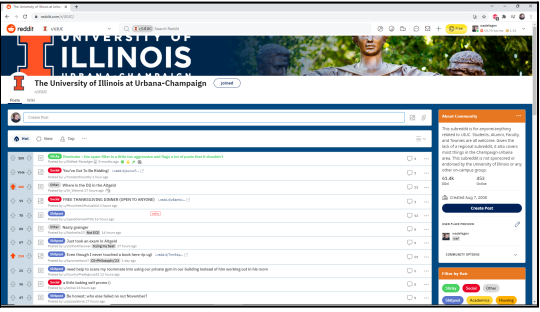


Cloud-Scale Content Distribution

As we deploy to a cloud-scale, there are two different types of content we need to deliver:

- Static Content:
 - Static Caching Policy?
- Dynamic Content:
 - Dynamic Caching Policy?

Example: <https://reddit.com/r/uiuc>
reddit.com is a community organized into subreddits that focus on particular topics. r/uiuc/ is the subreddit for the UIUC community:



<https://reddit.com/r/uiuc>

Static Content?

Dynamic Content?

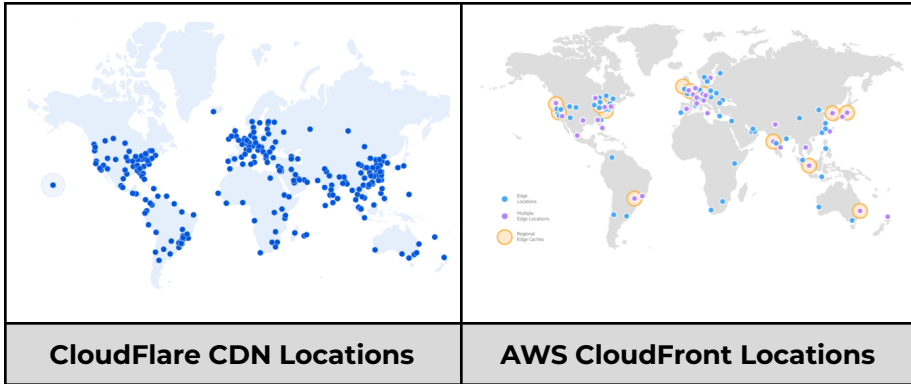
Motivation: Does the user need to visit **our server** for content that is served to all users?

- If not, what service could we rent?
- What advantages can we get by renting caches?

Content Delivery Networks (CDNs)

A Content Delivery Network (CDN) is a system of many servers physically located in geographically diverse locations.

- All CDNs must have a source for the content. This source is known as the _____.
- CDNs usually use **both** age and etag based caches strategies and store their cache on _____.
- Once the data from the origin is in the CDN cache, the CDN can serve this content. This provides five key benefits:
 1. [Compute]:
 2. [Speed]:
 3. [Server Security]:
 4. [Reliability]:
 5. [Bandwidth]:



User ⇔ CDN Interaction Diagram

User	CDN	Origin
GET /page/ Host: cdn.example.com		

How do we add a CDN to our service?

[Step 1]: Find a CDN provider we want to use:

Providers	Current Pricing
- CloudFlare CDN - Amazon AWS CloudFront - Google Cloud CDN - Azure Content Delivery Network ...many others...	

[Step 2]: Update Your NS Records:

[Step 3]: Result:

	DNS "A" Records with and without CDNs	
	illinois.edu (Likely No CDN)	vis.cs.illinois.edu (AWS CloudFront)
Google DNS:	192.17.172.3	13.226.31.84, 13.226.31.51, 13.226.31.92, 13.226.31.14
CloudFlare DNS:	192.17.172.3	52.85.61.45, 52.85.61.71, 52.85.61.96, 52.85.61.13
Yandex DNS:	192.17.172.3	143.204.231.6 , 143.204.231.51, 143.204.231.69, 143.204.231.21