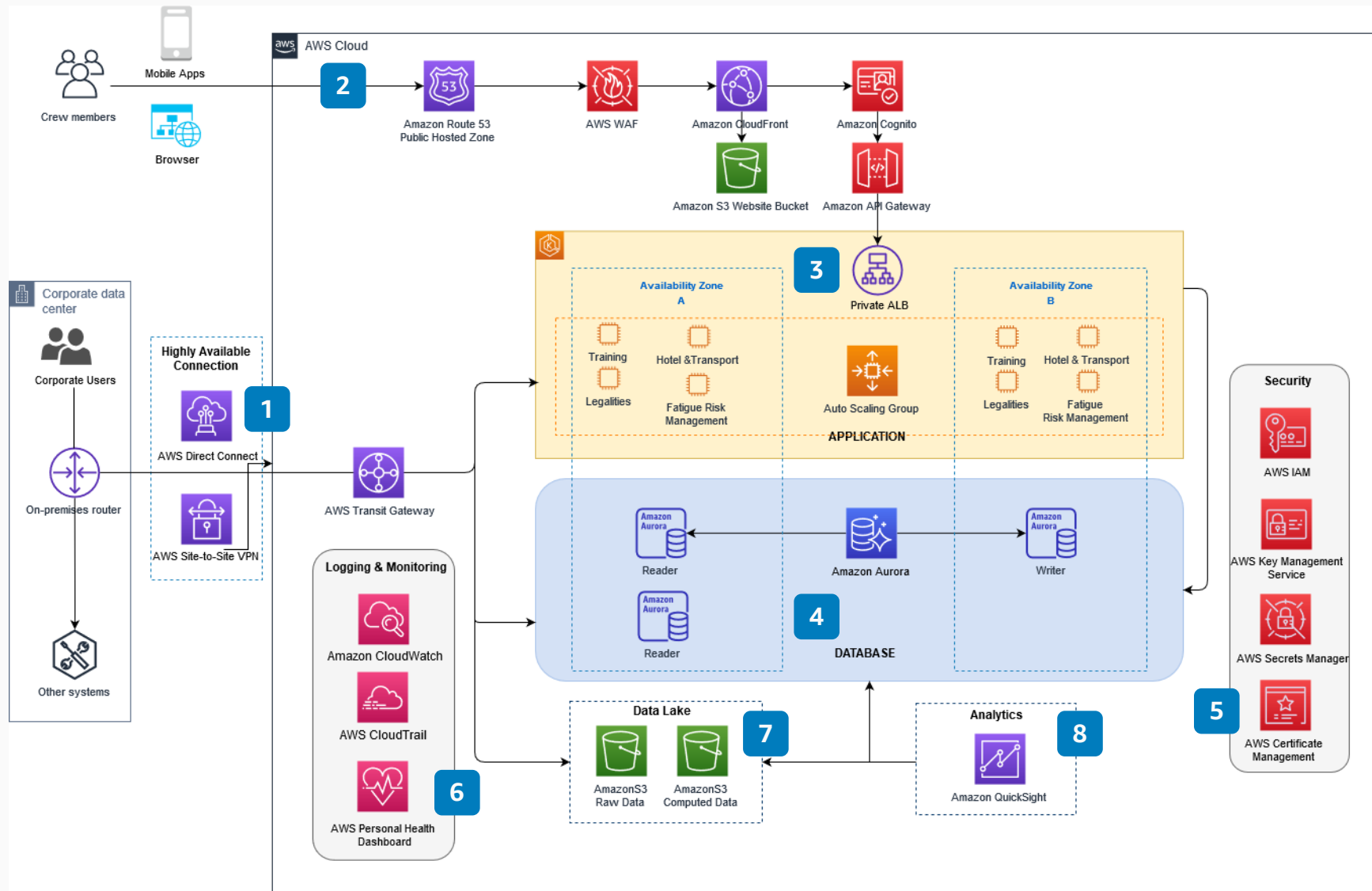# Architecture for Airline Crew Management Systems

Use Amazon Web Services (AWS) to create a highly-available, secure, flexible, and cost-effective architecture for airline crew management systems.

1 To connect corporate users and systems to the crew management services running on AWS, use **AWS Direct Connect** as the primary connection and **AWS Site-to-Site VPN** as the secondary connection.

2 Crew member apps resolve domain names via **Amazon Route 53** to IP addresses for **Amazon API Gateway** and **Amazon CloudFront** distribution.

Amazon API Gateway provides access to the application tier. **Amazon CloudFront** distribution serves out the static page and assets stored in an **Amazon Simple Storage Service (Amazon S3),** bucket. These are protected by **AWS WAF** (Web Application Firewall).

Amazon Cognito provides user authentication and access control to crew applications.

3 The application tier has a private **Application Load Balancer (ALB)** for load balancing crew management micro services. The ALB is connected to an **Amazon EKS** cluster in two different Availability Zones.

4 An **Amazon Aurora PostgreSQL-Compatible Edition** relational database provides high availability using **Aurora Replicas** (reader instance). It also stores copies of the data across multiple Availability Zones.

5 Use **AWS Cloud Security** services to provide at-rest, end-to-end encryption, while ensuring credential or private keys are protected.

6 Use **Amazon CloudWatch** and monitoring tools to provide data that can help optimize operational health and provide centralized management.

7 Create a data lake with **Amazon S3** and **Amazon S3 Glacier** to store crew management data for reporting, visualization and advanced analytics.

8 **Amazon QuickSight** can deliver business intelligence from the data stored in the data lake, provide actionable insights on crew planning, training statistics, and crew staff utilization.

AWS Reference Architecture