proActive tech group

A Guide to Cloud Computing

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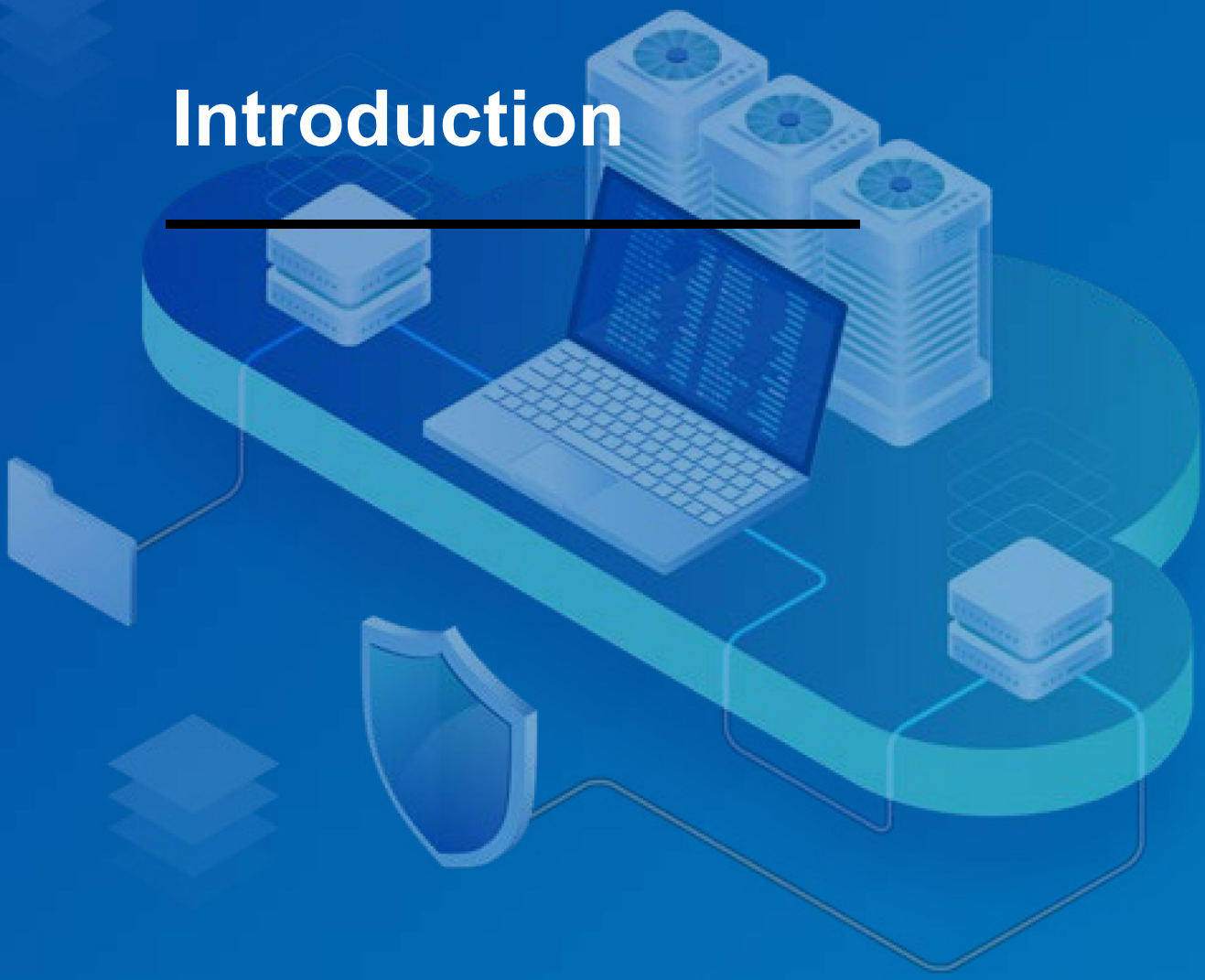


Cloud computing has completely transformed the IT industry and changed what IT resources mean in the business language. The cloud is a convenient and cost-effective way for organizations to access and utilize computing resources and services. Many organizations consider cloud adoption a top investment priority. For this reason, more and more companies and entrepreneurs are quickly implementing cloud solutions as their primary enterprise IT strategy. This trend is so dominant that Gartner predicts that by 2022, the public cloud services alone will generate $331.2 billion in revenue globally.

Over the last few years, the world “cloud” has been a buzzword in just about every business sector. But despite the cloud’s popularity, there is still a lot of misinformation out there surrounding the technology and intentions behind this relatively new concept. Many business leaders still have pressing questions about how cloud computing works, its actual benefits, and the options available when it comes to cloud adoption and implementation.

Throughout this comprehensive guide, we’ll be answering these questions and more while addressing some of the main business concerns about cloud computing. Read on and learn what cloud computing is exactly, and what it means to both small and large businesses.

“...by 2022, the public cloud services alone will generate $331.2 billion in revenue globally.”

– Gartner

How Cloud Computing Works

The word “cloud” simply refers to the internet. Cloud computing is a way to use computing hardware and software over the internet. Instead of having physical computers, servers, data centers, and workstations, the cloud makes it possible to utilize the same equipment online. So, you can store your data on cloud storage, and run processes, ERPs, and other programs on virtual servers hosted online. Essentially, it’s like accessing a digital office or workplace via the internet.

From a technical perspective, things are a bit more complicated than that; there are several sophisticated protocols and algorithms put in place to control variables like user management, machine virtualization, security, and resource sharing. But as the end-user, there is no need to worry over the clockwork and mechanisms behind the scenes – that’s the service provider’s job.

Cloud service providers are responsible for running and maintaining both the physical and virtual environments of the cloud. Most providers charge a monthly or annual subscription fee for cloud access and usage depending on the service package and terms of the user agreement.

This is the basic premise of the cloud computing business model – sparing, of course, plenty of technical details and jargon, some of which we’ll get to later.

The Benefits of Cloud Computing

The cloud presents many opportunities for enterprises to improve various aspects of their business operations. Many organizations are already using this technology to ultimately make their businesses more efficient, better serve their customers and staff, and optimize productivity and profits. Here is how all that becomes possible with cloud computing.

Cost Savings

Cloud computing is a cost-effective way of establishing and running a business-friendly IT infrastructure. This is one of the main reasons why many organizations opt for cloud computing other than on-site setups. Since IT expenses consume a considerable chunk of a business's revenue, reducing IT spending is a practical way to minimize overheads and maximize profits. The cloud can save you money in several different ways:

Saves on Hardware Cost

Setting up an on-prem data processing and storage system from scratch is a massive financial undertaking. The cost of servers, workstations, network infrastructure, and the installation process itself all add up to a huge price tag. Instead of purchasing and installing expensive equipment in your business, you can cut the cost by utilizing the resources already available on the cloud. The high upfront cost of an IT investment is a major hindrance, particularly for SMEs looking to digitize their processes; cloud computing breaks that cost barrier.

Cuts Labor and Maintenance Costs

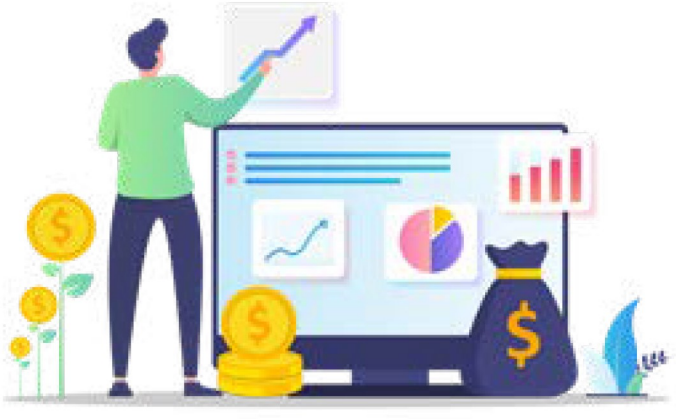
Since you don't own the hardware and other systems on the cloud, their upkeep and maintenance are not your responsibility. Anytime there is a need for repairs or upgrades, the service provider takes care of it without costing your business any money or time. Eliminating the need for routine IT maintenance

reduces the demand for an in-house IT support team, meaning you can shrink your IT department or redirect their focus to other initiatives within the organization. Doing this minimizes redundancies in HR and lowers the cost of labor drastically.

Not having to handle IT servicing and repairs on-site also means there is less chance of downtime. Minimal downtime maintains business continuity and keeps the workplace fully productive at all times. On a side note, you also don't have to worry about IT energy consumption because it goes down to nearly zero. Many analysts believe that cloud computing is the future of sustainable workplaces, partly due to the minimized energy footprint.

Great ROI

In the long run, the cost-saving and productivity benefits of using cloud computing quickly offset the initial cost of migrating to cloud service. Cloud computing is probably the most efficient way that companies can use powerful computing resources. You pay-as-you-go and only for the services that you actually need; so, there are no costly redundancies or restrictive bottlenecks in your IT infrastructure. This not only brings the total IT cost way down; it also gives real value for your money in terms of IT performance.



Highly Flexible and Easily Accessible

Cloud computing brings more freedom and flexibility to the business than on-prem IT systems. Cloud-based services are accessible from anywhere at any time as long as you have an internet connection. Employees, business associates, and customers can interact with your business from any part of the globe via any internet-enabled device. This dramatically improves collaboration efficiency and opens up a world of possibilities for progressive organizations.

It becomes a lot easier with cloud computing to exercise some flexibility in the workplace, for instance, by allowing employees to work from home or bring their own devices to work. Most of the essential business processes will no longer be tied down to the physical office or workplace, thereby affording workplace mobility and a chance to explore remote working possibilities.

Easily Scalable

Business IT needs fluctuate as the business grows, or environmental dynamics change. With time, you may need more storage space, more processing power, or a broader network. Instead of having to overhaul your entire physical IT facilities every time you need to make an upgrade, which can be expensive, cumbersome, and time-consuming, a cloud service provider can do it on your behalf.

Once your IT demands change, you can easily adjust your cloud capacity accordingly to match any new requirements. Scaling the capabilities of a cloud service either up or down can be as easy as clicking on a button. Cloud providers understand that the cloud is not one-size-fits-all; you can switch from one service package tier to another almost instantly to cater to an emerging need.

This level of scalability is one of the most exemplary traits of cloud computing. It makes the organization agile enough to adapt quickly to changes. Such agility also makes it possible for a business to capitalize on volatile opportunities and one-off chances, such as seasonal sales surges and upticks in service/product demands.

Automatic Updates and Upgrades

IT systems need regular updates and patches to keep up with new technologies and policies. Automatic software updates and hardware upgrades are a big part of the service offering of most cloud service providers. Instead of having your IT personnel perform manual company-wide updates, which wastes time and can potentially lead to downtime, cloud applications and services basically update themselves.

With cloud computing, you probably won't ever use outdated versions of software applications, OS and firmware, or last-gen systems hardware. Besides, updates can be costly, and it's often difficult to keep track of what's new. On the cloud, you'll have access to the latest business solutions and the most advanced computing resources available.

Data and IT Security

There is a raging debate over whether cloud platforms are more or less secure than on-prem systems. On-prem storage gives the owner full control of the security policies and measures protecting the company's data, which is reassuring and perhaps the reason why a majority of business leaders seem unsure about cloud security.

But the fact is, off-site cloud storage is far more dependable in terms of preventing data loss, reinforcing access control, creating a backup and disaster recovery strategy, and complying with data protection and privacy standards.

In a robust cloud storage system, data is stored in redundant backup systems spread out across multiple physical locations and virtual storage units. Such a system significantly reduces the risk of data loss and ensures data availability in the unlikely event of data loss. The data is further secured under multiple layers of end-to-end encryption, data abstraction, and thorough access authorization processes. Besides securing data, it's also crucial to have a reliable disaster recovery plan. And, the cloud is a sensible and dependable backup option due to its few and manageable vulnerabilities.

"...off-site cloud storage is far more dependable in terms of preventing data loss, reinforcing access control, creating a backup and disaster recovery strategy, and complying with data protection and privacy standards."

How to Choose the Right Cloud Environment

Now that we've learned the advantages of cloud services over on-premise IT resources, let's talk about cloud implementation. There are a few different ways to deploy cloud resources in your business. You have a choice of a public cloud, private cloud, hybrid system, or multi-cloud approach. Every implementation model is unique, and each comes with its own benefits and limitations. We'll discuss the various cloud deployment methods in detail to differentiate between them.

Public Cloud

Public clouds are the most common method of cloud implementation. When people talk about cloud services, they are often referring to public clouds. In a public cloud, the hardware, network facilities, software, and other computing resources are owned and hosted by a third party known as a cloud service provider.

We've already touched on cloud service providers in this guide. The provider is responsible for supporting the entire infrastructure – the servers, data centers, and enabling software. The end-users, in this case, the organizations subscribed to the cloud services, share the same physical and virtual resources. User accounts or "renters" are separated virtually, not physically. Renters can access and manage their accounts via web browsers and apps. The features and specs you get on a public cloud depend on the service package you pay for.

Public clouds are low-cost solutions for delivering general cloud-based services such as web-based emails, hosted and business applications, development environments, and online storage to businesses of all sizes.

Pros and Cons of Public Clouds

The most attractive benefit of using a public cloud is the low upfront cost. On top of that, you only pay the services you need in manageable installments. The cloud provider does all the maintenance and servicing to ensure the resources stay live. There is also nearly unlimited scalability on most public cloud platforms.

The main letdown of public clouds is the limited control over the shared cloud environment. Every characteristic of the cloud service, including security standards, available resources, and performance specs, depends on

whatever systems the provider has in place. Another downside is the highly abstracted interface and seemingly generic structure of public cloud services.

Private Cloud

This is a cloud platform whose every resource is reserved exclusively for one organization or business. You can have a private cloud located on the company's premises or hosted on an off-site third-party facility. The owner acquires and sets up all the necessary hardware and software that build a private cloud system. Alternatively, one can rent an already established, dedicated cloud platform from a third-party cloud provider.

If you owned a private cloud, you'd also be responsible for maintenance, servicing, updating, and upgrading the systems. You can do this with an in-house IT team or an independent managed IT services contractor.

Private clouds appeal mostly to financial institutions, government agencies, and large corporates looking for a highly tuned cloud environment with unlimited control. A private cloud also makes sense to companies looking to store sensitive data and applications on the cloud while adhering to stringent data security requirements and policies.

Pros and Cons of Private Cloud

A private cloud offers your business more control and flexibility in customizing the services, performance, and security details. But all that freedom and exclusivity comes at a price. The cost of establishing and running a private cloud is incredibly high compared to what you'd pay for a similar public cloud service. And although private clouds are also scalable, many companies underutilize their clouds, which lowers IT efficiency in the long run and further builds up to the already high IT cost.

Hybrid Cloud

A hybrid cloud configuration is a compromise between public and private cloud platforms. It's a cloud adoption approach that combines both public and private cloud environments – a complex model that's the best of both worlds. In a hybrid cloud, you can have different sets of data and applications residing on either a public cloud or a dedicated private cloud.

Hybrid clouds are preferred by businesses with unique operations that make use of both private and public clouds. For instance, sensitive transactions can run on a private cloud, while high-volume applications run on the public cloud. This configuration also makes “cloud bursting” possible, where applications running on a low-capacity private cloud can automatically “burst” through to the large-capacity public cloud following a seasonal spike in IT performance demands in the business.

Multi-Cloud

Multi-cloud deployment is where an organization signs up to more than one cloud service provider at the same time. This usually means that the client uses the different cloud services and platforms for different purposes. This arrangement only makes sense if your business has a variety of unique IT requirements that one service provider cannot meet. However, buying multiple services from different providers may end up costing a lot and may not be entirely necessary anyway. It might be more economical to make a few compromises on a comprehensive cloud package and stick to one provider.

Public, Private, or Hybrid Cloud? Making a Choice

According to the 2019 Right Scale’s Annual State of The Cloud Report, 94 percent of enterprises use cloud computing. Seventy-two percent use a private cloud, 91 percent are on the public cloud, and 69 percent use a hybrid system. The public cloud happens to be the most popular because the

businesses, especially SMEs, find it attractively affordable and able to satisfy most of their IT demands.

Businesses vary significantly from one to another; so, deciding on the right cloud environment comes down to the individual organization. First, you need to assess your business IT needs and the state of your current IT infrastructure. Then, compare your business requirements and IT goals to what the available cloud environments have to offer in order to identify the most suitable solution. Your IT budget and security concerns must also come into play when choosing between various cloud environments.

The important thing is to think critically about what your business really needs from the cloud. You don't want to invest in a cloud solution that doesn't meet your needs or fails to justify the long-term ROI. Remember that the whole point of moving to the cloud is to improve business efficiency, which resonates with productivity and profitability.

"94 percent of enterprises use cloud computing."

– Flexera

Choosing a Cloud Service Model

Cloud computing is a rather general term that encompasses several different technologies with particular functionalities. There are three main types of cloud computing service models. Each model is unique in terms of the level of abstraction, allowable customization and control, and the variety of supported uses.

The models are stacked upon each other, with the ones in the lower levels offering more versatility than those at the top. The level of abstraction increases up the stack until the topmost layer becomes a highly specialized service.

Infrastructure as a Service (IaaS)

IaaS is the most fundamental cloud computing service model. It provides a completely virtualized computing infrastructure that includes storage, processing, network, and software facilities over the internet. With an IaaS model, you can install, run, and configure any operating system, middleware, and high-level software applications. You also have access and control over the data storage system, where you can manipulate and organize the actual directories and files.

Basically, IaaS is similar to accessing a real server or workstation over the internet, only that it's not technically a physical computer but a virtual machine.

IaaS is highly scalable, meaning businesses can re-adjust quickly to sudden changes. Through IaaS, the service provider frees the company from the responsibility of sourcing and maintaining physical computer systems.

Most businesses use IaaS as an inexpensive and reliable substitute for onprem computers and servers. IaaS also serves as a cloud storage solution and dependable data backup and recovery system, especially for companies with vast volumes of data. In most cases, hosting websites, high-performance analytics tools, web-based applications, and data repositories is much cheaper and more convenient with IaaS than on conventional web hosts.

Platform as a Service (PaaS)

PaaS is a bit more specialized than IaaS. Instead of providing all the computing tools available through the cloud to users who then choose what to do with them, PaaS only provides the resources and environment needed to develop, manage, test, run, and update software applications. PaaS comes with all the necessary operating systems, middleware, database management systems, and software building tools that support application development throughout the entire software lifecycle.

PaaS provides a robust software development framework, saving developers the cost and hustle of buying and managing software licenses for sophisticated development tools. The service also abstracts the developer from the infrastructure beneath the development environment. The user, therefore, doesn't have to install and configure the various runtimes and development support structure. As a result, this cuts coding time and speeds up the software development process.

PaaS is ideal for businesses involved in software development and testing. It's also an excellent platform to run resource-intensive analytics tools for business intelligence, ERPs, and hosted communication systems like VoIP.

Software as a Service (SaaS)

Most people and businesses are familiar with the SaaS model of cloud computing. SaaS is the most abstracted and specialized way of using cloud services. SaaS refers to a fully

software application distributed and purchased on a subscription basis over the internet. Unlike IaaS and PaaS, SaaS allows you to rent an end-user application.

The vendor takes care of the software's hosting environment – the underlying servers, operating systems, and runtimes. You cannot access anything below the application's user interface. However, most enterprise SaaS applications are highly customizable and scalable to suit different business models and sizes.

Most SaaS applications are web-based, eliminating the need for users to download the application's .exe file or install additional support software on their systems. Many of these applications also process their data on the host system rather than the client's side. This allows even the most intensive apps to run on just about any internet-enabled device, including smartphones and tablets.

Big and small businesses alike can gain access to high-end enterprise software products affordably through the SaaS model. Since you don't actually buy the software license, the cost of using cutting-edge SaaS applications is inconceivably lower compared to purchasing equivalent off-the-shelf products. SaaS also promotes workplace mobility since applications can be accessed from anywhere.

Ways to Use the Cloud

Cloud computing is clearly a big deal in the modern business landscape. The question is – what tangible business value does the cloud bring to your enterprise? The real impact of deploying cloud services is where the rubber meets the road. Here are five ways your business could leverage cloud computing to flourish.

Relieve In-House It Burden

To thrive in the modern business environment, you have to take advantage of tech-based business solutions such as business software, eCommerce websites, analytic tools, financial systems, and data management systems. Using these solutions requires a powerful IT infrastructure, which puts its own internal strain on the business.

Cloud computing helps businesses relieve this IT burden by eliminating the need to have a cumbersome IT system in the first place. With cloud computing, you'll no longer feel the pressure to purchase and take care of IT equipment. The cloud frees you and your staff to focus on other mission critical tasks within the organization.

Enable Business Automation

Business process automation is an exciting new way of simplifying and improving business workflows and operations. There are so many mundane and repetitive tasks that businesses can automate, such as HR processes, data analysis, marketing efforts, CRM processes, and accounting. Robust automation is made possible by virtual robotics, artificial intelligence, and machine learning software.

A majority of locally-based standalone business automation tools require massive IT investments and continuous close monitoring. And, this is where cloud-based

business automation solutions come into the picture. There is a host of business automation SaaS applications available today that you only have to configure once. Alternatively, you can host your own automation systems on the cloud and basically leave them there.

Business process automation saves you time, labor, and resources. Automation also minimizes human error and interference, making it more reliable and efficient than manual effort. Cloud-based automation tools are a great way of speeding up business processes, streamlining workflow, and optimizing process management at a negligible cost.

Convenient Data Storage and Information Sharing

Data storage and information backup are major headaches for many organizations. In most cases, locally hosted data centers are not a viable option for small and medium-sized businesses, mostly due to their high investment capital and running costs. On the other hand, cloud computing allows companies to store and share information online securely and affordably.

Having an easily accessible online data repository means you can share documents and media from a central data hub with anyone from any part of the globe. This allows your business to interact and collaborate with remote workers and contractors more intimately, increase mobility and flexibility, and improve communications.

Also, the cloud can solve all your data backup and disaster recovery issues. Handling business data using local machines can be risky. The cloud minimizes these risks and makes data storage so much easier and convenient.

Drive Growth

Cloud computing is designed to support and promote business growth. Cloud service can quickly scale with new business demands without limiting the exploitation of new ventures. Using cloud services dramatically reduces the entry-level cost for accessing robust IT systems, which in itself is a significant business boost. From there, you can easily capitalize on emerging opportunities by dialing up your cloud computing capabilities and expanding your business performance instantly.

Sharpen Your Competitive Edge

In a world that virtually runs on data, IT has become a powerful and valuable business tool. IT performance is indeed a key performance indicator in many business environments. The ability to utilize business-relevant data quickly through technology is one of the factors setting businesses apart in the digital arena and, consequently, in the real market space. Technologies such as big data, intelligent analytics, and neural networks, which help companies make sense of raw data, all rely on the immense processing power of cloud computers.

Cloud computing sort of levels the playing field for both SMEs and giant corporates – it's all things to all men. Small businesses can communicate faster and make use of the cutting-edge technology that large companies also have at their disposal. Cloud computing technology can help your business streamline its processes in a way that puts it in a position to face off and keep up with competitors. And since the capital investment in cloud computing and the running cost are so low, SMEs can bootstrap their way through highly competitive industries without burning out.

The Takeaway

There is a lot more to cloud computing from technical and business standpoints. We've explored the key touch points of cloud computing from an enterprise perspective. And, that is enough to draw meaningful conclusions on how cloud services can potentially transform your business.

Cloud computing has come a long way over the last decade or so, and the concept will only grow more powerful and appealing to businesses with time. We should expect to see more cloud features and capabilities as internet technology evolves. Since the collective IT demands in business grow every day, it's only a matter of time before every facet of the business community realizes the immense power and benefits of cloud computing. It's this growing insatiable need for modernizing business processes to take advantage of digital innovations that has shaped and popularized the idea of cloud computing over the years to what it is today.

Cloud computing options are vast, and the benefits fall in line with the demands and goals of modern enterprises. Going for cloud services at this point is a no-brainer, especially for SMEs lacking the financial backing to reach their IT goals. Don't let your business struggle when readily available solutions are right within your grasp. We specialize in helping businesses realize their full enterprise potential through our carefully designed cloud solutions. Get in touch with us and learn how to go about reaping the benefits of cloud computing.

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