

Module 08:

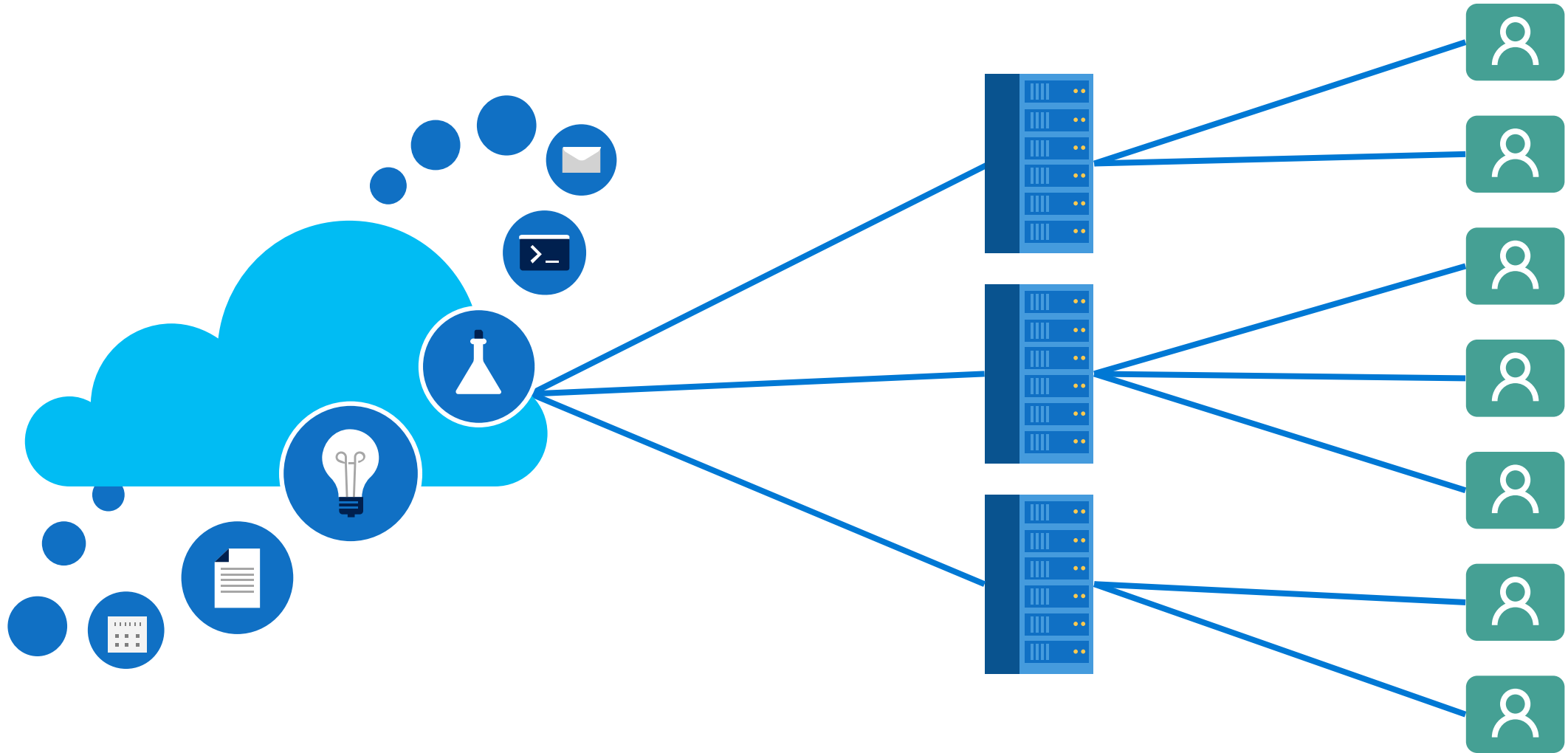
Content Delivery Network (CDN)



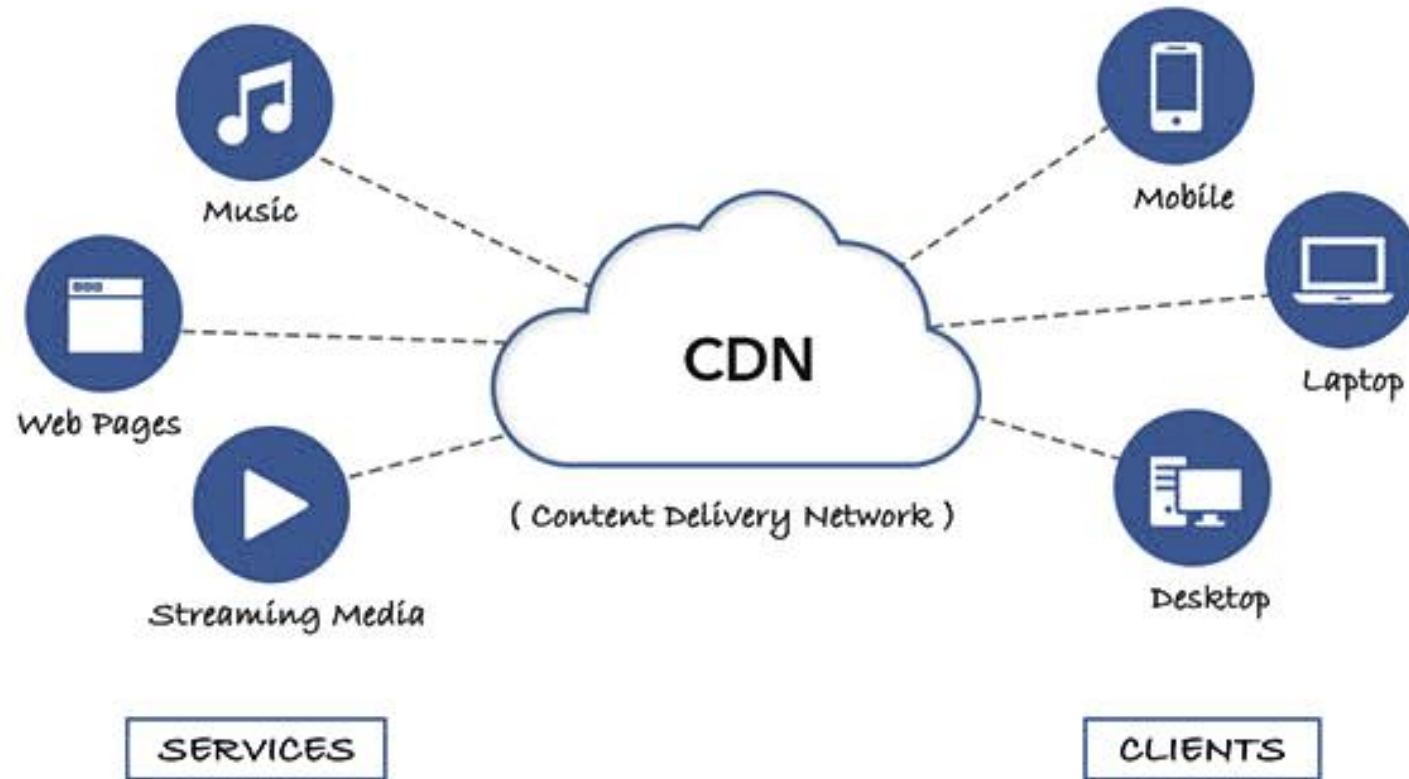
Content delivery networks (CDNs)

- 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

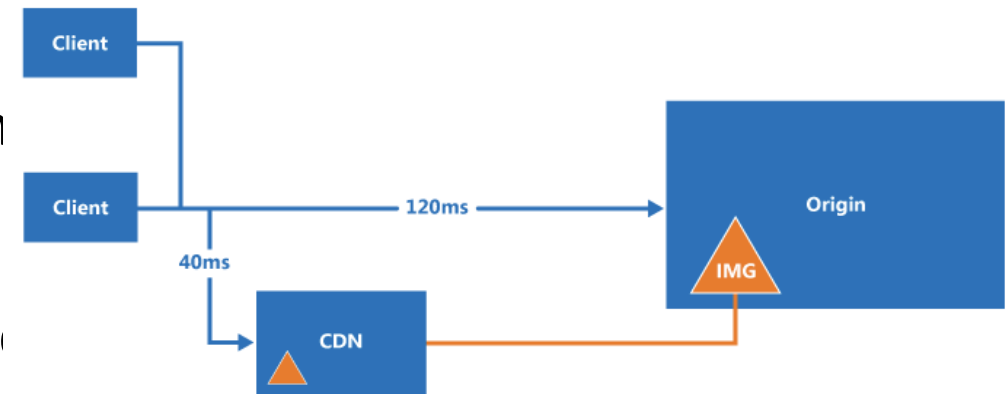


Usage



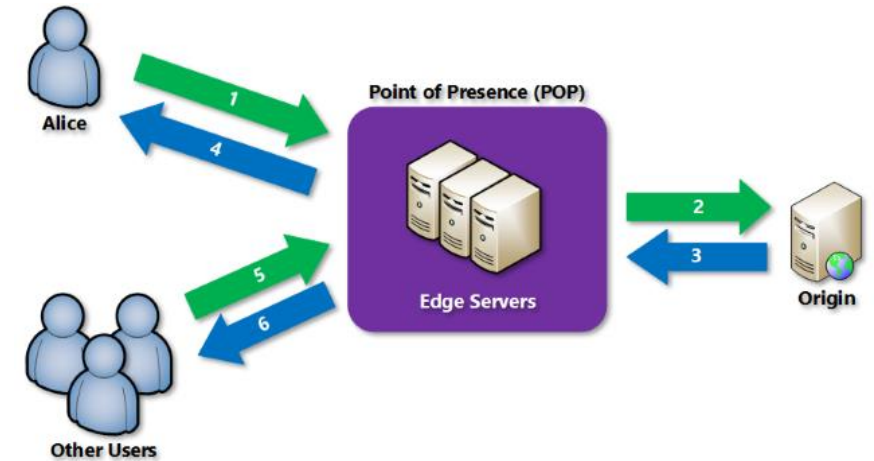
CDN Benefits

- **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

73%

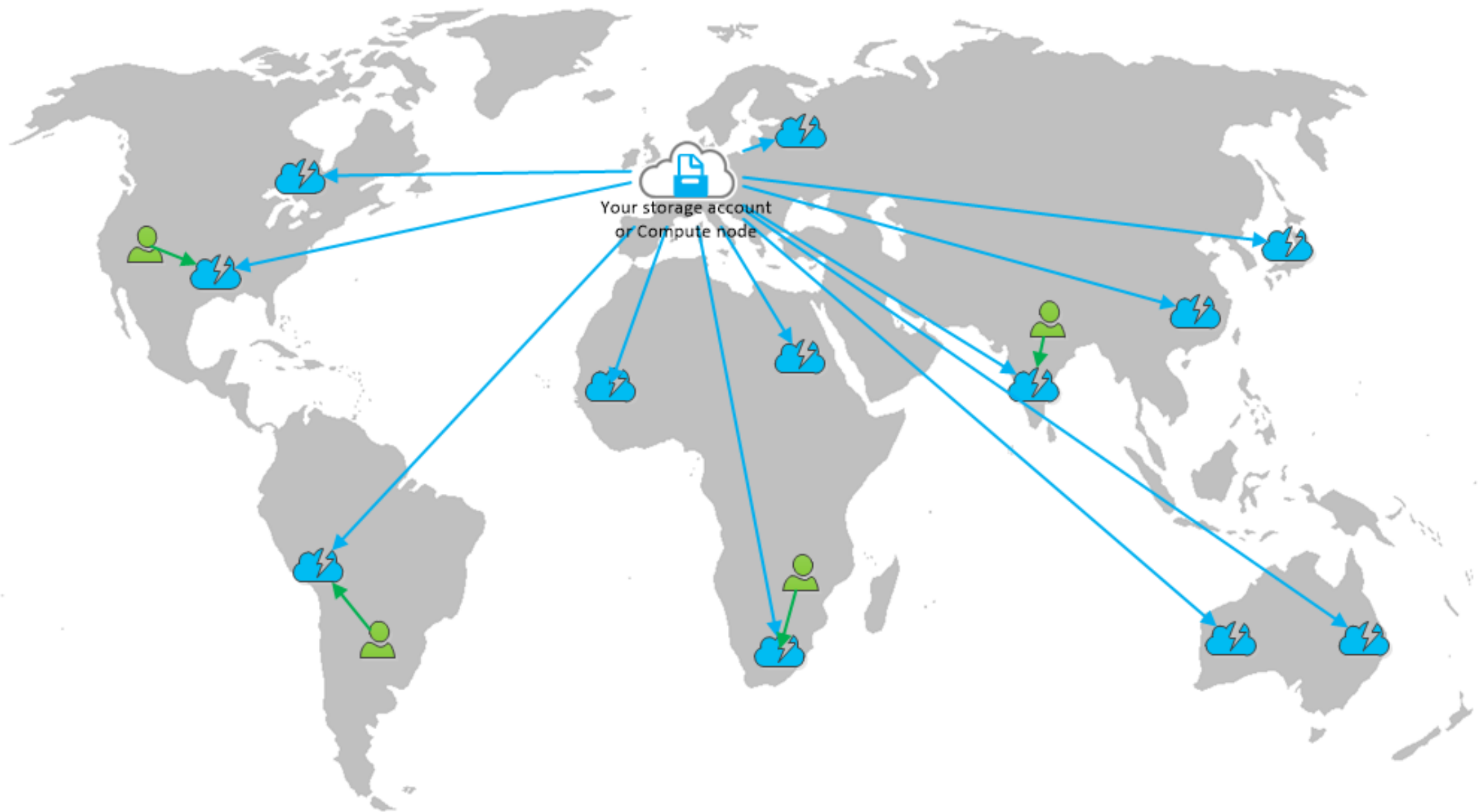
of mobile internet users say they've encountered a website too slow to load¹

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
CDNforStorage ✓

* Subscription
Visual Studio Enterprise

* Resource group
☐ Create new ☒ Use existing
ASH

* Resource group location ⓘ
West Central US

* 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

CDN profile

☒ Create a new CDN endpoint now

* CDN endpoint name
ASHStorage  .azureedge.net

* Origin type
Storage 
Storage
Cloud service
Web App
Custom origin

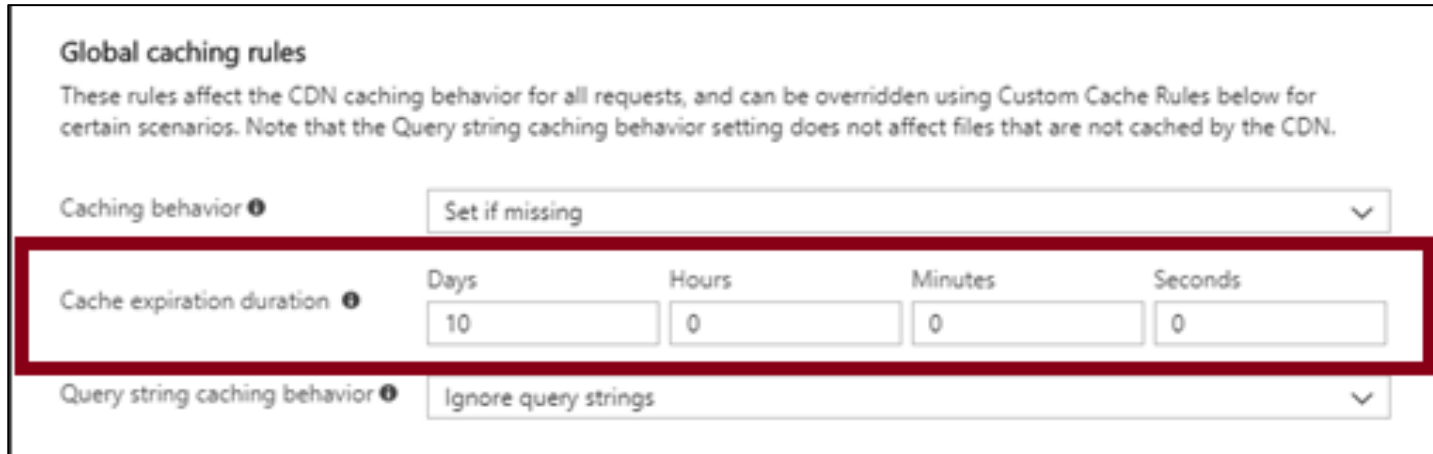
* Origin hostname 

ashdiag .core.windows.net
ashstorage .blob.core.windows.net

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)



The screenshot shows the 'Global caching rules' configuration page. It includes a title 'Global caching rules', a descriptive paragraph, and three settings: 'Caching behavior' set to 'Set if missing', 'Cache expiration duration' set to 10 days, 0 hours, 0 minutes, and 0 seconds (highlighted with a red box), and 'Query string caching behavior' set to 'Ignore query strings'.

Global caching rules
These rules affect the CDN caching behavior for all requests, and can be overridden using Custom Cache Rules below for certain scenarios. Note that the Query string caching behavior setting does not affect files that are not cached by the CDN.

Caching behavior ⓘ Set if missing ▼

Cache expiration duration ⓘ

Days	Hours	Minutes	Seconds
10	0	0	0

Query string caching behavior ⓘ Ignore query strings ▼

- 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

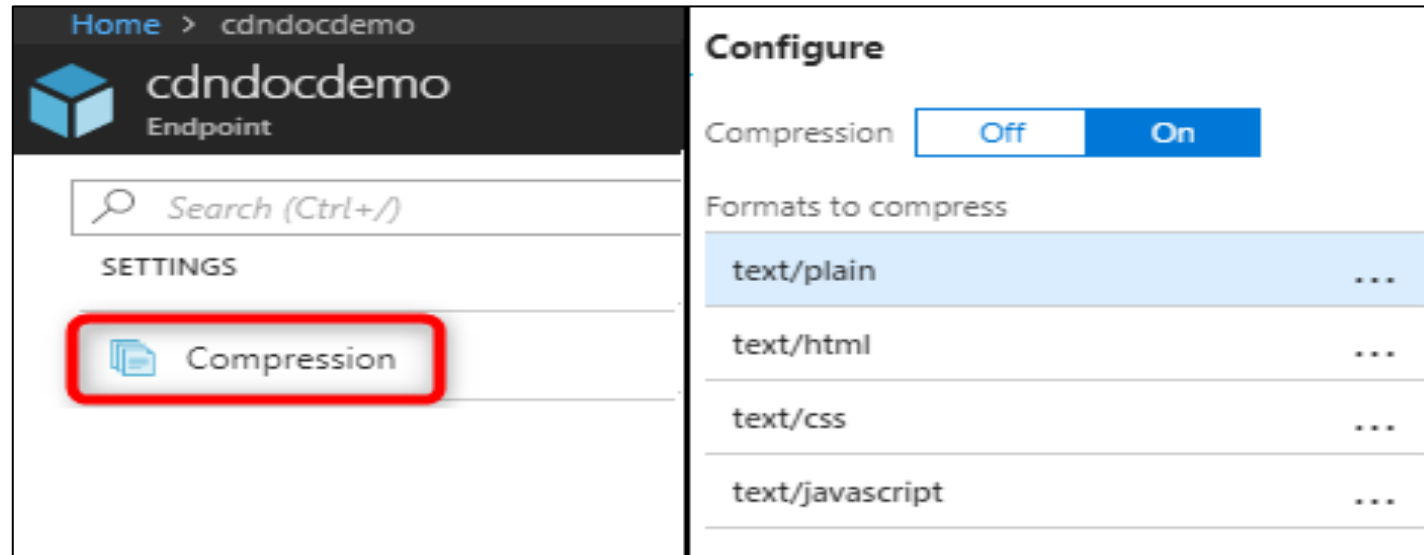
Create caching rules based on specific match conditions. These rules override the default settings above, and are evaluated from top to down. This means that rules lower on the list can override rules above it in the list, as well as the global caching rules and default behavior. Therefore it makes more 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

<input type="checkbox"/>	MATCH CONDITION	MATCH VALUE(S)	CACHING BEHAVIOR	DAYS	HOURS	MINUTES	SECONDS
<input checked="" type="checkbox"/>	Path	/images/*.jpg	Override	30	0	0	0
<input type="checkbox"/>				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

