Deploying Your Manufacturing ERP:
In the Cloud or On-Premise

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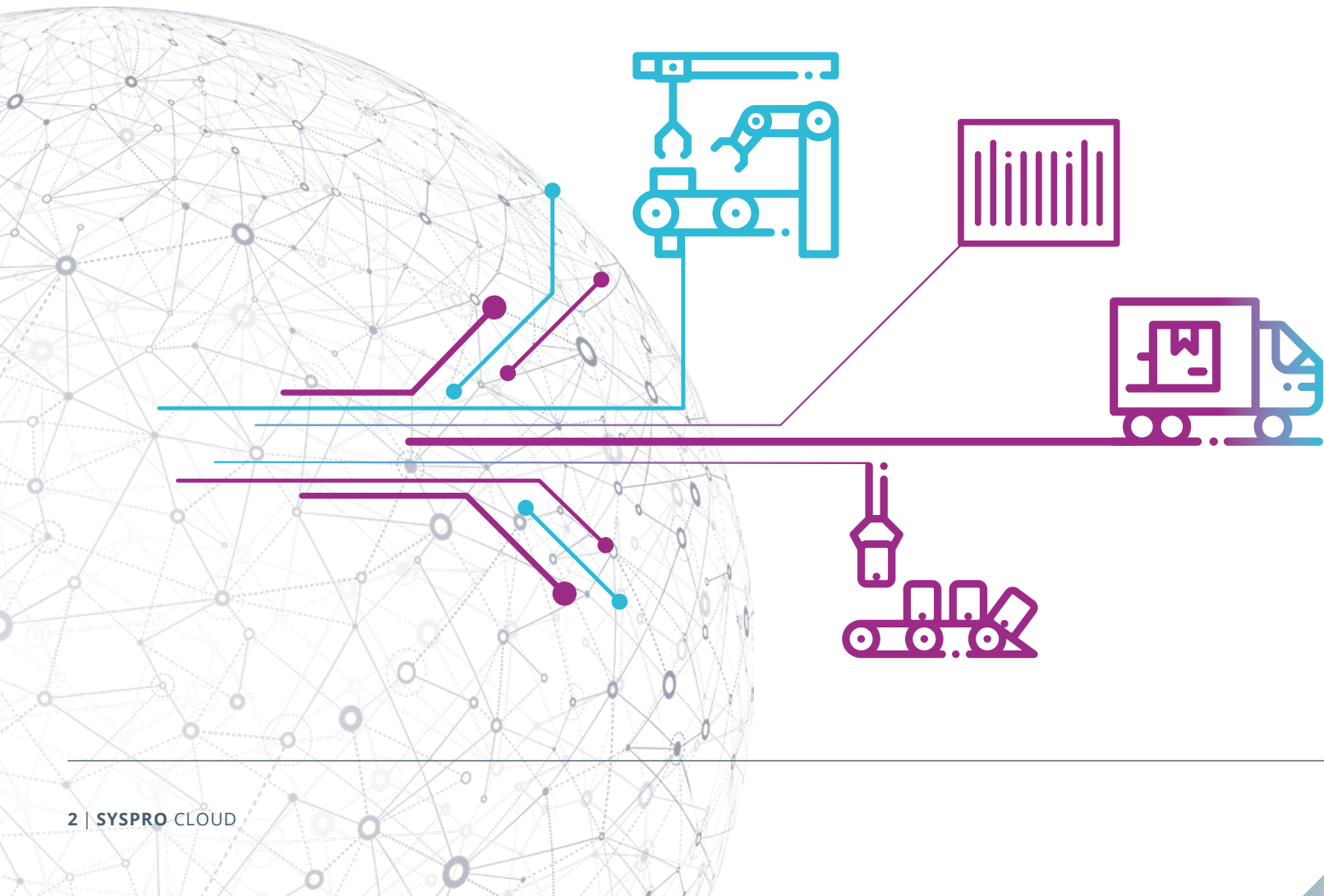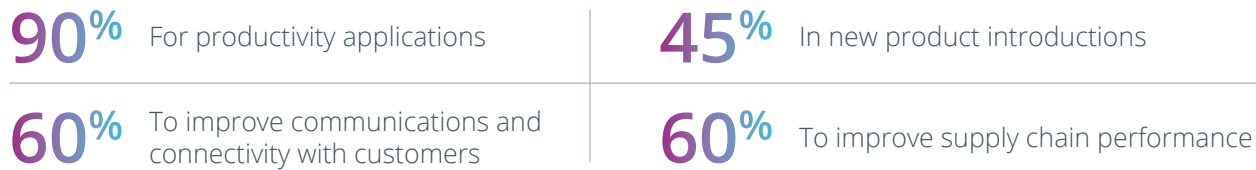
Introduction

When it comes to business transformation and digitalization, adding a cloud strategy is seen as a key enabler. To be effective however, cloud tactics should extend beyond IT and be embraced by the organization as a whole. Consequently, a cloud strategy should not focus solely on resolving technical issues but aim to promote, develop and extract tangible business benefits.

Use of Cloud Technology by Manufacturers

90% For productivity applications

45% In new product introductions

60% To improve communications and connectivity with customers

60% To improve supply chain performance

Source: *3rd State of Manufacturing Technology report*
Survey of 150 US manufacturers

A 'cloud first' strategy brings with it a new set of decisions and challenges that IT leaders must address. According to Gartner, the decisions need to start with 'an understanding of the type of application and its technical characteristics, the needs and constraints of the associated data, and the integration of the application and data with other systems'. [5 questions to answer when building a cloud strategy].

However, 'cloud first' does not mean 'cloud only'. While there may be goals to move some applications to the cloud, organizations will undoubtedly find strong justification to keep some applications on-premise in their own infrastructure environments. One good reason to maintain on-premise applications is that it takes time for an enterprise to develop the skills necessary to run a successful cloud operation. A cloud project will likely be a multi-year effort as the enterprise learns how to leverage the benefits of cloud applications.

On-Premise

Cloud

HYBRID CLOUD

LIMITED CLOUD

FULL CLOUD

VALUE

Cloud

On-Premise

TIME
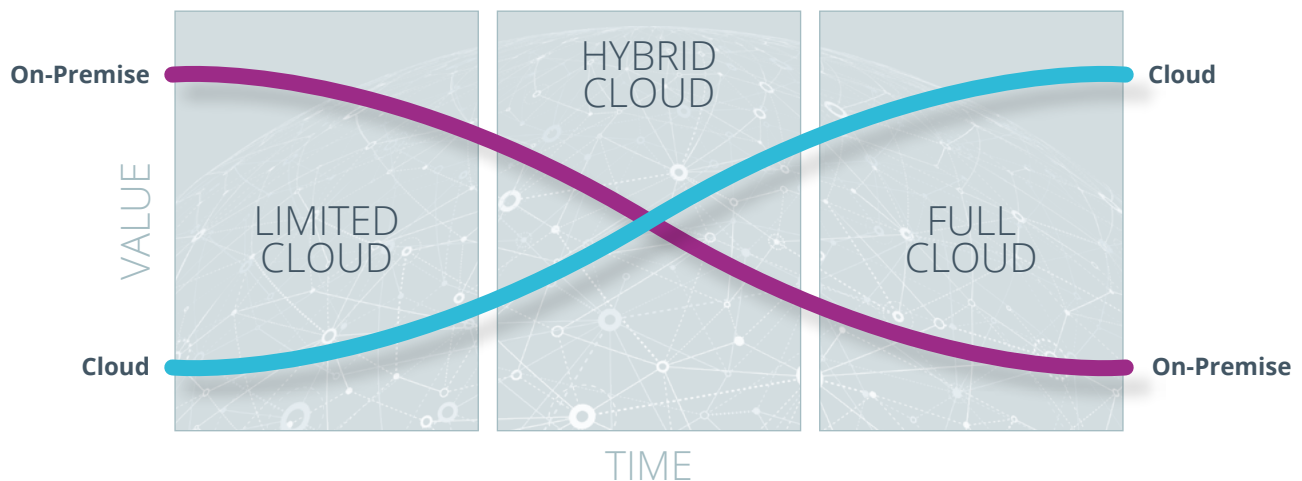
The Growth of Cloud

The term cloud computing was first mentioned by Google CEO Eric Schmidt in 2006. Since then, the adoption of cloud-based applications has grown so significantly that **Gartner predicts that more than half of all ERP spending will be on cloud deployments by 2025.**

There are several reasons for this change:

- It is driven partly by strategies to digitalize operations in response to the disruptive changes being brought about by the Fourth Industrial Revolution. This creates the need to innovate operations and processes to handle a world of business in which mobility, data and analytics, and greater connectedness between enterprises define the way that organizations work.

- Another reason for the change is the increasingly rapid cycle of technical innovation and the need for organizations to keep modernizing infrastructure. By turning to a cloud service provider (CSP), a company can focus investment and spending on other critical resources and leave the infrastructure decisions to the CSP. Interestingly, the issue of cost reduction does not factor as a major component in surveys of companies engaged in cloud deployments. It is the greater flexibility, scalability and capability to transform that motivates the deployment.

- A further driver for cloud adoption is that organizations can reduce deployment and upgrade times for applications. In a world where the need to rapidly adapt and time-to-value are important, this is a significant factor in organizations' decisions to move to the cloud.

- Finally, organizations can use the cloud to reduce the risk of infrastructure disaster and recovery management. It's a standard requirement these days for reputable CSPs to be have IT security and disaster certifications such as ISO 23316 and 27001.

The Role of the Cloud Provider

The rise of cloud computing has propelled the growth of cloud providers, with the market growing more than 30% in 2019, according to Gartner. Dominating the market of public cloud platforms are the hyperscale providers – Amazon AWS, Microsoft Azure, Google and IBM. However, there are many smaller and niche providers which satisfy particular geographical and business needs that the large players do not cover. Organizations therefore do have a choice of provider and may decide to spread their risk by adopting a multi-cloud strategy to prevent being locked in to one provider.

Where to Deploy Your ERP

Whether you are a manufacturer evaluating a new ERP system or considering how to make your existing ERP implementation better, one of the issues you will face is where your software should run – in the cloud or on-premise.

It can be very easy to take the 'cloud first' approach and not think about the unintended consequences of that decision. So let's look at the options available:

PUBLIC CLOUD | ON-PREMISE | HYBRID

Public Cloud

Running your ERP system on a public cloud platform (e.g. Microsoft Azure) means you only pay for the resources that you use, and costs rise and fall depending on how you use the cloud infrastructure. There are pros and cons to this, especially when you start. Initially you will see the benefits of not spending on your own infrastructure, which can be a significant sunk cost. But like renting a house rather than owning it, you have to keep paying to use the cloud platform, you cannot amortize the infrastructure investment over time, and you often don't have a clear idea how heavy your cloud workload will be at the outset and therefore how much you will pay each month. So budgeting may be difficult at first.

As we mentioned before, there are good justifications for a cloud platform, including:

Scalability | Availability | Reliability and Security | Fast Deployment

The hyperscale cloud platform providers tick all these boxes when it comes to public cloud benefits. In addition, they have a global presence on every continent. The question of global reach is therefore not an issue.
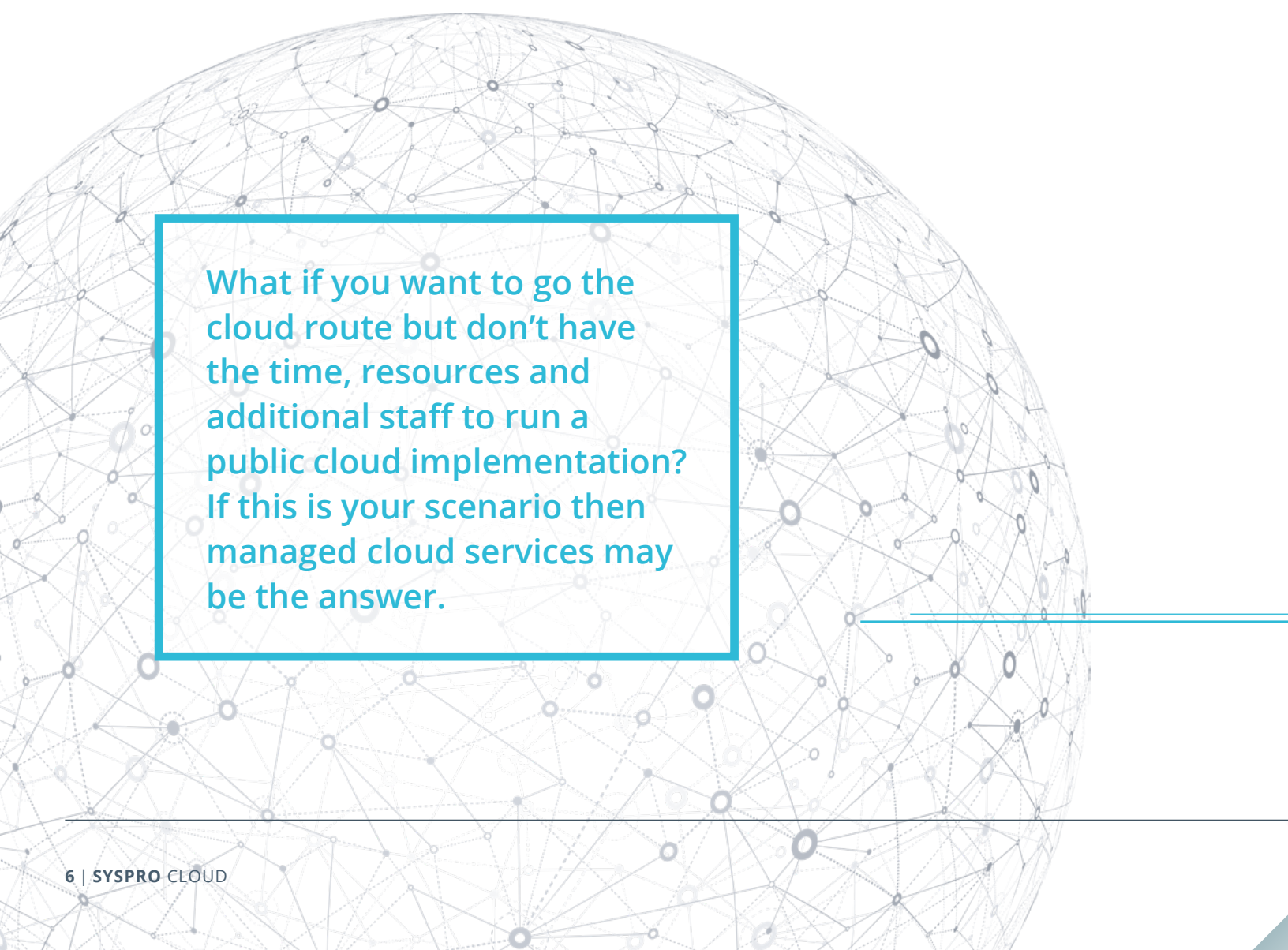

Example: Microsoft Azure regional coverage

For manufacturers that operate in several locations or across multiple time zones, an ERP running in the cloud makes it possible for everyone to access a single system, rather than running their own local instances. This brings significant benefits in terms of centralized reporting, stronger governance and compliance, and improved collaboration across the enterprise. A single system also reduces the need for multiple skillsets to support different locations.

With an ERP system in the cloud, businesses can begin to realize a new set of advantages related to data. Manufacturers have started to look at data coming from new technologies like the Internet of Things (IoT); this can only really be effectively used if you are already using cloud-based applications. The same goes for other sources of big data. Furthermore, if you want to take advantage of new AI applications, these are almost exclusively cloud-based.

But organizations should be aware of common pitfalls when moving to the cloud.

- Underestimating the need to retrain staff or hire staff for new cloud roles.
- Not understanding the shared and individual responsibilities of you, the customer vs. the cloud provider.
- Not having a clear idea of the true cost of ownership and assessment of cloud workloads.
- Not performing proper governance, compliance and security audits before embarking on the cloud journey.
- Treating the cloud migration as a once-off effort rather than a multi-stage transition.

What if you want to go the cloud route but don't have the time, resources and additional staff to run a public cloud implementation? If this is your scenario then managed cloud services may be the answer.

Managed Cloud Services

Businesses that opt for the public cloud still need to take responsibility for managing their resources and developing the skills to do it effectively, even though they don't own the resource. What if you want to go the cloud route but don't have the time, resources and additional staff to run a public cloud implementation? If this is your scenario then managed cloud services may be the answer.

- A common model for running ERP in a public cloud is the Infrastructure-as-a-Service model (IaaS). The responsibility for the components of this service is split between the customer and the cloud provider. The benefit of managed cloud services compared to IaaS is that the customer has fewer responsibilities than with the IaaS model.

Cloud Responsibility Model

IaaS	Managed Cloud Services
Users	Users
Data	Data
Application	Application
Operating System	Operating System
Network	Network
Hypervisor	Hypervisor
Infrastructure	Infrastructure
Physical	Physical

Customer Responsibility

Provider Responsibility

- The managed cloud services model provides organizations with dedicated, single-tenant, leased infrastructure from a managed services provider. Managed cloud services offer the benefits of IaaS – infrastructure, storage, software and networking services, but in addition the managed services provider may include specialized services like security and application maintenance.

- Managed cloud services provide an entry point to the cloud that enables a learn-as-you-go approach to implementing a cloud strategy. For manufacturers that have applications which are not cloud-native, i.e., are on-premise systems 'lifted' into the cloud, this route reduces the cost and risk of conversion to a cloud platform, and allows the IT department to more clearly understand and identify where spending on the cloud can be justified.

On-Premise

The decision to run applications on-premise or in the cloud must account for many distinct factors that affect how a company operates currently and how it will operate in the future. Some applications will migrate and perform well in the cloud, but others can be challenging to migrate, especially if they use custom integrations or non-standard interfaces.

In a manufacturing environment, interfaces to specific machines may be highly customized and difficult to implement via the cloud. Also, although it is rare, public cloud platforms are known to suffer downtime. Recently, a major cloud platform provider outage lasted for more than an hour and even after that it took time to fully recover. Many manufacturing operations cannot tolerate that length of downtime. In fact, downtime is the single largest source of lost production time, affecting productivity and impacting customer service and trust that can be felt across the entire business.

By running its ERP system on-premise, an enterprise retains full control of what happens. In highly regulated industries with privacy and compliance concerns, on-premise deployment provides a greater level of first line control. Moreover, operating an on-premise deployment means that companies with regulatory concerns have full accountability and know exactly where and how their data is kept secure at all times.

For on-premise ERP systems used across multiple locations or requiring mobile accessibility, modern ERP software provides web-based access for remote locations and their own mobile applications.

Hybrid

Where to deploy your ERP system is not an either/or decision. It's not about shutting down your on-premise applications and moving everything to the cloud. It's about adding a cloud capability to your IT operations.

There is no reason why you cannot run some business systems in the cloud, and leave others running on-premise. The key is finding an ERP solution that will allow you to implement a hybrid environment.

Being able to split your ERP into on-premise and cloud components allows you to get the best of both worlds. For example, collaborating with suppliers on quotes and orders is best implemented via a portal that runs in the cloud. Similarly, allowing customers and sales people to access up-to-date information on deliveries and pricing via the web or mobile devices can be made easier if the system supporting those functions is in the cloud.

On the other hand, as mentioned before, a use case for on-premise software is on the factory floor. Another use case for on-premise functionality is sophisticated warehouse management that provides real-time information on receiving, put-away, picking and packing of items.

Where to from here?

According to the Aberdeen Group, businesses that have included cloud as part of their IT infrastructure are more likely to be using other new technologies, such as IoT and Artificial Intelligence (AI).

It's important to take a holistic approach when deciding whether and how to run applications and workloads in the cloud or on-premise. All business units should collaborate in determining the new IT strategy.

Key steps in the process are:

1. Understand the current needs of the business as well as future directions and priorities.
2. Identify the gaps that need to be filled to move from the current as-is to the new to-be environment.
3. Implement a governance process to review the infrastructure options of cloud and on-premise, and determine whether these meet security and reliability requirements.
4. Define the architecture principles, processes and tools that must support the infrastructure decisions made.
5. Create a roadmap. What applications and data will be migrated, when and how.
6. Determine the integration points that may be required to operate a hybrid environment.
7. Continuously log and monitor the performance of cloud and on-premise systems, and the security of the data used in those systems.

In Conclusion

There is no right or wrong answer to the cloud vs. on-premise software debate. Every manufacturing or distribution company is different, with varied requirements that will influence the choice of the deployment strategy. In the final analysis, choosing your solution boils down to what's best for your organization's requirements, a choice SYSPRO is ready and able to help you with.

SYSPRO offers its ERP solution with a choice to deploy on-premise, in the cloud or both (hybrid). Before you make a decision, let SYSPRO perform a thorough and in-depth appraisal of your company's unique needs in order to provide you with the ideal solution.

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