

Module 08:

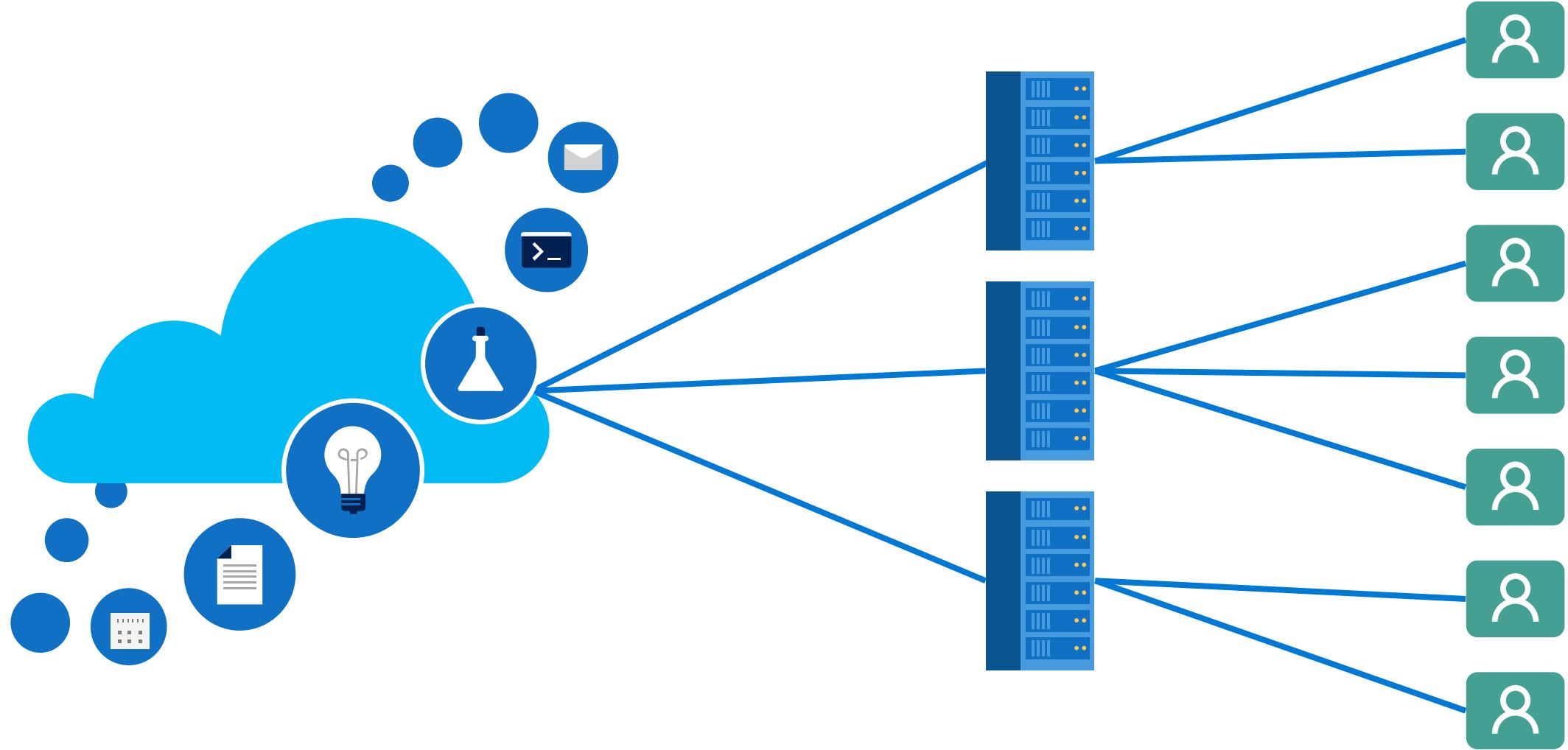
Content Delivery Network (CDN)



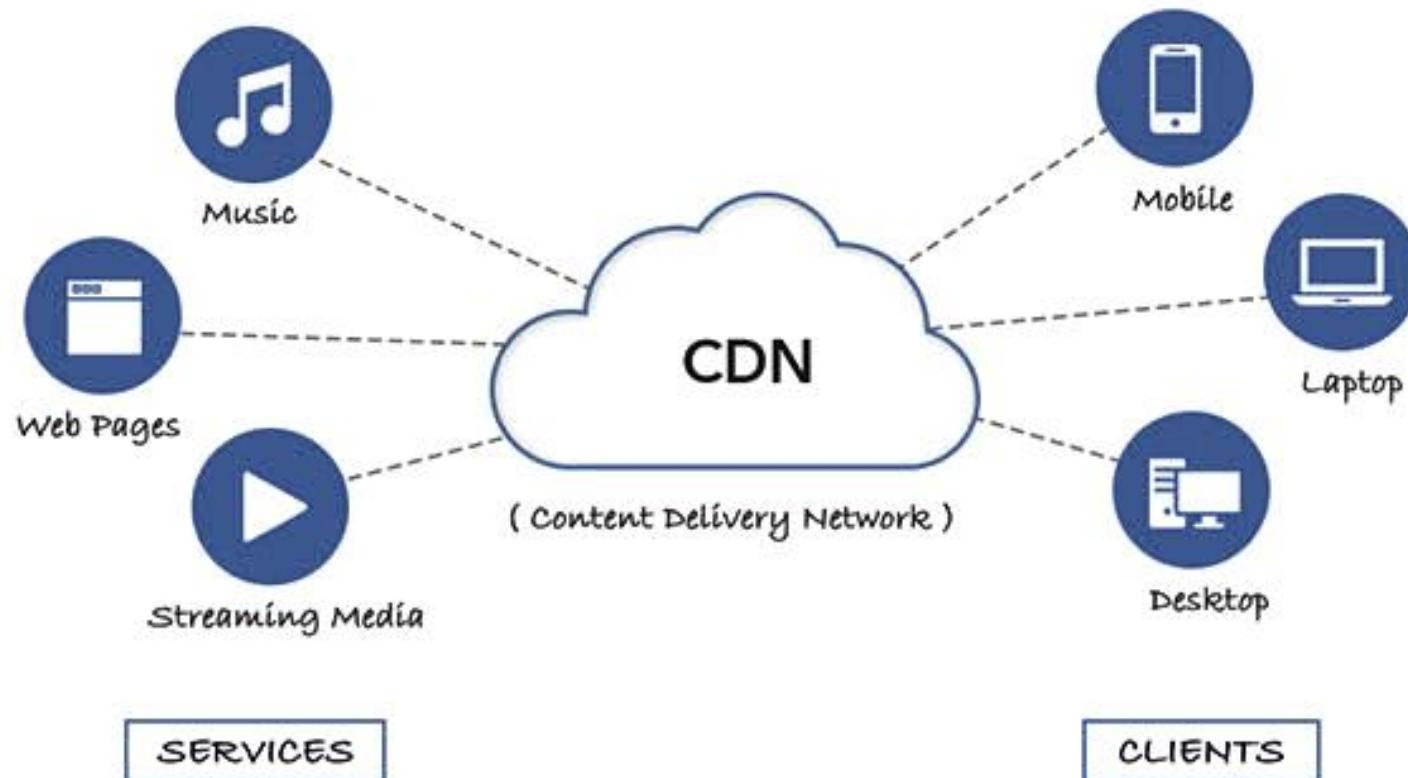
Content delivery networks (CDNs)

- Distributed network of servers that can efficiently deliver web content to users
 - Stores cached content on edge servers that are close to users to minimize latency
 - Edge servers are located in point of presence (POP) locations that are distributed throughout the globe
- Typically used to deliver static content, such as images, style sheets, documents, client-side scripts, and HTML pages

Improving the client experience by using a CDN

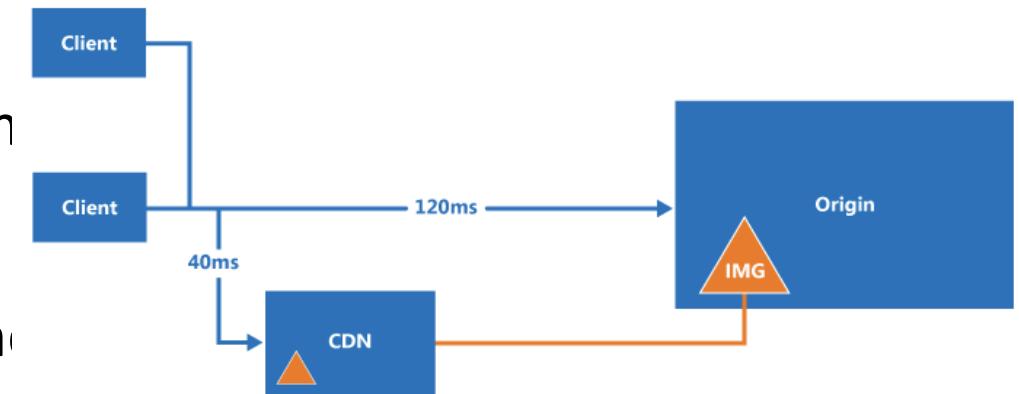


Usage



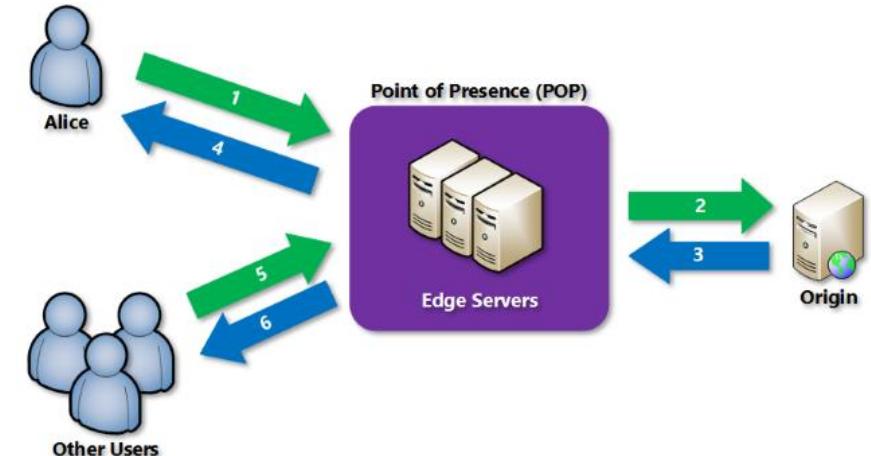
CDN Benefits

- Lower latency and faster delivery of content
- Reduced load on server or application
- Typical uses:
 - Delivering static resources for client apps
 - Delivering public static and shared content to devices
 - Serving static content websites
 - Streaming video files to clients on demand
 - Supporting IoT solutions

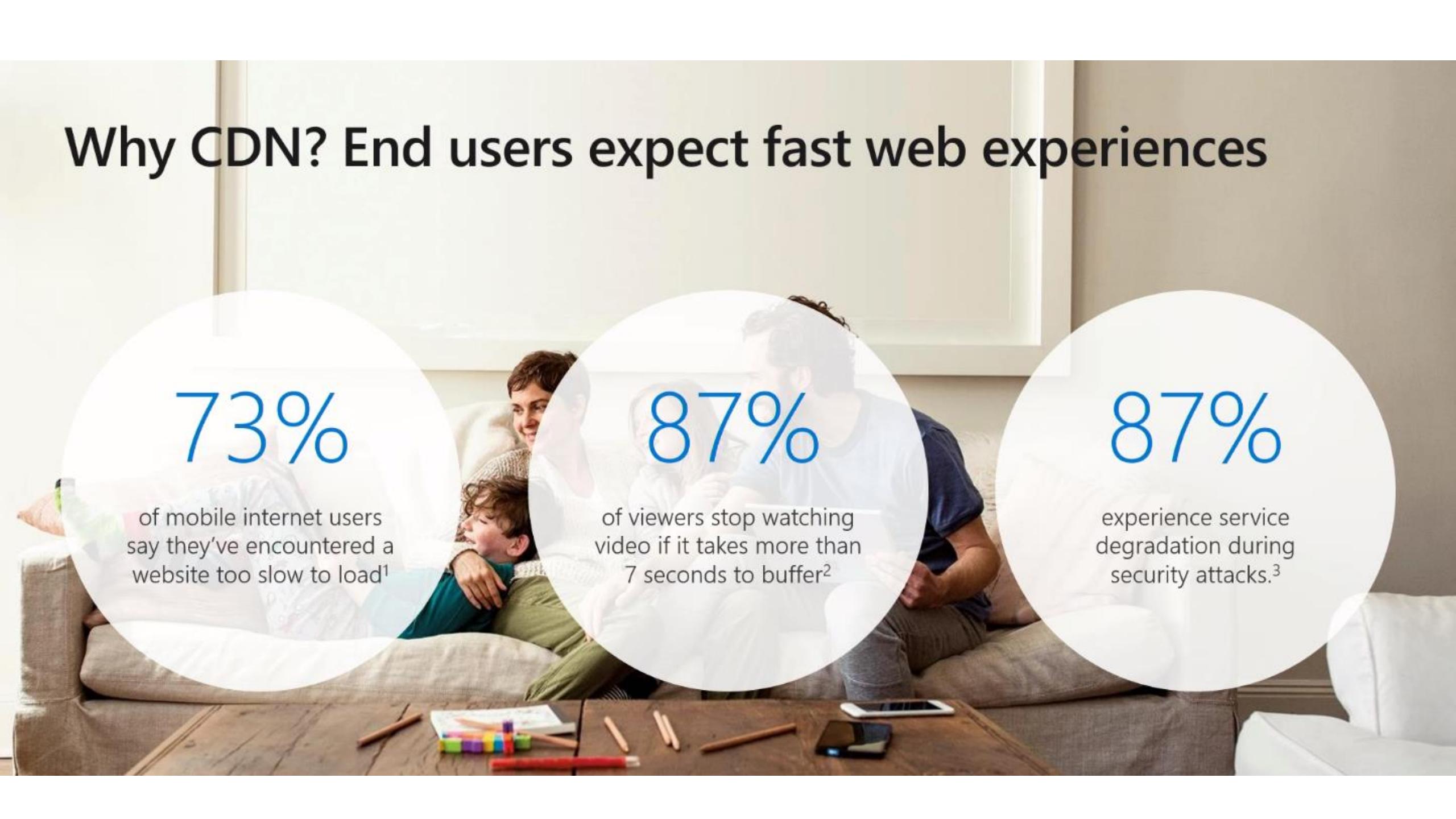


How CDN Works

1. User requests a file
2. Edge server requests file from origin
3. Origin returns the file to the edge server
4. Edge server caches the file and returns the file to the original requestor
5. Additional user requests the same file
6. Edge server returns the file from the cache



Why CDN? End users expect fast web experiences

A photograph of a family of four sitting on a light-colored sofa in a living room. A young child is sitting on the floor in front of the sofa, focused on drawing with colored pencils on a piece of paper. A smartphone lies next to the child's drawing. In the background, a woman and two other children are visible, looking towards the camera with smiles.

73%

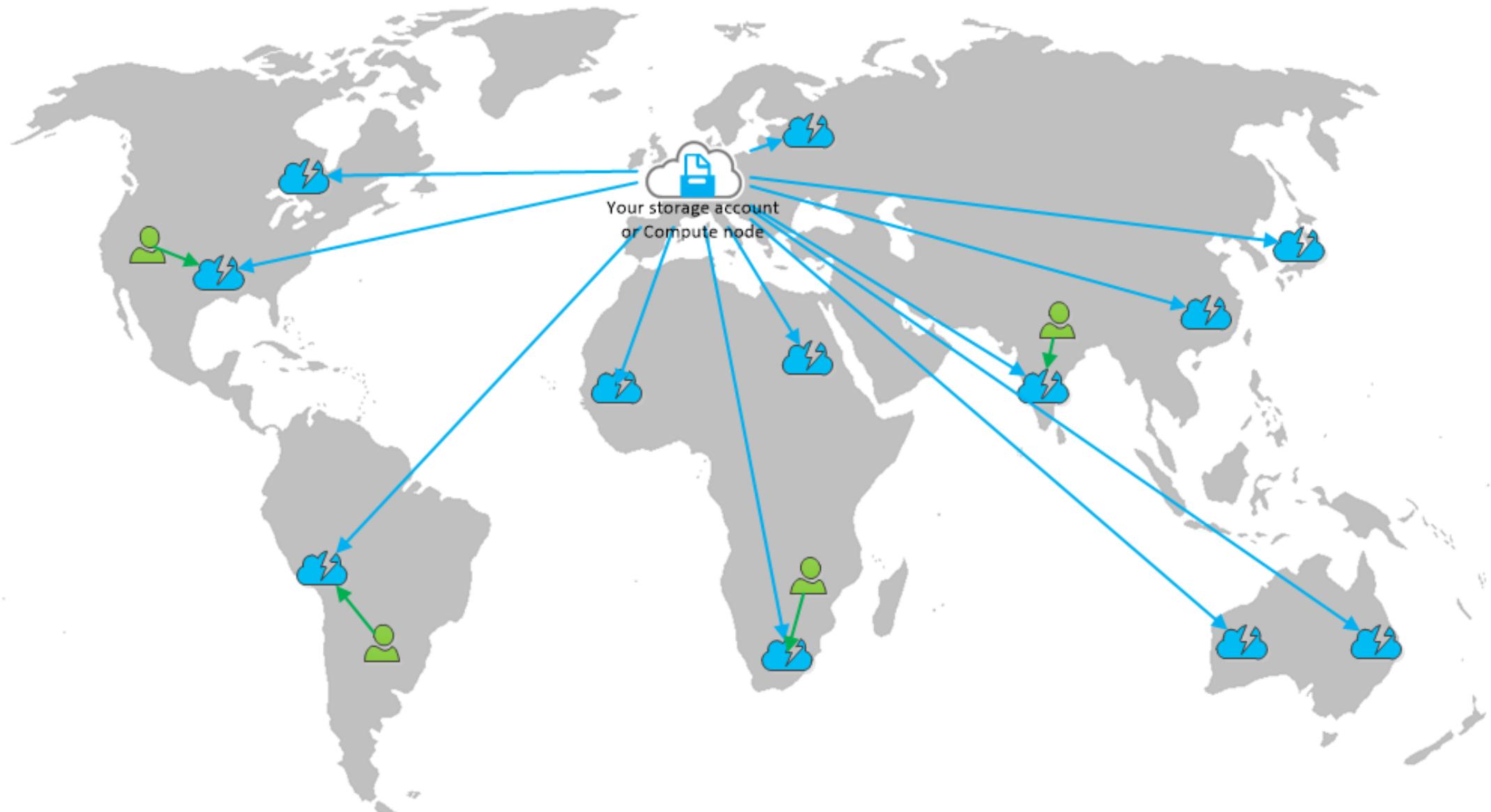
of mobile internet users
say they've encountered a
website too slow to load¹

87%

of viewers stop watching
video if it takes more than
7 seconds to buffer²

87%

experience service
degradation during
security attacks.³



CDN Profiles

- A CDN profile is a collection of CDN endpoints with the same pricing tier and provider (origin)
- Can create multiple profiles to organize endpoints
- Up to eight profiles per subscription
- Subscription pricing tiers:
 - Premium Verizon
 - Standard Verizon
 - Standard Akamai
 - Microsoft CDN

CDN profile ✖

* Name ✓

* Subscription

* Resource group Create new Use existing

* Resource group location ⓘ

* Pricing tier ([View full pricing details](#))

All Available Pricing

Premium Verizon

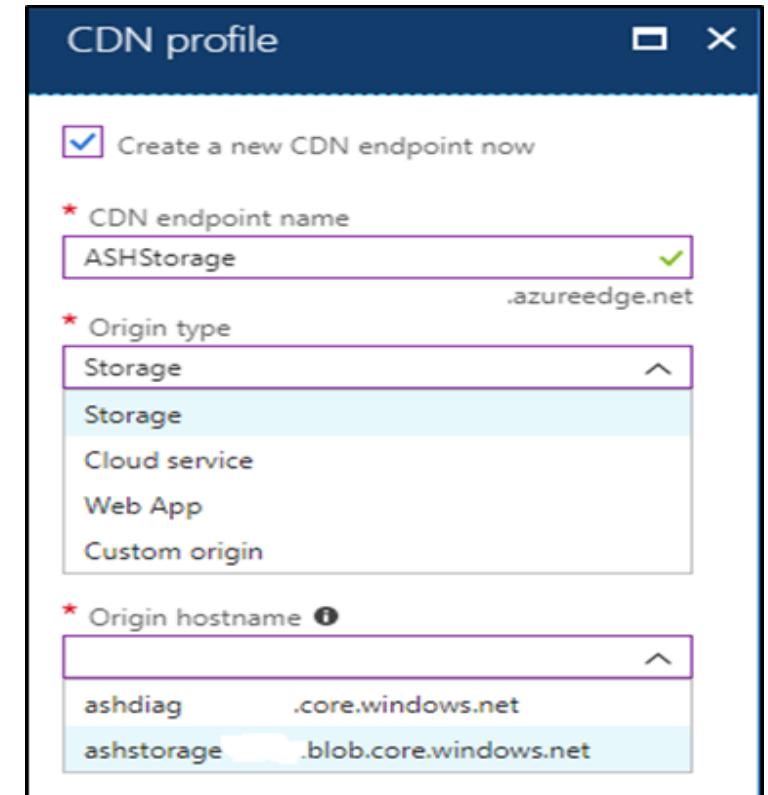
Standard Verizon

Standard Akamai

Create a new CDN endpoint now

CDN Endpoints

- Origin types: Storage, Cloud Service, Web App, and Custom origin
- The CDN endpoint for this storage example: *ASHStorage.azureedge.net/...*
- Add custom domain mapping to your CDN endpoint and enable custom domain HTTPS
- Additional CDN features for your delivery, such as compression, query string, and geo filtering

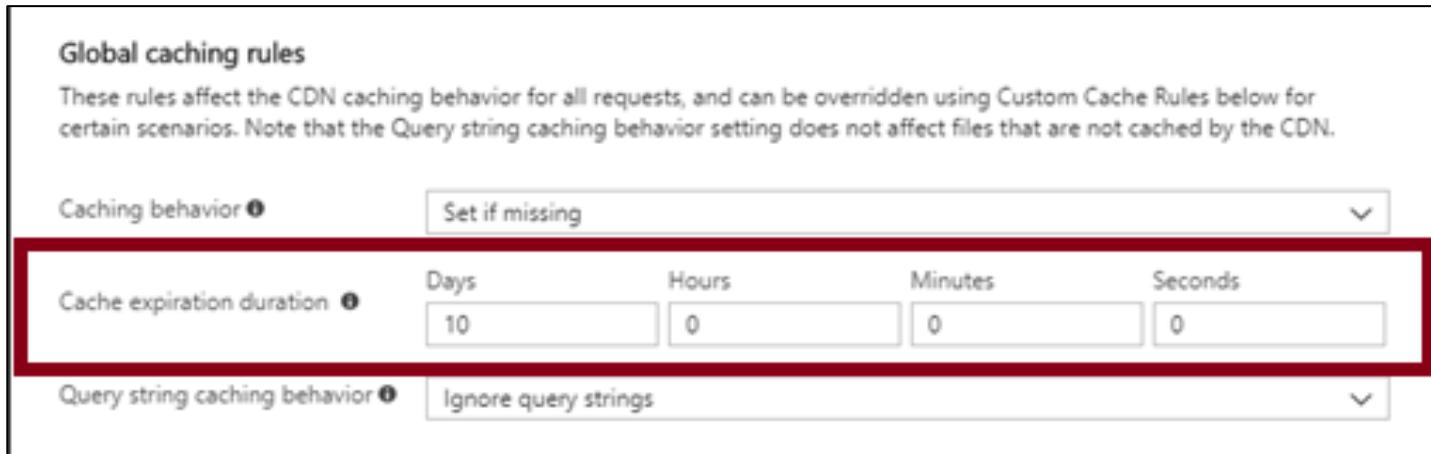


Azure CDN caching rules

Azure CDN provides two types of caching rules:

- **Global caching rules:** You can set one global caching rule for each endpoint in your profile, which affects all requests to the endpoint. The global caching rule overrides any HTTP cache-directive headers, if set.
- **Custom caching rules:** You can set one or more custom caching rules for each endpoint in your profile. Custom caching rules match specific paths and file extensions, are processed in order, and override the global caching rule, if set.

Global Caching rule (Default Caching)



- Blob content can be cached in Azure CDN until its TTL elapses
- If there aren't any Cache-directive headers, the Cache Expiration Duration controls the endpoint caching
- TTL is configured as days, hours, minutes, and seconds

Custom Caching rule

Custom caching rules

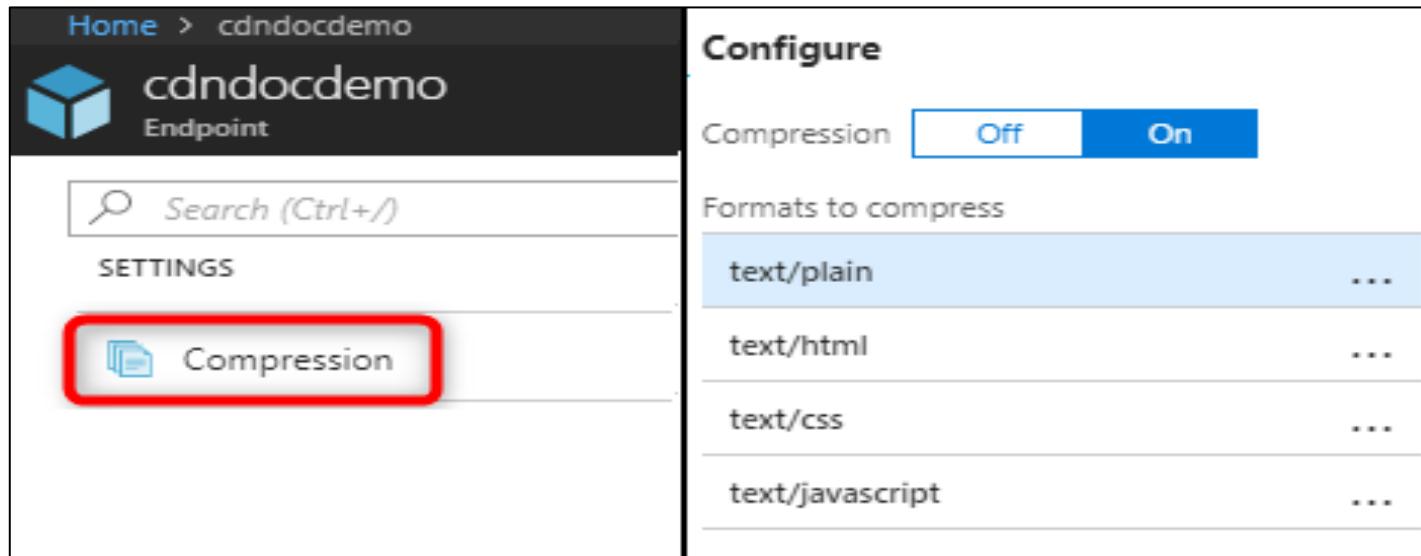
Create caching rules based on specific match conditions. These rules override the default settings above, and are evaluated from top to down. This means that rules lower on the list can override rules above it in the list, as well as the global caching rules and default behavior. Therefore it makes more sense to have more specific rules towards the bottom of the list so they are not overwritten by a general rule under them. For example a rule for path '/Folder/Images/*' should be below a rule for path '/Folder/*'.

↑ Move up ↓ Move down ⬆ Move to top ⬇ Move to bottom ⏕ Insert ⏷ Delete

	MATCH CONDITION	MATCH VALUE(S)	CACHING BEHAVIOR	Days	Hours	Minutes	Seconds
1	Path	/images/*.jpg	Override	30	0	0	0
2				0	0	0	0

- Override the global caching rules with custom caching rules
- Caching rules based on specific match conditions
- Evaluated in order, top to down

CDN Compression



- Improve file transfer speed and increase page-load performance
- Reduce bandwidth costs and provide a more responsive experience
- Enable compression on the origin server or on the CDN edge servers
- Specify which MIME formats are compressed

Optimize Your Content Delivery

- Optimize CDN on the backend to improve performance based on the scenario
 - General web delivery
 - General media streaming
 - Video on demand media streaming
 - Large file download (preferred for anything greater than 10 Mb)
- Object chunking for large file downloads
- Prefetch for improving large file delivery

Pricing details - Southeast Asia Price

OUTBOUND DATA TRANSFERS	ZONE 1 ¹	ZONE 2 ¹
First 10 TB ² /Month	₹5.23 per GB	₹8.30 per GB
Next 40 TB (10 – 50 TB) /Month	₹4.81 per GB	₹7.82 per GB
Next 100 TB (50 – 150 TB) /Month	₹3.61 per GB	₹7.22 per GB
Next 350 TB (150 – 500 TB) /Month	₹2.41 per GB	₹6.01 per GB
Next 524 TB (500 – 1,024 TB) /Month	₹1.81 per GB	₹4.81 per GB
Next 4,096 TB (1,024 – 5,120 TB) /Month	₹1.51 per GB	₹4.21 per GB
Over 5,120 TB /Month	Contact us	Contact us

¹ For Zone details, please refer to the FAQ below.

² 1 TB = 1,024 GB

<https://azure.microsoft.com/en-us/pricing/details/cdn/>

Demo & Lab: Configure CDN

- Storage
- Web Apps

