Workshop #2
Storage & Databases

Last Workshop

Compute in the Cloud

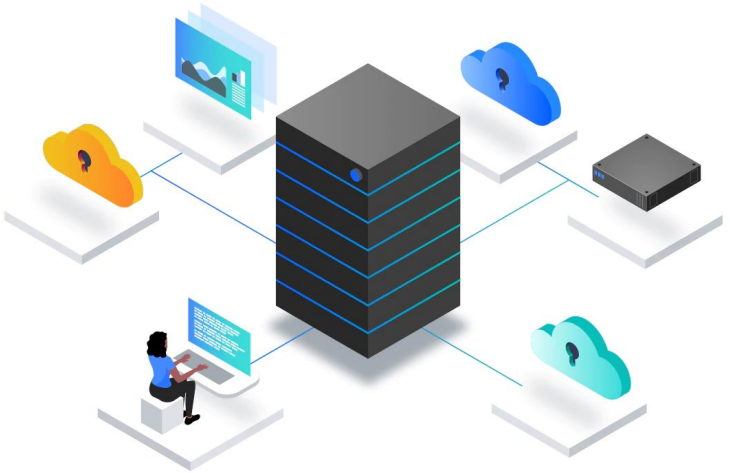
Practice your skills on AWS Skill Builder regularly to stay sharp on your skills!

Simple Storage Service (S3)

An object storage service offering industry-leading scalability, data availability, security, and performance.

What is S3 useful for?

- Websites
- Applications
- Backup/Restore
- Big Data
- User Information



S3 is NOT for...

Block Storage

Amazon Elastic Block Store (EBS)

File Systems

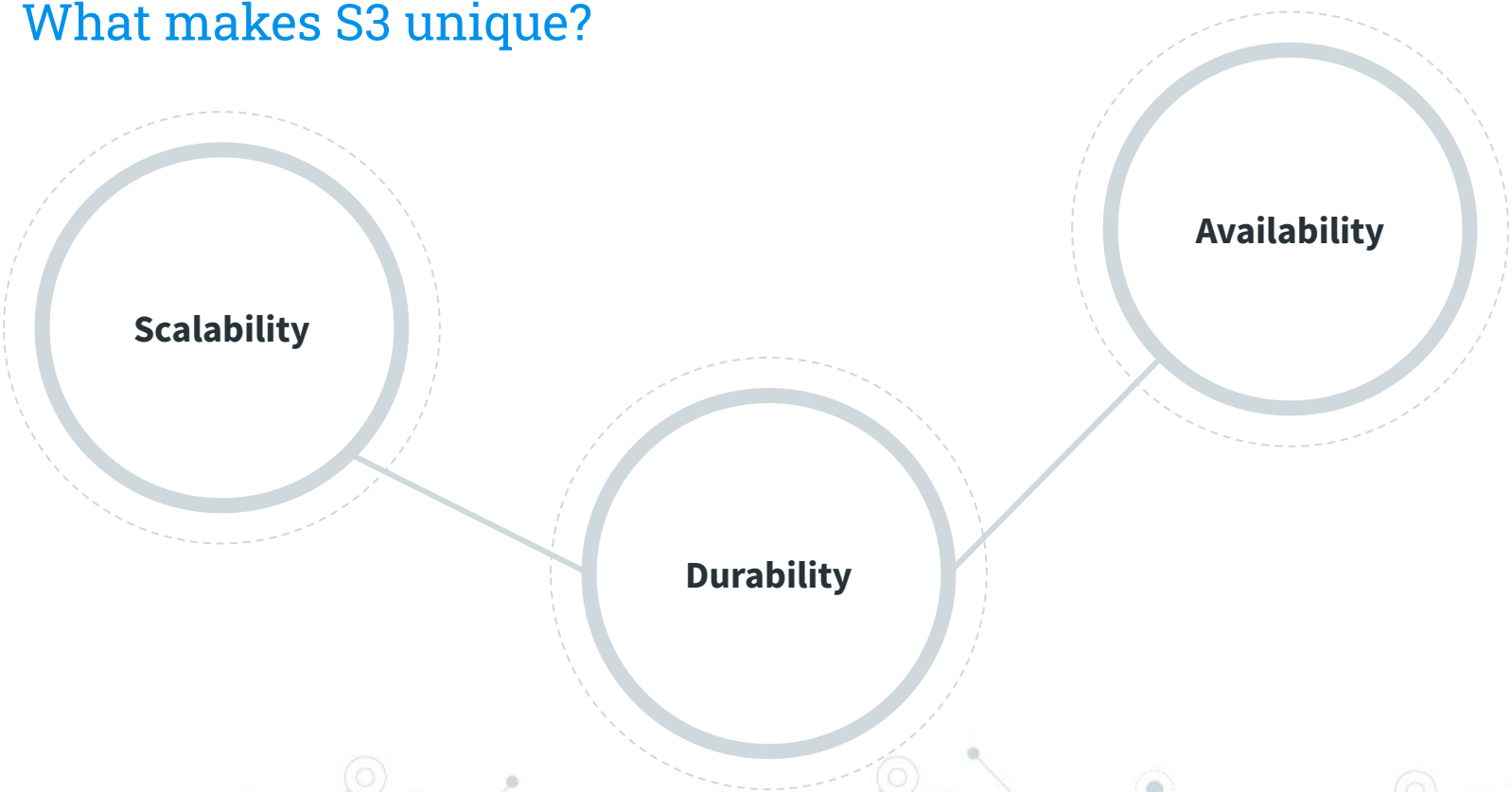
Amazon Elastic File System (EFS)

Databases

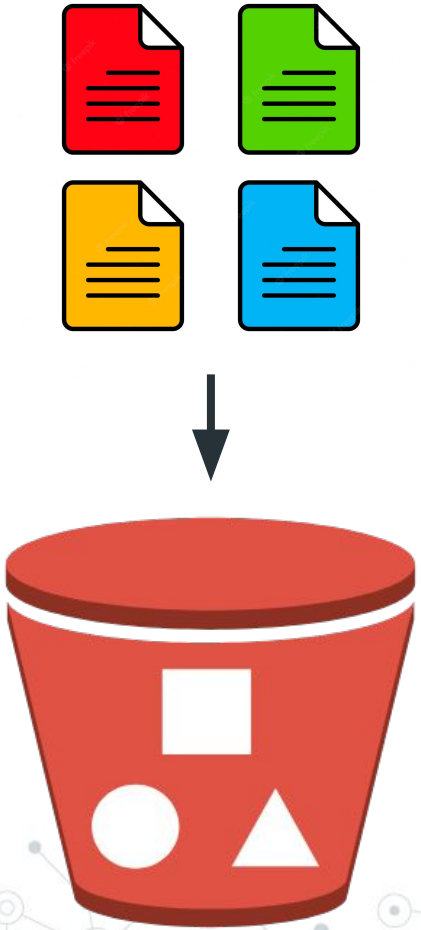
Amazon Relational Database Service (Amazon RDS)

Amazon DynamoDB

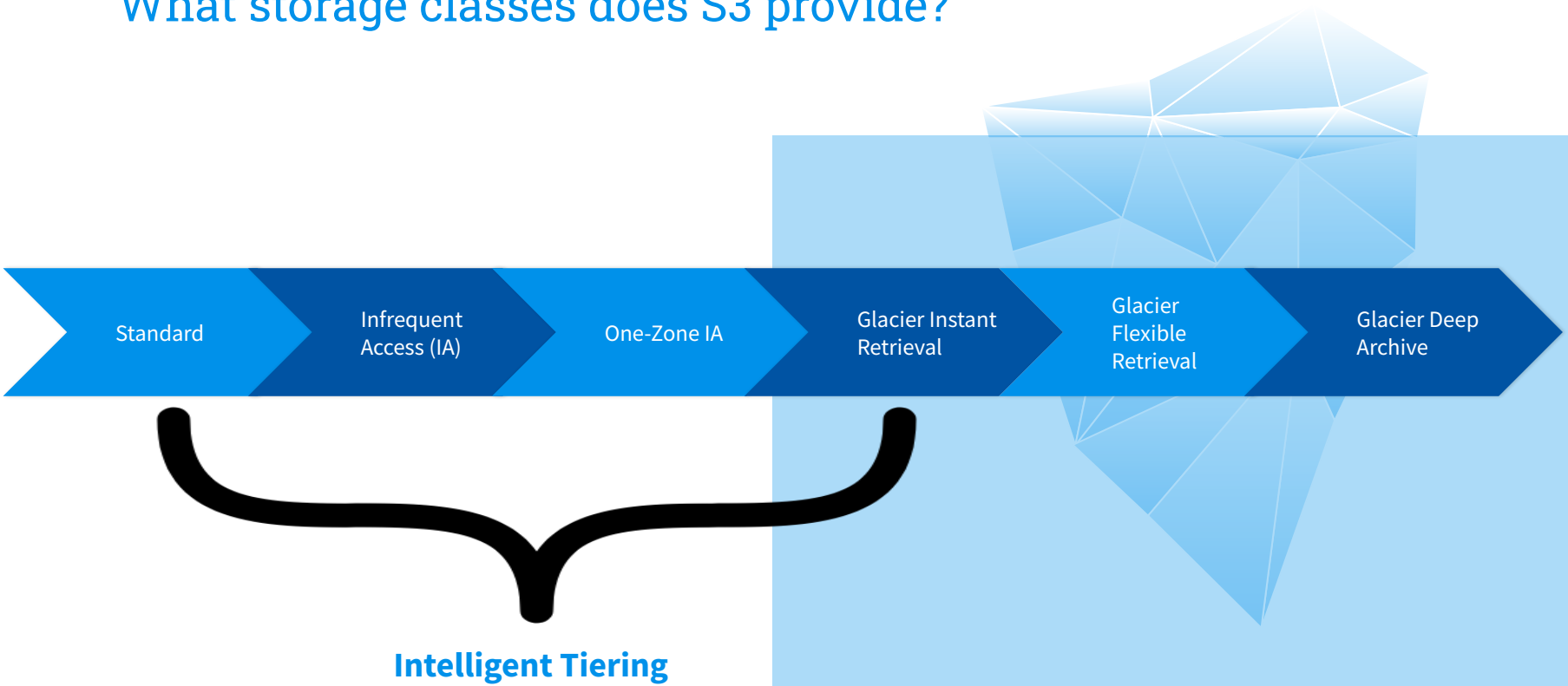
What makes S3 unique?



How does it all work?



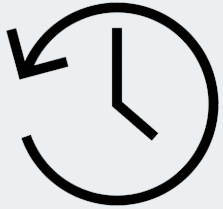
What storage classes does S3 provide?



What features does S3 offer?

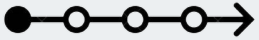
Versioning

Track different versions of objects



Object Lock

Prevent modifications for auditing/legal reasons



Optimize costs by using the right storage class

Lifecycle Policies

Ensure durability of your data by copying it across regions

Cross-Region Replication

How do we keep the data in S3 secure?

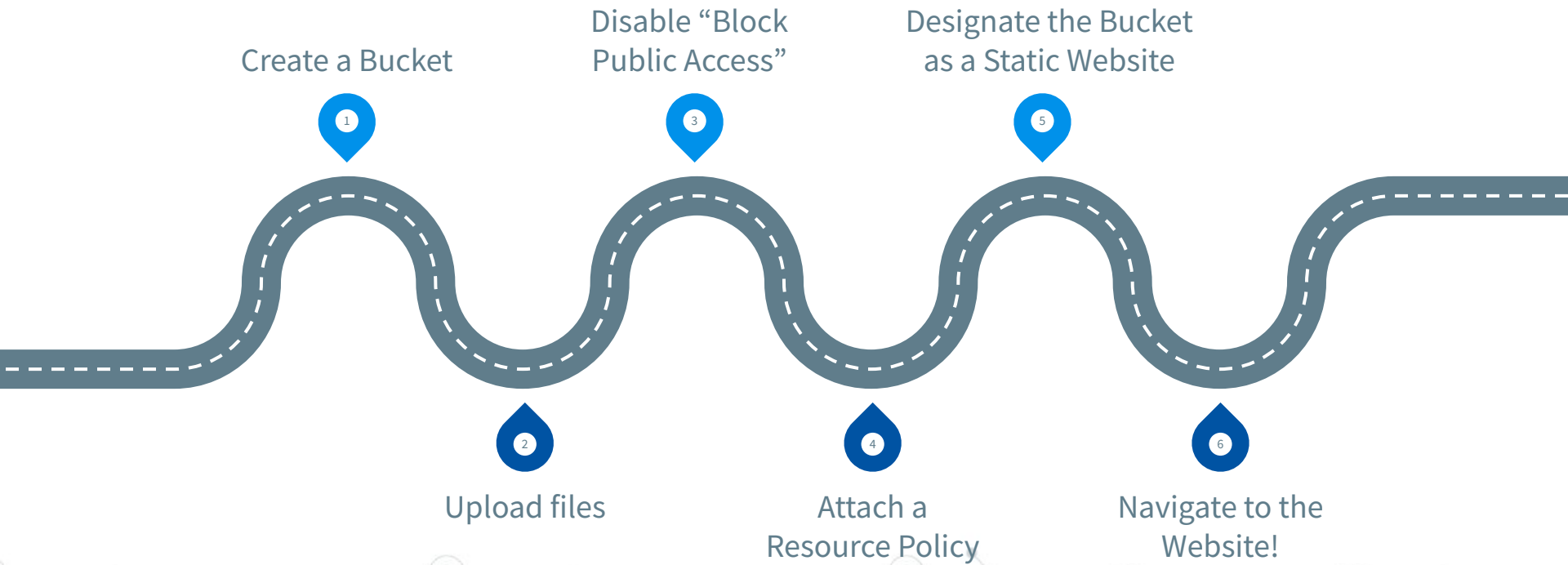
Resource Policies

- Access Control Lists (ACLs)
- Bucket policies

User Policies

- Identity Access Management
- User policy documents

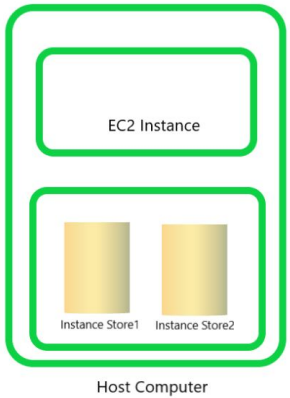
Hosting a static website using S3



Instance Storage and Elastic Block Storage (EBS)

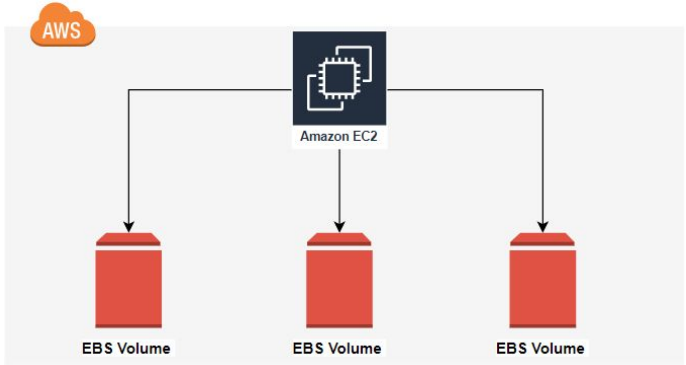
Instance Storage

- Temporary block storage for EC2 instance
- Physically attached to EC2 instance
- Lifetime is equal to lifetime of EC2 instance



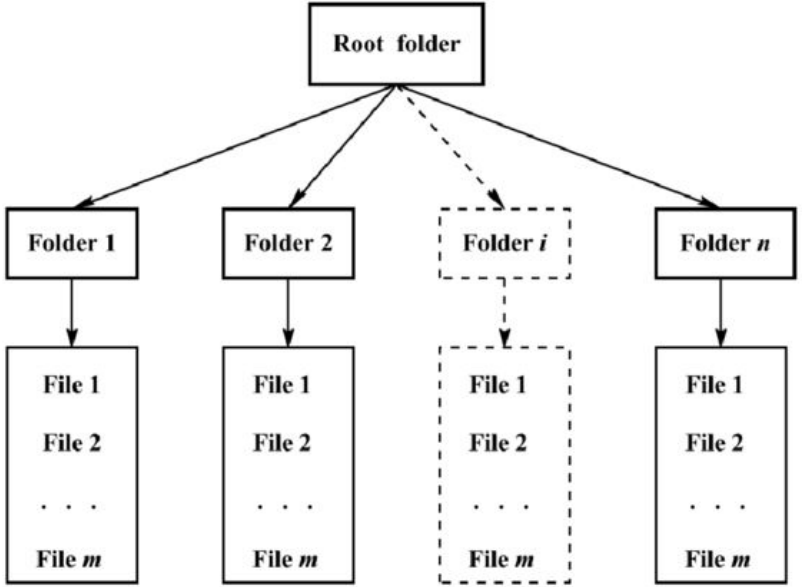
Elastic Block Storage

- Solution to Instance storage being temporary
- Data lifetime is forever
- EBS volumes can be attached to EC2 instances



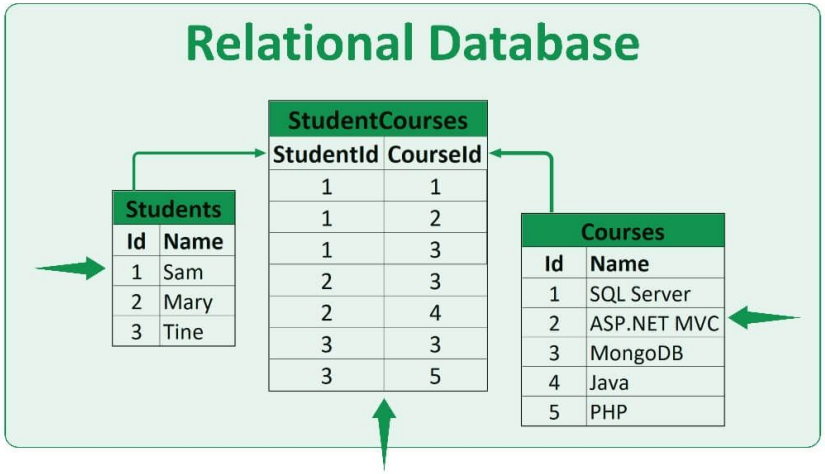
Amazon Elastic File System (EFS)

- Scalable file system
  - Dynamically scales
- Data is stored in file paths
- Think of windows or mac file system
- Stores data in multiple availability zones (EBS in one availability zone)
- Large scale file storage solution



Amazon Relational Database Service (Amazon RDS)

- Relational databases use structured query language (SQL) to store data
- Amazon RDS lets you run relational databases in the cloud
- A relational database looks like a spreadsheet
- A relational database has many tables to represent the data



Amazon DynamoDB

- DynamoDB is a nonrelational database
  - “NoSQL” database
- Organizes data in key value pairs
- Single-digit millisecond performance at any scale.
- Serverless
- Automatic scaling

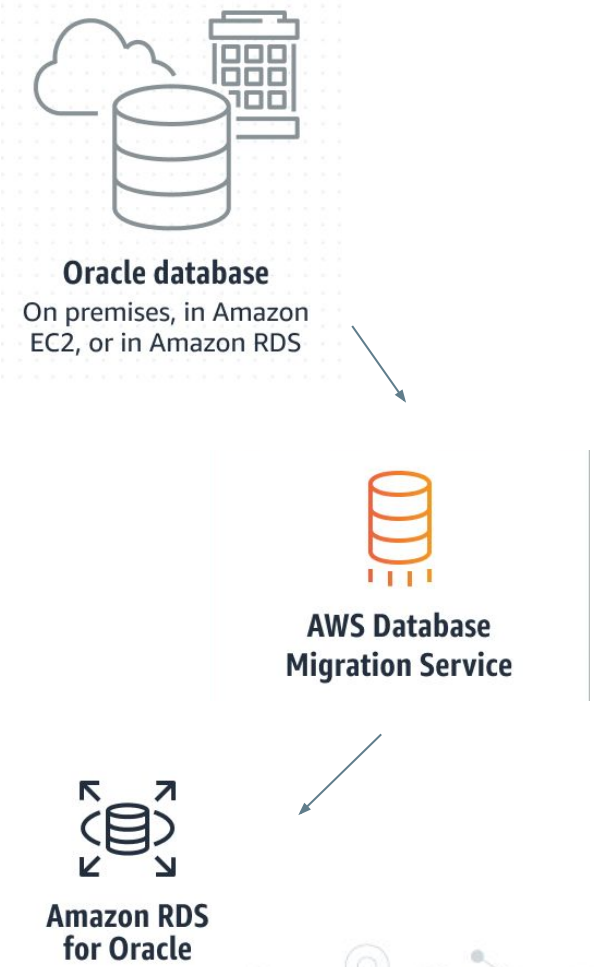
Key	Value
Name	{ "FIrstName": "Bruce", "LastName": "Wayne" }
Email	bruce@wayneenterprises.com
Type	Gold
Image	1011110010101010100010110010101010100010110 0...

Amazon Redshift

- Data warehousing service
- Used for big data analytics
- Helps you find patterns and trends across company data
- Other databases get slow when scaled; Redshift's performance is designed for huge amounts of data

AWS Database Migration Service (DMS)

- Service designed to aid in DB migration
- Migrate relational or nonrelational DB
- DB is still running during migration
- Can combine multiple DB into one
- One time migration service



Other database services

- Amazon DocumentDB
  - Document database service
- Amazon Neptune
  - Graph database service
- Amazon Quantum Ledger Database (Amazon QLDB)
  - Ledger database service
- Amazon Managed Blockchain
  - Create and manage blockchain networks
- Amazon Elasticache
  - Adds cache layer to improve DB performance
- Amazon DynamoDB Accelerator
  - Memory cache service for DynamoDB

Hands-on Demo

THANK YOU!