



For the three-tier architecture, we will use the following services:

1. Users: Represents the users accessing the dynamic website hosted on AWS
2. Amazon CloudFront: Serves as the content delivery network (CDN) for the frontend files (HTML, CSS and JavaScript) stored in Amazon S3. It caches and delivers the website content to users with low latency.
3. Amazon S3: Stores the static frontend files of the website. The files are directly accessed by users through CloudFront.
4. Amazon API Gateway: Acts as entry point to the backend services. It handles user requests and routes them to the appropriate backend components.
5. AWS Lambda: Hosts the backend logic and Java applications. It scales automatically based on demand and executes the code in response to user requests.
6. Amazon RDS: Provides a managed MySQL database for storing application data. The Java application interacts with the database to read and write data.

For the data analytics workload, we will use the following AWS services:

1. Amazon EMR: We will spin up an Amazon EMR cluster to run Apache Hadoop workload. EMR simplifies the setup and management of Hadoop clusters, allowing us to process large amounts of data efficiently.

2. AWS Glue: Handles the data ingestion and transformation process for the analytics workload. It discovers, catalogs, and transforms data from various sources into a consistent format for analysis.
3. Amazon S3 (Analytics): Stores the analyzed data generated by the data analytics workload.
4. Amazon Quick Sight: Used for data visualization and deriving insights. It connects to the analyzed data in Amazon S3 and allows users to create interactive dashboards and visualizations.

The specific approach taken for the migration is to go cloud native. By using these AWS services, we can achieve the following benefits:

1. Scalability: AWS services can scale resources up and down based on demand, ensuring the applications can handle varying workloads efficiently.
2. Resilience: AWS provides high availability and fault tolerance, reducing the risk of system downtime caused by power outages or hardware failures.
3. Managed Services: Utilizing managed services like Amazon RDS, AWS Lambda, and Amazon EMR offloads operational tasks and reduces the customer's responsibilities.
4. Cost optimizations: AWS offers a pay-as-you-go model, allowing the customer to optimize costs by only paying for the resources they consume.