**Amazon CloudFront**

**Introduction**

Amazon CloudFront is a **content delivery network (CDN) service** that securely delivers data, videos, applications, and APIs to users globally with low latency and high transfer speeds. It integrates with AWS services like S3, EC2, and Lambda@Edge to provide **scalable and secure** content distribution.

**Key Features**

**1. Global Content Delivery**

* Uses a **vast network of edge locations** across multiple continents.
* Delivers content from the closest edge location, reducing latency.

**2. Security & Access Control**

* **AWS Shield & AWS WAF:** Protect against DDoS attacks and web threats.
* **Signed URLs and Signed Cookies:** Restrict access to premium content.
* **Field-Level Encryption:** Encrypt sensitive data before forwarding requests.

**3. Integration with AWS Services**

* **Amazon S3:** Distribute static assets efficiently.
* **Amazon EC2 & Load Balancers:** Accelerate dynamic content delivery.
* **AWS Lambda@Edge:** Execute custom logic at edge locations for personalization.

**4. Caching & Performance Optimization**

* **Edge Caching:** Store frequently accessed content closer to users.
* **Origin Shield:** Adds a caching layer to optimize requests to the origin server.
* **Gzip & Brotli Compression:** Reduces file sizes for faster content delivery.

**5. Flexible Pricing**

* **Pay-as-you-go pricing:** No upfront costs, pay based on data transfer and requests.
* **Free-tier availability:** Includes 1 TB of data transfer per month.

**Applications**

1. **Website & Application Acceleration** – Speed up content delivery for web applications.
2. **Live & On-Demand Streaming** – Distribute video content globally.
3. **API & Software Distribution** – Reduce latency for APIs and software downloads.
4. **Edge Computing with Lambda@Edge** – Customize content delivery at edge locations.

**Business Model**

Amazon CloudFront follows a **pay-as-you-go (PAYG) model**, charging based on:

* **Data Transfer (GB/TB)** – Charges vary based on the region.
* **HTTP/HTTPS Requests** – Pricing differs for dynamic and static content.
* **Additional Security Services** (AWS Shield Advanced, WAF, etc.).

**Conclusion**

Amazon CloudFront enhances **performance, security, and scalability** for content delivery. It is ideal for businesses that require fast and secure access to digital content globally.