Leveraging the Benefits of SaaS-based Data Protection in IT Transformation

Critical knowledge and criteria to define the next generation of resilient, and cost-effective solutions

By David Linthicum

Executive summary

Digital transformation initiatives are moving enterprise data and applications beyond the data center. We face a growing number of challenges as we mix on-premises, cloud, and SaaS (Software as a Service) applications and systems. Our intermingled architectures make management more challenging in areas such as security, storage, governance, application processing, and operations in general. It's time to gain perspective about key business indicators that can measure the true value of the systems we want to build and deploy.

Business and IT leaders face more economic uncertainty and challenges in the closing days of the global pandemic, which created supply chain issues and IT skills shortages. Combined with rising concerns about the economic impact of rapidly escalating climate change indicators, many in IT and enterprise leadership want to rethink the weighted value of IT assets. These values include consumption models for IT resources, cost allocations of those resources, and other more difficult to define benefits such as business agility and speed-to-market.

The latter two, business agility and speed-to-market, can drive other important benefits such as innovation and digital transformation, both aimed at greater customer loyalty and higher revenue, and thus greater value to the business. Security has become a critical asset as well. As data breaches and ransomware attacks make the 24-hour news cycles, we now understand that security failures can drive a business into the ground as customer and investor trust comes into question.

How can businesses address today's challenges by using their IT resources to strategic advantage? What are the hard and soft costs associated with building and supporting core application services such as data protection? The most important question that IT executives need to answer: **How do you define the value of data and application deployment options, including SaaS-based consumption models as compared to traditional methods of deployment and operations of applications, data, and infrastructure assets?**

Perhaps better put, the question should be: **When and why should IT embrace "as-a-Service" models over traditional deployment methods such as those found on premises? What are the best options moving forward when it comes to generating true value for the business?**

This paper answers all those questions and more. We'll look at the advantages and disadvantages of each approach from a technical aspect, and review how to evaluate the true business value of each approach.

Conclusions reached in this paper include:

- **Agility and scalability are primary business drivers that SaaS can optimize.** These values are often overlooked when it comes to evaluating consumption approaches to IT assets such as storage, processing, data, and other critical resources. These soft benefits often make up most of the value that we can return to the business and are most often a core benefit of leveraging resources using the SaaS model.

- **Human resource optimization is now a concept that makes or breaks a business's ability to maximize IT resources.** Moving to a centralized on-demand model allows most businesses to better optimize skills and other human resources versus traditional approaches, when considering both hard and soft benefits.

- **Acceleration of value is a clear benefit of leveraging SaaS.** SaaS deployments provide a much greater advantage when it comes to minimizing the amount of capital needed to invest in IT resources and maximizing the value and speed of the ROI.

- **Security is best leveraged using SaaS-based approaches.** Centralization of security assets and business-critical data significantly lowers security risks. Moreover, centralization optimizes other value drivers such as backup and recovery operations that ensure continuation of operations and lower risk.

- **Optimization of costs is best carried out using SaaS.** The on-demand model of SaaS allows businesses to minimize capital investment, more clearly align operational costs to value drivers, and take advantage of built-in value scaling.

Value drivers

Business value drivers are often more difficult to determine than businesses anticipate. Many of these drivers are interdependent and complex. Therefore, just defining value for one value dimension such as skills optimization may lead to misunderstandings or undercounting values that are removed or added for other value asset dimensions, such as the need to reduce the impact of complexity through complexity mediation vs. just allocating more skills, optimized or not. To define and maximize a deployment's true value to the business, you must first understand all the value drivers and their relationship to each other, as well as their relationship to your specific problem domain.

Figure 1 depicts most value dimensions associated with understanding and measuring the value of IT assets. However, you may need to pick slightly different dimensions based upon your specific business. The idea is to define how you need to measure value, and how you can get to the true value of IT assets by understanding not only the value dimensions, but how these values are loosely or tightly coupled together. Or, how each value dimension may have dependencies on other value dimensions that need to be understood.

This all goes to the same objectives, to optimize costs and thus maximize value through the correct selection of technology approaches. The results may point toward more traditional approaches and technology vs. more modern SaaS or on-demand consumption models. This is a matter of taking the value drivers that are best related to your specific business and evaluating each approach by using each model.

The best way to understand this concept is through an example. Take skills again, and the desire to optimize human skills, meaning getting the most value for each dollar spent on the humans needed to build and operate a specific IT asset.

Figure 1: Cost optimization of IT assets has many dimensions that need to be considered. Many are often overlooked.

Let's take the concept of "skills optimization" and look at the costs incurred using traditional computing approaches such as on premises systems within an owned datacenter. Next, compare those costs to more modern approaches such as SaaS-based deployment of similar IT assets. In this case, SaaS means that fewer skills and humans are needed to maintain and operate the SaaS-deployed systems because no physical hardware is needed to operate SaaS, and the centralization of data storage and processes that affect secured assets (such as data) are centralized rather than distributed. Thus, when it comes to cost optimization of the skills value derived from the cost of humans, SaaS has the advantage.

We can take this to other cost optimization and value dimensions to determine other cost optimization or value generation patterns that need to be evaluated. This means understanding the basics of cost efficiency and how to consider each cost efficiency concept, which we'll do in the remainder of this paper.

Finding cost efficiencies

Cost efficiencies define how to consider and measure specific business values that will most likely be returned to the business. This provides the information needed to make key decisions around options for leveraging IT assets and finding the approaches that will maximize the return of value to the business.

There are several primary cost efficiency and value drivers that should be considered when evaluating the use of SaaS-based approaches versus traditional approaches to computing. They are:
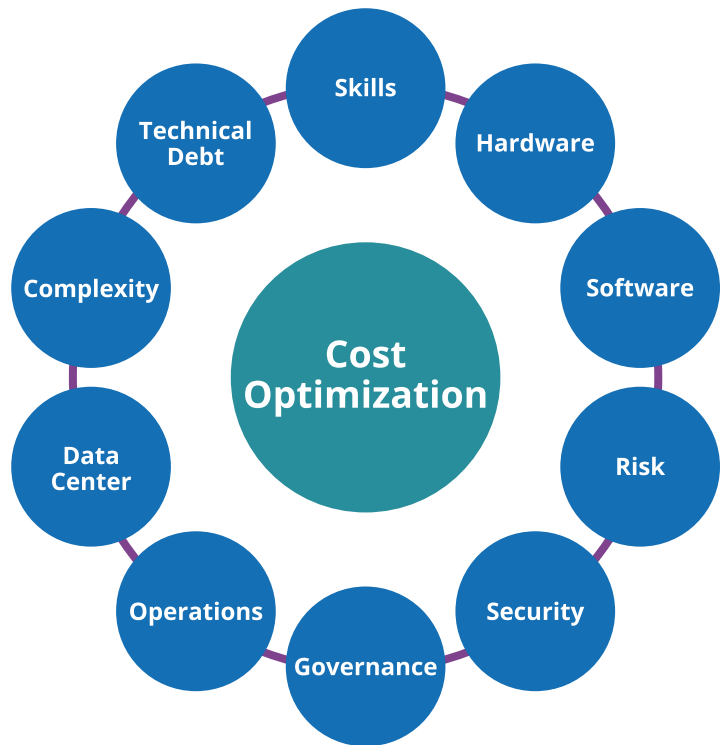
- **Agility and scalability**

   Agility is the ability for the business to adapt to changes in the market, or the ability to take advantage of opportunities such as the acquisition of a business. Core values of agility and scalability are the business's ability to be more resilient and position itself for optimization of investments made. The ability to scale to support market changes if the amount of processing and storage fluctuates exponentially (such as demand for products or services) is another core value of agility and scalability.

   SaaS-based systems have the advantage in most use cases since we're not required to maintain hardware and software, and thus there is little or no latency when it comes to the amount of time it takes to change or scale, meaning altering or adding physical systems vs. the ability to add or change IT assets as virtual systems.

- **Human and automation requirements**

   Human requirements refer to the ability of IT to maximize value from the cost of people skills of those carrying out basic IT duties. The idea is to optimize the use of human resources needed and maximize the value that each resource can return to the business. This includes leveraging humans to do the most interesting and rewarding tasks.

   SaaS becomes the clear value driver in most use cases, considering that we reduce or eliminate the need to maintain our own hardware and software stack, so we don't need humans to maintain hardware and software. Not only does this have the advantage of scalability and agility, but SaaS substantially lowers the costs of skills required for operations.

- **Speed to ROI**

   Compressing the time it takes to return value back to the business is a key advantage of SaaS. The operational costs are lower, which includes the use of skills (previously covered). Moreover, by using the value of agility and scalability (also previously defined), the business can quickly take advantage of business requirements, such as adapting to a changing market need. For example, IT can quickly push a business solution into production using a SaaS-based deployment vs. traditional approaches.

- **Security**

   Security is not just about avoiding events such as a data breach or ransomware attack that can remove value from the business. Security as a value driver is about ongoing, cost-effective security operations that have the ability to quickly adapt to threats which thus lowers risk. The SaaS model provides centralization of data and other assets that need to be secured, and the ability to leverage centralized proactive tools to identify emerging and existing threats. SaaS (data protection) providers, who are charged with supporting the data protection offerings, have a vested interest in security and bring specialized skills that 99% of organizations cannot access.

- **Cost optimization**

   Most value drivers roll up into the overall concept of cost optimization, or the ability to get the maximum number of value drivers for the least cost.". SaaS avoids capital investments in hardware and datacenter space, which are sunk costs that can't be recovered in the short term. Therefore, the SaaS model provides a great deal of strategic value. Ongoing operational costs are lower as well, considering that humans and bespoke tooling is unnecessary for SaaS-based deployments.

Hard costs and benefits

When defining the benefits of SaaS versus traditional computing approaches, a best practice is to define hard costs and hard benefits as well as soft costs and soft benefits, understanding the implications of each on the business.

Hard costs and hard benefits are easy to define and measure. For example, the enterprise avoids the cost of purchasing physical servers by using SaaS, which is a hard savings. The hard benefit would be that the business now has virtual access to the latest and greatest servers in as-needed quantities.

Soft costs and soft benefits, which we'll define next, are more difficult to define but typically have higher value. Examples are the cost of risk and the value of agility. Figure 2 depicts the relationship between hard and soft cost types as well as hard and soft value types with examples of each.
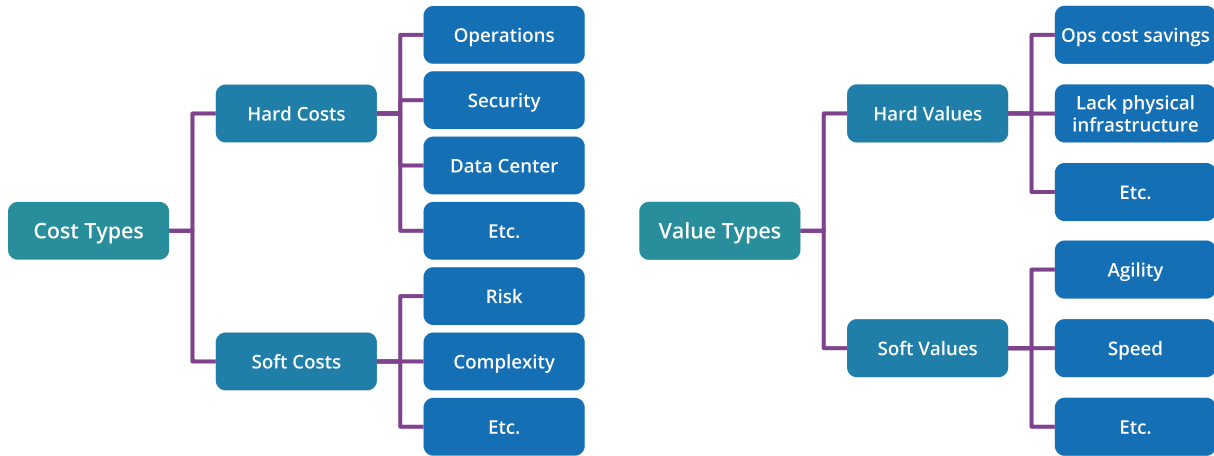

Figure 2: Hard and soft benefits as well as hard and soft costs allow us to identify cost behavior patterns which can easily define the net benefit of using any technology, in this case, SaaS.

In looking at hard costs and hard benefits to define the value of SaaS, it's easier to first define concepts around how much SaaS costs vs. traditional on-premises solutions, where the cost savings lead to the benefit. Remember, SaaS does not require an investment in hardware, datacenter space, or operational processes and personnel. It also has the hard cost and hard benefit advantages.

Other hard costs and hard benefits to be considered include ongoing operational costs, where SaaS typically wins out since operations such as platform maintenance is carried out for you at no additional cost. Also, skills utilization is a hard cost and hard value, where SaaS removes costs by requiring fewer humans to maintain the core SaaS-based systems.

Soft costs and benefits

Soft costs and benefits, also depicted in Figure 2, are those concepts that can typically define a higher value benefit than the hard costs, if correctly measured. These costs and benefits are more strategically focused and solve bigger problems that create more value.

For example, SaaS-based systems provide the ability to drive more agility. These systems can be rapidly adapted and scaled as needed to support the business. Traditional approaches require hardware and software purchases, along with installations, maintenance, changes, and additions that require more human interactions, and thus require more operational expense.

The best way to define soft costs and benefits is to state the strategic business problems that need to be solved and then describe an "as is" and a "to be" state. For example, if using SaaS compresses time to move into a new market by half, then what does that likely mean to the business in value returned to the business? If that ability adds $10 million dollars in value each year on average, then $10 million dollars is the soft value of using (in this example) SaaS technology vs. a traditional technology deployment.

Approaching your own business

Of course, all businesses are a bit different. The way you define costs and values will be a bit different as well. Even how you define hard and soft costs and benefits. Thus, it's advisable to use this paper as your jumping off point to determine the cost and value points that are most germane to your business.

Figure 3 lists general types of costs and benefits that affect most businesses. You will use these and other relevant costs and benefits that define value for your enterprise. Here you can define if the costs are ongoing, occasional, or sunk costs, which are

typically associated with purchasing hardware and datacenter space. Hard and soft benefits could be the ability to retain capital, which is a hard benefit, or the ability to increase business agility by 30 percent, which is a soft benefit.

As we can see in Figure 3, the core idea is to balance the hard and soft values returned to the business with the cost to obtain those hard and soft values. For a certain cost expenditure, you must determine how much value is generated now and over time. This includes hard costs that are easy to determine, and the more abstract concepts of soft costs such as the cost of additional complexity and additional security risks.

To make good decisions, you need to balance the cost and value of each technology approach to IT resource selections, such as SaaS vs. traditional technologies. By compiling these costs and benefits you'll better understand your own requirements and have a clear explanation of the reasons to favor one deployment model over another. A compilation of the specific hard and soft costs and benefits will direct your decisions.

Cost	Benefit
Ongoing	Capital retention
Occasional	Agility
Sunk	Speed
Purpose-driven	Resiliency
Skills acquisition	Security
Etc.	Reduced complexity
	Etc.

Figure 3: Critical to this analysis you need to define the costs, including types of costs, and the benefits, including the types of benefits.

Moreover, you'll understand the strategic benefits as well such as the soft costs and benefits we defined above. Many soft benefits exceed the hard benefits and may even define the success of the business.

Pitfalls to avoid

There are always obstacles that need to be considered, pitfalls that can get you in trouble. A few to mention include:

- **Compliance costs, or hard and soft costs** associated with your specific industry's compliance requirements. Examples include requirements for logging, security, and data retention that may change your cost/benefit profile.

- **Special skills costs.** A specific technology or system may require hard-to-find talent that ends up costing much more than anticipated, depending upon your deployment model. For example, many SaaS-based deployments have industry-specific processing and data models included which avoid the need to hire specialized talent.

- **Data center-related costs** that are less obvious. For example, special business insurance requirements in specific countries or US states that are more costly than anticipated.

- **Obsoleteness costs,** or the cost of dealing with hardware that's no longer viable.

- **Long-term data retention costs,** or how to deal with data retention using owned hardware vs. SaaS approaches.

- **New software term costs** such as a SaaS provider or traditional software providers changing the terms of their software, including how you're billed.

- **Networking costs,** such as the expansion of network capabilities needed to support the use of a SaaS-based solution, which may require additional bandwidth and secure links to existing legacy systems.

Data protection example

Applying the principles we've discussed in this paper to an example where an organization chooses between a traditional solution and SaaS can help you better understand how to use these tools. Data protection is a critical IT service that is both typical and unique for this example. It is typical because all data center software solutions have hard costs for software, servers, storage and similar soft costs, such as data center overhead, direct and indirect support costs. What makes data protection
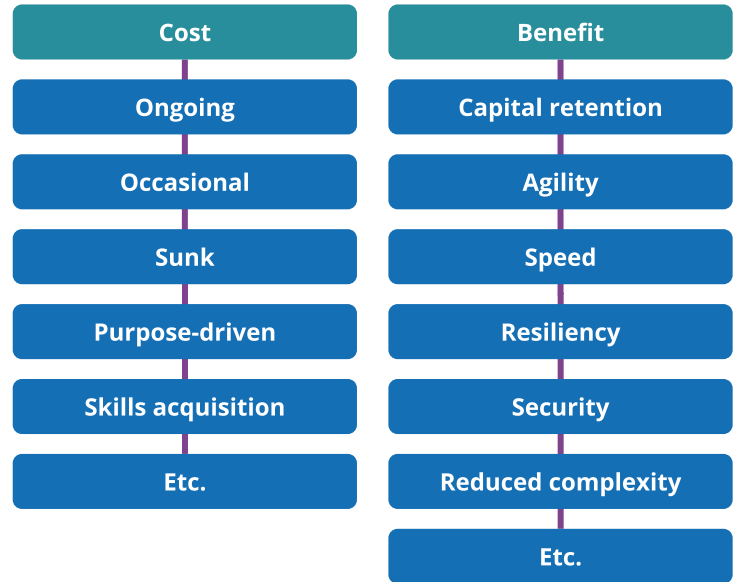
unique is its critical role in ensuring businesses can operate in the case of accidental, environmental, or criminal destruction of data. For this reason, data protection solutions require offsite copies of data, long-term retention of data, and the ability to recover data (and applications) in the event of a ransomware attack or disaster (similar sounding, but different use cases).

This table illustrates both hard and soft costs to consider for a TCO with an emphasis on the components that you will have to manage (soft costs). Keep in mind the following:

- Data protection solution costs today are typically based on storage consumption required to protect your source data.

- Validate that you're using the same assumption for growth and the backup storage required in all locations (including long-term retention) when evaluating a TCO.

- Don't underestimate the soft costs and benefits of one solution versus another. Who is managing the backup servers, storage, and security across all locations.

Hard and soft costs	Traditional	SaaS
Backup policies	You manage	You manage
Backup SW+server	You manage	Provider manages
Backup storage	You manage	Provider manages
Secure, offsite storage	You manage	Provider manages
Long-term retention storage	You manage	Provider manages
Backup security monitoring	You manage	Provider manages
Space, power, cooling	You manage	Provider manages
Direct backup infra. support	You manage	Provider manages
Indirect backup infra. support	You manage	Provider manages

Pitfalls for data protection example

Without trying to belabor the pitfalls listed, as they are applicable here, it's worth citing some application specific pitfalls when evaluating costs and benefits, especially because enterprises today already use data protection.

- **Time-to-value**

  It's common to discount sunk costs if you're in year 2 of a 3 (or 5) year hardware purchase by assuming that future expansion or refresh will be the same as it was 3 years ago. Factor in possible supply chain delays to expand or purchase new infrastructure. How does time-to-value impact your team across all locations?

- **Oversizing or underutilizing**

  A fundamental difference between traditional and SaaS lies in the trade-off between when and how you buy storage capacity. It is tempting to apply a $/TB when comparing storage costs, but this ignores both soft costs, the fact that the bulk of the capacity will be unused for the most of the purchase timeframe, as well as the 15%-20% unused capacity that will never be used in any storage array. No IT runs a storage array at 95% capacity or if they do, they've already purchased the next shelf of storage.

- **Cloud costs**

    Every traditional solution vendor offers a variety of ways to run and use their solutions to run in the cloud, store data in the cloud, and protect cloud workloads. Make sure you understand the costs to run data protection - servers and storage - wherever you need to protect data.

- **Security**

    Every data protection solution offers a range of security capabilities. Evaluate the time and investment to not only leverage these today, but in the future. Does creating immutable backups or storage increase storage consumption? If a vendor offers a guarantee for data resiliency, read the fine print to make sure important use cases like ransomware due to employee negligence are covered.

- **Performance**

    Don't just make performance assumptions about which solution will perform better for backup or recovery. Perform tests based on your SLAs. Most organizations don't perform tests in year 2 or 3 with their existing infrastructure. What's required to maintain performance today and in subsequent years? Many companies rely on paid, periodic professional services engagements. Add this to indirect costs (traditional) or benefits (SaaS).

Leading the SaaS conversation at your organization

No matter where your business is in the selection and deployment of new and replacement systems, the SaaS vs. traditional deployment dilemma will affect many of the decisions that businesses and IT leaders make in the short-term especially for critical services like data protection and resilience. The right recommendation requires that you understand your core business requirements in great detail and be prepared to define cost and benefit profiles based upon those requirements. Provide a true comparison of existing and emerging IT resource consumption models using a detailed understanding of hard and soft costs and benefits.

Most business leaders don't have the experience or skills needed to understand how to do this type of analysis at the operations level, or how to define the benefits and costs of more modern approaches such as SaaS. Part of your value is in having the courage to ask tough questions, and make sure everyone understands that technology mistakes will not only cost additional money but could cost the business itself as competitors move ahead. The identification of business value drivers and their role in the decision-making process for new technology proposals is no longer an optional set of exercises. It's time to get it right the first time.

About the author

David Linthicum is on most top 10 lists of technology innovators and influencers, including cloud computing, edge computing, and security concepts. David is a best-selling author of over 15 books and over 7,000 published articles. He is also the originator of many business-related technology concepts, including Enterprise Application Integration (EAI). He's an innovator within Service-Oriented Architecture (SOA), and now cloud computing and the use of cloud computing for digital transformations.

David's 50+ courses on LinkedIn Learning consistently appear on the "Popular Courses" list and provide course content on cloud computing, cloud architecture, cloud security, cloud governance, cloud operations, DevOps, and many other concepts related to cloud computing and enterprise technology in general. He's also an adjunct professor for Louisiana State University (LSU), where he's created courses on DevOps, Cloud Computing, Cloud Architecture, and other courses that are in-demand by the LSU student body. David has done over 1,000 conference presentations in the U.S. and abroad, often as a keynote speaker at conferences related to enterprise technology. He has hosted over 2,000 webinars on the correct use of enterprise technology, including cloud computing, edge computing, DevOps, and data science.