

# The Future of Corporate Application Hosting

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**Abstract:** This article takes a refreshed look at the possibility of hosting applications on-premises rather than outsourcing them as required by management dynamics and buzzwords of today. Despite the move to outsource Application Hosting to the leaders in hosting services, some situations still warrant hosting applications inside the organization. This article will explain such requirements and discusses when it makes sense for corporations to keep their Application Hosting systems in-house.

**Keywords:** Application Hosting, In-House, On-Premise, Outsourced, Cloud, Infrastructure.

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## I. INTRODUCTION

With all the rush to move to cloud-based providers and the buzz surrounding related services, organizations are often faced with the difficult decision of choosing to outsource their Application Hosting services. The assumption follows that moving to the cloud is a "good thing" and the right decision to make. However, there are always scenarios where in-sourced hosting is either required by organizational guidelines or mandated by governmental regulations and policy.

Application Hosting is the provisioning of Commercial-Off-the-Shelf (COTS) or in-house software to a specific set of users over the network. Not to be confused with Software as a Service (SaaS), which specifically offers licensed business software to users in the cloud over the internet, traditional Application Hosting typically requires an infrastructure that needs to be maintained by an organization. We will refer to this as "on-premises" Application Hosting while "outsourced" refers to hosting applications managed by external providers via cloud computing. Further, the term "in-house" is used interchangeably with "on-premises".

This article discussed the viability of maintaining on-premises Application Hosting services and the challenges that inevitably follow such a massive endeavor. Organizations, whether governmental or private, need to make informed decisions about whether to outsource their Application Hosting or not.

## II. WHAT THE NAYSAYERS SAY

Detractors of on-premises Application Hosting solutions often point to the extraordinary expenses that are incurred by organizations that have such systems. That is certainly a point to be noted, but other concerns exist. Therefore, let us look at the cons of on-premises Application Hosting first. The following table lists the attributes of both in simplistic terms.

On-Premises Application Hosting	Outsourced Application Hosting
<ul style="list-style-type: none"><li>• Expensive to procure and deploy</li></ul>	<ul style="list-style-type: none"><li>• Less expensive than on-premises hosting but the costs can add up</li></ul>
<ul style="list-style-type: none"><li>• Requires related maintenance of services such as security compliance, operation, and maintenance</li></ul>	<ul style="list-style-type: none"><li>• Simpler to maintain, the provider does most of the heavy lifting</li></ul>
<ul style="list-style-type: none"><li>• Requires intra-organization compliance</li></ul>	<ul style="list-style-type: none"><li>• Compliance is limited to corporate governance</li></ul>
<ul style="list-style-type: none"><li>• Maintenance of IT Asset Management lifecycle</li></ul>	<ul style="list-style-type: none"><li>• No maintenance of the Asset Management lifecycle</li></ul>

The price of on-premises Application Hosting has two main aspects: The cost of the original infrastructure and the ongoing cost of maintaining that infrastructure. It is the latter that requires technical human resources, training, and

internal service level agreements along with related KPIs to remain competitive with external providers. Inevitably, the management of organizations that have such infrastructure does not always understand the full breadth of what in-house Application Hosting entails. They expect services to be deployed with the same ease and alacrity as their outsourced counterparts. They also expect the services to be competitive from a cost perspective. These misconceptions are no doubt aided by the following:

- An assumption that there is an apples-to-apples comparison when it comes to cost
- The expectation that the service availability is the same (with or without business continuity requirements)
- Public perception of outsourced Application Hosting services, often lofty, led credence by multi-million dollar marketing budgets of Big Tech

### III. THE UNFULFILLED PROMISE OF THE CLOUD

Let's tackle the cost assumption first. You could go any of the three leaders in technology. These are Amazon Web Services (AWS), Microsoft Azure, and Google Cloud (Dignan). Add the cost of a simple virtual machine with two cores, 8 gigabytes of memory, and 200 gigabytes of disk storage. This is a simple setup that can be priced competitively from all three top providers. As of late August 2020, the cost proposition is a quagmire of conflicting information at AWS. Do you Pay-as-you-go, or employ any other option? Which cloud branch shall be utilized? There are "elastic" variants and standard cloud versions. At the end of the day, a simple dual-core machine can cost as little \$34.38 a month (Services) and that's just the beginning. Add general-purpose solid-state (SSD) storage, required to host any data, and the cost jumps by \$20 to a total of \$54.38. This does not include data transfer costs or additional storage options. Neither does this take into account high-availability requirements. Once you start adding your wish-list of availability, disaster recovery, and criticality requirements, the cost can easily go to thousands of dollars per month per machine.

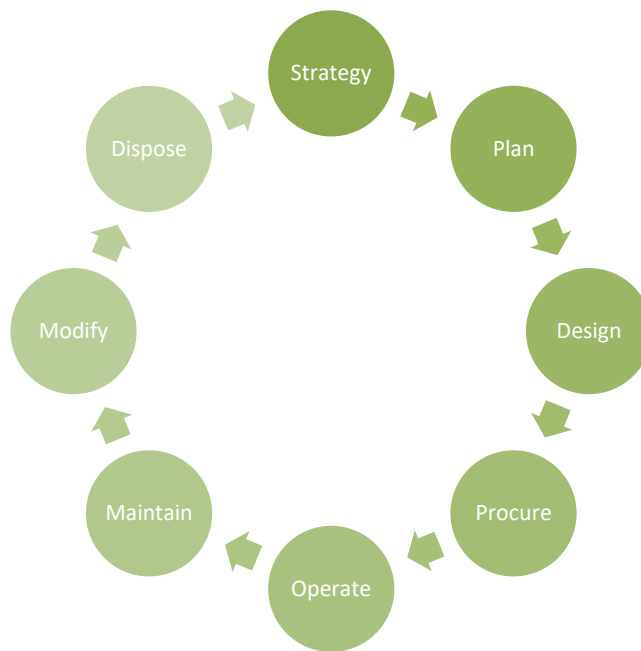
About service availability, a base machine, such as the one mentioned above, comes with a no-frills setup. The promise of the provider's infrastructure, which, while no doubt robust, only provides continuity for that particular instance. Beyond that, the costs rise steeply. If you want to add a cluster for high-availability, that will double your cost at a minimum. Having another instance, in another datacenter, for the sake of business continuity, will likely triple the cost (if not more). This leads to the third point of public perception of hosting service by the big three providers.

Massive marketing budgets have effectively led the general public to believe that the cloud is the panacea of Application Hosting. Nothing could be further from the truth. If a company needs to host ten applications on standard outsourced cloud infrastructure, this could lead to tens of thousands of dollars in monthly costs with the proper availability and continuity requirements. Somehow, the prospective customers are also led to believe that the management of the outsourced infrastructure is simple. That is not the case. Not only do you need to maintain these systems on the host provider's infrastructure, which does require technical teams, with the appropriate training, knowledge, and acumen, you also need to compensate them competitively. So, simply going to the cloud isn't always the solution.

### IV. THE CASE FOR ON-PREMISES APPLICATION HOSTING

Of course, on-premises hosting is an expensive proposition. Upfront costs are often daunting for the management of organizations that plan the allocation of IT budgets. This is especially the case with corporations whose core business is not Information Technology. Such organizations often do not see IT as an enabler, thereby increasing the resistance to spending large sums of money in any fiscal year for what they deem frivolous acquisitions. The case for on-premises hosting vs. outsourced hosting can be compared to that of buying a car versus leasing it. There may be lower costs upfront to leasing because no downpayment is to be made, but ultimately, is leasing cheaper? More often than not, the answer is in the negative (Kurt). With the advent of virtualization technology, on-premises Application Hosting is less expensive than ever. Depending on how services are configured, the proposition of in-house hosting is competitive with outsourced solutions.

Maintaining on-premises solutions introduces IT Asset Management Lifecycle. This is central to the management of all Application Hosting infrastructure which is comprised of computing assets. As defined by the National Institute of Standards and Technology (Stone, Irrechukwu and Perper), this includes Planning/Forecasting, Acquisition, Deployment, Operation/Maintenance, and Retirement/Disposal.



*Typical Asset Management Lifecycle - Source NIST SP 1800-5B*

This lifecycle introduces complexities of acquisition, commissioning, and obsolescence management along with the ongoing operation of the computing resources. Needless to say, this isn't as simple as it sounds. Assets tend to lose value over time and do need to be replaced at some point. Computing resources are lent a helping hand by *Moore's Law* (Contributors). This process needs to be managed from end-to-end often resulting in financial accounting complexity. Management of change becomes imperative as the asset traverses its lifecycle.

## V. WHEN DOES IT MAKE SENSE TO GO ON-PREMISES

Despite the expensive outlay of infrastructure required for Application Hosting within the organization, there are mandatory requirements that leave the company no choice but host on-premises. There may be a corporate requirement, for example, which mandates data to be stored within company systems.

Government regulations, also, may force certain quasi-governmental corporations to store the data within the borders of the country they are housed in. The big three technology giants do not have a presence in every region of the world and they certainly don't have datacenters local to every country. For reasons of data confidentiality, this is simply not doable for organizations looking to have data governed under their own nation's laws and limits their hosting options considerably. Additionally, not all nations or companies are comfortable with hosting their confidential data overseas where it may be subject to local laws and regulations that may further expose them to legal subpoenas.

In all such cases as above, the organization has no other option but to host their applications internally. However, this may not be the only reason they do so. As mentioned earlier, with the leaps made in virtualization technology over the last few years, inhouse Application Hosting has a fighting chance provided the infrastructure is acquired and managed with adequate expertise. A single virtual cluster can host many corporate applications as required (Firesmith).

## VI. CONCLUSION

It is easy to be swept away by the euphoria of today's technical jargon of "Cloud computing". However, IT organizations must carefully consider all the requirements to outsource their applications. Data confidentiality, careful considerations of cost and long term maintenance of infrastructure assets, as well as government mandates, inclusive, may require corporations to host their applications on-premises. Outsourcing company applications can certainly make sense in many scenarios but costs may spiral out of control once business continuity or high availability requirements are considered in their totality.

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