Deploying QuickSight
Securely connect to on-premises and VPC sources
Federated Single Sign-On (SSO)

Allows users to sign in to their Identity Provider portals with existing credentials and then access QuickSight using SAML 2.0.
User Management and AD Integration

QuickSight Enterprise Edition can integrate with your Active Directory to dynamically manage users and groups.
Secure Content Management

As a hosted application, everything you create in QuickSight is always connected, and always under control.

- Modify, delete, refresh, and manage user access to everything.
- Named user access with security permissions
- Track and manage all of your content, and easily see who has access to what
Data governance

Create managed datasets that give power users and authors the flexibility to perform self-serve analytics on data that you control.

Create datasets that:

- Can be shared with any user
- Automatically refresh
- Have row level security
- Users cannot modify
- Dynamically update with changes
Row Level Security

Row level security allows you to create dashboards and reports that display different data for different users.

- Create a single dashboard for multiple users with different roles or data access
- Centrally govern access at the dataset level
- Works with email reports!
User Types / User Roles

Admin
Manage Users
Manage SPICE Capacity
Manage VPC Connections
Manage Account Settings

Author
Create Data Sets
Create Analyses
Create Dashboards

Reader
Consume Dashboards

QS Admin
Sometimes separate from Business Users, sometimes the same
Usually has AWS Console access

Analyst
Sometimes in IT, sometimes Business Users
‘Data Analyst’
‘Data Engineer’
‘BI Engineer’

Business User
Anyone
Can be internal or external users (customers/partners/3rd parties)
Auditing & logging

Keep track of your account with AWS CloudTrail for governance, compliance, and auditing purposes

Answer questions such as:
• How many users have seen this dashboard?
• Which dashboards has this user seen?
• Who has created a new dataset?
• When did they create the new dataset?
Serverless data lake & analytics with AWS

1. Crawlers scan your data sets and populate the Glue Data Catalog
2. The Glue Data Catalog serves as a central metadata repository
3. Once catalogued in Glue, your data is immediately available for analytics

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https://github.com/aws-samples/serverless-data-analytics
ETL, Data Warehousing and Analytics with AWS

Data sources
- **AMAZON S3**: Upload data from multiple sources into S3
- **AMAZON EMR**: Use Amazon EMR to transform and cleanse the data (ETL)
- **AMAZON S3**: Load formatted and cleansed data into S3
- **AMAZON REDSHIFT**: Redshift loads data in parallel optimizing it for fast analytics queries
- **QUICKSIGHT**: Analyze and visualize data with Amazon QuickSight

- **Ad-hoc access to data using Athena**: Athena can query aggregated datasets as well
Serverless data lake & analytics with AWS

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Powered By QuickSight
Embedded Analytics
Embedding Dashboards In Your Application

QuickSight allows you to seamlessly integrate interactive dashboards and analytics into your own applications

- Enhance your applications with rich analytics and dashboards
- Easy maintenance, no servers to manage
- Fast! No Custom development or domain expertise needed
- Leverage new features as we add them
- Utilizes Pay-per-Session Pricing.
Embedded Dashboards – How it Works

• Create a unified user experience by embedding QuickSight dashboards into custom applications and portals

• Fully interactive filtering, drill down

• Customize data for different customers and users using Row Level Security

• Seamless authentication with your application using Federated Single Sign On

• Centrally Manage multiple customers through a single account.
4 steps to embed a dashboard

Step 1: Amazon QuickSight
- Author dashboards in QuickSight
- Share with user groups
- Whitelist domain where dashboard will be embedded

Step 2: AWS Account
- Add Role in AWS Account with reader permissions and access to dashboard
  `[quicksight:RegisterReader,
quicksight:GetDashboardEmbedUrl]`

Step 3: Application server
- Call AWS SDK to assume role (added in step 2) for SAML/OpenID Connect or IAM authenticated user with unique session ID `[aws sts assume-role]`
- *(option)* Register user and assign to group `[aws quicksight register-user]`
- Call AWS SDK to get secure, signed URL for dashboard `[quicksight:GetDashboardEmbedUrl]`

Step 4: Application page
- Use QuickSight JavaScript SDK to embed dashboard on page, pass parameters and handle error states
4 steps to embed a dashboard

1. End-user accesses application on web or mobile client

2. Application client requests page with embedded dashboard

3. Application server confirms end-user identity from identity store

4. Application Server uses Role Session Name to assume IAM role that allows access to dashboard

5. AWS IAM provides temporary credentials for the assumed role

6. Application server invokes GetDashboardEmbedUrl call to obtain signed dashboard URL for embedding specific dashboard in application page

7. Application server embeds signed dashboard URL in application using QuickSight JavaScript SDK

8. End-user sees application page load with embedded QuickSight dashboard
Multi-tenancy in QuickSight (Current State)

ISV QuickSight Account

QuickSight Users
- Authors + Admins
- Readers

Dashboards
- Data sets
- Data sets with RLS permissions based on
cust1-group
cust2-group
cust3-group
cust4-group

ISV Identity Store

ISV Application Server

QuickSight dashboards for Customer 1
QuickSight dashboards for Customer 2
QuickSight dashboards for Customer 3
QuickSight dashboards for Customer 4

ISV Data Source

Data sets - SPICE or direct query

Data sets with RLS permissions based on
cust1-group
cust2-group
cust3-group
cust4-group

cust1-group
cust2-group
cust3-group
cust4-group
Multi-tenancy in QuickSight (Q2 2019)

ISV dev team

NAMESPACE 0

Readers

Authors + Admins

NAMESPACE 1

Readers

Authors

Customer 1

Users and groups – create via APIs

Dashboards – create from template via API

Dashboards for Customer 1

Data sets – create via APIs with customer-specific filters

Data sets - SPICE or direct query

NAMESPACE 2

Readers

Authors

Customer 2

Embedded QuickSight dashboards and analyses for Customer 1

ISV Identity Store

ISV Application Server

ISV QuickSight Account

Dashboards for Customer 2

Data sets - SPICE or direct query

ISV Application

Dashboards

Dashboard templates

Data sets

ISV Data Source

Authors + Admins

NAMESPACE 0

Readers

Readers

Authors

Authors

NAMESPACE 1

NAMESPACE 2

Embedded QuickSight dashboards and analyses for Customer 2
Example: LogiFlow