# Data Migration

AWS application Discovery Service

This can be used to plan migration in application server.

* Scan server utilization , dependency mapping

| **Feature / Aspect** | **🟩 Agent-Based Discovery** | **🟨 Agentless Discovery** |
| --- | --- | --- |
| **Software Installation** | Required on each source machine | Not required (runs remotely) |
| **Data Collection Method** | Local agent collects and sends data | Remote collection using network protocols (e.g., SSH, WMI) |
| **Depth of Information** | Deep: OS, apps, processes, network, performance data | Shallow: basic OS info, IP, hostname, and open ports |
| **Performance Metrics** | Real-time CPU, memory, disk, and process tracking | Limited or no real-time performance data |
| **Network Dependency** | Minimal (agent pushes data out) | High (needs open ports and credentials) |
| **Setup Time** | Moderate (requires deployment) | Fast (just configure a collector/VM) |
| **Security Concerns** | Requires agent installation approval | Requires elevated credentials & open firewall ports |
| **Resource Usage** | Low to moderate on host system | None on source machine |
| **Best Use Cases** | In-depth analysis, app dependency mapping, migration | Quick inventory, compliance audits, read-only scans |
| **Visibility into Apps** | High – includes installed apps and running services | Limited |
| **Migration Planning** | Suitable for complex refactoring or re-platforming | Suitable for lift-and-shift assessment |

**AWS Application Migration Service (MGM)**

* lift-and-shift to migrate application to AWS
* Convert your physical virtual cloud based to run natively on AWS
* Supports wide range of system and database
* Local -> minimum cost staging -> full service Cloud

**AWS Data migration Service**

* Migrate database to cloud , self healing , resilient
* The source data is available while migrating
* Supports
  + Homogeneous migration : oracle to oracle
  + Heterogenous migration : SQL server to Aurora
* Continuous Data Replication using CDC (Change Data Capture)
* Need to Create EC2 instance

DMS source and targets

AWS Schema Conversion tool (SCT)

* Convert your database schema from one engine to another engine
* Example OLTP: SQL server or Oracle to MySQL, PostgreSQL, Aurora
* Example OLAP: Terra Data or Oracle to Amazon redshift

## AWS Data Sync

* Move large amounts of data to and from places
  + On prem / cloud (HDFS,NFS,etc, S3 API) – needs agent
  + AWS to AWS (different storage service) no need agent
* Can synchronize data to
  + Amazon S3
  + EFS
  + FSx
* Replication is not continuous but scheduled
* Data sync has the ability to keep file permission and meta data. These are preserved (NFS POSIX, SMB)
* One agent can use up to 10 gbps , you can setup bandwith too
* When we don’t have network capacity we use AWS Snowcone devise as it comes with preinstalled **Aws Data sync agent**

**# Transfer between AWS storage services**

* Aws data sync can be used for copying data between aws storage services but **meta data will also be kept**

**AWS Snowball device**

* Highly secure portable device to collect and process data ath the edge and migrate data into and out of aws
* Helps migrate up to petabytes of data
* Two types
  + Storage optimized – if you need storage
  + Compute optimized – if you need compute instead of storage
* **Edge computing use case** 
  + Process data while being created
  + May have no internet connection but can be uploaded using the device
  + We can run lambda or ec2 instances directly

**AWS transfer family**

* **A** fully managed service for file Transfers into and out of amazon s3 or amazon EFS using the FTP protocol.
* **FTP, FTPs , SFTP**