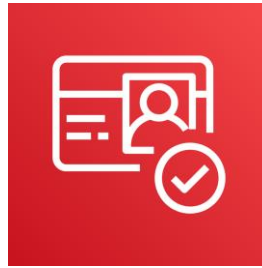


Other Services Overview



Amazon Cognito lets you easily add user sign-up and authentication to your mobile and web apps.

Authentication

- Authentication -
 - Authentication is the process of verifying a user's identity.
 - E.g. Username, password
- Authorization -
 - Process of granting users access to specific resources
 - E.g. Different permissions for users



Identity Providers

- Manages authentication
- Cognito can integrate with -
 - User Pools
 - 3rd party Identity Providers
 - SAML or OAuth2 Protocols

Note: The process of integrating with 3rd party for authentication is called Federation



User Pools

- User Pools are user directories through which users can sign in to your web or mobile app or 3rd party IdP.
- It provides:
 - Sign-up and sign-in services.
 - Built-in, customizable web UI
 - Social Sign in
 - User directory Management and User Profiles
 - MFA, phone, email verification for security

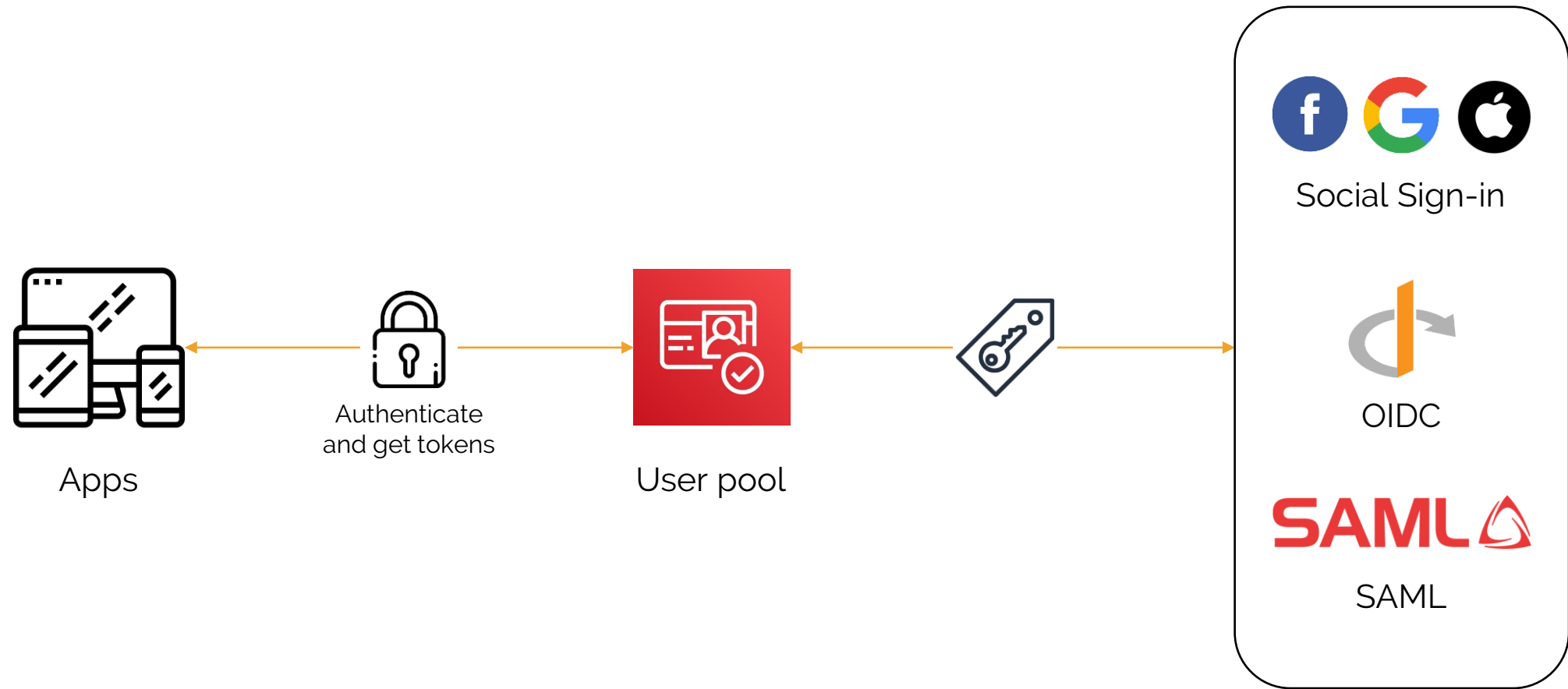


Identity Pools

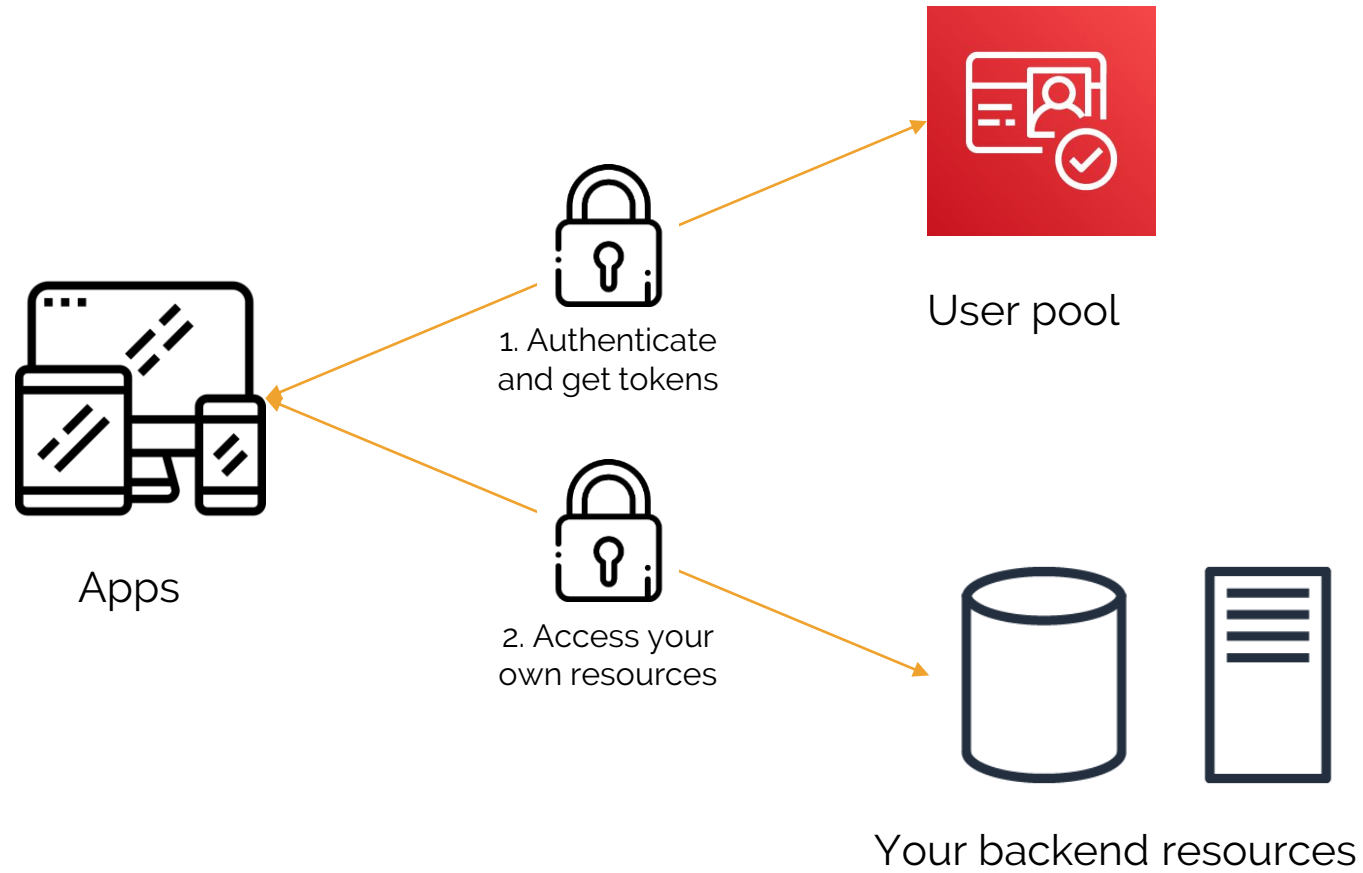
- Users can obtain temporary AWS credentials to access AWS services, such as Amazon S3 and DynamoDB. They also support Guest Users.
- Identity Pools provide:
 - Authorization Mechanism
 - Mapping of users from IdP to IAM Role
 - Granular Permissions



Authentication process



Authorization process



- Supports migration from databases on-premises servers, EC2, RDS and S3
- Supports heterogeneous and homogenous migrations



AWS Database
Migration Service

AWS Schema Conversion Tool

The tool lets you convert existing database from one engine to another.

| Source Database | Target Database |
|-----------------------|----------------------------------|
| Microsoft SQL Server | Amazon Aurora, MySQL, PostgreSQL |
| MySQL | PostgreSQL |
| Oracle | Amazon Aurora, MySQL, PostgreSQL |
| Oracle Data Warehouse | Amazon Redshift |
| PostgreSQL | Amazon Aurora, MySQL |
| Teradata | Amazon Redshift |

Snowball

- Petabyte-scale data transport solution that uses secure appliances to transfer large amounts of data into and out of AWS
- Data transfer without the Internet
- Versions of 80 TB and 50 TB available



Snowball Edge & Snowmobile

- Snowball Edge
 - Device with 100 TB data transfer device with on-board storage and compute capacity
 - Example can be of running Lambda functions on the device
- Snowmobile
 - Transfer 100 PB per Snowmobile, a 45-foot long ruggedized shipping container, pulled by a semi-trailer truck
 - Moves massive volumes of data in the AWS Cloud

Amazon ElastiCache



- In-memory key-value store that sits between your application and the data store (e.g., database)
- Decreases access latency, increases throughput, and eases load of databases and applications



ElastiCache for Memcached

- Multithreading
- Low maintenance
- Easy horizontal scalability with Auto Discovery



ElastiCache for Redis

- Support for complex data types
- Persistence
- High availability (replication)
- Automatic failover
- Pub/sub capabilities

Amazon Kinesis

- Enables you to build custom applications that process or analyze streaming data.
- Available in 4 variants- Streams, Firehose, Analytics and Video Streams
- Can continuously capture and store terabytes of data per hour from hundreds of thousands of sources, such as:
 - Website clickstreams
 - Financial transactions
 - Social media feeds
 - IT logs
- Use Amazon Kinesis Client Library (KCL) to build applications, stream data to power real-time dashboards, generate alerts, and so forth.



X-Ray helps you analyze and debug distributed applications, such as those built using a micro services architecture. Using X-Ray, you can understand how your application and its underlying services are performing to identify and troubleshoot the root causes of performance issues and errors.

Systems Manager

Systems Manager is used to automate common and repetitive IT operations and management tasks across AWS resources

Amazon EC2 Systems Manager capabilities



run command



state manager



inventory



maintenance
window



patch manager



automation



parameter store

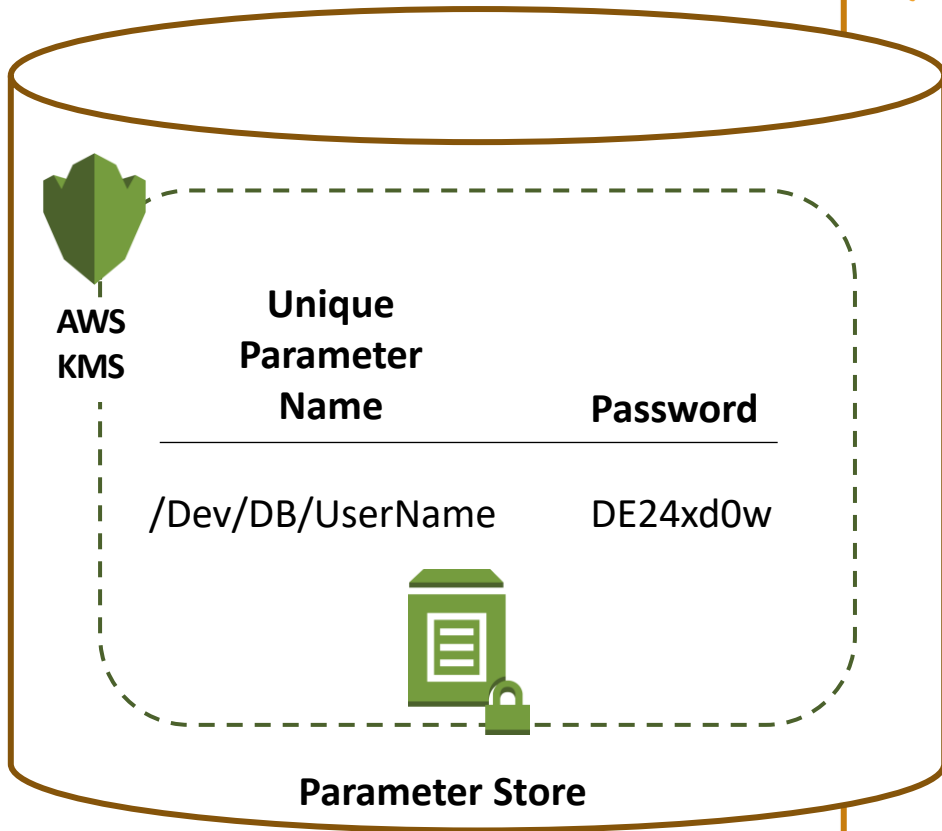
Automation

- Automate common and repetitive IT operations and management tasks across AWS resources.
- 1. Create an automation document
- 2. Run the automation document
- 3. Monitor and test the automation

Run Command

- Use predefined commands
- Create your own
- Choose instances or tags
- Choose controls or schedules
- Execute commands

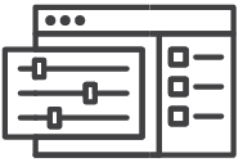
Parameter Store



```
{  
  "schemaVersion": "2.2",  
  "description": "Sample schema version 2.2 document v3.",  
  "parameters": {  
    "dbname": {  
      "type": "String",  
      "default": "{{ssm:/Dev/DB/UserName}}"  
    }  
  },  
  "mainSteps": [{  
    "action": "aws:runShellScript",  
    "name": "runShellScript",  
    "inputs": {  
      "runCommand": ["echo DBUserName: {{ dbname }}"]  
    }  
  }  
}]  
}
```

Inventory

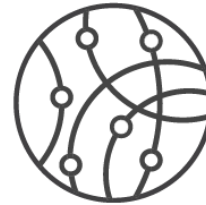
Collects information about your instances and the software installed on them



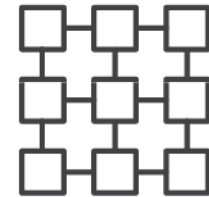
Application
data



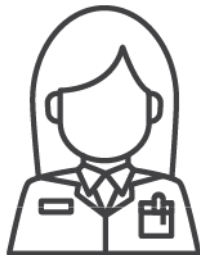
Files



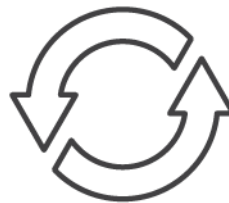
Network
configurations



Windows
services



Server roles



Updates

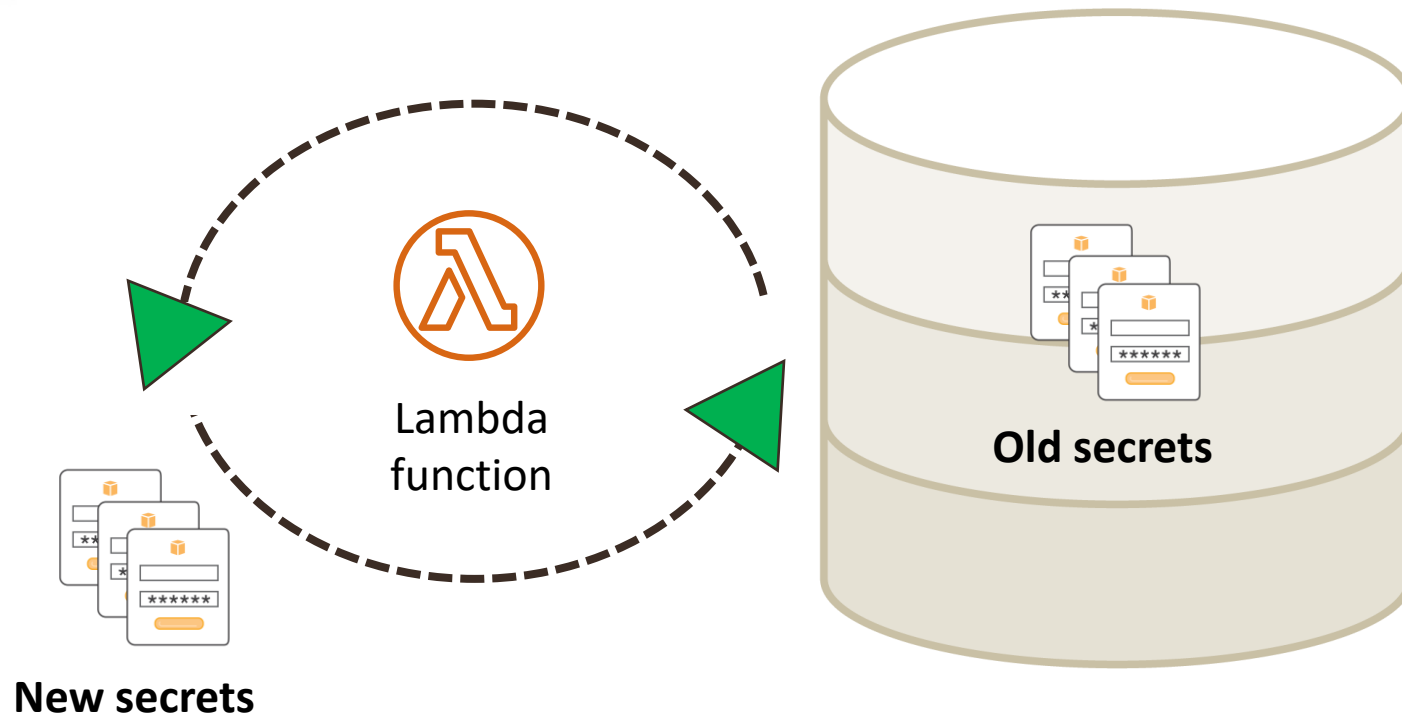


System
properties

Secrets Manager

- A secure and scalable method for managing access to secrets
- A way to meet regulatory and compliance requirements
- Rotates secrets safely without breaking applications
- Audits and monitors the lifecycle of secrets
- Avoid putting secrets in code or config files

Rotating secrets



1. Function contacts DB for new credentials
2. New credentials are stored by Secrets Manager with **AWSPENDING** label
3. New credentials are tested
4. New credentials are made default with **AWSCURRENT** label

Built-in Lambda function for **Amazon** RDS DB engine credentials
Custom Lambda function for other credentials

Secrets Manager vs Parameter Store

| | AWS Secret Manager | SSM Parameter Store |
|-----------------------------------|--------------------|---------------------|
| Built-in password generator | ✓ | |
| Automated secret rotation | ✓ | |
| No additional costs* | | ✓ |
| Cross-account access | ✓ | ✓ |
| Values encrypted via AWS KMS | ✓ | ✓ |
| Stores secrets up to 64Kb in size | ✓ | |

* If standard parameters are used.