



# What's Wrong with This Cloud?

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**Why Software as a Service (SaaS) does not reduce IT costs in small or mid-sized businesses, and an introduction to the only cloud computing solution that does.**

**A Proxios White Paper**

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## Executive Summary

Most of the research on cloud computing is based on data collected from large enterprises, not small or mid-sized business (SMBs). Presuming the conclusions in these research reports apply to the SMB is dangerous, if not outright wrong, particularly as they pertain to cost comparison for cloud verses on-premise solutions. The IT dynamics in an SMB are very different from a Fortune 500 company. Where Software as a Service (SaaS) cloud solutions might lower technology costs for a large enterprise, a similar solution implemented in an SMB almost always increases costs. The only effective way to actually reduce technology costs in an SMB is to go beyond SaaS and use cloud solutions referred to as Hosted Virtual Desktops (HVDs) or Desktop as a Service (DaaS) offerings. By using HVD or DaaS solutions the SMB moves its entire Windows based software to the HVD provider and, in doing so, can actually reduce costs, ensure high availability, and have anywhere- anytime access to applications and data on a pay-per-use basis.

### **Head in the Clouds – Why the research on cloud computing is useless for SMBs.**

A good deal is being written on cloud computing in business today, and most non-IT decision-makers, e.g., CEO's CFO's, etc., in small to mid-sized businesses (SMBs) are beginning to wonder about the significance of this "sea change" for their companies. Despite all the talk about the advantages and disadvantages of cloud computing, the pundits, vendor spin doctors and even in-house IT staffs or advisors often fail to convey basic business issues that must be considered in an SMB. For C-level decision makers and business owners it is difficult to find whether or not cloud computing is an IT strategy small to mid-sized companies can use effectively.

Mostly, this problem results from the fact that the lens through which the research information is collected and analyzed is almost always focused on large enterprises. However, as anyone knows the dynamics in a 20 or, for that matter, 500 person company are very different from the dynamics of a company such as General Motors, and their need for cloud services is therefore very different as well. Applying the metrics derived from a study of large

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enterprises, even if a few SMBs are thrown into the mix, does not in any way reveal what SMB management needs to know about cloud computing.

### **Thunder Clouds in the Computer Closet – What is the SaaS value proposition, anyway?**

The genre of cloud computing known as Software as a Service (SaaS) is certainly one of the most studied of all the cloud delivery services and is seemingly the most relevant for the SMB – at least that is what Google, Microsoft, Salesforce.com and others want everyone to think. SaaS companies deliver topical software solutions over the Internet via the web browser installed on a user's PC. SaaS solutions are meant to be a substitute for in-house deployments of a single application. SaaS is a cloud delivery strategy that is relevant to organizations of all sizes; it is certainly the most likely cloud service to be used in the SMB market. Examples of SaaS companies include the Salesforce.com CRM application, Google Gmail and Apps services, Microsoft Office Live, etc.

SaaS companies abound and will become ever more ubiquitous in the future as more and more software providers scramble to join the cloud crowd. Three premises are basic to the argument for the use of SaaS, as opposed to an in-house solution. Typically, it's argued that a SaaS solution can be deployed more effectively (meaning faster, better, and cheaper) because, by using the SaaS solution, the organization is able to avoid all the start up costs associated with the infrastructure provisioning and training that would be required to deploy a similar in-house solution; secondly, because these applications are typically Web applications, users can learn them more readily and are thereafter more self-sufficient; and thirdly, support costs are lower because less in-house maintenance is required to keep SaaS applications operational. This pretty much sums up what the research on SaaS says, anyway.

Indeed, these can be compelling arguments, and on the surface they make a good deal of sense to almost everyone – thus, the birth and proliferation of the SaaS craze. Reading between the lines, though, what one mostly hears is that SaaS solutions are more effective because SaaS deployments avoid the use of in-house IT staff and resources. This might be true if the existing in-house infrastructure and staff are being fully utilized, which they often are, and a new application is being added to the existing application mix. However, it may well be a bad business decision if a SaaS replacement is being contemplated as an

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upgrade for an existing in-house application, because the resources being used to support the existing internal application (and the associated costs) would likely not be reduced after the SaaS deployment.

Even the researchers acknowledge the difficulty of cost justifying SaaS in situations where a SaaS solution is being considered as a replacement for an existing in-house application. Forrester Research is a major research firm that has done much research on enterprise SaaS deployments. In one of their reports, “The ROI of Software-as-a-Service”, published July 13, 2009, the authors state:

**Moving to SaaS does not guarantee retirement of hardware or people resources.**

Firms often anticipate... eliminating hardware as well as people resources when moving to SaaS. However, in some cases these anticipated savings do not materialize or are too small to make SaaS cost-effective in the long run.

Given that most software deployments, especially in more established SMBs, are for software upgrades, e.g., the replacement of an existing application, maybe there is something, well, obscured by the clouds that this report creates in its conclusions: for the “firms that Forrester interviewed” – firms “in the thousands of users — some even an order of magnitude higher” – this report says that SaaS often generates a better ROI than in-house solutions, but does this apply to everyone, to the SMB as well?

**Obscured by Clouds – The hidden costs of cloud computing.**

This “risk” which Forrester mentions is where certain subtleties regarding the deployment of a SaaS application from the cloud need to be explored quite carefully, if good technology/business decisions are going to be made. Though a SaaS deployment can make excellent business sense for new applications (at least in large enterprises), often SaaS installs are done to replace existing in-house applications. When this is the case, the wisdom of using a SaaS solution becomes murkier, and what might be mere murkiness to a large enterprise is likely to be an impenetrable darkness for an SMB engaged in a SaaS vs. on-premise decision.

Because an SMB operates on a much smaller scale than a large enterprise, the cost dynamics of SaaS that are revealed in the research on large enterprises do not usually apply to SMBs. Although a SaaS application may enable a large enterprise to reduce costs, an SMB that replaces its core business application

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with a SaaS version of the same application will more often than not increase its IT costs, not reduce them.

Unlike large enterprises, the resources used to support IT activities in SMBs are almost always serving multiple purposes. For example a company with 50 or so PCs may have one IT manager who supports the desktop, the server, a network and the core business applications as well. Likewise, the server infrastructure in this organization may well be running something like Microsoft's Small Business Server, and two or three servers at most might be used to deploy e-mail, database applications, file storage, etc. Larger SMBs might have more of everything – staff, servers, storage, etc., but not that much more. This is a very different IT structure from a large corporation where hundreds or thousands of servers are involved and departments, each with multiple employees, will be devoted to highly discrete IT functions, e.g., the server team, the WAN team, the storage team, the helpdesk team, etc.

Because multiple roles or functions are served by the same staff or resource in an SMB, it is usually impossible to reduce infrastructure or staffing costs after a SaaS solution is deployed. Even after the SaaS solution is in place, most, if not all, of the original infrastructure and staff are needed to continue supporting the remaining in-house operations. Because of their scale, large enterprises do not find themselves in the same predicament. If a SaaS application is installed as a replacement for an existing application in these companies, they can reduce their departmental headcounts and/or re-appropriate resources in ways not available to the SMB. Because most, if not all, of the existing IT infrastructure remains in place in SMBs – the servers, the IT staff member(s), etc. – internal costs are not reduced after the SaaS deployment.

In fact, the overall costs of IT in the SMB will likely increase because the costs of the SaaS solution will be added to the existing cost. Every SaaS vendor builds a number of costs, in addition to licensing costs, into its price. In addition to license fees, a SaaS provider has to charge for infrastructure, staff, communications, data centers, etc. These costs remain after license fees are removed from any calculations, and they must be added to any continuing in-house expense, if a true cost comparison is to be found. Because SaaS rarely impacts ongoing in-house costs and because the non-license related SaaS costs must be added, the net effect is to increase overall IT expense for the SMB.

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Similar cost implications can often be true for new application deployments as well. Very simply, the SaaS overhead costs (the costs after license fees are removed) that come along with a SaaS application will usually exceed comparable overhead costs (for new infrastructure, mainly, and possibly some increase in IT staffing) that result from the installation of the same application in-house. Although it is more difficult to argue this scenario, and although this is the ground on which the arguments for SaaS stand, the fact is that there is usually enough excess capacity in most SMB IT resources to absorb the added overhead of a new application, particularly if the application is not a core business application or one that is resource intensive yet applicable to only a few users. Again, because the installation size is so small, the economic value that SaaS deployments generate for large enterprises are at best only marginally significant in smaller companies.

Certainly, there may be times when the increase in IT costs can be justified in an SMB, and no doubt many SMBs will justifiably employ a SaaS solution for one or another reason. Some of the cases where a SaaS deployment might make excellent business as well as economic sense include situations where:

- Application complexity is high and number of users is low, e.g., CRM applications where only the sales staff are involved
- Large capital investments are needed and the ROI is marginal
- Speed of deployment is more important than costs
- Remote access is required and unavailable for a comparable Windows application

Though these and other situations can certainly be the drivers behind a SaaS deployment, the point here is that most SMBs do not have the scale to benefit economically from a SaaS solution in the way a large enterprise might. In an SMB the same IT resources, e.g., people, servers, etc., serve multiple purposes and therefore cannot easily be eliminated from the overall cost equation when a single purpose SaaS application is installed.

**Beautiful Clouds – How SMBs can eliminate on-premise IT altogether and have improved performance, higher reliability and lower IT costs.**

Though an SMB cannot readily reduce IT costs by eliminating multipurpose resources after a single purpose SaaS solution is installed, there are cloud

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strategies that SMBs can use quite effectively to reduce IT costs – more effectively, in fact, than the SaaS solutions getting all the press. Given the scaling limitations of an SMB, the question that must be asked is: if the SMB cannot reduce resources by halves or quarters as it were, why not take the reverse approach and find a way to eliminate staff, servers and, indeed, everything related to IT in an SMB? Could there be cloud solutions that turn every application into a SaaS application and put everything at once up into the cloud for deployment back to the SMB? Looking in this direction, it is possible for an SMB to find a cloud strategy that makes economic sense and brings with it all the other benefits of SaaS and more.

The “one infrastructure, one company” computing model historically employed in SMBs is incredibly inefficient. As it stands today every SMB that has its own on-premise IT infrastructure has generally the same software, equipment and staffing as every other SMB. Each SMB has a mail server; each SMB has a file server; each SMB has a database server; each SMB has technical support, etc. Using a power generation analogy, today’s on-site SMB computing model can be likened to every SMB owning and operating its own on-site generator to generate electricity – a model long since proven to be ineffective, but this, in fact, is actually how the power industry started at the turn of the 20<sup>th</sup> century. Many years ago power companies came into existence because it became clear that if one power company served many companies, power could be generated more cheaply and reliably for each individual customer.

The most effective way to actually impact costs with a cloud solution in an SMB is to “generate” Windows desktops and the applications that run on them from a central facility that serves multiple customer. Effectively creating a computing “power company” or utility, doing this requires that all the applications being used on every user’s desktop move into the cloud at once, not just one or two of them as in SaaS. The large enterprise cannot readily do this because of the political complexity of the decision making process; an SMB, though, can do it with relative ease because decision making is more straight forward and the application mix is not as complex. This approach is referred to as the hosted virtual desktop (HVD) or Desktop as a Service (DaaS) approach. Using this approach all resident Windows based applications in an SMB are effectively turned into SaaS-like applications at once, and then they are collectively delivered back to the SMB from the cloud.

HVDs depend on virtualization technologies. These technologies convert the PC’s Windows operating system and all installed applications into a format that can be “played” over the Internet from a remote location through a web browser

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– something like GotoMyPC but using very different, more powerful and scalable technologies that are PC independent. SaaS applications, on the other hand, are often Windows applications that have been rewritten in a web development programming language so that the SaaS application will run natively in a web browser. It may take years to rewrite a Windows application for SaaS deployment; it takes minutes or hours (for a highly skilled engineer with the appropriate tools) to take a standard Windows desktop and the installed application and virtualize it. Once virtualized, the HVDs for an SMB are deployed back to the end users, altogether eliminating the need for desktop software, on-premise servers and local data storage.

Given that HVDs can be created quickly and easily, and because the economics and operational benefits are superior to the benefits of an on-premise system, cloud computing companies now exist that are in the business of going into SMBs, virtualizing all-end-user desktops and provisioning the HVDs back to the SMB on a pay per use basis. Over a few days or weeks, these companies work with the SMB to recreate the SMB's entire IT infrastructure so that every application and all data are moved into the cloud. Once this is done, the SMB has no use for onsite technical support staff, servers, backup systems, etc., or, for that matter, even PCs. Using nothing more than a monitor, keyboard and mouse, nearly all devices (thin client, Mac, iPad or, of course, the original PC) connected to the Internet can “morph” into virtual desktop computers that mimic the look, feel and functionality of the original in-house PCs before they were converted into HVDs.

HVD service providers actually reduce IT computing costs for the SMB clients they serve, because they eliminate the inefficiency built into today's SMB IT approach. They do this by “generating”, like a power utility generates power, ready-to-use HVDs customized to the needs of each SMB from a shared or tenanted infrastructure. By leveraging the IT spend from many clients across a private and secure but shared infrastructure, HVD providers create economies of scale that individual SMBs can never create. They are therefore able to deliver virtual Windows desktops and all installed software to their customers for a lower price per user than any one of the customers working independently could do for themselves. What was true for the power industry is now true for the computing industry, too – so long as all, not some, of the required computing services are delivered from the HVD or DaaS provider, and the customer has no technology footprint left in-house to provision and support.

Besides cost savings, HVD providers create other benefits for their customers as well. Some of these benefits include:

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- Rapid deployment
  - Anywhere anytime access
  - Greater security
  - Guaranteed service levels
  - Higher reliability
  - Better performance
  - Responsive support
  - Minimal to no capital expenditures
  - Predictable computing costs

HVD providers represent the ultimate conclusion of the cloud revolution. They do not deliver partial solutions, e.g., a single SaaS application, a hosted server in some data center which the customer must maintain and support, a storage bin for data at a cloud storage facility or anything else of the kind. HVD providers are the endgame in cloud computing, the logical conclusion which must ultimately be arrived at after (for the unwary or unformed) a circuitous route is taken through all the partial solutions, e.g., SaaS, PaaS, IaaS or whatever other aaS the market dreams up to obscure the real possibilities that HVD provider's offer. For those who simply want IT to disappear, HVD providers can make that happen now so that companies can return to what they do best – supplying their own goods or services to their customers and focusing on more strategic issues. Nicolas Carr, the IT paradigm shattering and much quoted author who published, "IT Doesn't Matter", in the *Harvard Business Review* in 2003, says in a synopsis of "The End of Corporate Computing," a follow-up article written a few years later:

Computing utilities will bring to an end the traditional model of "corporate computing" in which computing is carried out within individual corporations - just as electric utilities made "corporate electricity generation" obsolete. And utility computing will represent "the end" toward which business computing in general is heading. It's IT's destination.

Those who wish to do so can arrive at that destination now, rather than later. If they do, chances are they will save themselves a good deal of money and find an IT solution that supplants the in-house solution and its associated challenges and shortcomings with a final solution that simply works.

## About the Author

Frank Butler founded Proxios in 1999 to deliver cloud-based business technologies the same way utility companies deliver electricity or water. For over 10 years Proxios has been delivering virtual Windows desktops and Windows-based applications (HVDs) integrated with email, desktop faxing and VoIP telephony solutions. Prior to forming Proxios Mr. Butler was the founder and President of Information Technologies, an IT consulting company which quickly grew and was named to *Inc. Magazine's* 500 fastest growing companies. Mr. Butler received his degrees from University of Richmond, the University of New Hampshire and Virginia Commonwealth University.

