



Inside:

- Executive Summary
- Different Deployment Methods
- Core Multi-tenancy Advantage
- Where Does the Money Go?
- Additional Considerations

Economics of Cloud Financial Software

Executive Summary

Software purchases are generally expensive and critical to the continued operation of your business. Careful investigation of the options your company has is not only prudent, it could save your firm considerable money.

There are many kinds of financial application solutions out there today - from older, traditional on-premises solutions to newer cloud-based products and many others in between. These products possess a wide variety of functions, features, and equally importantly, cost. Yet, there exists a fair degree of market confusion about the relative costs and benefits that different software deployment models bring to financial accounting customers.

In reviewing the different software deployment options and the economics of the vendors that offer them, we concluded that multi-tenant SaaS solutions often have substantial advantages. These advantages include:

- Greater research and development (R&D) spend efficiency.
- More frequent functional improvements to the product.
- Lower support costs for the vendor and the customer.
- Lower cost testing and debugging environment for the vendor and customer.

Software buyers need to compare more than functions and features. They also need to evaluate the underlying economics of different deployment options and choose the solutions that deliver the best value over the long haul.

Different Deployment Methods

Accounting application software has undergone a revolution in recent years. Once restricted to on-premises solutions, now software buyers have several new deployment methods available to them. What comes with these different deployment choices are differences in up-front costs, maintenance costs and more.

The long-standing deployment method, on-premises, requires you to install a vendor's software on your computer hardware. Your firm would then need additional software products to make it work. These additional products include database software, backup and recovery tools, reporting tools, systems management software and more. All of this, the hardware, systems software, etc. requires significant upfront licenses or other capital expenditures. Systems integrators or resellers are often enlisted to implement these products. Additionally, continued usage or support of these solution components requires annual maintenance fees, incremental licenses, maintenance price increases and possibly other cash outlays.

On-premises software users also must maintain the applications they license. Upon receipt of a new upgrade, patches or release software, the customer must choose a time to implement these changes. This maintenance activity is often problematic because the customers' computing environment may not match that of the software vendor's environment. Significant testing may be needed just to get the upgrade installed and working. Additional work may be required to re-apply any of the customer's modifications and to ensure existing interfaces continue to work as planned. A best practice many customers use during this maintenance activity is regression testing. Regression testing is a disciplined process that ensures that new programming changes have not adversely impacted the prior code.

In recent years, additional deployment options have arisen. Several on-premises vendors created "hosted" versions of their product. Essentially, the application software is resident on either the vendor's or a third-party's cloud server. These solutions are generally offered on a SaaS (Software-as-a-Service) basis. SaaS solutions can be offered via monthly subscriptions as opposed to upfront license costs and annual maintenance support fees.

Using the hosted SaaS deployment model, customers can avoid large upfront capital expenditures because costs can be paid monthly out of the user's operating budget. Customers in this model are often on the hook to select the timing and frequency of when they upgrade, maintain and patch the software. In some cases, the hosting firm/reseller does this (for a fee), but in other situations, the customer must do so. Either way, the cost to upgrade is borne by the customer.

The Multi-tenant Advantage?

"In a study completed by TechVentive involving users of multi-tenant application software, customers reported saving between 40-60% by using multi-tenant solutions instead of on-premises applications."

Source: SaaS: Now Serving Large, Complex Enterprises, Vital Analysis, June 2010

Hosted solutions are almost always “single-tenant.” Single-tenancy means that each customer has his own version of the software and his own databases. While single-tenancy provides some measure of “user control” over the software installation and upgrade timing, the costs associated with these upgrades are often as steep as traditional on-premises solutions.

Another deployment option is the “private cloud.” Generally, a private cloud is an on-premises solution that is configured to run as if it is on a cloud technology platform. The customer owns the computing hardware and licenses appropriate systems software. Applications are accessed via an Internet browser. Essentially, the customer’s software and data remain behind the company’s Internet firewall.

Private cloud solutions appeal to buyers that want a web-like experience but want to retain total control over their applications. For software customers, the cost structure for private cloud solutions is akin to that of on-premises solutions since the customer owns and maintains virtually the same solution in either environment.

Finally, there is the “multi-tenant” SaaS solution. These are newer products that are often the result of ground-up development efforts from software vendors. Many of these products are designed to be cloud-based from their inception. Because they are multi-tenant, there is usually only one copy of the software that all customers are sharing simultaneously. One customer’s data can be *logically* separated from other customers’ data yet, all of this data may actually reside in a single *physical* database.

The Core Advantages of Multi-tenancy

Multi-tenant solutions have some important differences compared to other deployment methods. Like other SaaS solutions, these products generally do not require the customer to make large, upfront capital expenditures or acquire expensive IT infrastructure because the software is running on the vendor’s (or a third-party’s) cloud systems.

With multi-tenant solutions, however, the vendor is on the hook to update and upgrade the system (not the customer or another third party). This is a significant point because the labor cost to maintain application software is often the single largest cost component of on-premises solutions. In a study completed by TechVentive involving users of multi-tenant application software, customers reported saving between 40-60% by using multi-tenant solutions instead of on-premises applications. Another recent report from the consulting firm Booz & Co., noted that typical one-time costs of on-premises solutions are 11x that of cloud-based solutions. The on-going costs of multi-tenant solutions over five years are higher and reduced some of that advantage. Yet, after five years, the combined one-time and on-going costs of cloud-based solutions were still 3.2x lower than on-premises solutions¹. While both of

¹ “ERP in the Cloud – Is it Ready? Are You?”, Booz & Co., 2013

these studies focused on larger firms and their software implementations, we believe the same relative cost issues apply to small to mid-sized firms, as well.

Hosted solutions have their own cost issues. While some of these solutions can be acquired on a monthly fee basis (in lieu of an up-front license), customers need to perform application updates/maintenance themselves and/or utilize an expensive reseller or integrator to make the upgrades for them.

Beyond lower maintenance costs and the avoidance of large, up-front capital expenditures, multi-tenant software users also point to another major benefit. Because the multi-tenant vendor maintains the application software, the customer's IT personnel can now focus on more strategic, value-added tasks/projects.

Where Does the Money Go?

Software vendors spend your money quite differently depending on the deployment method they support. When you follow the money, you gain insight into how multi-tenant solution providers and their competitors differ.

Multi-Tenant Cloud Vendors

We examined recent financial data for several multi-tenant application software vendors. We observed that a significant amount of revenue (42% of total expenditures) is subsequently spent on sales and marketing activities. This does not come as a surprise as many of these vendors must expend a similar amount of sales costs to acquire a customer as an on-premises or hosted solution provider. But, unlike on-premises vendors that collect a hefty upfront license fee that helps offset their sales costs, many SaaS vendors only receive one or a few months of subscription fees in the year the initial sale is booked.

Implementation Services and other professional services made up the second largest cost category at 19%. These costs include the current period labor costs of the vendor's professional services personnel that assist customers with implementations.

Multi-tenant cloud vendors appear to be spending 18% of total costs on R&D activities. These funds are being used to add new functionality to existing applications and develop all new applications. Interestingly, this percentage appears to track with the R&D expenditures of non-cloud based software firms.

Where Multi-Tenant Revenues Go



General & Administrative Costs make up 11% of total expenditures. These funds cover office, administrative and executive costs.

Surprisingly, cloud data center costs only account for 10% of total expenditures. These costs include computer hardware depreciation, backup and recovery software costs, labor costs to operate the cloud center, security systems and more. It also includes, and this is very important, all of the labor costs the vendor assumes to apply maintenance patches, upgrades and updates for its customers. Clearly, these firms are achieving real economies of scale thus allowing them to run hundreds of customers' systems on one shared computing environment.

The upgrade environment for multi-tenant vendors is a very efficient one. Since the vendor has only one code stack/computing environment and since all customers are on one version of the product, the maintenance effort happens once and is done. This maintenance efficiency allows the vendor to spend less on maintenance, less on customer support issues and other costs that other deployment environments may create. On an apples to apples basis, a more efficient vendor means that the vendor can use these savings on new product development – an activity more valuable to the customer long-term than debugging patch issues with current or older releases.

“The single technology stack of a multi-tenant SaaS solution is a clear advantage for the vendor and the customer. Vendors win as they can roll out more new functionality faster. Customers win as their solution can evolve fast and robustly. Both win as fewer ‘surprises’ await the customer because some anomalous bug crept into a customer’s system.”

One final point on the multi-tenant vendors, these companies, on balance, are spending slightly more than they are taking in for revenue. Profits are being sacrificed in the short-term to expand their market share, computing infrastructure, product functionality and talent contingent.

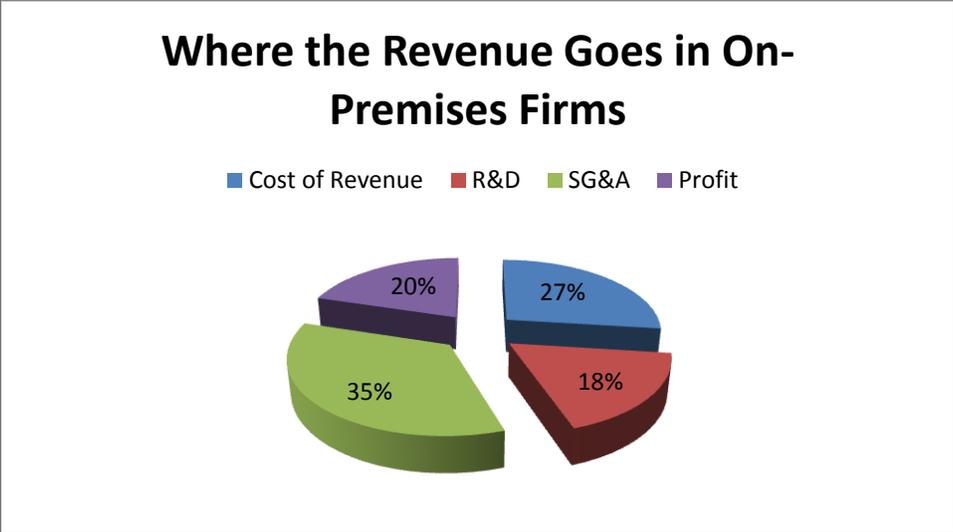
The Other (Single-Tenant, Hosted and On-Premises) Vendors

We searched for comparative financial data for three other kinds of application software vendors: single-tenant SaaS vendors, hosted SaaS vendors and on-premises (whether private cloud or traditional on-premises) vendors. For reasons covered in the Appendix, we have chosen to treat the economics of all of these solution deployments similarly. The best comparative data may be from on-premises solution providers as their software code is usually the foundation for all alternate deployment methods anyway.

In contrast to the multi-tenant SaaS application software vendors, the on-premises vendors that we reviewed have a different cost and profitability structure.

Let’s quickly deal with some of these financial differences. On-premises vendors, on average, delivered a 20% profit margin. This margin may be possible due to a number of factors such as:

- The general maturity of their products.
- Lower sales costs incurred in capturing maintenance revenue (versus net-new licenses)
- The receipt of large, highly profitable maintenance fees for older stable products.
- The avoidance of capital and operational costs to build, run and enhance cloud data centers.
- Passing off responsibility for patching, upgrading and maintaining their customers’ solutions to the customers themselves.



R&D costs as a percent of total revenues, as mentioned previously, are essentially the same for on-premises and multi-tenant vendors. The key issue though is the efficiency of these expenditures. In other words, is a dollar spent by a SaaS multi-tenant vendor delivering more or less value than a dollar spent by an on-premises provider? The multi-tenant vendor is likely more efficient in its R&D spend as it does not need to spend as much on regression testing new functionality across a myriad of different technical environments.

An on-premises vendor, as well as many single-tenant SaaS or hosted ERP vendors, must support more than one technology stack. That means that every time a new piece of functionality is developed, it must be regression tested against a potentially large number of systems software and hardware combinations. Instead of testing the new code against the one (and only) technical environment of the multi-tenant cloud solution, a test team must simulate potentially dozens of different systems configurations and ensure the solution works in each. The combinations may include differing:

- Make, model, configuration and manufacturer of the servers.
- File access/database management systems.
- Desktop operating systems.
- Server operating systems.
- Reporting tools.
- Integration tools and interfaces.
- SOA (service oriented architecture) components.
- In-memory database tools.
- And more.



And, the regression testing gets even more difficult when you consider that not all users of these systems are on the same release and patch levels of their technology stack components. Just because the application runs fine with version 11.4 of the RDMS (relational database management system), doesn't mean it works correctly with version 11.0 or 10.5. Moreover, a single patch applied to one of these versions could render the new application software inoperable. As a result, the testing team of an on-premises vendor must test potentially hundreds of combinations of environments to ensure that the software works and works as desired.

All of this regression testing takes time and budget. The single technology stack of a multi-tenant SaaS solution is a clear advantage for the vendor and the customer. Vendors win as they can roll out more new functionality faster. Customers win as their solution can evolve fast and robustly. Both win as fewer 'surprises' await the customer because some anomalous bug crept into a customer's system.

Customer support costs should be substantially higher for an on-premises vendor because one-off bugs are often difficult for the software vendor's support team to replicate and maddening for the software user to experience. Customer service in an on-premises software company must possess additional people with skills in the different hardware and systems software products that their customers use. They need people familiar with multiple versions of the application software, too. They may have to purchase/license additional hardware and software to replicate a customer's issue. All of this costs money and may re-direct monies intended for R&D into Cost of Revenue expenses for the vendor. The bottom line is that customer support is likely to be more expensive, time consuming and complicated for a vendor with a non-multi-tenant SaaS solution.

The proof of all of this inefficiency is evident in a major application software vendor's suite. Its software can be deployed on-premises, on-premises in a private cloud, hosted on a third-party's data center or in the vendor's multi-tenant SaaS cloud. If a company chooses any but the last configuration, it will not receive upgrades and updates as quickly as the users on the multi-tenant version. Why? Vendors need additional time to regression test the solution for other computing platforms.

We believe multi-tenant solutions:

- are more efficient from an R&D spend perspective.
- deliver functionality faster and with more frequency.
- produce fewer bug 'surprises'.

Additional Considerations

Readers should note that absolute maxims are not possible in defining the advantages/disadvantages of different software deployment models. For example, a few multi-tenant software vendors have solutions that invoke one copy of the software yet keep each customer's data physically and logically

separated. Some multi-tenant vendors can permit users to remain on a version of the version that is up to two prior versions past.

Regardless, software buyers must use the data and design principles within this report as a framework for evaluating the possible long-term economics and product evolution of any solution under consideration. In assessing solutions, we strongly suggest you consider how any solution:

- **Frees up your IT resources** – Will the new solution help keep your IT personnel out of the application maintenance realm and let them focus on more strategic applications and software development activities? Ask yourself :*“What brings more strategic value to our firm: having IT apply patches, fixes, etc. to an accounting system or working on more strategic applications like a new mobile or e-commerce solution?”* For many buyers, maintenance activities are often seen as tactical, not strategic, endeavors and as a result, these buyers want to minimize this work.
- **Can be enhanced over time** – Will the software vendor be stretched in many directions and unable to dedicate a lot of its staff and capital into enhancing the licensed solution? Or, does the vendor have a solution that permits a more efficient deployment of its people, capital and intellectual property? The more efficient vendors should deliver a better quantity and velocity of enhancements.

Closing

The application software space is undergoing structural change. Customers are less willing to pay large upfront sums to license software and less likely to want to buy expensive computer hardware to run the application software. Customers are changing and vendors are following suit.

The result is a whole new breed of on-demand applications: SaaS. But not all SaaS solutions are the same, and the economic differences for both the vendor and customer can be considerable. Multi-tenant SaaS solutions can be more advantageous than other deployment methods -- especially when one reviews how quickly multi-tenant applications can be built; how quickly new functionality can be deployed, and how cheaply these solutions can be to customers from a total cost of ownership perspective.

This paper examined the economics behind the different deployment models available today. In general, we found that of all the new SaaS models, multi-tenant solutions are:

- more cost-effective from a user perspective in that they can significantly reduce the customers' IT support costs for application software.
- more efficient for the vendor to develop and support as there is only one technology stack and version of the software to support.
- capable of faster and more functional development of the software suite as the regression testing needed for these solutions is often much less than for other deployment models.

The Other (Single-Tenant, Hosted and On-Premises) Vendors

We searched for comparative public financial data for three other kinds of application software vendors: single-tenant SaaS vendors, hosted SaaS vendors and on-premises (whether private cloud or traditional on-premises) vendors. We found:

- On-premises vendors are usually the same vendors offering hosted SaaS, single-tenant SaaS and on-premises solutions. Why? These alternative deployment methods are often using the same software code as the on-premises solution. We found very few firms that principally offer single-tenant SaaS that weren't already selling an on-premises solution. If we did, the vendor was a smaller, private firm that does not share its financial data.
- Financial data for any one alternative approach, beyond on-premises, was virtually impossible to capture. This situation is mainly due to vendors co-mingling the financial results of different deployment options of their on-premises solutions.
- Many traditional on-premises vendors also offer hosted SaaS versions of their solutions. They simply place a copy of their software on a cloud service (e.g., Amazon AWS) and bill the customers on a monthly basis (instead of the more traditional up-front license and annual maintenance payments).
- Private cloud configurations have essentially the same cost structure as a traditional on-premises solution. One vendor may be able to achieve some economies of scale with this because they are trying to get private cloud customers to use the same hardware and systems software stack. However, we do not have any data points on this relatively new offering and are unsure how this will work if all customers do not follow the same upgrade timeframes.
- Single-tenant SaaS solutions appear to have very similar economics to the hosted SaaS solutions.

For reasons covered here, we have treated the economics of all of these solution deployments similarly.

About Vital Analysis



Vital Analysis is a very different kind of technology research organization. We are the intersection set where exceptional technology market knowledge meets the executive suite. Where other “analysts” replay vendor press releases, we give you the:

- impact new technologies will have on your business.
- reasons why you should care about specific emerging solutions.
- business justifications why you may want specific solutions.

Vital Analysis was carved out of TechVentive, Inc. in 2007 as a new, but complementary business. As designed, Vital Analysis is the publishing, research and analytical arm of that company.

Our reach, like our blog readership, is truly global. We’ve consulted with top technology executives in Australia, Brazil, Canada, the United Kingdom and the United States. We’ve been briefed by technology providers from virtually every corner of the planet.

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