Logit Analytics

How Small And Medium Businesses Can Benefit From Cloud Services

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Abstract

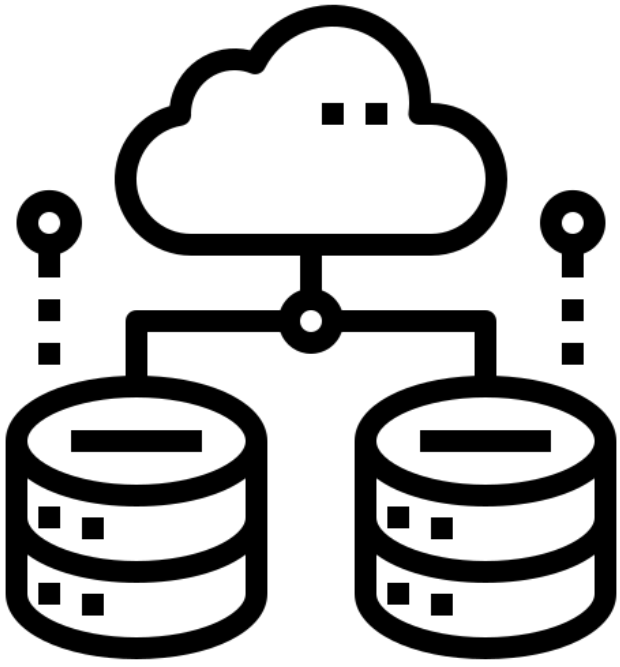
This paper presents an overview of the benefits of switching to cloud services. It explains the major advantages and disadvantages of storing data online using cloud products and the key points to consider when switching to cloud.

Introduction

In Internet-based computing, cloud storage is a trend that utilizes a shared computing system involving numerous computers that work on a specific network to accomplish a particular task on demand.

Moreover, cloud storage is used to store end-users' data within the cloud without using a local system; through network connectivity, this data can be accessed anywhere and client services can be provided. Cloud computing is one of today's most exciting technologies because of its capacity to lessen costs associated with computing while increasing flexibility and scalability for computer processes.

During the past few years, cloud computing has grown from being a promising business idea to one of the fastest-growing sectors of the IT industry. But on the other hand, IT organizations have expressed concerns about critical issues such as security that accompany the widespread implementation of cloud computing.



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Pros and Cons of Using Cloud

Pros of Cloud Storage

There are a number of key advantages of utilizing cloud storage and uses that take the preferred standpoint of capacity in the cloud.

- Simplicity of administration: The support of the programming, general infrastructure, and hardware used to buttress stockpiling is definitely improved by an application in the cloud. Applications that take the favorable cloud-based form are generally far less demanding to set up and maintain than a proportionate level of administration installed on the premises. Frequently, on the client's side, all that is required to deal with your capacity execution is a straightforward web browser, leaving the complexities of management to the service provider.

- Cost-effectiveness: Cloud storage is useful for mitigating ownership fees. Removing costly systems and the requirement for the client to maintain them normally gives organizations noteworthy cost reserves that more than counterbalance the charges for cloud storage. The fees associated with having the capacity to obtain elevated amounts of accessibility and the adaptability an organization requires are moreover unmatched in terms of savings. In essence, the economies of scale accomplished by server farms basically cannot be coordinated by anything except the largest of organizations.

- The methodology of storing information in remote cloud servers is known as cloud storage. Storing on the cloud is far better than other conventional storage strategies. A portion of the explanation behind that is: - Companies do not have to establish physical storage devices at their own server farm or workplace; - Maintenance tasks involved with storage, including the backup and purchase of additional storage devices, are taken out of a service provider's responsibility, permitting the organization to focus on its core business; -Companies only have to pay for the storage they use.

- Lower impact failures and upgrades: Cloud computing typically delivers cost-effective storage hardware redundancies. This results in uninterrupted service during a scheduled or unplanned breakdown. This also applies to hardware upgrades, which will no longer be visible to the client;

- Simplified layout: Cloud storage solutions free up the capacity for the IT director of Detailed Planning. Flexible cloud-based storage solutions are provided as required, eliminating the need for more storage that can be required to accommodate them.

- Center competency: By utilizing public clouds, the client is basically redistributing its centers of data and administration of infrastructure to organizations whose central competency is administrating infrastructure. Consequently, the client invests less time administrating infrastructure, freeing up additional time to concentrate on its own core competencies;

Cons of Cloud Storage

- Leaks and data access without permission between virtual devices operating on the same server;
- Errors on the part of a cloud supplier in handling the correct management and saving of sensitive data;
- Sometimes the cloud service may be unavailable for extended periods of time due to errors and system crashes; Of course, this also can occur when you own servers and your team has to fix it.
- Hackers may break and enter into a client's applications hosted on the cloud, and thus access and distribute sensitive data
- Reliability issues.

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Top Reasons for Cloud Migration

1. Control and reduce costs

Virtualization in the cloud allows business owners to control costs on installation, hardware and devices, and frequent upgrades. It is also invaluable for small businesses to save money on frequent IT repairs. Without large IT budgets SMBs are often forced to rely on pay-to-fix (break-fix) repair services and patches that don't resolve the real challenges.

2. Improve employee morale and collaboration

Smart business owners know the critical role that employee morale and interactions play in a company's success. Implementing the cloud encourages users to get out of the office to network, to join meetings, and to work remotely. In the cloud, employees have secure access to all the resources, tools and systems necessary for their job without the risk of failure, loss or intrusion.

The cloud also helps attract the best talent for the company, regardless of geographic location. The same access, tools and communication features that benefit existing employees are equally important to bring the right talent onboard without exorbitant relocation costs or losing the talent completely.

3. Time and ease of migration

An IT analyst can get a company situated in the cloud with almost no downtime. This is because most of the work is done online, and large scale overhaul isn't necessary to migrate. From the time a company decides to migrate to the cloud to the moment they go live, the switch can take as little as four weeks. As a company grows, scalability of the cloud service becomes a strategic advantage as you configure your cloud setup to meet ever-changing demands, priorities, and resources.

Best Cloud Service Companies

Amazon Web Services is a market leader in cloud services. As one of the first providers to not only spearhead cloud computing itself but also really transform it into much more than just virtual machines and data storage. They have also developed the concept of serverless models. AWS is clearly ahead of its competitors in this category. AWS Lambda, Amazon API Gateway, Amazon S3, and Amazon Redshift are just a few of the core products AWS offers.

Azure is also one of the relevant and leading Providers that enables a serverless operating concept through its Azure Functions Platform service. Alongside a number of other services such as CosmosDB, Azure has created a serverless portfolio that provides companies and developers with a particularly agile and cost-transparent architecture.

Google, which had early offers in which infrastructure management took a back seat, is also positioned as an Accelerator and market leader. The BETA version of its Cloud Functions offering provides a true serverless feature for development and operation of, for example, mobile backends, APIs and microservices.

Alibaba also offers a platform for event-based execution of functions in a serverless model under the name Function Compute, but so far it is only available in China. As is the case with many of its competitors, the offer is complemented with less management intensive databases and Object Stores.

Still missing for Alibaba in what was previously a niche market, is the presence and strength to position itself more positively. Databricks and PubNub. are two other Providers in this environment. These are essentially very focused Vendors and niche players who still have little traction in the market.

Databricks has a strong analytics focus and provides its services according to the serverless model. PubNub sees itself more as an integrative element for connecting various APIs, and relies heavily on collaboration with partners to simplify these connections. As the name suggests, Serverless also offers a platform on which developers and companies can build an open-platform infrastructure with the eponymous Serverless Framework. The platform itself is still in the BETA stage, yet some large companies, especially in the US, are already using its services.

The IBM BlueMix platform also includes a serverless service called OpenWhisk (based on Apache Open Source OpenWhisk), which can be integrated with Platform Services such as Cloudant and Alchemy, or even with Watson. So far there are still no public references with German customers available but nonetheless, OpenWhisk is an important and strategic addition to the BlueMix PaaS offering.

Red Hat's serverless offer, that the open source Vendor uses for its OpenShift platform, is also based on Apache OpenWhisk. This ensures Red Hat can keep up with the other Providers from a technological perspective. However, fewer standard services and the low status of their own OpenShift online platform mean they fall behind IBM in a direct comparison.

Oracles Functions allows individual applications to be made available on Oracle's PaaS infrastructure according to a serverless model. The offer is an option for many companies and decision makers, but is still largely under the radar and has few proof points in production usage.

Switching Different Infrastructures and Benefits

RDS from standard MySQL or Postgres

Amazon Aurora is a high performance, highly available, and enterprise-grade database built for the cloud. Leveraging Amazon Aurora can result in better performance and greater availability than other open-source databases and lower costs than most commercial grade databases.

Although there might be some need to migrate, our team of cloud consultants have migrated many systems and databases and have experience setting up new

Redshift for Data warehousing

Amazon Redshift has changed how enterprises think about data warehousing by dramatically lowering the cost and effort associated with deploying data warehouse systems without compromising on features and performance.

Amazon Redshift is a fast, fully managed, petabyte-scale data warehousing solution that makes it simple and cost-effective to analyze large volumes of data using existing business intelligence (BI) tools. With Amazon Redshift, you can get the performance of columnar data warehousing engines that perform

massively parallel processing (MPP) at a tenth of the cost. You can start small for $0.25 per hour with no commitments and scale to petabytes for $1,000 per terabyte per year**.**

EC2 from Servers

Technology changes continuously, and you often have no choice about updating or upgrading. That can make it tempting to delay moving cloud applications that are functioning fine where they are. However, as we learned in our study, by keeping your workloads in EC2 instances based on older architecture, you're leaving value on the table.

It's been found between the lower cost and improved performance of next-generation EC2 instances based on Intel Xeon Scalable Processors using AVX-512, you could double your performance per dollar by moving some applications and re-optimizing them.

For some applications still using instructions for Intel AVX2, moving to the new instances could boost your performance per dollar by 21.9 percent.7 These numbers make it clear that moving your workloads is a good idea.

Cognito vs having to code authorization and authentication

Amazon Cognito is Amazon Web Services' service for managing user authentication and access control. Although it was originally associated with AWS's mobile backend-as-a-service offering (MBaaS), it has recently gained the attention of the serverless crowd, who are looking for ways to offload user management concerns to a service provider.

Cognito solves this problem by providing a fully managed, scalable and cost-effective sign-up/sign-in service — but at the cost of a steep learning curve. One of the reasons for this is because Cognito is comprised of two services — User Pools and Identity Pools (a.k.a. Federated Identities) — that are similar on the surface but different under the hood. These two services solve the same problem (i.e. authentication and authorization) but do so in very different ways. They can also be used separately or together, providing both flexibility and a source of confusion at first.

Lambda instead of creating an entire API

AWS Lambda is an event-driven, serverless compute service that extends other AWS services with custom logic, or creates other backend services that operate with scale, performance, and security. Lambda can automatically run code in response to multiple events, such as HTTP requests through Amazon API Gateway, modifications to objects in Amazon S3 buckets, table updates in Amazon DynamoDB, and state transitions in AWS Step Functions.

You can also run code directly from any web or mobile app. Lambda runs code on a highly available compute infrastructure, and performs all of the administration of the underlying platform, including server and operating system maintenance, capacity provisioning and automatic scaling, patching, code monitoring, and logging.

With Lambda, you can just upload your code and configure when to invoke it; Lambda takes care of everything else required to run your code with high availability. Lambda integrates with many other AWS services and enables you to create serverless applications or backend services, ranging from periodically triggered, simple automation tasks to full-fledged micro services applications.

When Lambda executes a function on your behalf, it manages both provisioning and the resources necessary to run your code. This enables your developers to focus on business logic and writing code, not administering systems. The Lambda service is split into the control plane and the data plane. Each plane serves a distinct purpose in the service.

The control plane provides the function management APIs (CreateFunction, UpdateFunctionCode), and manages integrations with all AWS services. The data plane controls the Invoke API that runs Lambda functions. When a Lambda function is invoked, the data plane allocates an execution environment to that function, or chooses an existing execution environment that has already been set up for that function, then runs the function code in that environment.

Cost Savings of Cloud

Hardware

An advantage of cloud computing is the reduction in hardware cost. Instead of purchasing in-house equipment, hardware needs are left to the vendor. For companies that are growing rapidly, new hardware can be a large, expensive, and inconvenience. Cloud computing alleviates these issues because resources can be acquired quickly and easily. Even better, the cost of repairing or replacing equipment is passed to the vendors.

Along with purchase cost, off-site hardware cuts internal power costs and saves space. Large data centers can take up precious office space and produce a large amount of heat. Moving to cloud applications or storage can help maximize space and significantly cut energy expenditures.

Developers/Maintenance

Cloud solutions can also lead to a dramatic decrease in labor and maintenance costs. As a result of the hardware being owned by vendors and stored in off-site locations, there is less demand for in-house IT staff. If servers or other hardware need repairs or upgrades, it is the responsibility of the vendor and doesn't cost your company any time or money.

Eliminating routine maintenance can free your IT staff to focus on important initiatives and development. In some cases, this could even mean reducing staff size. For companies lacking the resources for an in-house IT staff, the cloud will help eliminate costly third party hardware repair bills.

Reliability and Scalability

Cloud computing helps IT enterprises to optimize and secure application performance in a cost effective manner. Besides security, cloud providers are also responsible for reliability and availability, because all users expect the highest level of QoS (Quality of Service). The cloud providers use some solutions such as partitioning to achieve maximum performance. But according to whether the cloud is based on public, private, or hybrid, the management and control of these performance parameters from RAS viewpoint will varyCloud-based applications are based on network software running on a virtual machine in a virtualized environment.

In view of the vital role of the hypervisor in a virtualization system, security at this level of virtualization needs special consideration. Generally, a virtual application relieves some of the management issues in enterprises because most of the maintenance, software updates, configuration and other management tasks are automated and centralized at the cloud provider's datacenter. But this way for decentralized application and access creates its own set of challenges and security problems. There are, however, risks and hidden costs in managing cloud compliance.

Cloud providers often have several powerful servers and resources that provide appropriate services for their users, but the cloud is at risk to a degree similar to that of other Internet-based technologies. Unfortunately, there are some attacks for which no perfect defense exists such as a powerful DoS attack. But as paper discussed in occurrence of DoS attacks, cloud may be a good solution or mitigation because cloud providers can use mirrors or devote more resources to protecting against attacks. However, this solution's performance depends on provider facilities.

Conclusion

One of the biggest benefits of cloud technology is in business continuity. Only two percent of companies say they recovered from their latest incident in under an hour. By having cloud-based software, like Office 365, and remote data storage, you get the advantage of seamless transition of space.

Log into any computer, and your data is readily available. With remote storage, you've taken the burden of data recovery off your shoulders and put it onto a more experienced provider, whose bottom line depends on your quick recovery.

Running your business in the cloud gives you an edge in your space. Your applications run faster, are accessible from anywhere, and you are freed from the maintenance of updating your aging infrastructure. With cloud technology, you can scale quickly based on your needs, giving you an advantage over your non cloud competitors.