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Migrating Your Internal Server-Base Database to Amazon Web Services

If you are like many companies, you are using an internal server to store your company's critical data. This internal server likely runs a database, such as Oracle, Microsoft SQL Server, or MySQL. You may also be using this internal server to host web applications and static content. However, eventually, your internal server will reach its limits. It may become difficult or impossible to add more storage or upgrade to a newer version of your database. It may also become difficult or impossible to add more CPU power or upgrade to a more recent version of your server operating system.

At some point, you may need to migrate your internal server-based database to Amazon Web Services (AWS). AWS provides a scalable and reliable platform for hosting your company's critical data. AWS also offers a wide range of services and features that can help you migrate your database.

What is an AWS Database Service?

AWS Database Service is a managed database service provided by Amazon Web Services. It offers a No-Ops model for database administration, so you don't have to learn a new language or use a different tool for database management. It also provides automated scalability, availability, and high availability with auto-scaling and auto-failover, making it suitable for mission-critical applications.

Why Migrate from Internal Servers to AWS?

Your internal server-based database will likely reach its limits as your business grows and demands increase. Additionally, your internal network will become more complex as you add more users, devices, and applications. This makes it difficult to add more storage, upgrade your CPU, or add more server capacity.

Migrating to an AWS database service offers several advantages. First, you can grow as your business demands increase. You are not dependent on the limitations of your internal infrastructure. You can also shrink your data storage needs by moving away from a dedicated server. This can be a considerable time and cost saver. You can also reduce the complexity of your internal network because you have fewer devices to manage.

How to Migrate from an Internal Database to AWS

If you are migrating from an internal database to AWS, there is a lot to consider. First, you need to determine whether your application architecture is well-suited for the cloud. If your application relies on local storage or runs in a single location, it may not be a good fit for the cloud. You will also need to consider how much data you need and how often it is accessed.

If your data is accessed frequently and there is a lot of it, you should also consider how long it takes to transfer that data across the internet, especially if your internet connection speed isn't up to snuff. Finally, you will need to find an AWS service that fits your needs and offers the same functionality as what's currently in use at your company.

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Prepare Your Database for Migration

Before migrating your server-based database to AWS, you must prepare it for migration. This includes identifying the applications that will run on the new database and designing a migration strategy. Creating a diagram to map out your applications and their dependencies visually can be helpful.

Set Up and Migrate to AWS

Once you've prepared your server-based database for migration, you are ready to set up your AWS account and prepare your server-based database for transfer. You can either use a tool that automates this process or manually copy your data from your internal server.

Once your data is migrated to AWS, you can reconfigure your server-based applications to use the database in the cloud. Depending on how your applications are configured, this will be a relatively straightforward process or require a significant amount of time and effort.

Once you've moved your database into AWS, you'll need to decide whether or not to keep using it. If you decide that it's not working for you, you'll need to move back into the server room and set up a new server-based database. This can be quite time-consuming and expensive, so make sure that you carefully consider this decision before committing any resources toward migrating into the cloud.

Migrate Your Website and Static Content to AWS

Once your server-based database is migrated to AWS, you will likely host your website and static content in the AWS cloud. This can save you significant money by cutting out expensive hosting costs and will allow you to scale up as your data storage quickly and throughput requirements grow. For more information about migrating your website and static content into AWS, check out their web hosting guide.

Migrate Your Dynamic Content to AWS

Once your website and static content are in the cloud, you'll need to migrate your dynamic content — such as forums, blog comments, and other 'dynamic' parts of your site. This process will be relatively straightforward if you're using a PHP-based application like WordPress or Joomla!. You will need to install an add-on like WP Engine's "Cloud Migration" plugin or Joomla!'s Cloud Connector that uses Amazon S3 as its storage backend. This will allow you to keep serving those blogs and web applications from the cloud while keeping all of your data in a server-based database.

If you use a different language or framework (such as NodeJS), then migrating dynamic content into AWS can be significantly more challenging. This is because of the differences in languages and frameworks. NodeJS, for example, has a dynamic runtime which means it doesn't have to be compiled ahead of time like Java or C++ applications. This can make migrating these sorts of programs into AWS more challenging than ones running on other platforms such as Java or C++ that are statically compiled before being uploaded onto servers. However, this isn't always true if your node JS content you are trying to migrate does not involve too much outside dependencies (such as third-party libraries).

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One of the biggest challenges with migrating dynamic content into AWS requires different skills and knowledge. It also means you need to be able to work in multiple languages at once, which can make things more complicated than they already are. Additionally, suppose you're using other frameworks like NodeJS for your website rather than PHP or Ruby on Rails. In that case, this migration will take even more time because these two systems have vastly different structures, meaning many changes need to be made when moving from one system to another.

However, there are many benefits to migrating. AWS has a lot of scalability and flexibility opportunities that can allow you to grow your application as needed with minimal downtime. It also provides state-of-the-art technology such as Artificial Intelligence (AI) services for machine learning and deep neural networks, which might be useful in the future or even today, depending on what industry you're working in.

What could go wrong with migrating Your Internal Server-Base Database to Amazon Web Services?

A few things could go wrong when migrating your internal server-based database to Amazon Web Services. One potential issue is that the migration process might take longer than expected, which could cause disruptions to normal business operations. Additionally, there is a risk that some data might be lost or corrupted during the migration process or that the new AWS database might not function as expected. Finally, there is also the possibility that the cost of using AWS could be higher than expected, resulting in unexpected expenses for the company.

The migration of a server-based database to Amazon Web Services is a complex process that can have significant financial, technical, and organizational repercussions. To avoid surprises, it is important to thoroughly plan the migration process in advance, including how to migrate the data, handle any data loss or corruption issues that might arise during the migration process, and make sure that AWS costs do not rise more than expected. It is important to be prepared for the possibility of unforeseen costs and data loss during a migration.

To make sure that you are covered, it's necessary to plan:

- Know how much data needs to migrate as well as what kind of services will need to be migrated (e.g., web servers, databases),
- Know your limits with AWS pricing in advance so that they don't catch you by surprise at an inopportune time (i.e., when migrating after spending the yearly budget),
- Have a backup plan ready just in case something goes wrong during or after the migration process. Any corruption issues or other complications should arise, making access impossible on either side.

Are There Any Drawbacks?

Move to the cloud is frequently met with skepticism from existing infrastructure proponents. Some will worry that your new database will be more challenging to maintain and that you will have less control over it. However, most benefits of moving to the cloud also apply to existing on-premises deployments. For example, you can easily scale your database horizontally without buying additional hardware. You

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can also use tools such as database replication and data migration tools to maintain backups and continuity in the event of an outage or disaster.

Summing up

There are several advantages to migrating your internal server-based database to AWS, including scalability, availability, and reduced hosting costs. In addition, moving to the AWS cloud can help you avoid growing too complex to manage. To prepare your server-based database for migration, you must identify the applications that will run on the new database and design a migration strategy. You can then set up and migrate to AWS and migrate your website and static content to AWS.

Why work with us

We offer comprehensive on-demand design and development services. Ideal for companies that do not have a design and development team in-house. Working with us means you have a partner to help manage your design and development needs so that you can focus on running your core business. By partnering with us, you can have our dedicated team help and guide you with:

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Amazon Web Services
EC2
RDS
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Which AWS Products Can You Use for Your Database?

There are several AWS database services, each aimed at solving different problems and offering different features. The following are some of the most common choices and lists features and typical uses. Each service also provides documentation and guides for common uses, migration, and setup.

Amazon RDS - This is Amazon's managed database service. It's fully managed and offers automated management, scaling, and more.

Amazon Aurora - This is Amazon's NoSQL database. It's designed for high performance and durability, with data stored across multiple nodes.

Amazon DynamoDB - This is a fully-managed Dynamo database service. You can use it without coding, and it provides several common use cases, like storing event data.

Amazon ElastiCache - This is a distributed cache service for storing and retrieving data from multiple data centers. You can use it to offload frequently accessed data from your servers.

Amazon API Gateway - This is a platform for building and running APIs. You can use it to power rich internet applications.

Amazon Athena - This is a fully-managed service for managing your digital assets. You can easily perform complex analyses and extract actionable insights from your data.

Amazon CloudHSM - This is a Software-as-a-Service offering that provides High-Availability, Multi-Factor-Authentication (HaaMFA), key management, and auditing services. You can use it to protect data at rest and in transit.

Amazon CloudFront - This is a content delivery network (CDN) service that provides increased website load speed and delivery. Using CloudFront, your website will appear as though it's located near the user, improving the overall user experience.

Amazon Cognito - Cognito provides a framework for building multiple identities and services applications. You can use it to provide an application with user identity and authorization.

Amazon Cognito Identity - This is an identity and access management (IAM) service that helps you manage user identities and access permissions. You can use it to control who has access to your database.

Amazon DynamoDB - This is a fully-managed Dynamo database service. You can use it without coding, and it provides several common use cases, like storing event data.

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Amazon STAT - This is a real-time analytics service that provides data streams. You can use it to collect data from IoT devices or collect data from web users as they browse your website.

Amazon EMR - This is a managed Hadoop and Spark environment. It provides easy access to these tools, letting you use them without learning a new language or framework.

Amazon Kinesis - This is an ingesting service that lets you collect large amounts of unstructured data, like sensor data or Twitter messages, and turn it into actionable intelligence. You can use it to collect data from IoT devices or web users and turn it into actionable insights.

Amazon Elasticsearch Service - This is a managed service that provides real-time search and analytics for your data stored in Amazon DynamoDB, Amazon S3, or Amazon Redshift. You can use it to perform real-time searches and analyze your unstructured data.

Amazon Redshift - This is a managed AWS service that provides data warehouse functionality. You can use it to store your data, perform data processing and analysis, and create content-driven applications. You can also read our Amazon Redshift review.

Amazon Athena - This is a fully-managed service for managing your digital assets. You can easily perform complex analyses and extract actionable insights from your data.

Amazon CloudWatch - This is a monitoring service that helps you monitor the health of your applications, IT infrastructure, and AWS resources. You can use it to track metrics, set alarms, and automatically react to changes.

Amazon CloudSearch - This is a managed service that provides search functionality for your websites and applications. Using it, you can easily add search capability to your web services by simply adding a single line of code to the application.