ATHENA ALPEN-ADRIA MOV/2023

CP-Steering: CDN- and Protocol-Aware Content Steering Solution for HTTP Adaptive Video Streaming

Reza Farahani, Abdelhak Bentaleb, Mohammad Shojafar, and Hermann Hellwagner

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reza.farahani@aau.at | https://athena.itec.aau.at/ | https://www.rezafarahani.me



Agenda

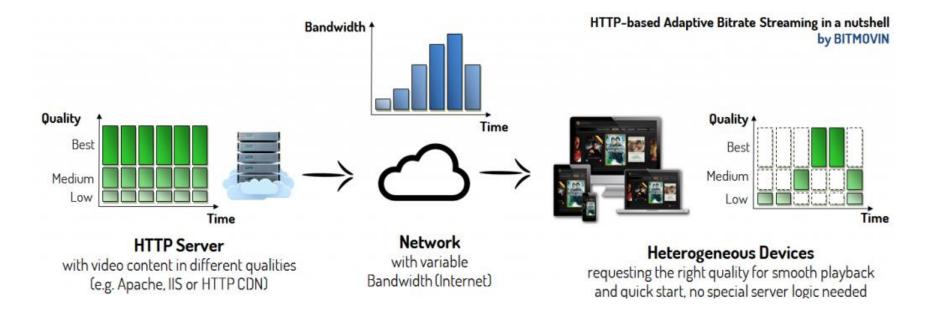
- Introduction
 HAS
 QUIC
 - Content Steering
- CP-Steering
 - Motivation
 - Workflow
 - CP-Steering in a heterogeneous environment
- Conclusion and Future Work



Introduction



Introduction- HAS



https://bitmovin.com/dynamic-adaptive-streaming-http-mpeg-dash/

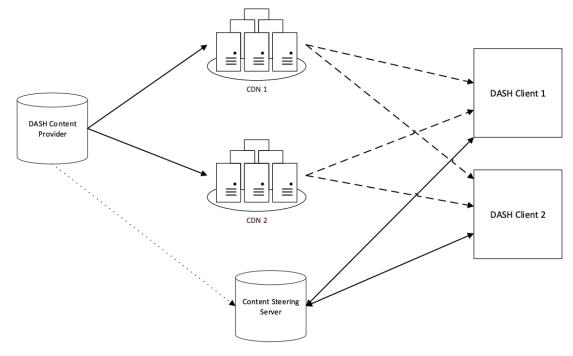


Introduction-- QUIC

HTTP semantics				
		Header compression Server push (HPACK)		Header compression Server push (QPACK)
HTTP/1.1		HTTP/2		HTTP/3
		Prioritization		Prioritization
Pipelining		Stream multiplexing		Stream multiplexing
	Authentication	Key negotiation		Authentication Key negotiation
TLS				TLS
Session resumption / 0-RTT Encryption/decryption				Session resumption / O-RTT Encryption/decryption
				Connection migration
Congestion TCP Reliability				Congestion QUIC Reliability
Connection oriented				Connection oriented
				UDP
Port numbers				Port numbers
IPv4 / IPv6				

https://github.com/rmarx/h3-protocol-stack

Introduction-- Content Steering



https://dashif.org/docs/DASH-IF-CTS-00XX-Content-Steering-Community-Review.pdf



CP-Steering



CP-Steering-- Motivation



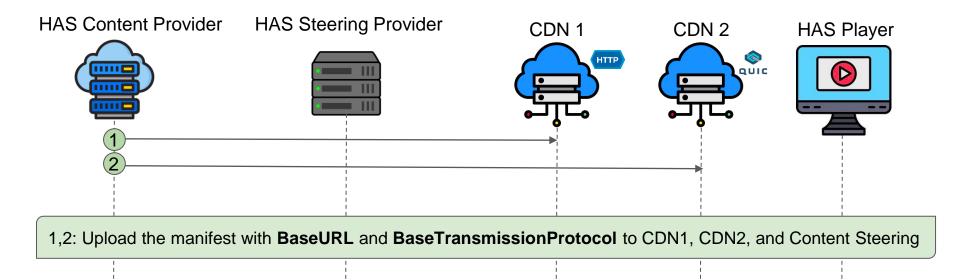
How can we augment the **current content steering solutions** with a **multi-protocol** stacks, including **QUIC** and **TCP**, to satisfy all users with **different network** connections (e.g., lossy or stable) in acceptable **QOE** and **latency**?

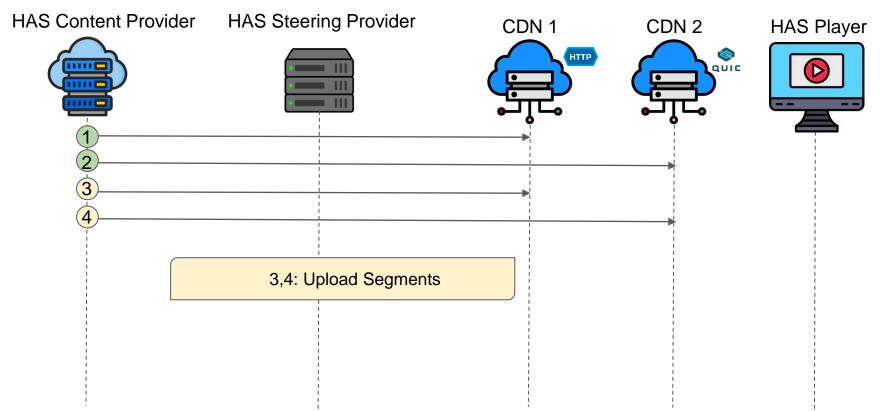


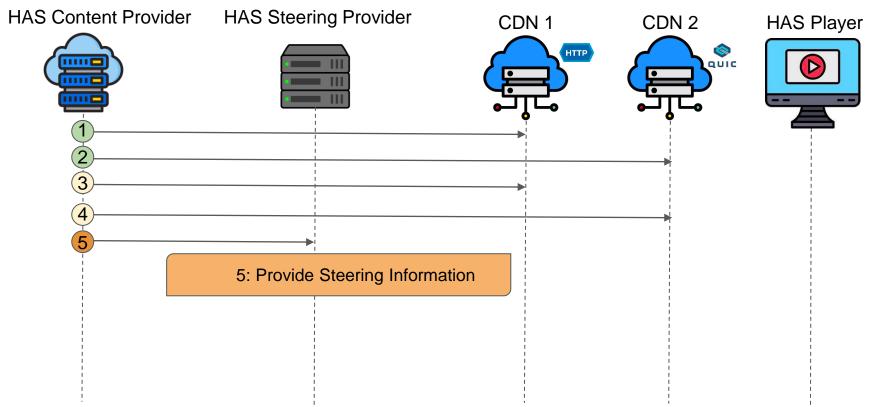
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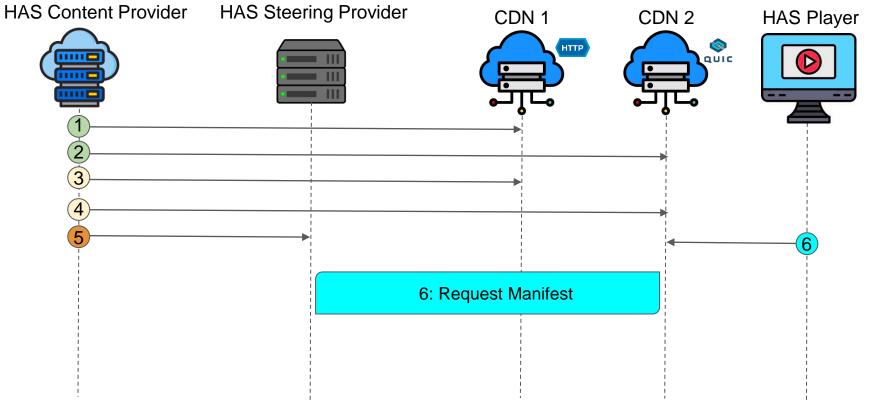


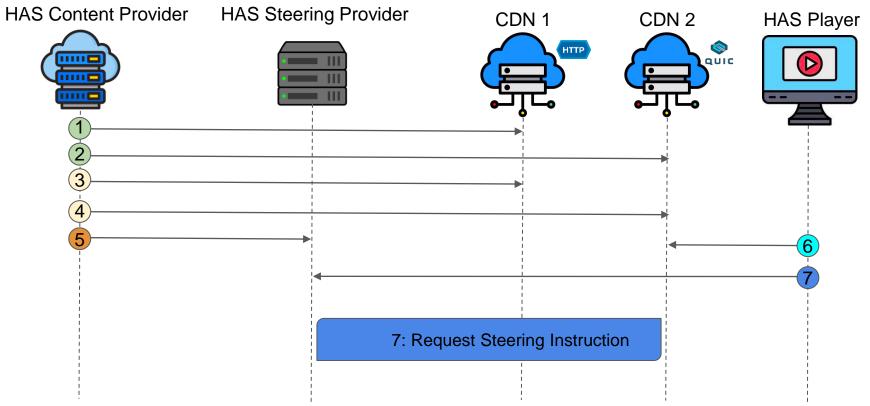


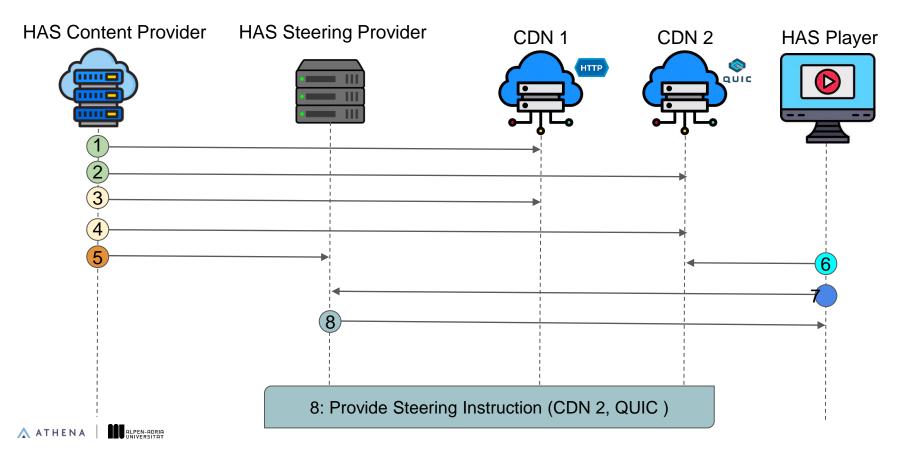


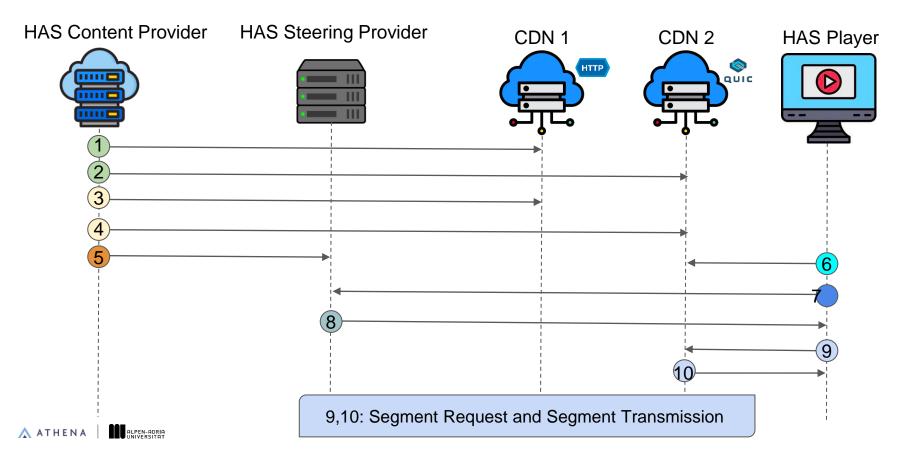


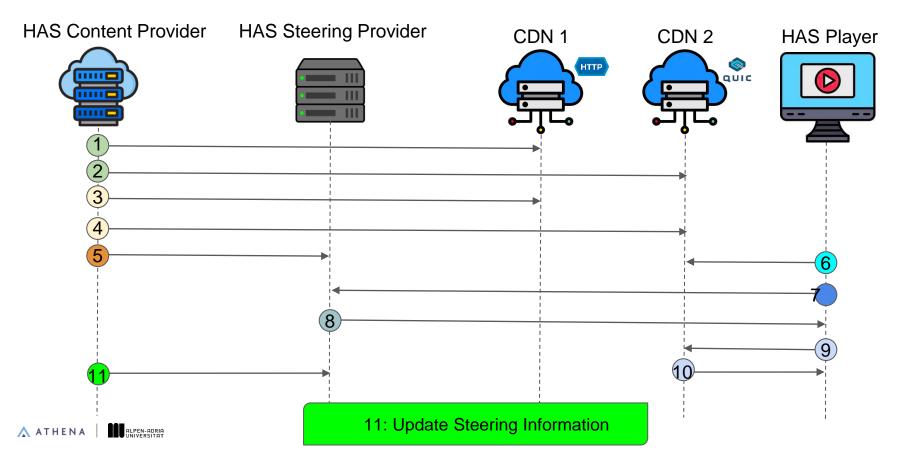


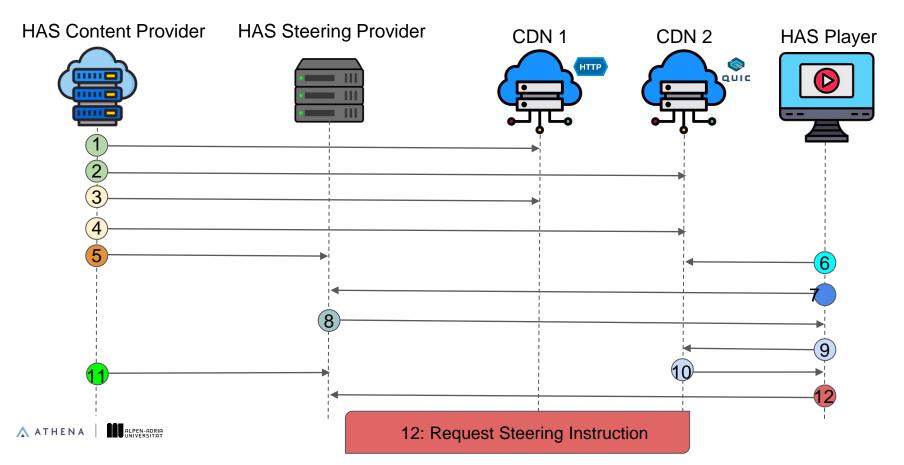


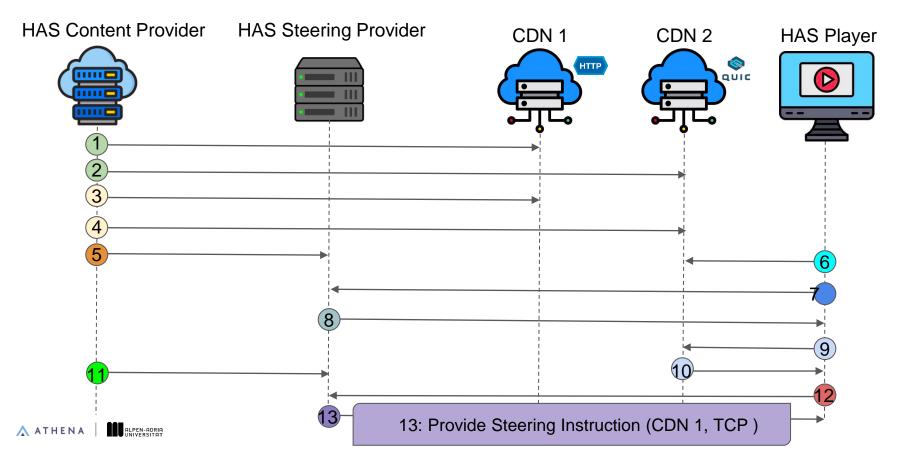




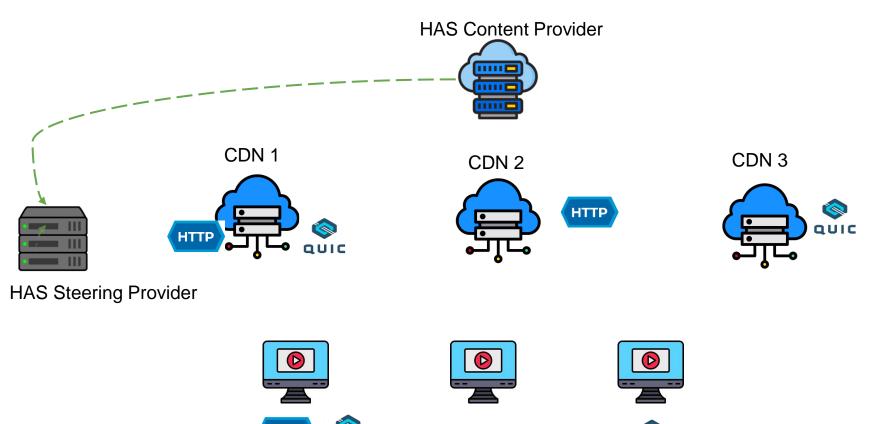












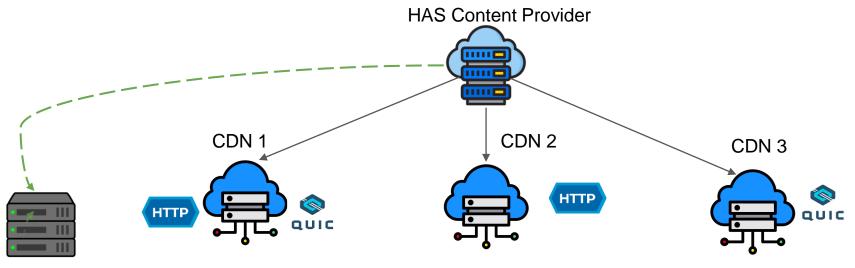
HTTP

QUIC

HTTP

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QUIC



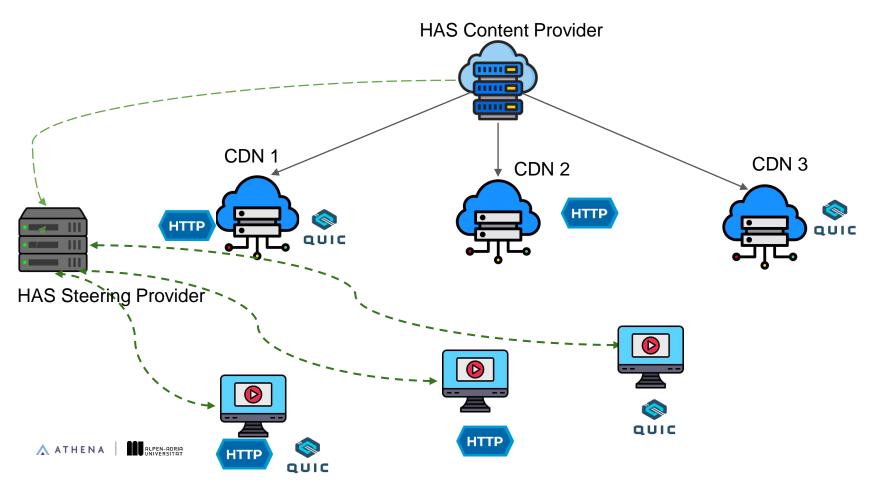
HAS Steering Provider

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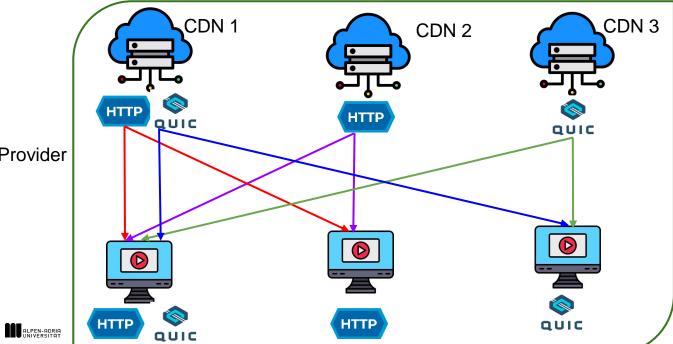






HAS Content Provider







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Conclusion and Future Work



Conclusion and Future Work



- Propose a content steering solution
 - multi-protocol
 - multi-CDN



- Integrate the CP-Steering strategy with dash.js
- Evaluate its performance on a real-world testbed

Thank you for your attention

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