**Cloudfront & Global Accelerator**

**1. What is AWS CloudFront?**

* *CloudFront is a Content Delivery Network (CDN) service offered by AWS that distributes content to users with low latency and high performance. It caches static content (e.g., images, videos, JavaScript) at geographically distributed edge locations, reducing the distance users need to access the content and improving loading times.*

**2. What are the benefits of using CloudFront?**

* *Improved performance: Reduces latency and improves loading times for users globally.*
* *Reduced origin load: Offloads traffic from your origin servers, improving scalability and cost-efficiency.*
* *Increased availability: CloudFront's edge locations provide redundancy and high availability for your content.*
* *Security features: CloudFront offers various security features like signed URLs and origin access identity (OAI) to restrict access to your content.*

**3. What are the different types of CloudFront distributions?**

* *Web distributions: Designed for delivering web content like HTML, CSS, JavaScript, and images.*
* *Streaming distributions: Optimized for delivering media content like videos and audio files.*
* *RTMP distributions: Used for delivering real-time messaging protocol (RTMP) streams.*

**4. How does CloudFront cache content?**

* *CloudFront utilizes edge locations to cache content based on various factors like object size, access patterns, and time-to-live (TTL) settings. This reduces the need to fetch content from your origin server every time a user requests it, improving performance.*

**5. How do you configure and manage CloudFront distributions?**

* *CloudFront can be configured and managed through the AWS Management Console, AWS CLI, or CloudFormation templates. You can define various settings like origin servers, caching behavior, security policies, and access restrictions.*

**6. How can you monitor the performance and health of your CloudFront distribution?**

* *CloudWatch metrics provide insights into key performance indicators like latency, request rate, and cache hit ratio. You can also utilize CloudFront logs for detailed information about user requests and edge location performance.*

**Global Accelerator:**

**7. What is AWS Global Accelerator?**

* *Global Accelerator is a networking service that improves the availability and performance of applications with users worldwide. It routes user traffic to the optimal endpoint (e.g., EC2 instance, network load balancer) based on factors like location, network health, and configured weights.*

**8. What are the benefits of using Global Accelerator?**

* *Improved application performance: Routes traffic to the closest healthy endpoint, reducing latency for users.*
* *Increased availability: Utilizes AWS global network to ensure high availability and fault tolerance.*
* *Simplified endpoint management: Allows managing endpoints across different regions and availability zones from a central location.*
* *Static IP for easier connection management: Provides a static IP address for your application, simplifying connection configuration.*

**9. How does Global Accelerator compare to CloudFront?**

* *CloudFront: Primarily focused on delivering static content with a focus on caching and performance.*
* *Global Accelerator: Focuses on routing traffic to the optimal application endpoint across regions, enhancing performance and availability.*

**10. When would you choose CloudFront over Global Accelerator?**

* *Choose CloudFront for:*
  + *Delivering static content with low latency.*
  + *Reducing origin server load.*
  + *Implementing security features like signed URLs and OAI.*

**11. What are some advanced features of CloudFront?**

* *Signed URLs: Grant temporary access to specific objects within your CloudFront distribution.*
* *Origin Access Identity (OAI): Restricts access to your origin server only to authorized users or applications.*
* *Lambda@Edge: Allows you to run custom code at the edge location, enabling functionalities like content transformation, dynamic content manipulation, and security enhancements.*

**12. How does CloudFront handle cache invalidation?**

* *CloudFront offers various ways to invalidate cached content, ensuring users receive the latest version:*
  + *Manual invalidation: Invalidate specific objects or entire paths through the console, CLI, or API.*
  + *Invalidation based on object metadata: Configure CloudFront to automatically invalidate cached objects based on changes in metadata like timestamps.*
  + *Origin Shield: Utilizes a real-time connection between CloudFront and your origin server, automatically invalidating cached content when changes occur at the origin.*

**13. Describe common challenges associated with CloudFront and how you would address them.**

* *Cache invalidation issues: Implement proper invalidation strategies and monitor cache hit/miss ratios.*
* *High latency in certain regions: Analyze CloudWatch metrics and consider deploying additional edge locations closer to problematic regions.*
* *Security concerns: Utilize robust security features like signed URLs, OAI, and access controls.*

**Global Accelerator:**

**14. How does Global Accelerator handle endpoint health checks?**

* *Global Accelerator performs health checks on your endpoints to ensure their availability. If an endpoint becomes unhealthy, traffic is routed to the next healthy endpoint, ensuring service continuity.*

**15. What are different types of listeners offered by Global Accelerator?**

* *TCP listener: Routes TCP traffic to your application endpoints.*
* *UDP listener: Routes UDP traffic to your application endpoints, suitable for real-time applications.*

**16. How can you monitor and troubleshoot issues related to Global Accelerator?**

* *You can utilize CloudWatch metrics and logs to monitor key performance indicators and troubleshoot issues related to endpoint health, latency, and traffic routing.*

**17. Describe a real-world scenario where you would use CloudFront and Global Accelerator together.**

* *This allows you to showcase your understanding of both services and their potential synergy.*
  + *Example: You could describe using CloudFront to deliver static content for a global web application, while Global Accelerator routes user traffic to the nearest healthy backend server in different regions for dynamic content and application functionality.*

**18. What are your thoughts on the future of CloudFront and Global Accelerator?**

* *Express your understanding of current trends and your vision for the future of these services. You could discuss potential areas like deeper integration with other AWS services, enhanced security features, or improved performance optimization capabilities.*

**19. How does Global Accelerator pricing differ from CloudFront pricing?**

* *CloudFront: Primarily billed based on the amount of data transferred out (data transfer charges) and number of HTTP requests processed.*
* *Global Accelerator: Billed based on the number of hours your endpoint listeners are active (hourly charges).*