



**MOVING TO THE CLOUD:**

Understanding the Total  
Cost of Ownership



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The most significant cost of owning and managing software applications is tied up in operating and maintaining the software, along with the hardware and infrastructure needed to support it.

The Internet provides an always-connected infrastructure that eliminates any value add for operating and supporting commodity software on-premises.

Cloud vendors operating at scale can perform these tasks better and more cost effectively than an internal IT department.

## The new business imperatives for IT today

The high price of purchasing, owning and operating on-premises software applications shows no sign of abating. Gartner, the leading global IT research firm, estimates that the annual cost of owning and managing software applications can be as much as four times the cost of the initial purchase. Companies can spend up to 75 percent of their total IT budget just to maintain and run existing systems and infrastructure<sup>1</sup>. Businesses have accepted these numbers as a cost of doing business. But the continuing frailty of today's economic climate means that companies need to find innovative ways to slash expenses while continuing to improve agility, profitability, and competitive advantage.

Traditionally, the only choice for organizations was to purchase, deploy and operate software applications on-premises. Purchasing an on-premises solution—that is, software applications that an organization purchases and runs on their own premises—requires the company to pay an upfront licensing fee, plus an annual maintenance fee to cover support and updates. The most significant ongoing cost of ownership is tied up in operating and maintaining the software, along with the hardware and software infrastructure needed to support it.

As an alternative, many organizations are considering the increasingly popular cloud computing model for delivering applications as a service. The cloud model enables users to access business applications anywhere, at any time using a Web browser. The organization subscribes to software applications and “outsources” the operations and the associated maintenance and support, eliminating substantial upfront and ongoing costs. Cloud architectures enable IT departments to allocate their budget across a broader portfolio of services that deliver greater productivity and profitability.

The key insight is that the Internet provides an always-connected infrastructure that eliminates any value add for running and operating commodity software on-premises. Cloud vendors today have the scale to perform these tasks better and more cost effectively than an internal IT department. And they can aggregate many customers on a shared infrastructure, effectively amortizing costs across thousands or tens of thousands of clients, and dramatically improving both effectiveness and efficiency.

Before adopting any applications for key business functions, executives should perform a thorough total cost of ownership (TCO) analysis. Unfortunately, apples-to-apples comparisons can prove somewhat challenging. While it may be tempting to compare the initial license price of on-premises software to the annual subscription fees for cloud computing, this methodology fails to account for the ongoing internal operating costs for the on-premises software. Beyond direct software and hardware purchase and implementation costs, it's important for organizations to consider additional business drivers, including, infrastructure and resource overhead, maintenance costs, ongoing operations, flexibility and risk.

This paper discusses the cost impact of various components involved in software deployment models to help estimate the true TCO of cloud applications versus traditional on-premises software.

<sup>1</sup> Timothy Chou, “The End of Software,” SAMS Publishing, 2005, p. 6.

## Understanding the five compelling reasons to adopt cloud applications

### 1. Extending the IT Budget

IT departments operating and maintaining on-premises software allocate the majority of budget to hardware and people.

IT departments using cloud applications don't incur these costs, leaving more budget available for software acquisition, and resulting in lower overall costs.

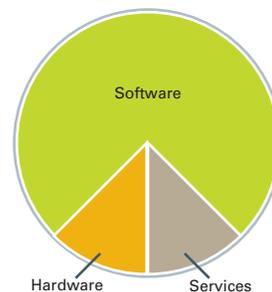
Cloud applications provide direct and quantifiable economic benefits over traditional software. In a typical organization, IT allocates budget across three broad areas: hardware, software and people. Software ties most directly to information management, the primary IT deliverable. Hardware and people services provide a means to an end as support for information management. An IT environment based on on-premises software allocates the majority of its budget to hardware and people, leaving a minority of the budget available for software.



**Figure 1: Typical budget for a premises-based software environment**

In a typical on-premises model, as shown in Figure 1, IT dollars appear to be allocated evenly across hardware, software and professional services. However, the vast majority of the software budget is allocated primarily to acquiring licensed copies of the software. The hardware budget goes toward desktop and mobile computers for users, servers to host data and applications and components to network them together. The professional services budget pays for a support staff to deploy, operate and support software and hardware, as well as consultants and development resources to help design and build custom systems. The majority of the ongoing costs are for personnel to operate, maintain and support the software and hardware.

However, for an organization embracing the cloud model, the IT budget allocation looks much different. In this model, as shown in Figure 2, the cloud vendor hosts critical applications and associated data on its central servers and operates and maintains the hardware and software with a dedicated support staff. This leaves a much larger percentage of the IT budget available for software acquisition, such as subscription fees to other cloud application providers. Because cloud computing vendors have developed such cost effective operations infrastructures, the total spend for cloud applications counting software, hardware and professional services is much lower than deploying the same applications on-premises.



**Figure 2: Typical budget for a cloud environment**

Expenditures for cloud applications always match the level of usage, and provide the flexibility companies need to stay agile—especially when compared with traditional software applications.

## 2. Getting a Truer Accounting of HR Costs

Cloud application TCO analyses often underestimate the “people costs” associated with operating and maintaining traditional on-premises software applications. According to META Group, “Companies no longer have the luxury of looking solely at hardware and software procurement costs and run rates of their technology investments but must examine the purchase decisions across their life cycle as well as how their people are spending their time servicing the application. While companies understand and scrutinize the cost of software and hardware very well, personnel costs are usually not examined as closely as they should be. Examining all these cost factors as a whole and how they impact the total cost of ownership (TCO) is paramount in running an efficient organization.”

Gartner estimates that IT organizations devote more than 75 percent of their budgets solely to operating and maintaining existing systems and software infrastructure. In addition, Gartner found that companies can spend up to four times the initial software license cost to own, operate and manage applications.

Cloud models provide companies a truer picture of IT staff allocation—if only because that allocation is often negligibly small. Shifting operations costs to the cloud vendor, who is operating at scale, is nearly always vastly more efficient than the on-premises staff. .

## 3. Managing Growth More Effectively

Cloud applications grow with your business. Rather than making decisions based on company size user requirements, companies can make purchase decisions based solely on business needs. The economies of scale offered by multi-tenant architecture makes it possible for cloud vendors to provide enterprise-grade applications for any number of user levels.

To illustrate, consider the “named user” licensing model, which gives a specific user the right to use the application. For example, a company has 100 employees who will eventually need access to a specific application and buys 100 named user licenses to meet that eventual high water mark. But right now, the company only needs to roll the application out to 10 employees. Using traditional software, the company would need to purchase and deploy the entire hardware infrastructure to support a 100-user version of the application, and train its IT staff to install, maintain and troubleshoot the application. In most cases it doesn’t make sense to do build out an entire system to support only 10 employees. As a result, the company buys all 100 licenses upfront along with the hardware and infrastructure to support those 100 employees.

With a cloud application, the company doesn’t purchase any hardware or software infrastructure, eliminating any reason to buy in advance to a high water mark. So the company can subscribe 10 users now, and subscribe additional users as required in the future. Thus the expenditure for cloud computing is always entirely right-sized to the level of usage; there’s never any need to overbuy. This is especially important when budgets and resources are tight. As a result, cloud applications provide the flexibility companies need to stay agile—particularly when compared with traditional software applications.

<sup>2</sup> Multi-tenant architecture is a software architecture in which a single instance of the software runs on a server, serving multiple client organizations, or tenants. A multi-tenant application virtually partitions its data and configuration, so each client organization works within a customized virtual application instance. See “Multitenancy,” Wikipedia, <http://en.wikipedia.org/wiki/Multitenancy>

Cloud application vendors are typically held to monthly service level agreements (SLAs) that provide financial motivation to continually re-earn their customers' business by maintain excellent support and customer satisfaction.

Traditional software vendors sell software and move on.

Multi-tenancy makes it possible for cloud vendors to deliver rapid and continuous improvements to all users in a granular, non-invasive fashion.

Traditional on-premises software vendors typically release upgrades every 12 – 18 months, resulting in disruptive, expensive upgrades that customers often forego to avoid business disruption.

#### 4. Achieving Greater Vendor Accountability

Cloud customers actually exert far more control over their vendors than traditional software customers. Cloud application customers pay a recurring subscription fee and cloud vendors are typically held to monthly service level agreements (SLAs). This provides a financial motivation for cloud vendors to earn their customers' business every month—by maintaining excellent support and operations, and high customer satisfaction. Traditional software vendors are paid a big upfront license fee in exchange for a perpetual license. They have fewer obligations once the software has been deployed. Whether the software works or not becomes the customer's problem. The ongoing subscription model ensures that cloud application vendors remain accountable on a continual basis to their customers—unlike traditional software vendors that sell software and move on.

#### 5. Gaining Instant Access to Innovation

Cloud vendors typically deliver new innovations as a steady stream of constant improvements. Leading cloud computing vendors often use the term multi-tenancy to describe their infrastructure. This means that the cloud computing vendor is operating a single shared set of infrastructure to deliver their applications to multiple tenants. Because the infrastructure is shared and centralized, the vendor can add new features easily by making changes in one place and controlling all the hardware and software variables. Multi-tenancy makes it possible to deliver rapid and continuous improvements automatically to all users in a granular, non-invasive fashion.

By contrast, the cost structure and scale of traditional on-premises software development requires developers to release upgrades no more often than every 12-18 months, creating debilitating upgrade cycles that are expensive and disruptive to customers—who often forego upgrades to avoid these business interruptions and risks.

Cloud computing helps to ensure that customers always have access to the latest features, while the vendor incurs all the costs of maintaining and upgrading the software. This eliminates ongoing operating costs for customers, while ensuring that every customer is always able to fully take advantage of the latest features and innovation.

#### Considering Additional Intangible Costs

Intangible costs by their nature are difficult to measure but they are no less real and are a critical factor of any TCO analysis.

- **Reliability and Availability** - What service level agreements (SLAs) does the cloud vendor offer? How do they compare to any company-internal SLAs? Does the internal IT team offer availability guarantees?
- **Data center and operations quality** - What is the quality of the cloud and on-premises data center? How are operations staffed? When are operations people available?
- **Interoperability** - How easy is it to integrate the software with other applications?
- **Extensibility** - How easy is it to customize the application to fit the needs of the organization?
- **Security and Privacy** - What security and privacy policies has the cloud vendor put in place, and how do they compare to internal policies and capabilities?
- **Scalability** - How well can the cloud application accommodate growth versus the costs associated with growing the on-premises application?
- **Capacity** - Usage and adoption within the enterprise is difficult to predict, making capacity management difficult. The tradeoffs are poor performance or underutilized infrastructure. With cloud applications, this dynamic is easier to manage.

## Analyzing TCO Cost Drivers

When comparing on-premises software to cloud applications, be sure to look beyond the initial license price of on-premises software.

Cost Drivers	Traditional On-Premises Software	Cloud Application
Capital Expenses	<ul style="list-style-type: none"> <li>• Upfront purchase of software and hardware</li> <li>• May require network infrastructure enhancements, facilities</li> <li>• Need to support third-party monitoring, test tools, security products</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> <li>• Pay-as-you-go subscription pricing</li> <li>• All inclusive: maintenance, support, training, and upgrades all hardware, networking, storage, database, administration</li> </ul>
Design and Deployment	<ul style="list-style-type: none"> <li>• May take months to deploy</li> <li>• Professional services can cost up to 3X the initial software purchase</li> <li>• Difficult for vendor to build best practices</li> <li>• Requires staff or contract labor to research, design, integrate, test, tune, launch, and train</li> </ul>	<ul style="list-style-type: none"> <li>• Deploy in weeks</li> <li>• Lower cost using consistent set of best practices</li> </ul>
Ongoing Infrastructure	<ul style="list-style-type: none"> <li>• Ongoing software maintenance, upgrades</li> <li>• Ongoing hardware replacement once every three years</li> <li>• Requires network monitoring and management tools</li> <li>• May require additional networking equipment and bandwidth to accommodate incremental traffic</li> </ul>	<ul style="list-style-type: none"> <li>• Vendor provides as part of subscription</li> </ul>
Ongoing Ops, Training, Support	<ul style="list-style-type: none"> <li>• Requires resources to operate, monitor, support, and upgrade the application</li> <li>• Need to hire, train and certify support personnel</li> </ul>	<ul style="list-style-type: none"> <li>• Vendor provides as part of subscription</li> <li>• There may be some training fees</li> <li>• Customer must ensure adequate Internet access and bandwidth</li> </ul>

## Adding it all up: Establishing the TCO

With traditional software, customers buy a perpetual user license that can give the mistaken impression that they “own” the software and can use it at will and in perpetuity with no added or ongoing costs. With cloud applications, instead of “owning” software, customers pay for a subscription for software running on an infrastructure owned and maintained by the cloud application provider.

The trade-off between subscription and ownership models forms the basis for evaluating the TCO of purchasing traditional software versus cloud-based applications. Why rent when you can buy, especially when you plan to use the application for a long time? While this might seem intuitively obvious, cost comparisons show how cloud applications, in fact, do offer many advantages over traditional software.

One common assumption is that there is a breakeven point where traditional software becomes cheaper than the cloud-based subscription model. IDC found, after reviewing several cloud-versus-traditional deployments and correctly factoring staffing resources and upgrade costs, an organization often never hits the “crossover point” where traditional on-premises software has a lower TCO.

Ultimately, buying and implementing software is a business decision—not a technology decision. The type of technology you choose to meet your organization’s business requirements is a function of your business goals, needs, and objectives—as well as the risks you’re prepared to absorb. Each delivery model has advantages and disadvantages—financially, technically, and within the framework of your business.



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