

# AWS Migration in 5 Easy Steps (Move on to Cloud in 2023)

By Kavya Bali | January 7, 2023



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.

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## Need for Migration

According to recent stats, it is estimated that by 2023, 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](#)

#### 3. Selecting Right Partners

Well, if you have the right partners for [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

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*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

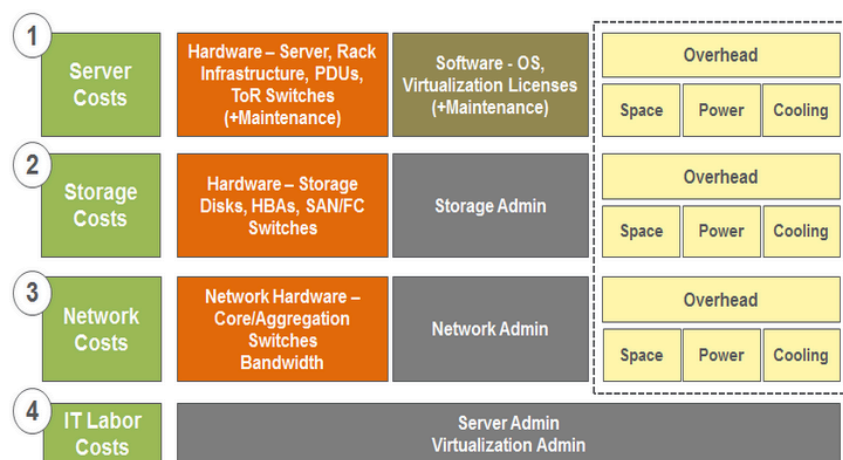
### 1. Planning and Assessment

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.

- 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](#)

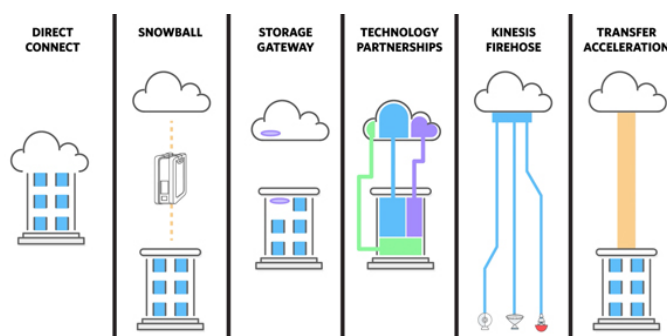
### 2.1 Unmanaged Cloud Data Migration Tools

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

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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?

		Amazon S3 + CloudFront	Amazon EC2 Ephemeral Store	Amazon EBS	Amazon SimpleDB	Amazon RDS
1	<b>Ideal for</b>	Static Content Distribution Read-many types of objects Storing large write-once	Non-persistent transient updates	Off-instance persistent storage (any kind of data)	Query-able light weight attribute data	Storing and querying structured relational and referential data
2	<b>Examples</b>	Media files Images Videos Audio Archives	Config data Scratch files TempDB	Clusters Boot data	Tagging Querying Mapping Metadata Click-stream logs	Complex transactional systems Web apps
3	<b>Avoid</b>	Searching Querying	Storing database logs Customer data	Static data Web-facing content Key-value data	Typed data BLOBs Relational Complex joins or transactions	Clusters
4	<b>Examples</b>	Database File systems	Shared Drives Sensitive Data	Content distribution	OLTP DW Cube Rollups	Clustered DB Simple Lookups

### 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 move the entire application and its infrastructure.

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## 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

- 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

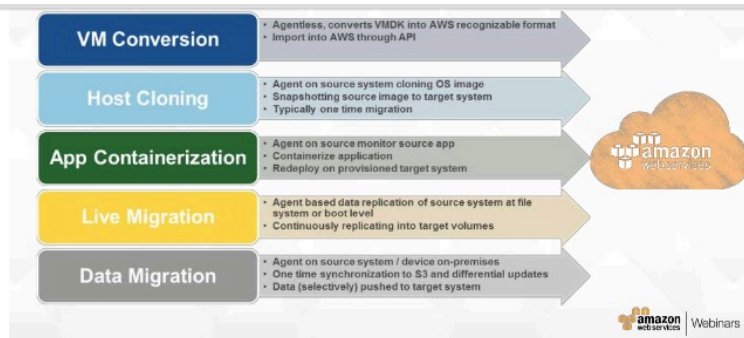
Synchronizing the data between computer storage types or file formats to the cloud. The data is selectively pushed to AWS Cloud.

### 4. App Containerization

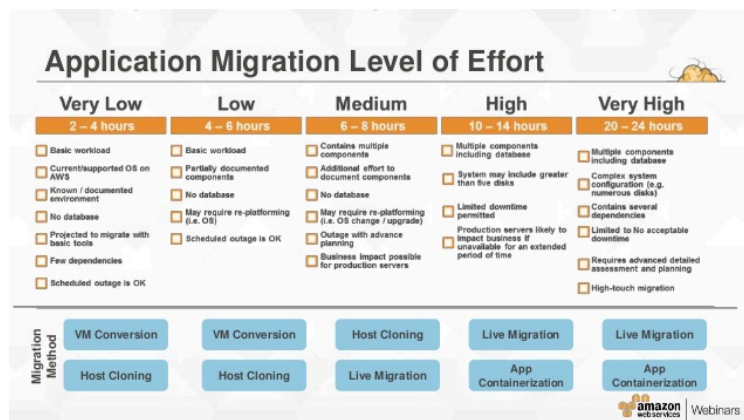
An OS-level virtualization method for deploying and running distributed applications.

### 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](#)

#### 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](#)

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## 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

**Also Read:** [How to Install Magento on AWS?](#)

## Conclusion

In this post, I mentioned all the vital things related to the AWS migration.

I hope this article helps you.

But migrating to AWS is not something that you should be doing yourselves if you don't have much technical knowledge. The process requires expertise and time, so everything could go well.

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**PRASAD**

MARCH 19, 2020 AT 02:59

detailed post on AWS migration, thanks for the share.

[Reply](#)**GARY**

SEPTEMBER 24, 2019 AT 22:11

Excellent and well written.

[Reply](#)**VED**

SEPTEMBER 15, 2019 AT 17:47

Great Article ...!!

This is definitely helpful for people who are looking for migrating their application from on premises to AWS cloud.

[Reply](#)**BETO JAVI CASTILLO VASQUEZ**

JULY 4, 2019 AT 10:47

what about aws SMS and aws DMS?

[Reply](#)**RAMESHWAR**

JULY 2, 2019 AT 12:38

Hi,

Thanks for post, I am looking for Window/Linux VM migration from on premises to AWS.

All steps involve for migrating any VM to AWS.

[Reply](#)**SRILEKHA**

MARCH 5, 2020 AT 00:00

Excellent description and very understandable.

[Reply](#)**STEPHANIE BOLDT**

JUNE 12, 2019 AT 12:46

Thank you Sahil for compiling this awesome post. I really liked reading the stuff. However, I am not so sure if it works in my case. Actually, I have availed the managed DigitalOcean web server which is powered by [cloudways.com/en/digital-ocean-cloud-hosting.php](https://cloudways.com/en/digital-ocean-cloud-hosting.php) instead of the conventional one and you have compiled your whole post around the migration of unmanaged server. So, what do you think should I be doing for the migration of my server.

[Reply](#)**GNANESWARA SARMA**

MAY 9, 2019 AT 19:07

Definitely its a wonderful article. I am new to AWS Cloud. I want to gain knowledge in migration. Assuming my applicaiton is Java based. Now if i want to migrate this application at a very low level, i understand a DB at cloud is needed, an Elastic Beanstalk to deploy the application.

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the code to AWS Eclipse tool kit or etc.

Regards,  
Ganeswara Sarma

[Reply](#)



**JESSY**

MARCH 19, 2019 AT 10:47

Appreciating the persistence you put into this article and detailed information you provide.  
Thank You so much for this article.

[Reply](#)



**DEEPAK**

JANUARY 13, 2019 AT 14:49

Awesome, Really a good post for basic know-how and plan towards cloud migration strategy

[Reply](#)



**SAHIL CHUGH**

JANUARY 15, 2019 AT 19:04

Thank you.  
I am glad that this post helps you in your AWS Infrastructure Migration.

[Reply](#)



**PRATIK RAVAL**

DECEMBER 3, 2018 AT 18:35

Insightful detail which covered almost all the components required for migration.

Superb work mate.. God bless you!!

[Reply](#)



**ASHISH**

SEPTEMBER 14, 2018 AT 01:31

Ossom Article, and it helped me to understand the different ways of migration, what to select and what not to select, Management and data security. Really Interesting. Also Please help us to post more and more on data migration.. 😊

[Reply](#)



**JACK M**

AUGUST 30, 2018 AT 21:27

wonderful post,

A quick query here.. If I have 100 applications with all kinds of inter-dependencies, how would you categorize which application is cloud native and which one is not. and once categorized, how are the dependency's resolved and a migration path is set.

Actually one more.. I always hear "Lift and Shift" .. Practically how is this achieved in the cloud. I am pretty sure AWS will not allow me to Install my old Vintage h/w in their AZs.

Apologies for this, one last .. What are the best tools available in the market to "Design a Hybrid Cloud or AWS or Azure" in terms of Solution Providing (I can only think of Microsoft Visio and use stencils). Are there any tools which based on the design will give out the monthly cost ?

[Reply](#)



**VEERESH B**

JUNE 28, 2018 AT 09:46

Wonderful article with lot of detailed information and examples, thank you for sharing this data.

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JUNE 25, 2018 AT 15:28

Very useful post for the beginners like me thanks..

[Reply](#)



**SUDHAKAR AMINENI**  
MAY 29, 2018 AT 07:46

WOWWWW!! i found great migration article. Rally thanks a lot for sharing such clear info.

[Reply](#)



**SAHIL CHUGH**  
MAY 29, 2018 AT 10:55

Thank you Sudhakar.  
I hope it helped you in migrating to cloud.

[Reply](#)



**AMI**  
FEBRUARY 15, 2020 AT 05:16

Could you please post similar for Azure data migration. Thanks in advance

[Reply](#)



**PRATIK**  
MAY 27, 2018 AT 12:45

Hello,

Thanks it is a wonderful post. It is certainly a great migration post i have ever come across. Can you suggest some video tutorials where i can see migration as a demo?

[Reply](#)



**SAHIL CHUGH**  
MAY 29, 2018 AT 10:57

Thank you Pratik.  
I'm afraid there are no video tutorials at the moment, but its a great idea. Lets see if we can come up with a few videos on AWS migration.

[Reply](#)



**SACHIN**  
APRIL 9, 2018 AT 14:37

It has been simply incredibly generous with you to provide openly what exactly many individuals would've marketed for an eBook to end up making some cash for their end, primarily given that you could have tried it in the event you wanted.

[Reply](#)



**SAHIL CHUGH**  
APRIL 10, 2018 AT 11:12

Thank you Sachin.  
We're continuously experimenting with cloud technologies and passing our experience & knowledge via blog.  
Your kind words are much appreciated 😊

[Reply](#)



**PRIYA**  
MARCH 19, 2018 AT 23:54

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**SAHIL CHUGH**  
APRIL 16, 2018 AT 13:24

Thank you, Priya 😊

[Reply](#)



**JAYARAJ CHANKU**  
FEBRUARY 20, 2018 AT 21:07

Hi Sahil,

Amazing post. Having an in depth knowledge regarding AWS cloud migration is very essential today. Here you presented it very interestingly and mentioned every aspect. Thanks a lot for sharing.

[Reply](#)



**SAHIL CHUGH**  
FEBRUARY 21, 2018 AT 10:21

Hi Jayaraj,  
Thanks, I hope it helped you in migration.

[Reply](#)



**AJAY**  
APRIL 6, 2018 AT 00:32

Our data platform is moving to the AWS. We are doing a lift and shift of current tools and systems like Vertica, Tidal scheduling, Hive, Spark etc. Analysts & Data Scientists have over 500 scripts, 400 jobs scheduled to run these scripts and 200+ Tableau dashboards. How analysts migrate the scripts and scheduled jobs in an efficient & automated way? I am looking for the approach

Please let me know

[Reply](#)

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