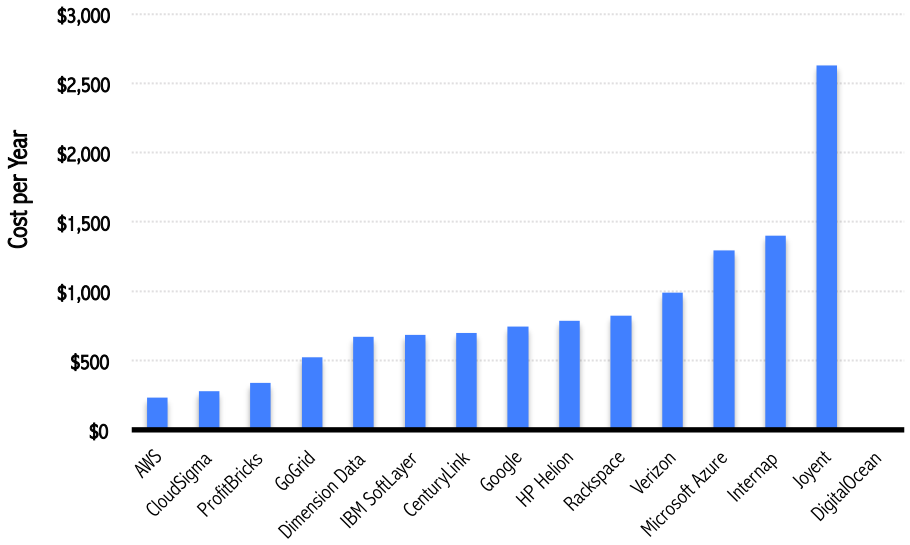
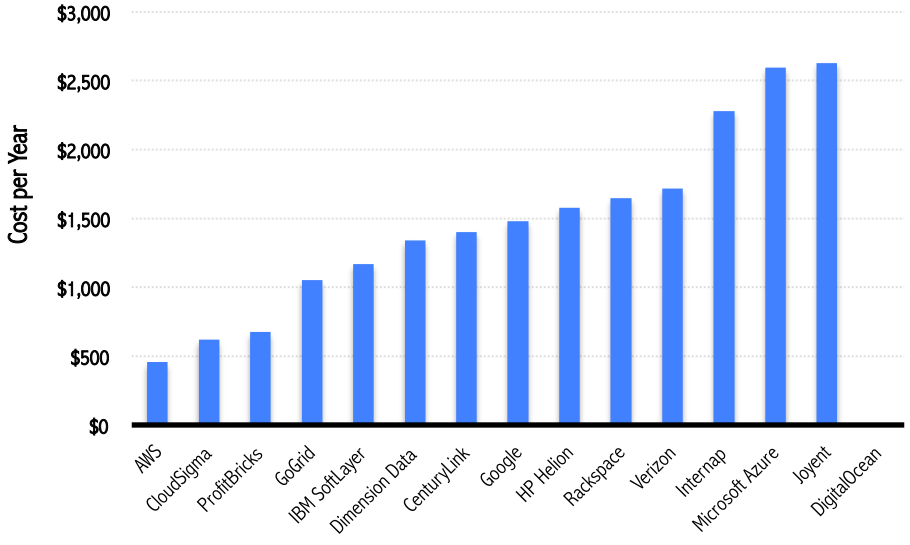
SMALL ANNUAL INSTANCE (1 Core, 2GB RAM, WINDOWS)



SERVICE	YEAR
AWS	$232
CloudSigma	$279
ProfitBricks	$338
GoGrid	$526
Dimension Data	$670
IBM SoftLayer	$686
CenturyLink	$701
Google	$745
HP Helion	$788
Rackspace	$823
Verizon	$990
Microsoft Azure	$1,296
Internap	$1.402
Joyent	$2,628
DigitalOcean	-

MEDIUM ANNUAL INSTANCE (2 Core, 4GB RAM, WINDOWS)



SERVICE	YEAR
AWS	$455
CloudSigma	$620
ProfitBricks	$676
GoGrid	$1,051
IBM SoftLayer	$1,169
Dimension Data	$1,340
CenturyLink	$1,402
Google	$1,480
HP Helion	$1,577
Rackspace	$1,647
Verizon	$1,717
Internap	$2,278
Microsoft Azure	$2,593
Joyent	$2,628
DigitalOcean	-

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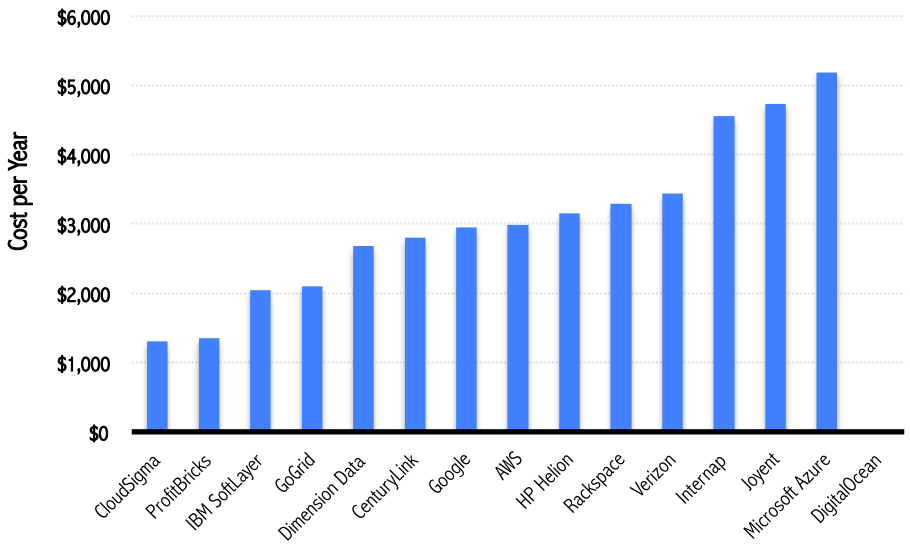
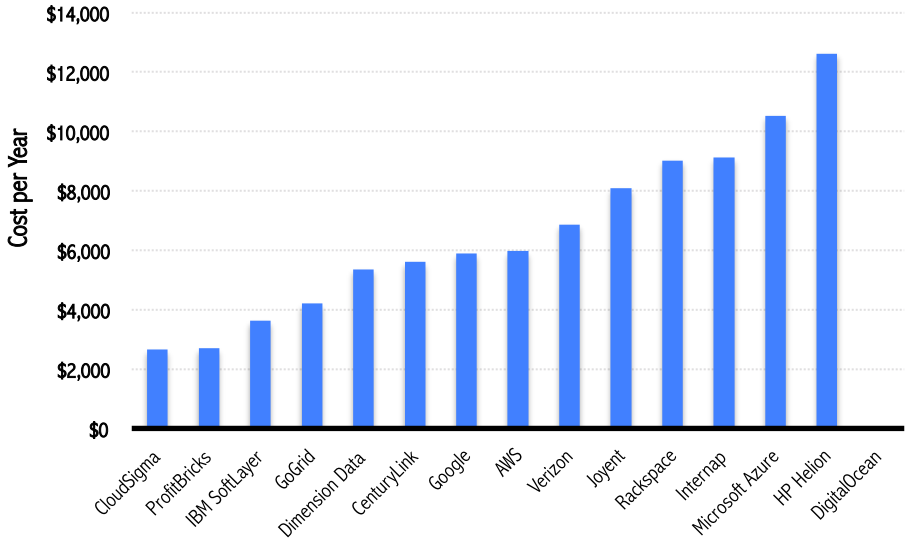
LARGE ANNUAL INSTANCE (4 Core, 8GB RAM, WINDOWS)



SERVICE	YEAR
CloudSigma	$1,301
ProfitBricks	$1,353
IBM SoftLayer	$2,047
GoGrid	$2,102
Dimension Data	$2,681
CenturyLink	$2,803
Google	$2,952
AWS	$2,987
HP Helion	$3,154
Rackspace	$3,294
Verizon	$3,434
Internap	$4,555
Joyent	$4,730
Microsoft Azure	$5,186
DigitalOcean	-

XLARGE ANNUAL INSTANCE (8 Core, 16GB RAM, WINDOWS)



SERVICE	YEAR
CloudSigma	$2,665
ProfitBricks	$2,705
IBM SoftLayer	$3,631
GoGrid	$4,205
Dimension Data	$5,361
CenturyLink	$5,606
Google	$5,895
AWS	$5,965
Verizon	$6,868
Joyent	$8,085
Rackspace	$9,023
Internap	$9,110
Microsoft Azure	$10,512
HP Helion	$12,614
DigitalOcean	-

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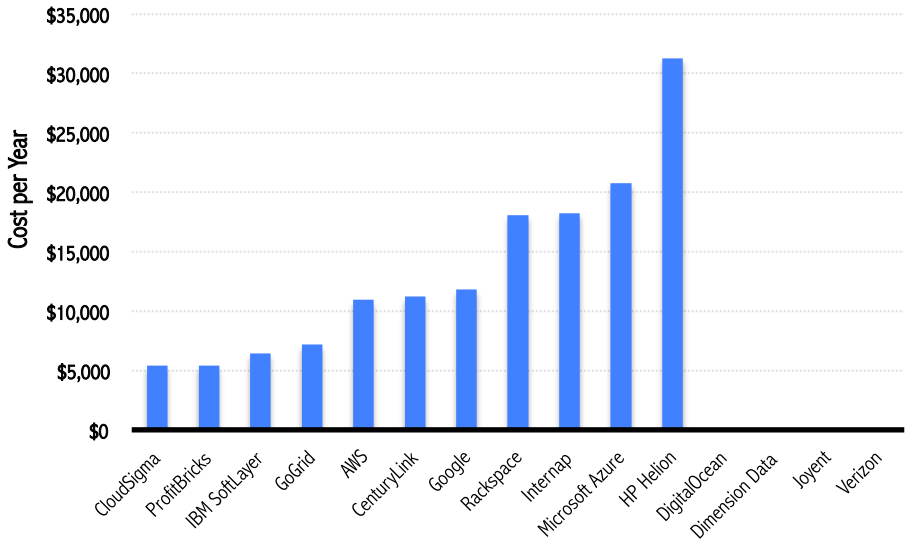
2XLARGE ANNUAL INSTANCE (16 Core, 32GB RAM, WINDOWS)

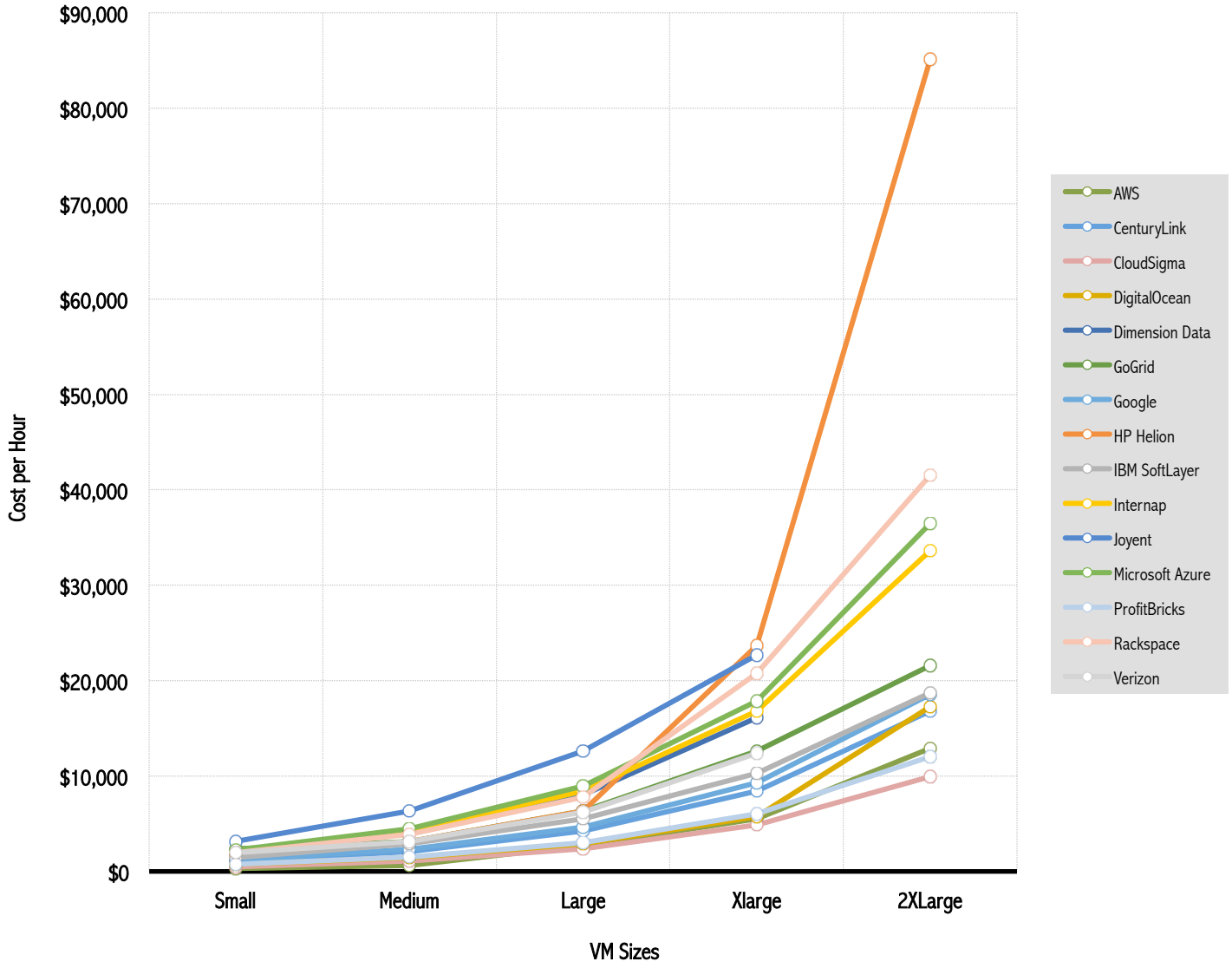


SERVICE	YEAR
CloudSigma	$5,392
ProfitBricks	$5,410
IBM SoftLayer	$6,454
GoGrid	$7,183
AWS	$10,932
CenturyLink	$11,213
Google	$11,791
Rackspace	$18,046
Internap	$18,221
Microsoft Azure	$20,779
HP Helion	$31,273
DigitalOcean	-
Dimension Data	-
Joyent	-
Verizon	-

3-YEAR PRICE
Linux

	AWS	CenturyLink	CloudSigma	DigitalOcean	Dimension Data	GoGrid*	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
Small	$303	$1,051	$476	$720	$2,011	$1,577	$1,183	$1,577	$1,447	$2,102	$3,154	$2,234	$752	$1,945	$1,945
Medium	$607	$2,102	$1,107	$1,440	$4,021	$3,154	$2,339	$3,154	$2,894	$4,205	$6,307	$4,468	$1,503	$3,889	$3,101
Large	$2,746	$4,205	$2,368	$2,880	$8,042	$6,307	$4,652	$6,307	$5,530	$8,410	$12,614	$8,935	$3,006	$7,779	$6,202
XLarge	$5,493	$8,410	$4,891	$5,760	$16,083	$12,614	$9,277	$23,652	$10,282	$16,819	$22,680	$17,870	$6,013	$20,761	$12,404
2XLarge	$12,906	$16,819	$9,938	$17,280	-	$21,550	$18,554	$85,147	$18,749	$33,638	-	$36,450	$12,026	$41,522	-

**GoGrid's 3-year price only applies once a user subscribes to an annual plan with a minimum of $250 per month usage in each year.*
Prices in red are publicly available discounted prices reflecting discounts from hourly pricing.



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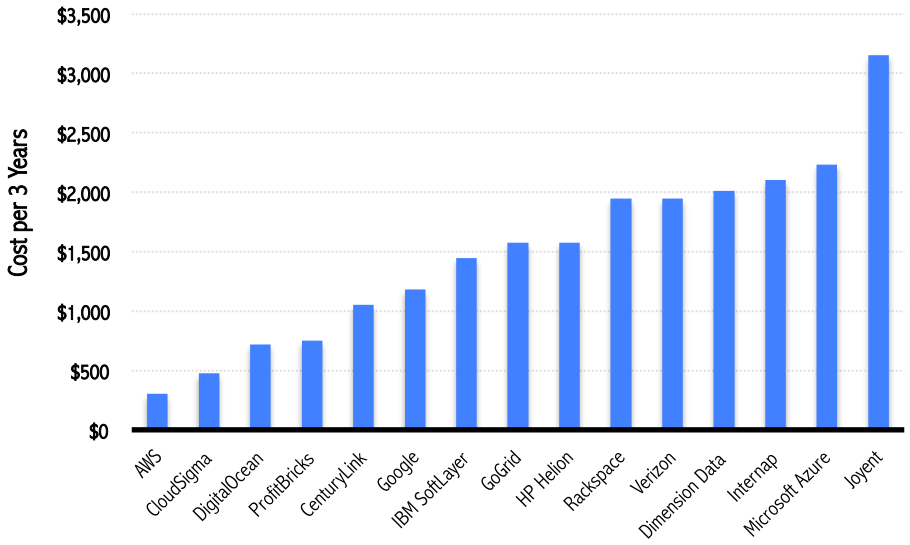
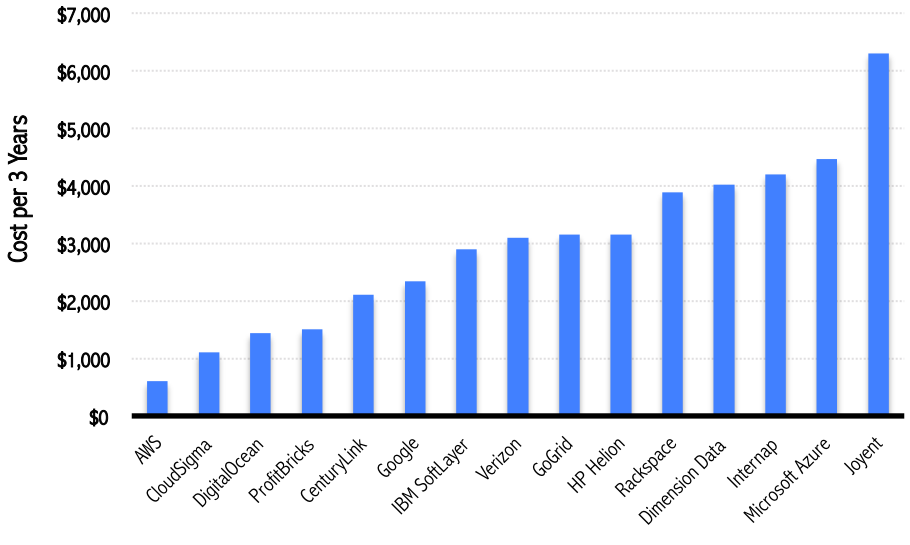
SMALL 3-YEAR INSTANCE (1 Core, 2GB RAM, LINUX)



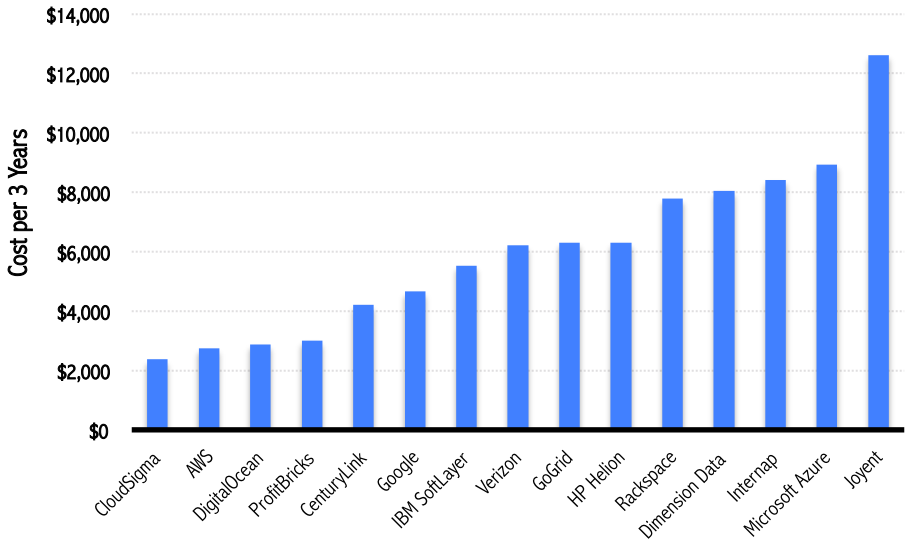
SERVICE	3 YEARS
AWS	$303
CloudSigma	$476
DigitalOcean	$720
ProfitBricks	$752
CenturyLink	$1,051
Google	$1,183
IBM SoftLayer	$1,447
GoGrid	$1,577
HP Helion	$1,577
Rackspace	$1,945
Verizon	$1,945
Dimension Data	$2,011
Internap	$2,102
Microsoft Azure	$2,234
Joyent	$3,154

MEDIUM 3-YEAR INSTANCE (2 Core, 4GB RAM, LINUX)



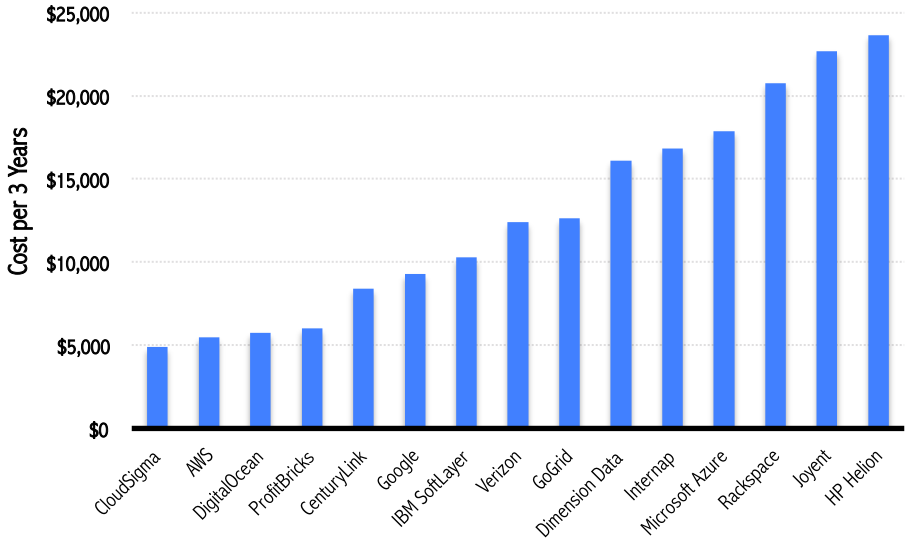
SERVICE	3 YEARS
AWS	$607
CloudSigma	$1,107
DigitalOcean	$1,440
ProfitBricks	$1,503
CenturyLink	$2,102
Google	$2,339
IBM SoftLayer	$2,894
Verizon	$3,101
GoGrid	$3,154
HP Helion	$3,154
Rackspace	$3,889
Dimension Data	$4,021
Internap	$4,205
Microsoft Azure	$4,468
Joyent	$6,307

LARGE 3-YEAR INSTANCE (4 Core, 8GB RAM, LINUX)



SERVICE	3 YEARS
CloudSigma	$2,368
AWS	$2,746
DigitalOcean	$2,880
ProfitBricks	$3,006
CenturyLink	$4,205
Google	$4,652
IBM SoftLayer	$5,530
Verizon	$6,202
GoGrid	$6,307
HP Helion	$6,307
Rackspace	$7,779
Dimension Data	$8,042
Internap	$8,410
Microsoft Azure	$8,935
Joyent	$12,614

XLARGE 3-YEAR INSTANCE (8 Core, 16GB RAM, LINUX)



SERVICE	3 YEARS
CloudSigma	$4,891
AWS	$5,493
DigitalOcean	$5,760
ProfitBricks	$6,013
CenturyLink	$8,410
Google	$9,277
IBM SoftLayer	$10,282
Verizon	$12,404
GoGrid	$12,614
Dimension Data	$16,083
Internap	$16,819
Microsoft Azure	$17,870
Rackspace	$20,761
Joyent	$22,680
HP Helion	$23,652

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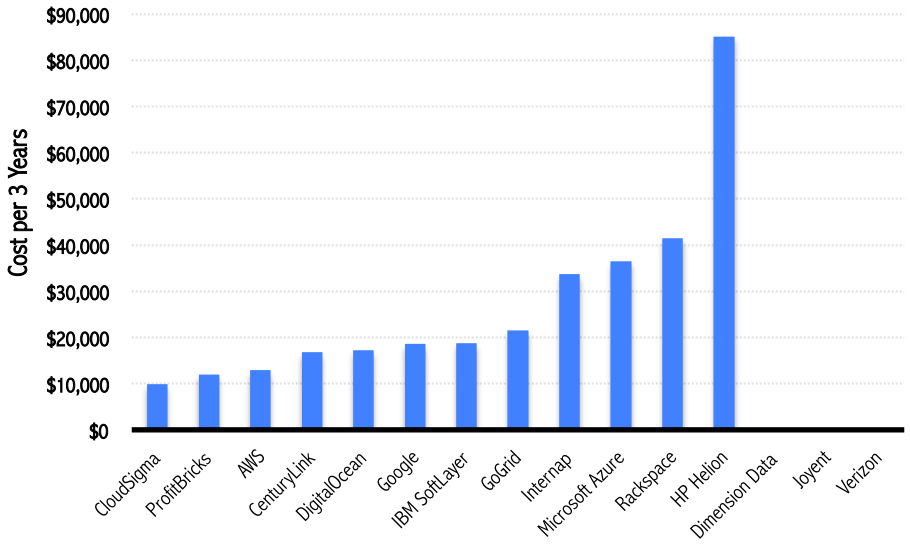
2XLARGE 3-YEAR INSTANCE (16 Core, 32GB RAM, LINUX)



SERVICE	3 YEARS
CloudSigma	$9,938
ProfitBricks	$12,026
AWS	$12,906
CenturyLink	$16,819
DigitalOcean	$17,280
Google	$18,554
IBM SoftLayer	$18,749
GoGrid	$21,550
Internap	$33,638
Microsoft Azure	$36,450
Rackspace	$41,522
HP Helion	$85,147
Dimension Data	-
Joyent	-
Verizon	-

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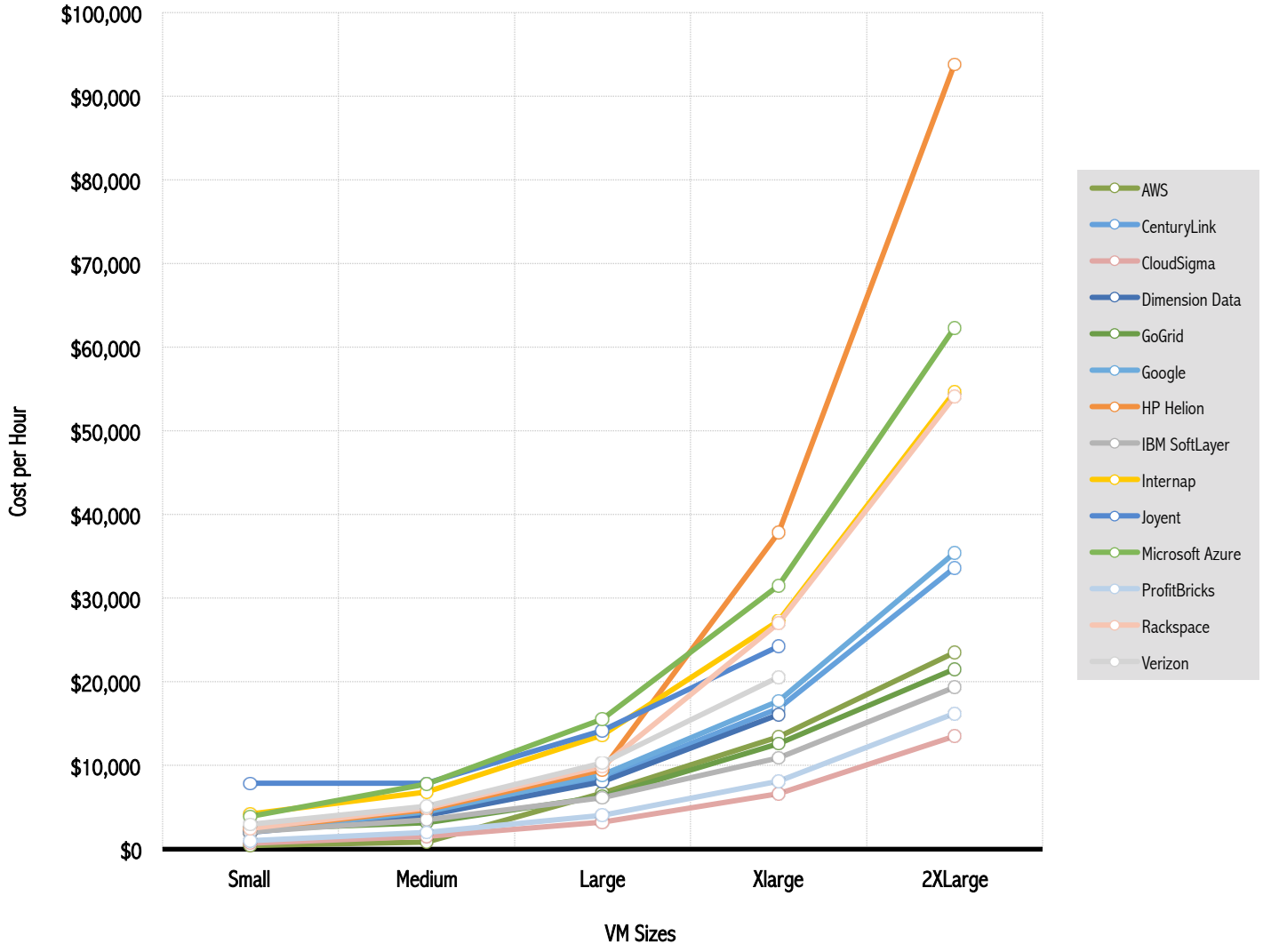
3-YEAR PRICE
Windows

	AWS	CenturyLink	CloudSigma	DigitalOcean*	Dimension Data	GoGrid**	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
Small	$430	$2,102	$697	-	$2,011	$1,577	$2,234	$2,365	$2,059	$4,205	$7,884	$3,889	$1,014	$2,470	$2,970
Medium	$859	$4,205	$1,549	-	$4,021	$3,154	$4,441	$4,730	$3,506	$6,833	$7,884	$7,779	$2,029	$4,941	$5,151
Large	$6,708	$8,410	$3,254	-	$8,042	$6,307	$8,856	$9,461	$6,142	$13,666	$14,191	$15,558	$4,058	$9,881	$10,302
XLarge	$13,417	$16,819	$6,662	-	$16,083	$12,614	$17,686	$37,843	$10,894	$27,331	$24,256	$31,536	$8,115	$27,068	$20,604
2XLarge	$23,468	$33,638	$13,479	-	-	$21,550	$35,373	$93,820	$19,361	$54,662	-	$62,336	$16,231	$54,137	-

**Digital Ocean does not offer Windows operating systems.*

***GoGrid's 3-year price only applies once a user subscribes to an annual plan with a minimum of $250 per month usage in each year.*

Prices in red are publicly available discounted prices reflecting discounts from hourly pricing.



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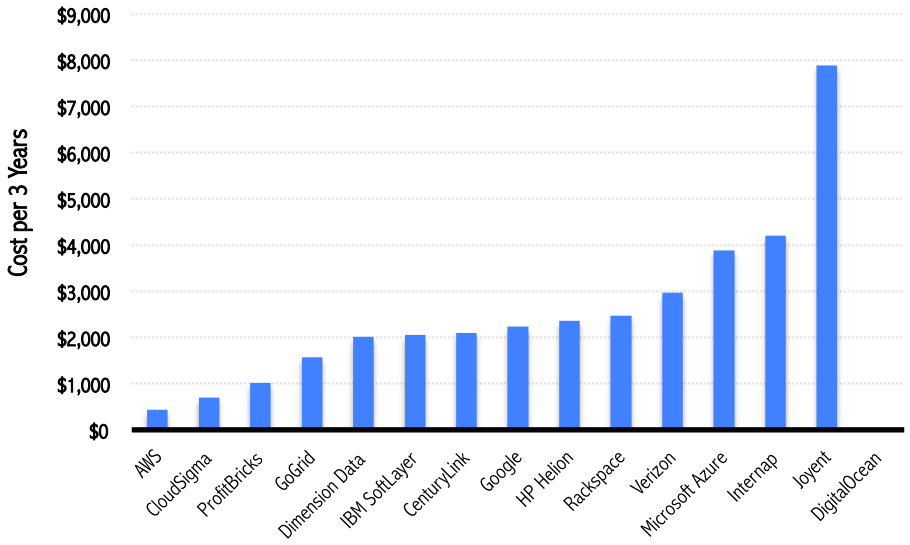
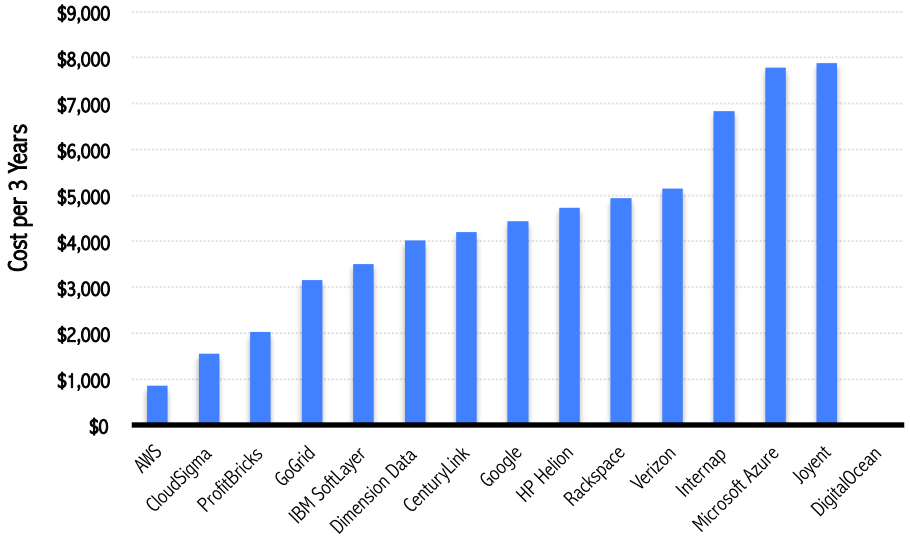
SMALL 3-YEAR INSTANCE (1 Core, 2GB RAM, WINDOWS)



SERVICE	3 YEARS
AWS	$430
CloudSigma	$697
ProfitBricks	$1,014
GoGrid	$1,577
Dimension Data	$2,011
IBM SoftLayer	$2,059
CenturyLink	$2,102
Google	$2,234
HP Helion	$2,365
Rackspace	$2,470
Verizon	$2,970
Microsoft Azure	$3,889
Internap	$4,205
Joyent	$7,884
DigitalOcean	-

MEDIUM 3-YEAR INSTANCE (2 Core, 4GB RAM, WINDOWS)



SERVICE	3 YEARS
AWS	$859
CloudSigma	$1,549
ProfitBricks	$2,029
GoGrid	$3,154
IBM SoftLayer	$3,506
Dimension Data	$4,021
CenturyLink	$4,205
Google	$4,441
HP Helion	$4,730
Rackspace	$4,941
Verizon	$5,151
Internap	$6,833
Microsoft Azure	$7,779
Joyent	$7,884
DigitalOcean	-

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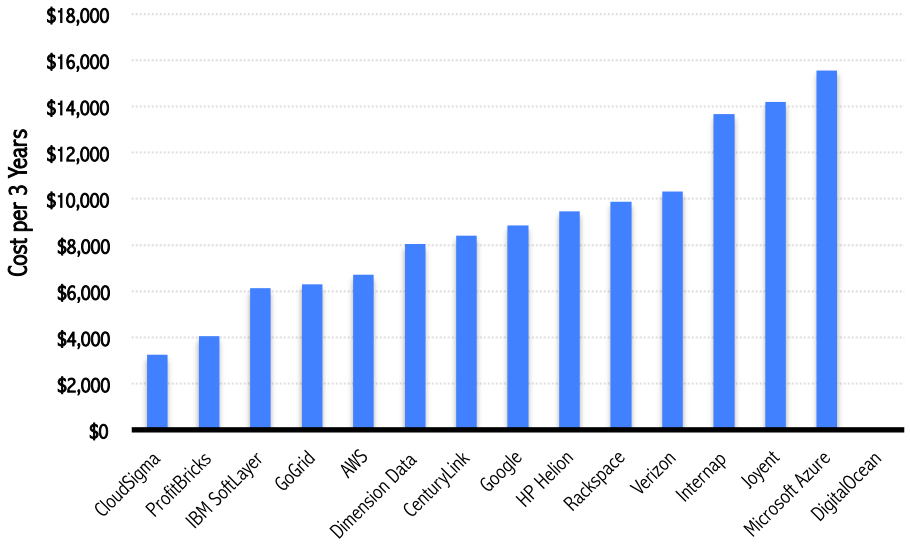
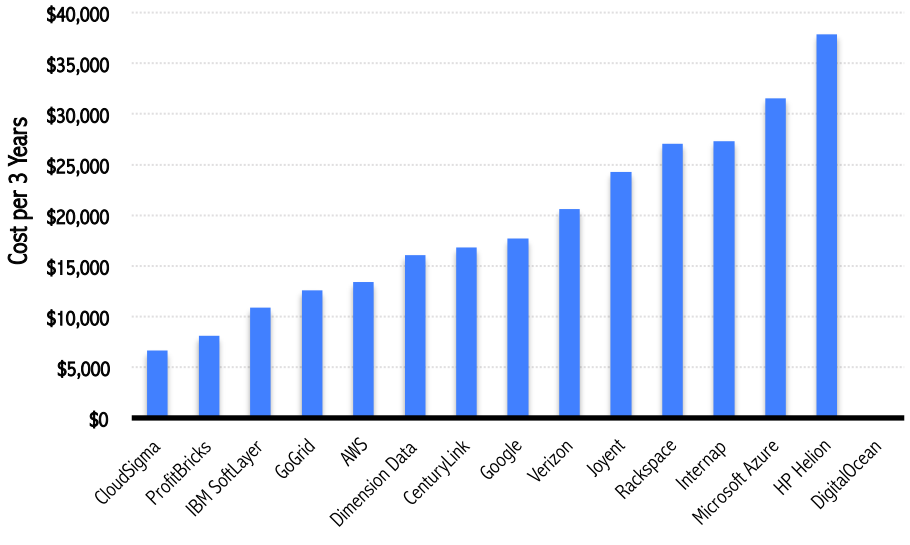
LARGE 3-YEAR INSTANCE (4 Core, 8GB RAM, WINDOWS)



SERVICE	3 YEARS
CloudSigma	$3,254
ProfitBricks	$4,058
IBM SoftLayer	$6,142
GoGrid	$6,307
AWS	$6,708
Dimension Data	$8,042
CenturyLink	$8,410
Google	$8,856
HP Helion	$9,461
Rackspace	$9,881
Verizon	$10,302
Internap	$13,666
Joyent	$14,191
Microsoft Azure	$15,558
DigitalOcean	-

XLARGE 3-YEAR INSTANCE (8 Core, 16GB RAM, WINDOWS)



SERVICE	3 YEARS
CloudSigma	$6,662
ProfitBricks	$8,115
IBM SoftLayer	$10,894
GoGrid	$12,614
AWS	$13,417
Dimension Data	$16,083
CenturyLink	$16,819
Google	$17,686
Verizon	$20,604
Joyent	$24,256
Rackspace	$27,068
Internap	$27,331
Microsoft Azure	$31,536
HP Helion	$37,843
DigitalOcean	-

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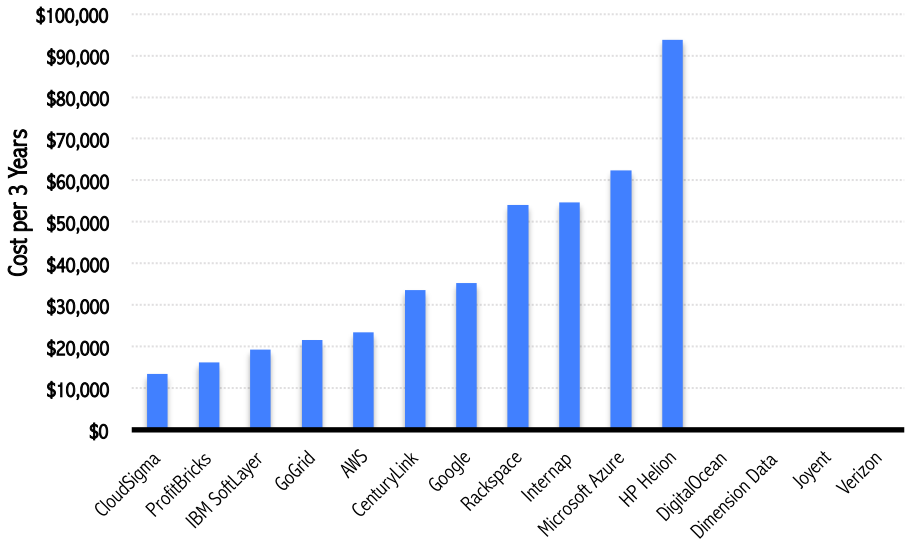
2XLARGE 3-YEAR INSTANCE (16 Core, 32GB RAM, WINDOWS)



SERVICE	3 YEARS
CloudSigma	$13,479
ProfitBricks	$16,231
IBM SoftLayer	$19,361
GoGrid	$21,550
AWS	$23,468
CenturyLink	$33,638
Google	$35,373
Rackspace	$54,137
Internap	$54,662
Microsoft Azure	$62,336
HP Helion	$93,820
DigitalOcean	-
Dimension Data	-
Joyent	-
Verizon	-

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DISCOUNTS

Many of the large IaaS providers offer discounts based on term, volume, or a combination. Amazon EC2 and Google Compute Engine offer very flexible discount plans that require no minimum monthly spend, although a commitment for use is required. Others, such as Rackspace and Microsoft Azure, require minimum monthly spend thresholds. While not advertised, many providers offer volume-based and commitment discounts on a case-by-case basis. This information can be obtained by contacting a representative from the providers' sales team. Discounts that are not publicly advertised are not listed in this document.

Almost all providers offer a partnership/referral discount, which can lead to significant savings for business models that are ideal for channel sales and partnerships.

Provider	Maximum Savings from Hourly Cost
Amazon EC2	75%
CenturyLink Cloud	Not publicly available
CloudSigma	Up to 45% off
DigitalOcean	Monthly bill rates do not exceed 672 hours.
Dimension Data	Not publicly available
GoGrid	Unclear
Google Compute Engine	60%
HP Helion	Not publicly available
IBM SoftLayer	Not publicly available
Internap	Defined Term Pricing
Joyent	Not publicly available
Microsoft Azure	Not publicly available
ProfitBricks	33% Developer Discount
Rackspace	37%
Verizon	Not publicly available

Amazon EC2

Amazon EC2 offers Reserved Instances, which are based on a one-year or three-year commitment. Traditionally, Amazon EC2's reserved instance pricing required an upfront payment (variable depending on instance size and commitment terms of one or three years). Recently, the provider introduced Reserved Instances without upfront payment requirements. Users are allowed to sell purchased Reserved Instances on the AWS Marketplace.

Specific information about Reserved Instances and pricing can be found at http://aws.amazon.com/ec2/purchasing-options/reserved-instances/.

CloudSigma

CloudSigma offers discounted pricing based on time commitment. For users provisioning a machine for more than 3 months, which is the lowest discount tier, discounts are triggered. Discounts range from 3% up to 45% correlated with a time commitment between 3 months to 3 years.

Specific information about CloudSigma's pricing information can be found at https://www.cloudsigma.com/.

Digital Ocean

Digital Ocean charges no more than 672 hours per month per VM. This means that, while the user is still charged at full price per hour, as soon as the user uses a VM for more than 672 in the month, the remainder usage of that VM for the month will not be charged.

Pricing information about Digital Ocean can be found at https://www.digitalocean.com/pricing/

GoGrid

While GoGrid's website states that users can get a discount for Monthly and Annual pricing, its recent acquisition by Datapipe requires customers to sign up for minimum annual commitments; therefore, the previous annual discount of 50% may not apply in the future.

Pricing information about GoGrid can be found at http://gogrid.com/products/servers/cloud-standard.

Google Compute Engine
Google Compute provides users discounts based on their usage of the virtual machine throughout the month. Each hourly price is a base rate. Depending on the amount of usage from the user, a discount of up to 60% can be achieved in the last quarter of each month. Discounts are automated calculated at the end of each month.

More information about Google Compute Engine's Sustained Use discounts can be found at https://cloud.google.com/compute/pricing.

Internap
Internap provides discounts for term usage. More information about term usage can be found on its website: http://www.internap.com/cloud/public-cloud-hosting/virtual-cloud/

Joyent
Joyent offers a 1-year and 3-year Reserved Instance pricing discount. Users should contact Joyent sales for more information on the discount.

For Joyent pricing and to contact their sales department for information on Joyent's Reserved Instances, please visit https://www.joyent.com/public-cloud/pricing.

ProfitBricks
Discounts of 33% are available to developers in the ProfitBricks DevOps Central: https://devops.profitbricks.com/

For more information on ProfitBricks pricing, please see https://www.profitbricks.com/pricing.

Microsoft Azure
Previously, Microsoft Azure offered 6-month and 12-month commitment plans to users based on monthly spend, which ranged from a minimum spend of $500 to higher than $480,000 per month. In turn, users could expect to save 20-32% per month on VMs. Unfortunately, the offer is no longer available to new subscribers, although it is still available for existing subscribers to the plan. Microsoft Azure now offers Enterprise Agreements, which require an upfront monetary commitment, but offers the best pricing for users.

Specific information about Microsoft Azure's Enterprise Agreement can be found at http://azure.microsoft.com/en-us/pricing/enterprise-agreement/.

Rackspace
Rackspace offers discounts based on volume—a minimum spend of $5,000 per month must be maintained to qualify. The volume discount can be combined with term commitment (6, 12, 18, 24, or 26 months) to achieve higher discounts. When selecting the term discount, a user also has the option of pre-paying, similar to Amazon EC2's Reserved Instances, in order to maximize savings.

Specific information about Rackspace's Volume, Commitment, and Prepayment discounts can be found at http://www.rackspace.com/cloud/public-pricing.

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BLOCK STORAGE COMPARISON

The following is a comparison of block storage features from each provider.

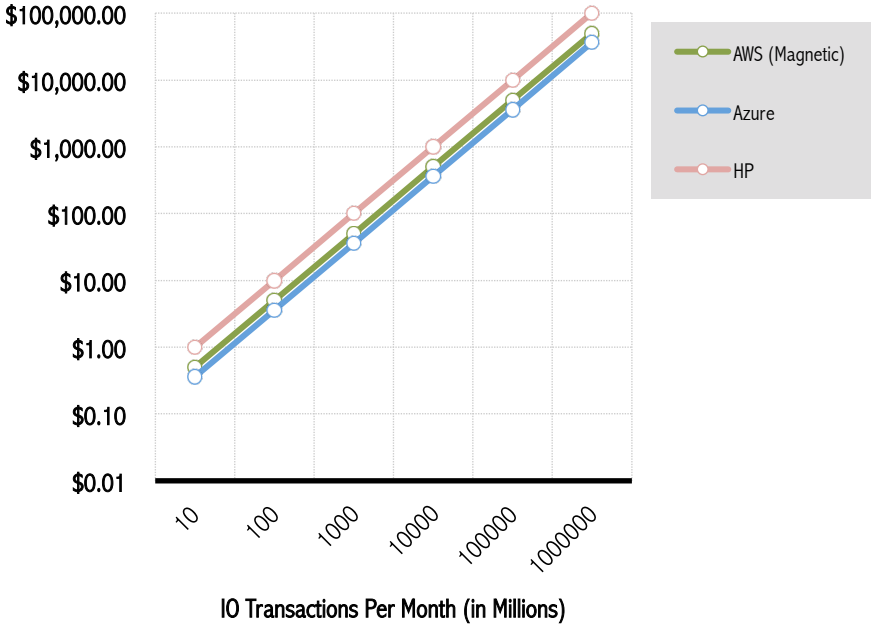
	Amazon EC2	CenturyLink	CloudSigma	DigitalOcean	Dimension Data	GoGrid	Google	HP Helion	IBM SoftLayer	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
Block Storage	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
High-Performance Option	Yes	No	No	No	No	No	Yes	No	Yes	No	No	No	No	Yes	No
IO Read/Write Charges	Yes	No	No	No	No	No	No	Yes	No	No	No	Yes	No	No	No
Block Storage Provisioned IOPS	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	Yes

IO Read/Write Charges

Microsoft Azure and HP Helion charge for IO transactions on their block storage offerings. AWS charges for IO transactions on its magnetic-based EBS block storage. For websites and databases, IO charges can add up to significant costs, exceeding the monthly cost of the block storage itself. Users should carefully estimate IO usage if using any of these providers, or if using magnetic drives on AWS.

In the unique case for AWS, while its SSD-backed block storage offering costs more per GB of storage, the SSD offering does not charge for IO transactions, which can potentially save a user significantly more money per month. The chart below shows IO charges as transactions increase.

Provider	IO Cost
AWS (Magnetic)	$0.05 per 1 million requests
Azure	$0.036 per 1 million requests
HP	$0.10 per 1 million requests



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The Block Storage Price Comparison below displays the cost per provider depending on block sizes. DigitalOcean and Joyent do not have block storage offering, and therefore are not part of the comparison.

	1 TB	10 TB	100 TB	1,000 TB	10,000 TB
Amazon EC2	51	512	5,120	51,200	512,000
Amazon EC2 (SSD)	102	1,024	10,240	102,400	1,024,000
CenturyLink (Premium)[1]	512	5,120	51,200	512,000	5,120,000
CenturyLink (Standard)	154	1,536	15,360	153,600	1,536,000
CloudSigma (SSD)	136	1,361	13,609	136,090	1,360,896
DigitalOcean[2]	-	-	-	-	-
Dimension Data (Standard)[3]	224	2,243	22,426	224,256	2,242,560
Dimension Data (Economy)[3]	75	748	7,475	74,752	747,520
Dimension Data (High Perf)[3]	449	4,485	44,851	448,512	4,485,120
GoGrid	123	1,229	12,288	122,880	1,228,800
Google (Standard)	41	410	4,096	40,960	409,600
Google (SSD)	174	1,741	17,408	174,080	1,740,800
HP Helion	102	1,024	10,240	102,400	1,024,000
IBM SoftLayer SAN[4]	57	571	5,715	57,145	571,450
IBM SoftLayer Endurance 1[5]	154	1,536	15,360	153,600	1,536,000
IBM SoftLayer Endurance 2[5]	358	3,584	35,840	358,400	3,584,000
IBM SoftLayer Endurance 3[5] [6]	594	5,939	59,392	593,920	5,939,200
Internap	307	3,072	30,720	307,200	3,072,000
Joyent[7]	-	-	-	-	-
Microsoft Azure (LRS)[8]	51	512	5,120	51,200	465,920
Microsoft Azure (GRS)[8]	97	835	7,695	69,647	622,607
Microsoft Azure (RA-GRS)[8]	123	1,044	9,784	87,572	778,772
ProfitBricks	41	410	4,096	40,960	409,600
Rackspace (Standard)	123	1,229	12,288	122,880	1,228,800
Rackspace (SSD)	512	5,120	51,200	512,000	5,120,000
Verizon	157	1,570	15,698	156,979	1,569,792

[1]The Premium option provides 14 days of rolling backups at a secondary center rather than the 5 days of rolling backups offered by the Standard Option.
[2]DigitalOcean does not offer block storage.
[3]Dimension Data's block storage pricing scales with level of performance/IOPS.
[4]IBM SoftLayer's SAN storage is packaged with deployed virtual machines.
[5]IBM SoftLayer's Endurance Block Storage prices scale with the number of IOPS required.
[6]IBM SoftLayer also offers Performance block storage option that provides high performance storage. Performance block storage requires the user to pay a base per GB rate as well as $0.12/IOP per month.
[7]Joyent does not offer block storage.
[8]Microsoft Azure's block storage pricing scales with the level of redundancy (within the same data center, region, or geographically dispersed). The most expensive option (RA-GRS) includes read access to a second data center in the event of an outage.

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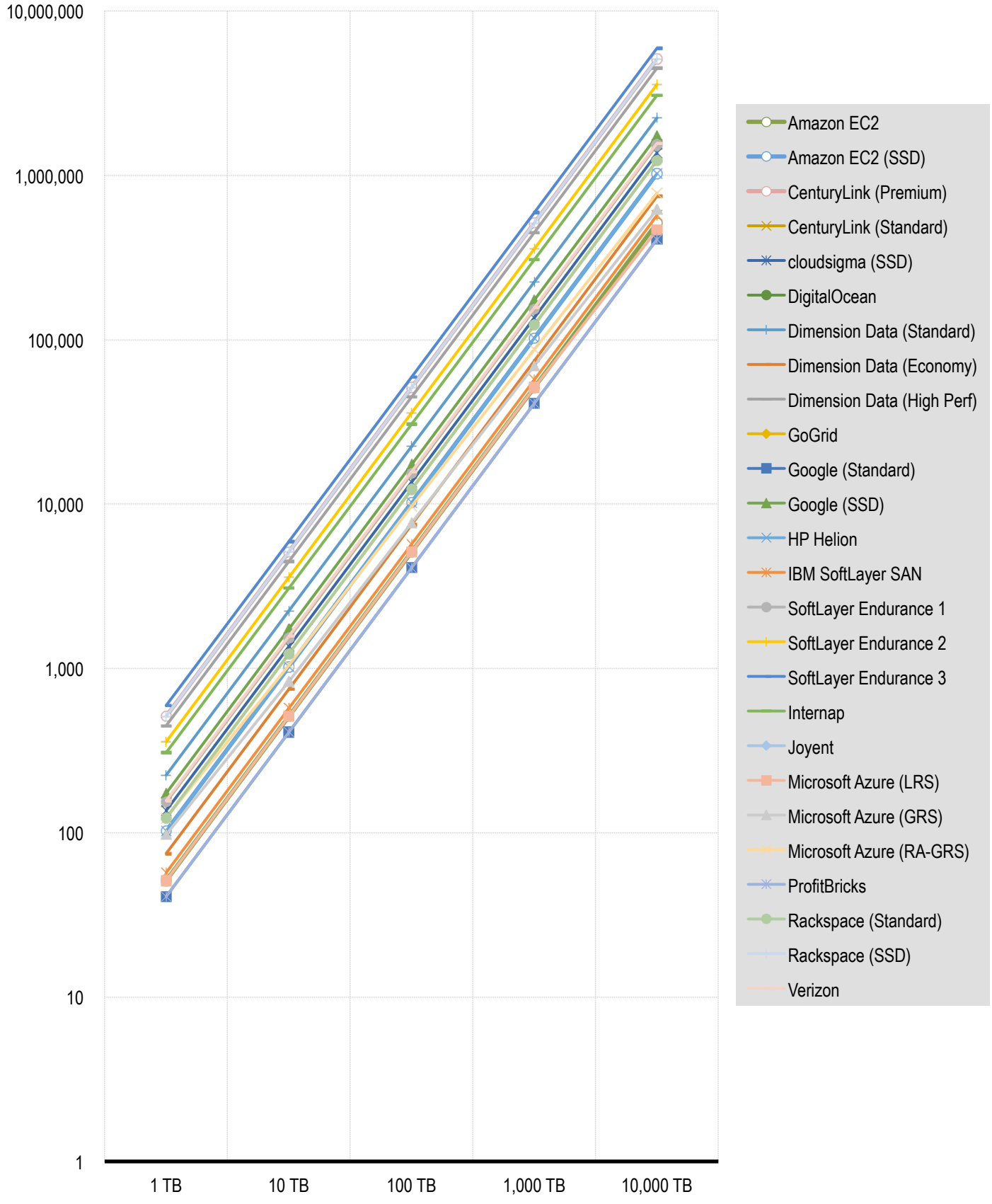

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DATA TRANSFER PRICE COMPARISON

Below is a price comparison of the data transfer out from each provider. Prices are given per GB. All providers offer free transfer from the Internet into the VM.

	Amazon EC2	CenturyLink Cloud	CloudSigma	DigitalOcean*	Dimension Data	GoGrid	Google	HP Helion	IBM SoftLayer**	Internap	Joyent	Microsoft Azure	ProfitBricks	Rackspace	Verizon
First 1 GB	$0.00	$0.05	$0.04	$0.00	$0.15	$0.00	$0.12	$0.00	$0.10	$0.10	$0.00	$0.00	$0.08	$0.12	$0.05
First 5GB	$0.09	$0.05	$0.04	$0.00	$0.15	$0.12	$0.12	$0.12	$0.10	$0.10	$0.12	$0.00	$0.08	$0.12	$0.05
Up to 1TB	$0.09	$0.05	$0.04	$0.02	$0.15	$0.12	$0.12	$0.12	$0.10	$0.10	$0.12	$0.087	$0.08	$0.12	$0.05
1 to 5 TB	$0.09	$0.05	$0.04	$0.02	$0.15	$0.11	$0.11	$0.12	$0.10	$0.10	$0.12	$0.087	$0.08	$0.12	$0.05
5 to 10 TB	$0.09	$0.05	$0.04	$0.02	$0.15	$0.11	$0.11	$0.12	$0.10	$0.10	$0.12	$0.087	$0.08	$0.12	$0.05
Next 40 TB	$0.085	$0.05	$0.04	$0.02	$0.11	$0.10	$0.08	$0.09	$0.10	$0.10	$0.09	$0.083	$0.08	$0.10	$0.05
Next 100 TB	$0.07	$0.05	$0.04	$0.02	$0.09	$0.09	$0.08	$0.07	$0.10	$0.07	$0.07	$0.07	$0.08	$0.08	$0.05
Next 50 TB	$0.05	$0.05	$0.04	$0.02	$0.09	$0.09	$0.08	$0.05	$0.10	$0.07	$0.05	$0.05	$0.08	$0.08	$0.05
Next 300 TB	$0.05	$0.05	$0.04	$0.02	$0.09	$0.08	$0.08	$0.05	$0.10	$0.07	$0.05	$0.05	$0.08	$0.07	$0.05

*DigitalOcean VMs offer tiers of free Transfer per month based on the VM size. The minimum free tier is 1TB.
**IBM SoftLayer's monthly subscription comes with 5TB of free data transfer out.

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VM SIZING

The table below outlines the specific VMs used for each pricing comparison.

VM Size	Provider	Instance	vCPU	RAM	STORAGE (GB)
Small	AWS	t2.small	1	2	EBS only
	CenturyLink	customized	1	2	-
	CloudSigma	customized	1	2	50 SSD
	DigitalOcean	standard2	2	2	40 SSD
	Dimension Data	customized	1	2	-
	GoGrid	Standard Medium	2	2	100
	Google	n1-standard-1	1	3.75	-
	HP Helion	Standard Small	2	2	10
	IBM SoftLayer	customized	1	2	25
	Internap	B-1	1	4	20 SSD
	Internap (Windows)	A-2	2	2	40 SSD
	Joyent	standard3	1	3.75	123
	Joyent (Windows)	standard4	2	7.5	738
	Microsoft Azure	D1	1	3.5	50 SSD
	Microsoft Azure (Windows)	A2 Basic	2	3.5	60
	ProfitBricks	customized	1	2	-
	Rackspace	General1-2	2	2	40 SSD
	Verizon	3.5	1	3.5	-
Medium	AWS	t2.medium	2	4	EBS only
	CenturyLink	customized	2	4	-
	CloudSigma	customized	2	4	50 SSD
	DigitalOcean	standard4	2	4	60 SSD
	Dimension Data	customized	2	4	-
	GoGrid	Standard Large	4	4	200
	Google	n1-standard-2	2	7.5	-
	HP Helion	Standard Medium	2	4	50
	IBM SoftLayer	customized	2	4	25
	Internap	B-2	2	8	40 SSD
	Joyent	standard4	2	7.5	738
	Microsoft Azure	D2	2	7	100 SSD
	Microsoft Azure (Windows)	A3 Basic	4	7	120
	ProfitBricks	customized	2	4	-
	Rackspace	General1-4	4	4	80 SSD
	Verizon	4	2	4	-

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Large	AWS	m3.xlarge	4	15	2 x 40 SSD
	CenturyLink	customized	4	8	-
	CloudSigma	customized	4	8	50 SSD
	DigitalOcean	standard5	4	8	80 SSD
	Dimension Data	customized	4	8	-
	GoGrid	Standard X-Large	8	8	400
	Google	n1-standard-4	4	15	-
	HP Helion	Standard Large	4	8	130
	IBM SoftLayer	customized	4	8	25
	Internap	B-4	4	15	80 SSD
	Joyent	Standard5	4	15	1467
	Microsoft Azure	D3	4	14	200 SSD
	Microsoft Azure (Windows)	A4 Basic	8	14	240
	ProfitBricks	customized	4	8	-
	Rackspace	General1-8	8	8	160 SSD
	Verizon	7	4	8	-
XLarge	AWS	m3.2xlarge	8	30	2 x 80 SSD
	CenturyLink	customized	8	16	-
	CloudSigma	customized	8	16	50 SSD
	DigitalOcean	highvol1	8	16	160 SSD
	Dimension Data	customized	8	16	-
	GoGrid	Standard XX-Large	16	16	800
	Google	n1-standard-8	8	30	-
	HP Helion	Standard 2XL	8	30	470
	IBM SoftLayer	customized	8	16	25
	Internap	B-8	8	30	160 SSD
	Joyent	High Storage1	8	32	7680
	Microsoft Azure	D4	8	28	400 SSD
	Microsoft Azure (Windows)	A7	8	56	605
	ProfitBricks	customized	8	16	-
	Rackspace	Compute1-30	16	30	-
	Verizon	11	8	16	-
2XLarge	AWS	r3.4xlarge	16	122	1 x 320 SSD
	CenturyLink	customized	16	32	-
	CloudSigma	customized	16	32	50 SSD
	DigitalOcean	highvol3	16	48	480 SSD
	Dimension Data	-	-	-	-
	GoGrid	High RAM 4XL	16	64	40
	Google	n1-standard-16	16	60	-
	HP Helion	Standard 8XL	16	120	1770
	IBM SoftLayer	customized	16	32	25

Internap	B-16	16	60	320 SSD
Joyent	-	-	-	-
Microsoft Azure	D14	16	112	800 SSD
ProfitBricks	customized	16	32	-
Rackspace	Compute1-60	32	60	-
Verizon	-	-	-	-

Further Study

The Cloud Vendor Benchmark 2015: Part 1 is a single segment of a collection of reports that will examine IaaS providers throughout the 2015 calendar year. As part of the initiative, additional reports will be released in the upcoming months to analyze Linux OS and Windows OS performance and price-performance value across the providers.

The component categories of CPU & memory will be examined first in Part 2 of the 2015 Benchmark Report. Due to the large data sets that will be used to analyze performance, each of those component categories will be released as separate pieces in the series, segmented by VM size and OS type. More information on Part 2, which examines CPU & memory performance and price-performance value of Linux and Windows VMs, can be found in the *About the Upcoming Cloud Vendor Benchmark: Part 2* section of the Executive Summary.

About Cloud Spectator

Cloud Spectator is a cloud analyst agency focused on cloud Infrastructure-as-a-Service (IaaS) performance. The company actively monitors 20+ of the largest IaaS providers in the world, comparing VM performance (i.e., CPU, RAM, disk, internal network, and workloads) and pricing to achieve transparency in the cloud market. The company helps cloud providers understand their market position and helps businesses make intelligent decisions in selecting cloud providers and lowering total cost of ownership. The firm was founded in early 2011 and is located in Boston, MA.

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