Technology-Business Impact Analysis

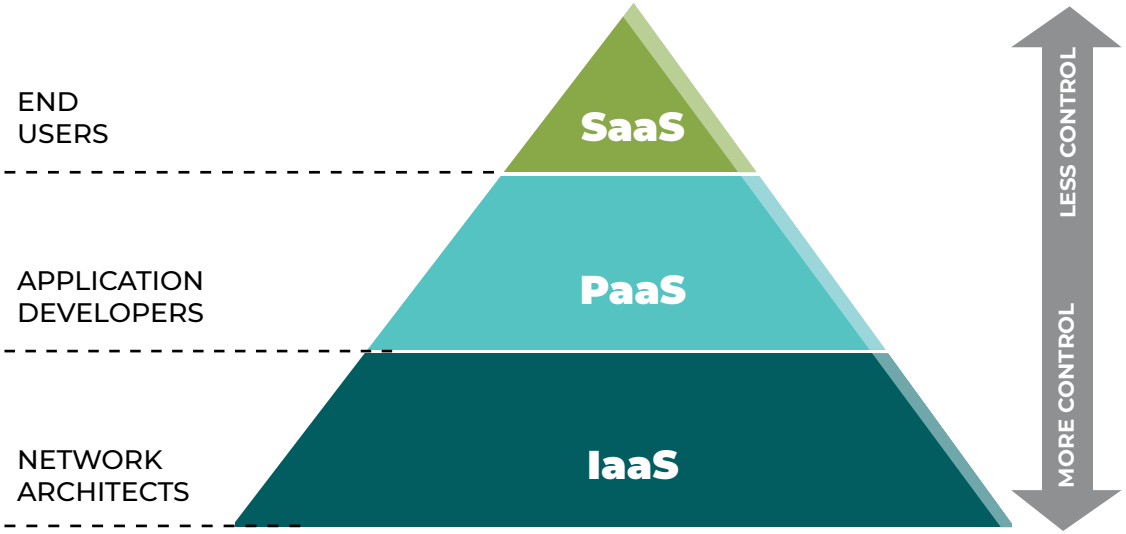
The Impacts of Software as a Service on Business Continuity

Software as a Service (SaaS) is a model that is growing across all segments of enterprise software, as software firms look to more sustainable revenue generation and buyers seek seamless evergreen updates and cloud-based features. However, as business moves towards this new paradigm, there will naturally be second-degree effects on a wide range of other business functions. In particular, this paper is interested in new factors that will alter business impact analysis, as well as how enterprise architects and business continuity managers will need to adapt to maintain business function.

The growth of SaaS

Though SaaS has only recently become a widely used term in the business world, the actual core idea has been around since the birth of the internet. E-mail, for example, is a SaaS product. To access e-mail accounts like Hotmail or Gmail, you will need to have internet access and a username & password to login. To access advanced features you will need to pay a fee, and the more you use the higher the fee becomes. This is essentially the standard for SaaS offerings, though e-mail is fairly unique in that the majority will experience it as a free product.

You may have seen similar acronyms such as PaaS (Platform as a service) and IaaS (Infrastructure as a service); Microsoft's own SaaS explainer consider these to be subsets of the overall SaaS category, although Gartner considers these and BPaaS (Business Process as a Service) to be separate categories in the overall cloud market. A common way of representing these different categories is via the cloud computing pyramid, which sorts SaaS, PaaS and IaaS by the amount of control required, as shown in the diagram.



In the modern age, the major SaaS offerings can most likely be traced to Microsoft and Adobe. Adobe's Creative Cloud was first released in 2011, and they ceased offering their traditional offline product in 2013. Microsoft's Office 365 was also released in 2011 and has been their primary offering since 2013, though they have continued to make on-premise alternatives available.

Outside of those big players, Gartner predicts that SaaS products, and cloud computing products in general, will continue to grow rapidly through to 2021, predicting total revenues of $113B for SaaS and $278B for the cloud market, compared to 2017 figures of $59B and $145B respectively – both almost doubling in 4 years.

Why do firms invest in SaaS products?

What has driven the colossal rise in SaaS products? After all, on-premises options are largely still available and can offer a fully featured experience for enterprise users. Nonetheless, there are several key advantages that have helped increase adoption of SaaS products.

A big part of the SaaS market are products that cannot exist on-premise. As the internet continues to evolve, more and more commerce can take place digitally, which requires more services to aid that effort. If a business wants to offer customer service, they will increasingly turn to live chat software which will require a constant internet connection. Or, a marketer will seek to track customer behaviors online, which again requires a server based product.

Finance plays a large role. Of course, there is the obvious advantage that SaaS subscriptions tend to have far lower upfront costs, allowing businesses use of the software for several years before spending as much as an on-premises installation.

Yet aside from the cash flow advantage, clarity is perhaps even more important. On-premises software can come with an array of hidden costs, from maintenance and hardware to the cost of upgrading. Operational Costs required to maintain IT infrastructure, such as rent for server space, electricity to run the fans to cool the servers, etc. can be outsourced to the provider. With a SaaS product, what you see is what you get, and it is unlikely a firm will need to spend extra beyond the initial subscription cost.

Flexibility helps with cost as well. The vast majority of SaaS products will offer multiple pricing tiers, user limits and other extras such that any buyer can easily tailor it to their own needs. For smaller companies or those with less need, they can pay for only what they use. While traditional software has offered basic and premium models in the past, it simply wasn't feasible to tie cost directly to usage and offer something like a price per additional user or X amount of feature usage per month.

For the IT function, SaaS products remove a lot of time consuming technology management. There is no longer a need to worry about the lifetime of an application or undergoing an upgrade process once said lifetime expires. What is more, it alleviates the risk assessment required for an upgrade as the vendor is responsible for ensuring that the technology supporting the application is up to date – thus enabling the customer to focus on more value adding activities. Even product downtime is likely to vanish or drastically shrink, with most SaaS products having a seamless update process. SaaS products will always be at the cutting edge and IT departments will have no concerns about missing important features or developments. On the other side, we should also address why software developers have moved to SaaS models. Perhaps the primary motivation here is the more reliable cash flow, with SaaS providers knowing that every year or month they will receive some income, as opposed to the random peaks and troughs of one-off software purchases.

In addition, ensuring that every customer has the most up to date version of an application can improve the perception of a product's quality. Bugs can be fixed almost instantly for everyone, while no one will be unaware of new and improved features.

How will SaaS change Business Impact Analysis?

Perhaps the most important part of a business impact analysis is determining the time that it takes to recover from a shock and resume normal business operations. This is normally termed as minimizing the recovery time objectives (RTOs) and maximum acceptable outages (MAOs). With typical business activities, these are largely within a business's control, but the biggest issue that arises with SaaS is the reliance on a third party which cedes this control.

SaaS products bring different risks as opposed to on premise software. The most common SaaS risk is related to servers. Since SaaS products are delivered through the cloud, if the servers that host the services go offline or experience difficulty, users may be unable to access the applications they need. This is becoming less and less of an issue as the infrastructure of the internet is upgraded, and modern datacenters are built with a high level of resilience, but for some firms even a very minor issue with an application can have drastic implications. However, risks do not merely emerge from natural processes or mistakes; there is a significant chance that server failures arise from malicious actions, such as DDoS (Distributed Denial of Service) attacks. If the history of computing has demonstrated one thing, it is that attack will always be one step ahead of defense, and as such no amount of investment will free servers from the risk of hacking.

A rare issue can be related to specific features of an application. Every additional feature in an application increases the performance overhead and maintenance requirements, so there may be situations where certain features are permanently removed to help improve speed or reduce bugs. If a firm becomes very reliant on a feature which is subsequently taken away, it can be difficult to maintain business functions, as they would need to abandon all future updates to stay on an outdated version.

A risk that numerous consumers have already seen is the cessation of business activities. With a service, there is no guarantee that the service will continue if the provider ceases to exist, which has led to many consumers losing access to content they have purchased. It is no different for enterprise users. Once a SaaS provider goes under, the SaaS product might well cease to exist as well, if there are no other firms to take on the responsibility. Obviously, this is not going to be an issue for something like Microsoft Office, but there are certainly many niche applications that run this risk.

A related problem comes from mergers & acquisitions in which the SaaS provider is the target. Depending on local laws, there is no guarantee that the SaaS product will continue in this situation, or even that customers will be entitled to refunds. Given that many SaaS products tend to offer yearly or even lifetime subscription packages, the potential financial losses that an organization can experience are large. There will even be risks to ongoing business operations. Even if the buying firm does see out their commitments, they could still cease support and updates, or simply no longer provide as many resources and let the quality slowly decline.

3 Steps to protect continuity with SaaS products

Despite the potential benefits of moving to SaaS solutions for your technological needs, a new paradigm will inevitably throw up new obstacles. In order to protect business functions, different approaches will be necessary compared to dealing with traditional software risks.
Here are 3 steps that a firm can take to protect themselves:

1. Keiretsu:

Keiretsu (系列) is a Japanese term which is technically used for describing a set of interconnected businesses with financial interests in each other, though carries a slightly different meaning for manufacturers. When Japanese car manufacturers began to dominate US markets in the 1980s, the big three of the US rushed to emulate their Just-in-time supply chains and Kaizen cultures but often faltered in their early years. One of the big problems with JIT was that manufacturers were reliant on suppliers to be able to deliver on extremely tight schedules, which American suppliers could not achieve.

Japanese manufacturers, on the other hand, had no such difficulty because of their strong relationships with the firms in their supply chain, based on Keiretsu principle. “Keiretsu relationships” became a key factor for ensuring that US suppliers and customers could participate in a JIT supply chain.

Just in time manufacturing is not a concern for many businesses, but the lessons of keiretsu can still be applied to other business relationships. By engaging in much closer relationships with their suppliers, and even vertically integrating where necessary, car manufacturers were able to make JIT production work. Modern organizations need a modern keiretsu, proactively engaging with their application suppliers to ensure continuity of service, advance knowledge of change and the opportunity to guide the future of the SaaS product.

Firms that utilize SaaS products become vulnerable to effects on the software creator, ceding a certain amount of control. For a firm reliant on SaaS, developing a strong relationship with the SaaS provider can provide protection against software failures, business collapse or damaging takeovers.

2. Invest in knowledge

Having knowledgeable employees is a goal for every firm, but it can have particular benefits around software and could be an area to prioritize for training investment. Knowing exactly how an application integrates with a business function will ensure that workarounds can be found for applications even when restoring them is out of an organization's control.

What is more, access to Application Programming Interfaces (APIs) for SaaS products is now widespread, which means that experienced employees can leverage this to implement resiliency, specific requirements or even restore lost features, and prevent any outages.

3. Be prepared to walk away

This is an obvious solution to technological issues but still bears repeating. Knowing what alternatives there are, and how they will be implemented and used, is just as important for SaaS products at is for any other application. Enterprise Architects and Business Continuity Managers should be ready to switch to on-premises or alternative applications as soon as issues arise, even if the firm ultimately decides not to go through with the change.

This can be considered a form of insurance. The organization pays in the form of employee time, and in return gives themselves protection against SaaS failures. As with many forms of insurance, this may never “payout”, but if an organization does need it, they’ll find the investment to be invaluable.

Conclusion

SaaS products come with many opportunities for organizations but will need new approaches to protect business continuity. In this report, we have documented the growth of SaaS products, highlighted the new risks they pose & how to account for them in impact analysis, and made suggestions for organizations to protect themselves from this new paradigm.

What is clear is that SaaS products will not be going away, and the advantages they offer to both customers and software creators are enough that the market will only grow larger. Indeed, a key reason for businesses to pay attention to continuity issues for SaaS is that the market may become increasingly two-tiered, with on-premises software relegated to less support and fewer upgrades.

For enterprise architects, adjusting Business Impact Analysis will not require a huge amount of effort as long as they bear in mind the unique risks posed by SaaS products. Realistically, many of the risks detailed here are low probability, and only critical applications will need to take these risks into account for an impact analysis. Where critical applications are provided as a service, continuity managers have several new approaches to consider.

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