Designing a flight reservation system on AWS involves leveraging various managed services to ensure scalability, reliability, and security. The managed services chosen for this design are outlined below, each serving a specific purpose to build a robust and efficient system:

1. **User Authentication**: For user authentication, AWS Cognito is a reliable choice. It handles user sign-up, sign-in, and access control, ensuring secure authentication. Cognito supports multiple identity providers, enhancing user convenience by allowing users to log in using their preferred method.

2. **Compute**: AWS Lambda is ideal for running backend functions like searching flights, booking tickets, and processing payments. Lambda automatically scales to handle varying workloads, eliminating the need for server management. Its event-driven architecture efficiently handles different tasks in the reservation process.

3. **API Management**: Amazon API Gateway simplifies the creation and management of RESTful APIs for the application. It provides essential security features such as throttling and authorization, which protect the APIs and ensure only authorized users can access sensitive operations like booking tickets and retrieving user details.

4. **Data Storage**: Amazon DynamoDB is a fast, scalable NoSQL database perfect for storing flight schedules, user profiles, booking information, and transaction histories. It handles large amounts of data, offering single-digit millisecond response time.

5. **Static Content Storage**: Amazon S3 offers highly durable and scalable storage for static files like user documents, flight itineraries, images, and logs. Its cost-effective, pay-as-you-go pricing model ensures data safety and retrievability even in the event of hardware failures, making it a reliable choice for storing critical data.

6. **Content Delivery:** Amazon CloudFront enhances user experience by delivering dynamic content quickly to users worldwide. As a global content delivery network (CDN), it reduces latency and ensures fast content delivery, which is crucial for providing users with quick access to flight search results and booking information.

7. **Communication**: Amazon SNS and Amazon SQS manage communication and task queues effectively. SNS sends timely notifications about booking confirmations, flight changes, and promotional offers, ensuring reliable communication with users.

8. **Workflow Orchestration**: AWS Step Functions simplify workflow management and coordination of different tasks in the reservation process. It provides automatic error handling and retry mechanisms, ensuring reliable execution of workflows.

9. **Monitoring and Logging**: AWS CloudWatch offers real-time monitoring of application performance and logs important events. This helps in quickly identifying and fixing issues, ensuring the system runs smoothly.

10. **Security Measures**: Implementing robust security measures is crucial for a flight reservation system. Encrypt data at rest and in transit using HTTPS/TLS to protect sensitive information. Apply the principle of least privilege to ensure users and services have only the necessary permissions, reducing the risk of unauthorized access.

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