Chapter 7
Multimedia Networking

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Content distribution networks (CDNs)

Content replication

- challenging to stream large files (e.g., video) from single origin server in real time
- solution: replicate content at hundreds of servers throughout Internet
  - content downloaded to CDN servers ahead of time
  - placing content “close” to user avoids impairments (loss, delay) of sending content over long paths
  - CDN server typically in edge/access network
Content distribution networks (CDNs)

Content replication

- CDN (e.g., Akamai) customer is the content provider (e.g., CNN)
- CDN replicates customers’ content in CDN servers.
- when provider updates content, CDN updates servers
CDN example

origin server (www.foo.com)
- distributes HTML
- replaces:
  - http://www.foo.com/sports/ruth.gif
  with

CDN company (cdn.com)
- distributes gif files
- uses its authoritative DNS server to route redirect requests
More about CDNs

routing requests

- CDN creates a “map”, indicating distances from leaf ISPs and CDN nodes
- when query arrives at authoritative DNS server:
  - server determines ISP from which query originates
  - uses “map” to determine best CDN server
- CDN nodes create application-layer overlay network