



*Concepts Meet Reality...*

# **Pricing Data Center Co-location Services**

## **Going Beyond the Initial Bid**



## Introduction

Many companies look to data center outsourcing as a way to improve service and cut costs. Determining whether a provider can achieve these goals based on their outsourcing bid is typically not a straightforward process. This is further complicated by the various types of data center services that have evolved over the years. The service portfolio of an integrated company (i.e. IBM and HP) is focused primarily on managed services, with the potential to provide end-to-end application management that factors software, hardware, infrastructure, floor space, and support into the overall cost. On the other end of the spectrum are the straight co-location providers who approach data center outsourcing as a simple real-estate play and base their pricing strictly on space rental and infrastructure.

While there are many unique outsourcing models between straight co-location and full application management, providers tend to gravitate toward one of these extremes. This paper addresses the basic components of a co-location pricing bid, but these components are just as relevant in an integrated services model as the provider simply builds them into the overall managed service costs.

## Analysis

### Basic Components of Data Center Pricing

Most pricing models for co-location facilities are some combination of real estate, telecom connectivity, power, and labor. These costs are foundational to any data center. While there are many other services data center outsourcers can provide, having a firm understanding of these basic costs is critical to maximizing the value of any outsourced arrangement.

### Different Vendors, Different Cost Models

In an effort to keep this discussion relatively simple, it will focus on a specific example. In this example, a company is looking to outsource their internal data center to a co-location facility. Their current configuration is shown below in Figure 1.

<b>Server Count</b>	500
<b>Racks</b>	42 (average 12 servers per rack)
<b>Square Footage</b>	1,200
<b>20A 208V Whips</b>	20 x 2
<b>30A 208V Whips</b>	8 x 2
<b>Internet Connectivity</b>	35 Mbps (standard Ethernet drop from a single provider)
<b>Corporate WAN connection (12 sites)</b>	MPLS Circuits

**Figure 1:** Current Data Center Configuration

In addition to facility costs, the company requested a quote on services, including server monitoring and troubleshooting, “hands and feet” for back-up tape rotation, and equipment installation.

They received initial bids offered by three different co-location providers (Figure 2):

	Vendor A	Vendor B	Vendor C
Monthly Recurring Charge for Co-location facility use	Est. \$64,500	Est. \$70,000	Est. \$61,500
Basis for facility costs	Power consumption by whip	Detailed cost-plus model	Per-rack charge
Estimated 3-year cost	\$2,322,000	\$2,520,000	\$2,214,000

**Figure 2:** Initial Co-lo Vendor Bids

From these initial estimates the clear choice appears to be Vendor C. The company is priced about 5% below the next lowest bid and looks to save more than \$100,000 over the life of the contract. Unfortunately, there are many missing items from these initial bids that need to be addressed. By taking the time to take a closer look, a purchaser can make a better decision and perhaps, more importantly, not be surprised by the litany of additional fees.

### Going Beyond the Initial Quote

Vendor A reviewed the prospect’s complete configuration to arrive at the power estimate used to drive their bid. Vendor B presented an extremely detailed model, which included estimates for power and even went so far as to include landscaping costs for the exterior of their data center and uniform costs for maintenance personnel. The bid from Vendor C was not as in depth, but the provider has a “straightforward” pricing approach, asking only how many racks are to be moved and pricing accordingly. Let’s review each method in turn.

### Vendor A – Power-based Pricing

This model is rapidly becoming the dominant pricing scheme in the industry. It is a fair way to assess the value of co-location services as power has become the driving cost in the market place.

There are two ways a vendor can charge for power: a flat per-whip charge (as was done in the initial bid) or metered power consumption. In the first scenario, a company pays only for what is used; in the latter, the vendor is charging a fixed rate to supply power to the rack.

Since there are no rebates for unused power in the circuit billing model, paying for actual usage is preferable. Companies should beware of two points though:

1. A low per kilowatt charge may indicate that additional fees will be added further into negotiations.
2. In a metered set-up, there will almost always be a minimum monthly charge.

### **Vendor B – Cost-plus Pricing**

In an effort to provide transparency, a few providers have adopted a cost-plus model where all costs are laid out (with a mark-up embedded) and passed along to the client. An astute company will compare their internal line item costs with the potential vendor's. A good baseline provides an opportunity to inquire about charges that appear much higher than expected or items not included in the detail.

### **Vendor C – Space-based Pricing**

By charging a per rack fee, Vendor C appears to be focused solely on space occupation. Configurations utilizing older, legacy servers in a diffuse environment would seemingly overpay for their liberal use of rack space. Conversely, a configuration utilizing blades and virtualization could squeeze a great deal of density into a relatively small amount of racks. This would appear to be an optimal choice for such a configuration.

There is a catch. Most providers will place a limit on the amount of power per rack, allowing only the equivalent of a single 20-amp circuit of power to each. This is typically employed by older data centers that struggle to accommodate 100+ kW per sq. ft. configurations and is intended to be very restrictive to such dense configurations. A company could still utilize greater power for a given rack, but would have to pay for more racks to cover the power draw in a set-up typically referred to as a “virtual rack”. An example would be paying for three racks to accommodate a single rack typically requiring a 50-amp circuit. This approach spreads out the power and heat density and levels the playing field between advanced configurations and those utilizing older equipment.

### **Managed Services**

In addition to facility costs, most co-location arrangements involve some amount of managed services. As part of their outsourcing bid, the vendor may offer personnel to perform basic activities, such as server reboots, entering OS commands, tape rotations, and visual server monitoring. Beyond this, outsourcing vendors offer a wide range of managed services, including troubleshooting, OS and break/fix support, and full application management.

Some vendors will pre-bill a block of hours or bundle services in their pricing model. Bundled services should not be paid for unless they fit the business' needs. Instead, ask the vendor to provide a list of services and rates. They may offer a blended rate for all tasks, but not all services are created equal and should be priced according to their degree of difficulty and level of expertise required.

In comparing vendor quotes, it's also important to understand what they are providing in terms of experienced staff and standard processes. What are the qualifications of the individuals managing client assets and do they adhere to a standard process model such as ITIL to ensure quality service delivery?

Due to the complexity and range of possible managed service outsourcing arrangements, a full assessment of managed services pricing models is outside the scope of this paper.

### **Additional Costs to Consider**

There are other items missing from all three quotes of which a company should be aware. These items include, but are not limited to:

- **Installation Charges** – How does the vendor determine installation charges and what is their estimate? Some will estimate a percentage of the monthly fee while others will utilize a unit-based approach. These can be quite large and have a real impact on pricing.
- **Cross-connect Charges** – Co-location facilities will typically include connectivity to multiple telecom providers. This facilitates redundancy and allows companies to choose the most cost-effective connectivity options. Co-location providers usually reap the benefits of

this arrangement by charging recurring cross-connect fees for access to each vendor. These costs can be sizeable and should generally be avoided. However, providers rarely discuss these until they show up on the first bill.

### Updating the Quotes

After gathering additional information, the sample quotes can be updated with much more detail (Figure 3):

	Vendor A	Vendor B	Vendor C
Space / Power	\$56,102 (based on metered power usage)	\$70,000	\$72,800 (increased to accommodate additional power draw)
Length of Term	Open ended contract	3 year contract	3 year contract
Connectivity Costs (based on 35 Mbps)	\$5,250	\$8,750	\$1,750
Telecom vendors	All major vendors	Only 1 major Telco available	All major vendors, but preferred provider much cheaper
Cross Connect Charges	\$200	\$0	\$100
Managed Service Rates	Flat \$150/hr for all labor not covered in the basic MRC	\$75/hr, \$100/hr, \$150/hr depending on service	Block of 100 hours for \$10,000; \$200/hr for any overage
Est. cost (100 hours)	\$15,000	\$12,500	\$10,000
Total MRC	\$76,552	\$91,250	\$84,650
Installation Charge	\$76,552	\$0	\$50,000
<b>Total 3-Year Cost</b>	<b>\$2,832,439</b>	<b>\$3,285,000</b>	<b>\$3,097,400</b>

Figure 3: Updated Vendor Quotes

After seeing the additional numbers laid out, the picture changes quite a bit. The providers are still fairly close, but Vendor A has moved to the cheapest option. Most importantly, by digging into the full range of costs, the 3-year costs have increased by a third.

At this point, a company should be able to clearly understand the tangible costs of each vendor. The work still is not done though. There are other, perhaps more significant, considerations to investigate.

### **Additional Considerations**

Of course, price should only be one factor when evaluating vendors for data center co-location. Other factors may be harder to quantify, but are as critical, if not more so, than pricing considerations. These include:

- **Geographic Location** – The physical location of a data center is a key determining factor. Aside from the obvious (including proximity to a flood plain or earthquake zone, likelihood of tornado or hurricane strike, etc.), there are some less apparent items to consider, such as physical accessibility on the day after a major event. The provider may be located on high ground, but surrounded by flood prone areas which will leave the location inaccessible. Additionally, is the data center located on a “high priority” power grid? A data center on the same power grid as an airport, hospital, or other critical infrastructure will have normal power restored much faster than a data center in a “standard” area.
- **State of the Facility** – The building itself may appear to be sturdy, but what is beneath the surface? Was the building purpose-built for a data center or retrofitted? How old is the infrastructure? Are there any structural issues that may not be apparent? How has it fared in a major event in the past (such as a flood, hurricane, tornado, etc.)? Does the facility have loading docks for standard 18-wheelers? Is the facility standalone or in a warehouse facility? Who and what type of customers are their physical neighbors?
- **Tier of the Facility** – Most facilities will describe themselves as Tier 3, with a few classifying themselves as Tier 4. The important thing to understand is how they arrive at that conclusion. Is it based on outage experience or architecture? Do they utilize processes to overcome architecture challenges?
- **Historical Outages or Problems** – Major outages are rare at data centers (as they should be), so asking about recent incidents is usually not sufficient to understand a vendor’s success rate. Asking about all historical major outages can give great insight into the experience of the facility and how they react to major incidents. Paradoxically, a company may not want a provider that has not ever had to experience or deal with a major outage. Obviously, no company wants to experience an outage at all, but a fine line

should be drawn in selecting a vendor who is both a low risk for an outage and has the experience to deal with one if the event arises.

- **Security Measures** – Data centers differ greatly in how they manage security. How public is their presence? Some have signage on the exterior while others look just like any other warehouse. Additional questions that should be taken into account include the following: How does the vendor manage access? Are approved vendors given broad or is there a pre-approved list of specific individuals? Are cage keys restricted and checked out with each visit or does the client company manage its own set of keys? How secure is the cage space? Is the wiring leading to/from the cage well-insulated and enclosed?
- **Stability and Quality of Labor** – When entrusting company assets to a provider, not verifying the quality and stability of the staff overseeing such assets can be a dangerous proposition. Some vendors have high staff turnover rates, creating an uncertain environment for their clients. Others have maintained the same staff for years. In addition, what are the qualifications of the vendor staff in terms of experience and relevant certifications and do they rely on a standard process framework such as ITIL to ensure quality service delivery?
- **Customer Testimonials and References** – Surprisingly, few companies insist on talking directly to current vendor clients. This can be a vital step in understanding how the relationship will develop after the contract is signed. Some vendors will not readily disclose client information. In this instance, use caution. A vendor unwilling to provide customer testimonials could be hiding a serious customer service issue.

Many of these issues can be very difficult to assess against the primary cost drivers. However, that does not diminish their importance. Often, the cheapest option is not the best choice. Carefully considering the options above relative to cost should lead to a more satisfactory vendor relationship throughout the life of the contract.

## Conclusion

Evaluating data center service providers based on their outsourcing bid is a challenging process. While there are seemingly innumerable factors to consider, this paper has attempted to address the tangible costs associated with a straight co-location arrangement. Some important factors to consider when evaluating such a bid include the following:

- **Attention should be paid to how a provider accounts for power usage.** Paying solely for space is rare. If power is not evident in the proposal, it is fair to ask where it has been embedded.
- **Services are a major profit center for many providers.** An understanding of actual service needs can avoid instances of overpaying for unnecessary services.
- **Cost is not everything.** Other factors, such as the additional considerations listed above, are equally critical and should be diligently evaluated before a move is finalized.

In the end, the data center is a mission critical asset. Companies should not rush through an outsourcing decision without feeling completely comfortable with their choices. If this article has not provided the desired level of comfort heading into the process, Enaxis Consulting can provide additional assistance. Specializing in areas where technology and strategy merge, Enaxis Team can walk through the process in detail, provide a quantitative assessment of the decision, or even negotiate the best deal possible with the provider.



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