

Things to Consider: Hosting Solutions by Costs

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Today nearly all businesses rely on technology to connect them with clients, partners, and staff members. In recent decades there has been an increase in businesses using servers and complex IT systems. This move has resulted in more secure and redundant technology solutions, thanks to technology hosting advances. The question, however, is: What is the cost, beyond dollars and cents, for these advances? Businesses approach their IT infrastructure by analyzing the hosting solution as well as the price. Most businesses end up using one (or more) of the three main hosting solutions: hosting the server in-house, leasing the hosting space within a data center from the data center provider, and lastly, leasing the hosting space within a data center from a colocation provider.

This paper will discuss each hosting solution as well as present a breakdown of their costs. The paper will conclude with recommendations for decision-making and decision-swaying IT professionals. The hope of this paper is to be a resource used in business proposals and internal conversations.

In-House Hosting

Many businesses choose to host their servers and complete IT infrastructure within their own office. Usually designating at least a 24-square-foot space, which is the size of a closet, the business's IT infrastructure uses the office's power, Internet, and staff. Most businesses that choose this option enjoy the control it gives them – their business critical hardware is at the office. However, with this benefit comes its greatest downfall. When the server is hosted in-house, the company loses the 24/7 redundancy, security, and monitoring that other options provide. In other words, in an event that downtime occurs, the business has to rely on the office building's infrastructure as well as the proximity of their IT staff. Depending on the size of the business, this downtime may amount to thousands of dollars, a risk many are unwilling to take. Nevertheless, in-house server rooms are great for businesses with 1U, 2U, and 4U servers amounting to no more than a full cabinet. If a business needs more than that they may want to invest in another option.

Price Breakdown

Installation and Start Up

Installation and start-up costs are part of the expense of opting for an in-house server. Those costs, depending on the vendor or provider, can vary considerably. Many providers offer deals on installation depending on what "bundle" the business chooses. If the installation is not given free of charge then it may cost upwards to the first month's costs of the Internet service.



Space and Power



Space and power considerations must be taken into account as well, as these figures that will add to the overall cost of having an in-house server. Ideally, in-house servers are hosted in a secure room that has ample amount of air flow that can assist in cooling the servers. When a business chooses the in-house option they must consider a designated space within their office for the server as well as additional power costs that the building may charge.

Bandwidth/Connectivity

Many businesses, depending on the building and location, have the option of choosing their Internet provider. Like with residential costs, offices get charged by the amount uploaded and downloaded as well as the speed in which it was pulled. When looking at connectivity costs a business has many speed options to choose from. In addition, the business may wish to bundle up other services to lower costs.



Concluding Costs

When it comes to cost, bundling multiple services such as installation, phone service, and connectivity will lower a business's monthly costs. Nevertheless, here are the numbers if a business had to pay for each service.

Installation	\$500
Space	\$2.85 per sq ft
Power	\$200 per a server
Bandwidth and Connectivity	\$799 100 Mbps/10 Mbps
Total Monthly Costs:	\$1300 per 2 servers

Outsourcing Hosting

Outsourcing solutions involves hosting within a secure data center which offers the following benefits:

- No facility construction and maintenance costs
- Facility in charge of keeping pace with changing power and cooling technologies
- Data center staff maintaining operational efficiencies of the data center infrastructure
- 24/7 security and staff of the facility
- Disaster avoidance protection for the facility
- Federal regulated compliances
- Ability to quickly scale or add space to accommodate changing demand

Hosting with a Data Center Provider

For businesses needing a full cabinet or more of data center space, it may be a better option to lease out space from a data center provider. A data center provider means a company that builds, owns, and operates data centers. Businesses with larger IT infrastructures opt for this hosting solution because the sheer size of their infrastructure requires security and continuous monitoring.

If downtime occurs, the data center provider's staff will monitor and notify the business of any problems. Depending on the businesses contract, the data center provider's staff may troubleshoot or even fix the server and/or network.

Although the personnel and physical security is state of the art, there are some downfalls. Mainly, when a business is outsourcing there may be a large distance between where the IT staff typically works and where the server is hosted. This problem can, however, be solved by renting out office space within the data center – a choice easily made when working directly with the provider.

“Businesses with larger IT infrastructures opt for this hosting solution”

There are many benefits of contracting data center space through the company that owns the building, but not all businesses may have this as an option. Many data center providers do not lease space with any businesses looking for less than a full cabinet of space. For a company needing less than a cabinet of space they may have to turn to a colocation provider.

Hosting with a Colocation Provider

Colocation providers are companies that lease space from the data center provider and give their discounted rate to the end-user, other businesses. The colocation provider leases large amounts of space from the data center provider and sells the server space to businesses. Since the smaller IT infrastructures take up less bandwidth and power, colocation providers are able to pass on this savings to businesses looking for less than a full cabinet of data center space. This savings is also seen at the installation of the IT infrastructure. Many colocation providers offer free setup and installation saving a business thousands of dollars.

Like with all outsourcing options, choosing a colocation provider enables businesses to enjoy full data center redundancy, connectivity, and security. As stated above, these benefits relatively render downtime improbable. With 24/7 IT staff, businesses rest assured that their hardware is safe no matter the time. Because of the staff, both from the colocation provider and data center provider, businesses may indeed see less downtime than either of the other options.

Outsource Hosting Pricing Breakdown

Pricing Breakdown

To avoid any discrepancies, the costs discussed below do not include upfront equipment costs or the price of IT personnel. According to recent surveys, IT staff personnel in the United States make anywhere from \$55,000 - \$75,000 yearly (before benefits). This cost may influence a business's hosting solution and its effectiveness.

Likewise, the server, switches, fiber optics, cooling and other equipment and software have a profound effect on the decisions businesses make when choosing a hosting solution. Depending on the size, requirements, and intended use, businesses may spend hundreds or thousands of dollars on their servers and hosting equipment. This too may affect the business's hosting option.

All numbers are based on data from Los Angeles, CA.

Hosting with a Data Center Provider

Installation and Start Up

When working through the data center provider directly, there is a one-time installation fee for the cabinet, electrical power, and cross connection. This ensures that everything is plugged in and working properly. In addition to installation fees there is a security deposit that is due to the data center provider, which is equivalent to one month's average base rent.

Space and Power

Data center providers charge power monthly based on actual kW used in the given billed month. However, there is a basic capacity that formulates the monthly base rent charged to the business. For every kW over the 5 kW basic capacity, the business is charged by dollars per kW.

Bandwidth/Connectivity

With the hardware *plugged in* businesses must look for a network provider. Depending on the data center, the business may have the option of only one network provider or of several. The business will then contract with provider(s) for rapid and redundant connectivity. The prices are charged per a MB and depend on how much a business uses over the given month.

In order to connect to the data center's resources there is a fiber cross connection fee. This ensures that the business is seamlessly able to connect to their network provider of choice.

Concluding Costs

If one were to choose to collocate a full cabinet through a data center provider they would be experiencing a large installation fee as well a monthly recurring fee.

Installation	\$4718
Space (42U)	\$1770 basic capacity (5kW)
Power	\$354 per a kW
Bandwidth	\$5 per a MB (average 100MB)
Connectivity– Cross Connect	\$200
Total Monthly Costs:	\$2470

Outsource Hosting Pricing Breakdown

Hosting with a Colocation Provider

Installation and Start Up

Most colocation providers offer free setup to their clients. This ends up saving businesses thousands of dollars of installation and startup costs making the transition to outsourcing.

Space and Power

The bulk of the cost, when signing with a colocation provider, is in the space and power costs. The space and power needed, may it be a 2U or full cabinet (42U), is what influences the cost – space directly correlates with power and price, the more space required means the more power allocated resulting in a higher cost. The business may increase the power they desire for an additional charge as well.

Bandwidth/Connectivity

With the hardware *plugged in*, businesses, depending on their data center carrier status, may choose from a network provider(s). Once the network provider is chosen then the colocation provider charges a base monthly bandwidth fee and, if needed, an additional charge will ensue based on the 95 Percentile Rule.

Usually the colocation provider has the fiber cross connection with the data center provider. The colocation provider then gives a dedicated uplink to the end-user business. This enables everyone to keep costs low. However, if a business decides to *plug in* to the data center network directly they may do so at an additional cost.

Concluding Costs

A benefit of contacting lease space through a colocation provider is the all-inclusive monthly cost. The lack of installation fees and the constant monthly cost makes leasing through a colocation provider an easy choice for most businesses, regardless of their needed requirements – large or small.

Installation	Free
Space	Included— 42U
Power	Included— 20 Amps, 120V
Bandwidth	Included— 20TB
Total Monthly Costs:	\$999 for 42U

Installation	Free
Space	Included— 2U
Power	Included— 2 Amps, 120V
Bandwidth	Included— 5TB
Total Monthly Costs:	\$99 for 2U

Recommendation

For many businesses establishing and maintaining an IT infrastructure can be the cause of frustration and despair. Once the initial process is complete, the business must choose an option that can sustain their IT infrastructure. For and going through a colocation provider would be the most cost effective. Depending on the amount of bandwidth and speed needed, the in-house server room may be more beneficial as the bundling packages and reduce speed costs will result in savings. However, the main concern of any in-house option is security in the event of a man-made or nature-made disaster. In the event that something does go wrong at the office building there is no way to save the data or equipment (unless it is backed-up at another location which increases costs).

“the in-house server room may be more beneficial as the bundling packages”

Another viable option for businesses is going through a colocation provider. This is perhaps the easiest and less time consuming option. Especially for businesses with 4U or lower needs who find that data center providers are not an option, colocation providers offer a cost effective solution. Unlike the other hosting options, colocation providers take care of everything – installation, power, connectivity – all for one low monthly cost. Although the server is out of the office it is secure inside the data center facility with IT professionals able to assist when needed. In addition, for small businesses looking to grow, the colocation provider is capable of expanding and at an affordable price.

For businesses that have a big online process or whom require large amounts of bandwidth, they may choose to go through a data center provider. Although going directly through the data center may present more steps, it may also be the best option in the long run. After the first year, many businesses are able to negotiate lower bandwidth and power costs depending on their first year’s use. Further, signing on for longer service terms may result in continued savings – especially if the bandwidth and power use were low. Ultimately going through a data center provider requires a lot of knowledge and understanding of the data center industry as well as the actual business’s needs.

“signing on for longer service terms may result in continued savings”

No matter what option is chosen, the business must invest their time and energy in looking for the option that is right for them. Understanding the facts and risks involved in all three options is vital before moving forward. After all, if the server goes down then so does the profit margin!

Total Monthly Costs for In-House:	\$1300 per 2 servers
Total Monthly Costs Data Center Providers:	\$2470 for 42U
Total Monthly Costs for Colocation Providers:	\$999 for 42U/\$99 for 2U