

The Business Case for Deploying Epicor ERP in the Cloud

A discussion paper



Forward

This discussion brief, together with its companion (The Economic Case for Deploying Epicor ERP in the Cloud) are designed to elevate discourse and provide guidance to organizations evaluating the best ERP deployment model (on premises, single-tenant SaaS or multi-tenant SaaS), unique to their business and technical environment.

It's especially important to recognize that there is no universal answer to the question "Which deployment model is best?" as each customer presents unique business and technical requirements and abilities. The purpose of this document isn't to provide absolute answers, but rather to arm readers with additional (and perhaps better) questions to assist in their own internal evaluation of deployment options. This is an especially important conversation for potential (and existing) Epicor customers because of our unique position in offering Epicor ERP across multiple licensing and deployment options.

Except as incidental to framing conversations around cloud deployment, this paper makes no effort to explore core ERP features/functions, or traditional line-of-business topics. While an analysis of the fit of the Epicor solution specific to your business needs is warranted as part of your product assessment, the reader is directed to content available at www.epicor.com on all matters of application functionality.

Key Take-Aways

1. The question "cloud or on premises?" presupposes an unnecessary tradeoff. The best answer is 'both—and I reserve the right to change my answer over time as my business needs change.' Epicor encourages customers to demand absolute freedom of choice from their ERP vendor and to not find themselves artificially constrained to only one deployment option due to limitations imposed by their solution vendor.
2. The best ERP systems are 'everywhere for everyone.' Deploying in the cloud is (for most customers) the fastest way to tie together remote facilities and mobile employees, thereby streamlining enterprise-wide collaboration and access.
3. Your IT department is ready, willing, and able of doing so much more than 'racking and patching' your servers. Moving Epicor ERP to the cloud likely frees your IT resources to focus on more strategic, and mission aligned tasks.
4. The topic of data security and residency is more nuanced than it may seem. In cloud deployments the actual physical location of your data may not be obvious, and that may not (or may) matter to you. However the security and disaster preparedness of your Epicor ERP needs to be well thought out, and for many companies, passing that responsibility to Epicor may provide for an elevated level of security, reliability, and availability.



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What is Cloud Computing?

While no longer a foreign concept to most people, it's helpful to level set and clarify the term 'Cloud Computing'¹, used interchangeably with the term 'software as a service' (SaaS) in this document². In the interest of embracing industry standards we'll refer to the National Institute of Standards and Technology's definition of cloud computing, explaining it to be "A model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction." In short, it's the ability to 'subscribe' to ERP (or another enterprise solution such as CRM or Payroll) in a turn-key fashion via the internet where the vendor owns, manages, monitors, and services the entire solution on your behalf.

For further refinement we'll submit that traditional on premises deployment of business applications (where a customer buys perpetually licensed software, hardware, supporting infrastructure, and services for deployment on their own private network) differs greatly from the two most common approaches to cloud computing or software as a service, namely:

- ▶ Multi-tenant SaaS, where many customers share a single pool of computing resources across their collective organizations. In general terms, this model allows for massive scale and correspondingly compelling cost efficiency through the deployment of shared architecture across multiple 'tenant' customer companies. Multi-tenancy can be provisioned at the infrastructure level, platform level, or application level. (Epicor embraces multi-tenancy at the application level, generally regarded as the most cost efficient model for multi-tenant SaaS deployment.)
- ▶ Single-tenant SaaS, where a customer has computing resources dedicated to their exclusive use, and greater control over system administration and policies. This approach is most common where a customer's business or technical priorities dictate that their SaaS deployment is entirely dedicated to their own use, and not to be shared or mingled with other tenants. Single-tenant SaaS is often provided out of the same physical location as multi-tenant SaaS to leverage data center efficiencies, but the privacy and integrity of each single-tenant SaaS deployment is kept absolutely separate from other cloud deployed customers.

It is important to remind the reader that Epicor actively supports all three deployment models (on premises, multi-tenant, and single-tenant) from the exact same Epicor ERP codebase.

There is no single best answer to the question 'which of these models is best?' Every customer has different needs, and brings different technical, business, and regulatory requirements to their deployment of Epicor ERP. Our solution consultants work closely with each customer to identify the right deployment model to meet their needs.

¹ For more foundational insights into the benefits and risks typically assigned to cloud computing, consult Appendix A of this paper.

² A more detailed conversation around the differences between Cloud Computing and software as a services will identify nuanced differences, but they are not germane to the topic at hand.

Top Five Reasons Cited by Aberdeen Driving ERP in the Cloud

1. Lower total cost of ownership
2. Reduced costs and effort of upgrades
3. Lower upfront costs
4. Perceived ease of implementation
5. Focus internal resources more strategically

Aberdeen Research,
"SaaS and Cloud ERP
observations."
Nick Castellina.
December 2012

What is Motivating the Migration of ERP Systems to the Cloud?

Since the earliest days of enterprise applications there has been tremendous corresponding investment in their supporting infrastructure (hardware, server systems, databases, professional services, administration tools, backup systems, staff, power, cooling, real estate, and more). As efficiency (and ease-of-use) progressed from mainframe to mini to client server to desktop to mobile, the cloud has emerged as this decade's best answer to the question 'how can we reduce the cost of quality in our enterprise applications?'

This pursuit of the cloud as a path to ERP agility, efficiency, and effectiveness has been validated by a number of studies and indicators in recent years³. While the financial and economic case for deploying Epicor ERP in the cloud are the subject of another paper⁴, the business case for Epicor ERP in the cloud is largely organized around these five pillars:

- ▶ **Consistency**—The ability to improve business operations by unifying and standardizing the enterprise onto a single, integrated Enterprise Resource Planning (ERP) solution at all levels.
- ▶ **Efficiency**—Delivering a better user experience and better user access combined with reduced time to value.
- ▶ **Simplicity**—The opportunity to remove complex IT infrastructure questions from the equation, and allowing the ERP selection and deployment process to be managed by line of business decision makers.
- ▶ **Availability and Security**—The manner by which cloud solutions offer massive scalability, improved security and reliability over on premises deployed applications.
- ▶ **Agility**—Being able to instantly adjust the deployment scope, scale, or modality in responses to changes in company's business and technical needs.

In addition to these business benefits, the economic case for cloud computing is equally compelling. Reducing (and in some cases eliminating) the initial capital investment in software, hardware, and supporting infrastructure is widely seen as reducing the total cost of ownership (TCO) for customers. Indeed, one estimate reported that cloud-based ERP solutions can costs 50% less than on premises ERP solutions over a typical lifecycle.

Beyond the TCO, many Epicor ERP customers deploying in the cloud report faster time to value through rapid deployment of the application, and appreciate the predictable, regular monthly subscription pricing—typically expensed rather than capitalized as is the generally accepted practice for on premises deployments.

³ Hurwitz and Associates, "The TCO of Cloud Computing...A total cost of ownership comparison of cloud and on premises business applications."

⁴ Please refer to *The Economic Case for Deploying Epicor ERP in the Cloud*, a companion piece to this document for more information relating to cloud deployment economics and finance.

A total of 47% of organizations surveyed plan to move their core ERP systems to the cloud within five years.

Adoption of Cloud ERP,
Published January 24, 2014
by Nigel Rayner

The False Trade Off of ‘Cloud vs. On Premises’

Despite the growing popularity of cloud deployment models in the last decade, the right deployment model for any given customer still requires thought and consideration. Some ‘cloud only and always’ vendors have taken an insincere approach to painting on premises deployments in an unfavorable light. While one can argue against an on premises deployment in *specific* instances, it’s certainly not true for *every* situation. Generally these vendors have a vested interest in convincing prospects that their *ONLY* deployment model is the only viable answer to service their needs.

At Epicor, we reject this narrow minded view. Many of our customers have chosen to deploy Epicor ERP in our multi-tenant SaaS model, many others in our single-tenant SaaS model. Yet there are customers who have compelling business or technical reasons to opt for an on premises deployment model. Indeed, because Epicor ERP is the exact same solution deployed at a customer’s site as it is in the cloud, it provides absolute “freedom of choice” when it comes to the deployment model—something not generally offered by other ERP vendors. Our best advice to customers considering deploying in the cloud (or on premises) is to not surrender to a single option vendor who will deny them the opportunity to revisit their deployment model (while protecting existing investments) as their needs change.

Epicor ERP allows customers to easily migrate between cloud deployed systems and on premises licensed deployments with no impact on end-user efficiency. Indeed, most customers are entirely unaware of the physical location of their application and data (before or after a move to or from the cloud).

The important lesson here for customers who are making a decision between ‘cloud’ and ‘on premises’ is that the best answer is ‘both.’ Future proof your decisions by ensuring that as your needs change, you are able to easily migrate to the cloud (and perhaps back again.)

Finally, it is worth mentioning that with Epicor ERP deployed under a single- or multi-tenant SaaS model, you retain ownership of your data, and have the ability to ‘repatriate’ it to your network at any time. Your data remains your sole confidential property, and Epicor privacy and data protection policies ensure that at no time will your data be exposed to any third party.

Remote is Good. Mobile is Best.

Most of us take for granted the pervasiveness of mobile connectivity in our personal lives—our smart phones deliver mobile computing power that has revolutionized our world in terms of access to information and real-time connectivity. Yet we don’t all have the same high expectations of pervasive connectivity or mobility when it comes to our enterprise applications.

Perhaps we’ve tolerated these limitations in enterprise connectivity for historical reasons. Not that long ago, it was technically unimaginable to be able to check real-time inventory levels or juggle production schedules in real time from an Apple® iPad® in an easy chair at home, or by iPhone® from the back of a cab in Shanghai. However, Epicor ERP runs best when it runs *throughout* an organization, and connects adjacent organizations and every possible device—from smart phone to tablet to laptop to unmanned ‘machine to machine’ interfaces.



SaaS based manufacturing and distribution software will increase from 22% in 2013 to 45% in 2023.

Mint Jutras Research ERP Solution Study Highlights, 2011

For most customers, deploying Epicor ERP in the cloud generally makes it much easier for companies to tie together remote locations, mobile employees and even external customers and suppliers (previous 'islands' without ERP connectivity.) An inherent benefit of a cloud deployment is the fact that end points (such as tablets, Web browsers, forklift mounted data collection devices, or rich smart customers) only need access the Internet to gain secure access to Epicor ERP no matter their geographic location.

Cloud deployment is often seen as a great way to end internal "system proliferation and balkanization" as well. With cloud deployment many customers find the opportunity to standardize on a **single** instance of Epicor ERP radically improves consistency and accounting control. Historically an organization with 10 subsidiaries or geographic locations would deploy 10 **different** instances of an accounting system (or to make matters worse, 10 different accounting systems). Month end consolidation nightmares were routine, with consistency and control generally sacrificed—to say nothing of the maintenance and support costs. Outside of traditional financial workloads, the inability to collaborate across sales, service, and production teams remained limited. By unifying your staff onto a single cloud based Epicor ERP solution, collaboration becomes the norm, driving greater customer (and vendor) satisfaction and operational effectiveness—no matter the length of your production and supply chains. The cloud is truly the 'great unifying network' that securely spans across your organization—and out into the hands of your employees and customers—if you so choose.

Of course this same level of pervasive ERP connectivity is technically possible with an on premises deployment—however achieving it necessitates your provisioning and maintaining IT resources to deliver secure and high performance access for all users. The hardware, network, and security implications of achieving this are generally outside the scope of many smaller organizations—and outside the core business charter of most companies. Many customers prefer to avoid the infrastructure costs of delivering these capabilities themselves, deploy Epicor ERP in the cloud, and invest that same capital in machinery, services, sales, or marketing.

While providing Epicor ERP access to a geographically remote location (such as offshore production facilities, or a remote sales office across town) is an obvious benefit of cloud deployment, for many customers an even more compelling use case is seamless mobile access across the enterprise.

Sales professionals, field service staff, and traveling executive staff armed with tablets and smart phones are all great examples of constantly connected but stateless workers. If they need to review production details while at home on the weekend, or 'availability to commit' inventory information from their customer's board room, cloud deployment may be the best option for you—requiring only a smart phone/tablet to access the Epicor ERP solution without the need to deliver VPN protected channels for their use. Similarly, a SaaS deployment offers the ability to allow strategic vendors and customers to access key workflows of your ERP system remotely—oftentimes critical for your operating as a unified supply chain in the modern interconnected economy.

There is little doubt that mobile access to ERP data, coupled with a user experience that encourages self-service is changing the face of today's ERP systems as we bring our always-connected consumer expectations with us to work (along with our always-connected mobile phones).

Your IT Department is Capable of So Much More

Most organizations that choose to deploy on premises ERP solutions turn to their internal IT departments to provision all necessary infrastructures and provide ongoing service and support. Many Epicor customers have world class IT departments who perform flawlessly across every task required to install and maintain an enterprise-wide system, such as Epicor ERP.

If you are fortunate to have such an IT team that has additional capacity, and is highly qualified across managing servers, databases, and networks (as well as application tuning, report writing, licensing compliance, application monitoring, installing upgrades, and 'help desk' functions), then you are a good candidate for on premises deployment of Epicor ERP.

However if your IT staff is already at capacity, or if you consider your IT department more strategic to your mission and don't want them 'racking and patching' servers, or if they aren't equipped in all of the dozen skills typically called on at various points in an ERP lifecycle, then you may be a better candidate for cloud deployment.

Make no mistake—opting for a cloud deployment doesn't mean your IT department is no longer needed. Their roles simply move up the value chain, spending less time managing servers, and more time provided high value services to your line of business users, such as building performance dashboards, or writing custom managerial reports.

Indeed, Epicor recognizes the critical role played by IT in every one of our deployments (both SaaS and on premises), and counsels business decision makers to bring IT to the table early in the 'cloud or on premises' conversation. Take the time to understand how IT can best support you across *all three deployment models*, and ensure that IT priorities are reflected in your deployment decisions. Chances are you'll find that your talented IT resources are being under-leveraged, spending too much of their precious time 'keeping disks spinning and lights blinking'. Many Epicor customers discover that migrating to the cloud is an ideal opportunity to better align many your existing IT resources to business objectives by pushing 'low level' and routine Epicor ERP management tasks onto our Epicor SaaS administration team, whose work scales across hundreds of other customers.

The net result is dramatically greater value per IT administrative resource, better alignment between your IT and your business objectives, and an Epicor ERP deployment that is being managed, serviced, and optimized by the very company that wrote the application and knows how to take care of it best.

Another IT conversation critical to have when making the 'cloud or on premises' decision surrounds scalability and elasticity of demand. Cloud based Epicor ERP deployments allow you to add (and remove) users in single-user increments, allowing you to take into consideration small changes to your ERP deployment, and factor in system variability such as seasonality. This isn't generally as simple when deploying on premises. With on premises deployments, your IT team will need to procure hardware (servers, routers, storage, etc.) to support the peak number of potential concurrent users (the 'high water mark'), resulting in idle software and hardware capacity at all but the busiest of times⁵.

⁵ Gartner research reports that 46% of all acquired software ends as unused "Shelfware". Cloud deployment mitigates this risk by allowing for immediate scalability.

The same is true for all necessary supporting licenses (such as Microsoft Windows Server Client Access Licenses, Microsoft SQL Server licenses, etc.) as well Epicor software licenses. Because many IT investments have long lead times and step-function scaling scenarios, running your Epicor ERP system on premises may require thoughtful management by your IT team to achieve the same level of agility provided by the cloud.

Deploying in the cloud pushes the responsibility for planning this scale onto Epicor, allowing you as a customer to focus on your primary business objectives, not your hardware performance specifications, system architecture, or license compliancy.

One final IT-centric consideration when making a cloud/on premises deployment decision relates to your corporate perspective on 'staying current' with your enterprise applications. One of the more compelling cases for a SaaS deployment (especially a multi-tenant deployment) is the 'friction free, automatic updates' benefit. With Epicor SaaS administrators deploying every upgrade shortly after each development and testing cycle, it creates the advantage of being able to immediately benefit from every new feature with each new release—without any administrative work on your part. Indeed, for many customers, the ability to automatically 'absorb' these updates can create a massive improvement over the status quo, where it's estimated that two-thirds of midsized businesses are running outdated versions of their ERP software.⁶

Customers whose business needs are much more static, or have a policy to roll out updates only after lengthy technical review may find this 'instant and automatic' upgrade model less compelling, and may find that the ability to control their Epicor ERP environment more closely makes the case for pursuing an on premises deployment or single-tenant SaaS deployment model.

Data Centers, Data Residency, and Relentless Data Security

Given the criticality of a company's ERP system to their ongoing operation, customers are justified in asking the question "Is my ERP data safe in the cloud?"

A decade ago customers worried that "if the Internet goes down, our business goes down!" Thankfully, those early days of frail networks and computing platforms are long behind us. The data centers that house Epicor ERP are world class data center standards (Tier 4 facilities, SOC type 2 and 3 validated, certified as SSAE16 and ISAE3402 formerly SAS 70), and audited annually for ISO 27001, 14001, and 9001 compliance⁷), built to withstand attempts at both physical and electronic penetration, and with multiple levels of redundancy across power, cooling, and network circuits. Security and operations staff are on site 24X7X365, with facilities boasting multiple redundant electrical and Internet connectivity paths.

⁶ "Why Cloud Computing Matters to Finance", Ron Gill, CMA, CFM, Strategic Finance, January 2011

⁷ Because certification and accreditation programs and procedures change over time, and data center configurations may be dynamic, this information may be out of date at the time you are reading this document. Up to date information is available from your Epicor Account Manager.

“We no longer need to worry if our information systems can keep pace with us.”

Tony Chircherello,
Epicor SaaS customer

The physical construction of the data center, the internal security, and the protocols relating to physical and network access are all core elements of Epicor “hardened data center” practices. There is little doubt that these data centers, combined with our operating and security protocols result in an environment that is vastly more secure and reliable than most companies can justify building to house an on premises deployed Epicor ERP system. Ask yourself “Just how secure is our existing data center and ERP data?” Most companies can’t independently answer that question—and many who can will admit that their ERP data—arguably the most mission critical of all their systems—resides on a server that may or may not have been recently audited for security vulnerabilities or potential hardware weaknesses.

Quite simply, the expense and complexity of delivering the same level of data center security and availability provided by Epicor data centers is cost prohibitive to all but the most sophisticated of companies.⁸

No matter if you host your own Epicor ERP systems on premises, or subscribe to our SaaS services, data security and privacy are legitimate concerns under either deployment model. Ironclad safeguards need to be in place to ensure the safety of your mission-critical data. Physical and network security are only part of the equation, however.

Epicor conforms to industry norms of providing a 99.5% Service Level Agreement⁹ (SLA) (SaaS deployed systems will be accessible 99.5% of the time outside of scheduled maintenance windows.) We pride ourselves in exceeding this commitment to our customers, and are so confident in our ability to deliver on this contractual commitment that we ‘put our money where our mouth is’, and provide financial penalties against ourselves (payable to the customer) in the event that we fail to deliver on this 99.5% availability commitment.¹⁰

This service-level agreement is an important consideration in deciding between deploying Epicor ERP as a SaaS application or on premises. If your IT department is able to provide the same service-level agreement (without placing an operational or financial burden on their budget), than you’ve certainly got availability parity with the Epicor cloud. However, many internal departments are not staffed, resourced, or equipped to provide such as service-level commitment to internal customers.

The reality is that many IT departments aren’t even able to regularly report on their system up time to internal management. The invisible and dynamic nature of cloud deployments can sometimes introduce confusion as to the actual physical location of any given customers data. At some level, customers can be forgiven for thinking that it doesn’t matter—so long as it’s available on demand in a timely fashion, the physical location of the 1’s and 0’s of their ERP data just don’t matter.

⁸ More information about Epicor data center security—including an overview of our security policies at the data, application, host, network, and physical levels is available in a separate document from Epicor.

⁹ Refer to Epicor SaaS documentation for more details on our SLA.

¹⁰ Please refer to the ‘Up time Commitment’ section of the relevant Epicor Hosting Agreement for additional information on our SLA financial commitments.

Aberdeen's 'Two biggest business benefits' of cloud-based ERP:

- ▶ Efficient collaboration across geographies
 - ▶ Ability to respond quickly to business demands
-

While convenient to think at that simplistic level, it ignores a number of key considerations.

1. Physical location will oftentimes define performance. To minimize any system latency, Epicor generally locates customer databases in the data center that is physically closest to them, although other technical and business issues may supersede this rule of thumb. However, even when we deploy customers in a geographically nearby data center, that is still 'further across the network than the server room down the hall.' As a result, customers need to work with Epicor SaaS Operations to optimize their network and computer configurations to optimize system performance.
2. Most cloud based Epicor ERP customers have their data located in the same country as their physical head office. That generally simplifies legal protocols relating to data privacy and protection. However, customers in highly regulated industries (Defense Contracting, Medical Records, Financial Services, etc.) may need to conduct additional due diligence to ensure compliance with all regulatory requirements. (See separate documents published by Epicor on our Service Organization Controls and Data Center Overview.)

Beyond the physical residency of the data is the disaster planning and readiness protocols. Epicor has disaster mitigation and recovery protocols that are dramatically more sophisticated than those practiced by most customers. The Epicor multi-tenant data centers (each located hundreds of miles apart from one another) replicate their data in near real time to another 'hot backup data center' that exists solely to act as an additional layer of insurance against a catastrophic disaster disabling an entire data center. In the unlikely event of such an event, customer data is rapidly restored from this independent data center to a surviving data center by Epicor operations staff, resulting in customers experiencing little down time.

In Closing

This document is intended to act as a catalyst to inspire many of the critical conversations that customers need to have when decided between deploying their Epicor ERP system as an on premises solution, or under a single- or multi-tenant SaaS subscription. We recognize that the right deployment model for any organization depends on the characteristics of the company, its technical resources and skills set, its business objectives and its industry. Epicor is committed to supporting our customers across any of our three deployment models.

Most importantly, it is critical for customers to recognize that some competing vendors who have built a business model around a single deployment model will often trap customers into a situation that denies them the opportunity to future proof their business through freedom of choice, and freedom to scale and grow.

We welcome the opportunity to further discuss the best deployment model for your business. Epicor ERP is a recognized leader across all deployment models, and it's likely that we see many organizations similar to your own. This experience in matching your business needs to the most appropriate deployment model is what you should expect from a strategic vendor such as Epicor.



“Traditional” on premises deployment. A well understood, time-tested model to deploy enterprise applications, that assigned absolute control (and responsibility) to internal IT departments. It may also provide superior integration to existing legacy IT systems, and allow you to better leverage existing IT investments. While exhibiting higher up-front costs, this is a common deployment model when customers have world class IT staff that has capacity to take on addition responsibilities relating to the deployment and ongoing support of the Epicor ERP solution.

Multi-tenant SaaS. Providing the fastest time to value, most multi-tenant deployments measure their implementation cycles in weeks. It also provides a compelling mix of agility with the most attractive economics by leveraging existing high-performance computing systems that already exist at scale to support other customers of cloud based Epicor ERP. Most customers also discover this option allows for the greatest amount of control over cash flow and initial investments.

Single-tenant SaaS. This model is generally regarded as a ‘hybrid’ approach that offsets its higher initial investment costs by providing many of the benefits of on premises deployment enhanced by many of the economic and operational benefits of multi-tenant SaaS. Epicor ERP, when deployed under a single-tenant model allows for highly personalized deployment environments that allow for direct engagement with your IT staff, and much more granular control over ERP configuration, customization, and administration.

Epicor reminds all customers to make their system selection independent of their deployment model selection. Never accept that today’s deployment model will necessarily be right for you in two, five, or even 10 years—and demand the opportunity to change your approach to application deployment as your needs change (while protecting your existing investments.)

Appendix A

ISACA identified key benefits of cloud deployment of enterprise applications.

1. **Cost containment**—The cloud offers enterprises the option of scalability without the financial commitments required for infrastructure purchase and maintenance.
2. **Immediacy**—Many early adopters of cloud computing have cited the ability to provision and utilize a service in a single day.
3. **Availability**—Cloud providers have the infrastructure and bandwidth to accommodate business requirements for high speed access, storage and applications.
4. **Scalability**—With unconstrained capacity, cloud services offer increased flexibility and scalability for evolving IT needs.
5. **Efficiency**—Reallocating information management operational activities to the cloud offers businesses a unique opportunity to focus efforts on innovation and research and development. This allows for business and product growth and may be even more beneficial than the financial advantages offered by the cloud.
6. **Resiliency**—Cloud providers have mirrored solutions that can be utilized in a disaster scenario as well as for load balancing traffic.

There are also risks with cloud solutions that will need to be accommodated and managed, including:

1. Enterprises need to be particular in choosing a provider. Reputation, history, and sustainability should all be factors to consider.
2. The SaaS provider often takes responsibility for information handling, which is a critical part of the business. Failure to perform to agreed-upon service levels can impact not only confidentiality, but also availability.
3. The dynamic nature of SaaS may result in confusion as to where information actually resides. When information retrieval is required, this may create delays.
4. Third-party access to sensitive information creates a risk of compromise to confidential information. In cloud computing, this can pose a significant threat to ensuring the protection of intellectual property and trade secrets.
5. Due to the dynamic nature of the cloud, information may not immediately be located in the event of a disaster. Business continuity and disaster recovery plans must be well documented and tested.
6. Compliance with regulations and laws in different geographic regions can be a challenge for enterprises. At this time, there is little legal precedent regarding liability in the cloud.

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