**AWS Migration in 5 Easy Steps (Move on to Cloud in 2020)**

Are you thinking about AWS Migration, and moving on-premise projects to the cloud?

But don’t know where to start and how to go about it?

In this post, I am going to guide you through the AWS and AWS Migration.

**What is AWS?**

AWS or Amazon Web Services is one of the most popular cloud platforms, with over 175 web services with data centers across the globe. Millions of customers, ranging from fastest growing enterprises, large corporations, and government agencies, to medium business owners, are using the AWS.

AWS is a cloud service provided by Amazon, and it is easy to use, scalable, and customizable, and innovative.

More and more businesses are moving to the cloud, and the AWS is a leading cloud platform.

**What is AWS Migration?**

*AWS Migration is the process of moving data, applications, or other business components from an organization’s on-premises infrastructure to the cloud, or moving them from one cloud service to another.*

2.5x quintillion new bytes of data generated each day.

With so much data around, cloud migration is an ideal solution today.

Business is no easy task when it comes to handling situations like security, scaling up or down, etc. Let’s look at a few scenarios where AWS Migration could be a better resort.

**Need for Migration**

According to recent stats, it is estimated that by 2020, more than 1/3rd of the data will pass through the cloud. Well, it would be better to learn swimming than to sink.

There are many reason to move migrate to the cloud.

* The website/application has started getting a high volume of traffic
* For fast application implementation and deployment
* Modernize current IT asset base
* Prepare for future needs
* Lower infrastructure costs
* Increase Business Agility
* Disaster Recovery
* Security

**How to Migrate On-Premise Server to AWS Cloud?**

Migrating your existing applications to the AWS Cloud involves 3 steps:

* Before AWS Migration
* During AWS Migration
* After AWS Migration

**Before AWS Migration Stage**

**1. The goal of migration to Cloud**

**Goal 1:** My business is growing, and my site usually goes down because of high-traffic, what should I go for?  
**Ans: Public or Private cloud**

**Goal 2:** I have made enough investments for on-premises storage; how can I get the best of Cloud alongside?  
**Ans: Hybrid**

**2. Staff Training**

It is essential to train the staff early in the process. This will help you with:

* Smoother transition
* Easier to dissipate FUD and break down barriers since you have more knowledgeable internal teams.

Make sure this step takes place before you make organization-wide decisions on the improvising your IT asset.

**You May Also Like:**[Migrating from t1.micro to t2.micro in AWS](https://serverguy.com/aws/t1-to-t2-migration-guide/)

**3. Selecting Right Partners**

Well, if you have the right partners for [managed aws](https://mantracloud.com/managed-aws/) by your side, the journey will be smoother and more effective. *But how to find your AWS soulmate?*

* Look for the ones having the technical expertise and good experience in migrating to AWS.
* Experts are having the right project management framework and agile methodology.
* Check on if your cloud partner can help facilitate the operational model you plan on adopting. Since the AWS certified partners have the right expertise to assist in hassle-free migration.

**During Migrating to AWS**

Before further moving to how of the cloud migration process, here’s a formula suggested by AWS to determine **how much data can be transferred and how fast.**

*Number of Days = (Total Bytes)/(Megabits per second \* 125 \* 1000 \* Network Utilization \* 60 seconds \* 60 minutes \* 24 hours)*

**AWS Migration: 5 Cloud Migration Steps**

**Following are the 5 AWS Migration steps:**

1. Planning and Assessment
2. Migration Tools
3. AWS Cloud Storage Options
4. Migration Strategies
5. Application Migration Options

**1. Planning and Assessment**

The planning and assessment phase is divided into:

1. Financial Assessment
2. Security & Compliance Assessment
3. Technical and Functional assessment

**1.1 Financial Assessment**

Before deciding on-prem to cloud migration, you need to estimate the cost of moving data to the AWS cloud. A careful and detailed analysis is required to weigh the financial considerations of on-premises center versus employing a cloud-based infrastructure.

**P.S. You also need to evaluate the on-premises costs which include server cost, storage cost, network cost, and IT labor costs.**

**1.2 Security and Compliance Assessment**

If you are wondering about:

* Overall risk tolerance
* Main concerns around availability, durability, and confidentiality of your data.
* Security threats
* Options available to retrieve all data back from the cloud

Then it is better to involve your security advisers and auditors early in this process. Since data security is a challenging task, therefore, you must understand your threats, risks, and based on that classify the data into different categories. This will help you know which datasets to move to the cloud and which ones to keep in-house.

**You Can’t-Miss:**[DigitalOcean vs. AWS EC2](https://serverguy.com/comparison/digitalocean-vs-aws-ec2/)

**1.3 Technical and Functional Assessment**

Assessing the need to understand which applications are more suited to the cloud strategically and architecturally. This helps you decide:

* Which application/data to move into the cloud first?
* Which data to transfer later?
* Which applications should remain in-house?

***Questions you should ask yourself before moving data into the cloud:***

* Which apps should the business move to the cloud first?
* Can we reuse our existing resource management and configuration tools?
* How can we get rid of support contracts for hardware, software, and network?
* Does the cloud provide all of the infrastructure building blocks we require?

**2. AWS Migration Tools**

There are physical limitations when it comes to migrating data from on-premises locations into the cloud. That’s where migration tools come to rescue. The following tools will help you move data through roads, networks, and technology partners.

**Detailed Guide**: [AWS migration tools and Services](https://serverguy.com/aws-migration-tools-services/)

**2.1 Unmanaged Cloud Data Migration Tools**

If you need easy, one-and-done methods to transfer data at small scales, go for the following tools:

* **Glacier command line interface-**On-premises data → Glacier vaults
* **S3 command line interface-**Write commands → Data moves directly into S3 buckets
* **Rsync-**Open source tool combined with 3rd party file system tools. Copy data directly → S3 buckets

**2.2 Amazon Managed Cloud Data Migration tools**

Based on optimizing or replacing the internet and friendly interfaces to S3, there are the following tools you can leverage:

**A. Optimizing or Replacing the Internet**

Ideal for moving data lakes, extensive archives and more.

|  |  |  |
| --- | --- | --- |
|  | **Ideal for** | **Data Migration Tool to Be Used** |
| 1. | Migrate petabytes of data in batches to the cloud | AWS Import/Export Snowball |
| 2. | Migrate exabytes of data in batches to the cloud | AWS Snowmobile |
| 3. | Connect directly into an AWS regional data center | AWS Direct Connect |
| 4. | Migrate recurring jobs (with incremental changes over long distances) | Amazon S3 Transfer Acceleration |

**B. Friendly Interfaces to S3**

Makes it simple to use S3 with existing native applications. Helps you to integrate existing process flows like recovery, backup, etc.

|  |  |  |
| --- | --- | --- |
|  | **Ideal for** | **Data Migration Tool to Be Used** |
| 1. | Push backups or archives to the cloud with least disruption | Technology Partnerships |
| 2. | Cache data locally in a hybrid model | Gateways (AWS or Partner) |
| 3. | Collect and ingest multiple streaming data sources | Amazon Kinesis Firehose |
| 4. | Migrate petabytes of data in batches + apply onboard storage + compute capabilities | AWS Snowball Edge |

**3. Various Storage Options Available in the AWS Cloud**

Decide which storage option is feasible for you based on:

1. Cost,
2. Durability,
3. Latency performance (response time),
4. Availability,
5. Size of the object stored (large, small),
6. Accessibility,
7. Cache-ability,
8. Consistency (eventual, strict),
9. Relational (SQL joins)
10. Update Frequency

**Which Storage Option to Use?**

**4. 2 Major Strategies for AWS Migration**

Here are two strategies that will help you move part of or an entire system to the cloud without disrupting the current business:

1. Forklift Migration Strategy

Self-contained applications, tightly coupled applications, or stateless applications might be better served by this approach. “Pick it all up at once and move it to the cloud” approach.

**Pros**

* Shrinking IT infrastructure footprint: Using this approach for specific application types, you have to worry less about the IT infrastructure.
* Focus on Other Important Resources: With this approach, you will be able to focus on your core and differentiating resources to be ahead of the competition.

**Cons**

* Might not be able to take immediate advantage of scalability and elasticity of the cloud

2. Hybrid Migration Strategy

Considering some parts of an application and moving them to the cloud while leaving other parts of the application in place. Ideal for large systems involving several applications.

**Pros**

* Low-risk approach to the migration of applications to the cloud.
* Parts can be moved and optimized one at a time.
* Reduced risk of unexpected behavior after migration.

**Cons**

* Time-consuming.

**Configuring and Creating**[**AMI**](https://serverguy.com/wp-content/uploads/2017/05/Amazon_Machine_Image)

* AMI provides the information needed to launch an instance. This is provided by AWS or solution provider.
* You will need to create an AMI for each component designed to run in a separate Amazon EC2 instance.
* Create an automated or semi-automated deployment process to reduce efforts and time.
* Think of a process for configuration management to ensure your servers running in the cloud are included in your process.

**5. Application Migration Options**

Well… here are some appropriate application migration options available:

1. Live Migration

The process of moving a running application from physical machines to cloud without disconnecting the application. Memory, network connectivity, and storage of the virtual machine are replicated from the physical device to cloud.

2. Host Cloning

It is cloning the Operating System image and typically one-time migration.

3. Data Migration

Synchronizing the data between computer storage types or file formats to the cloud. The data is selectively pushed to AWS Cloud.

4. App Containerization

An OS-level virtualization method for deploying and running distributed applications.

5. VM Conversion

Converts Virtual Machine Disk (VMDK) into AWS recognizable format. The data is transferred via API.

**The level of Efforts Required with Each Migration Method:**

**Post AWS Migration Stage**

**1. Leveraging the Cloud**

After migrating your application, don’t forget to run the necessary tests, and confirm everything is in place. Invest time and resources to explore the additional benefits of the AWS cloud. You must:

* Leverage AWS Enterprise Support
* Leverage other AWS services like Auto Scaling Service, Amazon CloudFront, and Amazon Elastic MapReduce.

2. Monitor and Optimize

**Understand → Monitor → Examine → Observe**

Follow this to know your load patterns and manage the cloud environment more effectively. Since AWS charges only for the infrastructure (having utility pricing structure) that has been used, you can cut cost here by optimizing your systems.

**You May Also Like:**[Plesk vs. cPanel](https://serverguy.com/comparison/plesk-vs-cpanel/)

3. Use Cloud Monitoring Tools

**There are various tools available that help in application-level insights and monitoring on AWS. Some of them are:**

* New Relic
* AWS CloudWatch Logs
* APPDYNAMICS

**Frequently Asked Questions (FAQs)**

**Is Cloud Secure?**

49% of IT decision-makers admitted they are**‘very or extremely anxious’** about the security implications of cloud services. There is a lot of myths surrounding to cloud security. Undoubtedly, without the right amount of planning and advanced technology, cloud-based platforms are as risky as your existing enterprise systems.

**Must Read:**[Why Google is Forcing You To Have SSL Certificates](https://serverguy.com/security/google-forcing-ssl-certificate-websites/)

**How does the cloud work with my existing on-premise investments?**

If you already have made on-premise investments, you can still work in a hybrid cloud model.

**Challenges Faced In AWS Migration**

**Some of the challenges faced by the companies while AWS migration is:**

* Lack of details and scope concerning security, operating system, compliance, etc
* Limited or no accurate tools for discovery and process
* Lack of application contexts/ info
* Similar data storages/limited CMDB
* Inaccurate on-premises cost

These challenges lead to increased costs, longer time to value, and inaction. Therefore, it becomes crucial to do a detailed analysis of the business needs and available options.



**Factors Influencing a Successful Migration**

* The complexity of Application Architecture
* How loosely coupled your application is?
* Efforts Required: how much effort you are willing to put into migration