Multicast HTTP using BIER

https://tools.ietf.org/html/draft-purkayastha-bier-multicast-http-00.html

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Recap : Multicast HTTP using BIER

- Example realization of the use case (https://tools.ietf.org/html/draft-ietf-bier-use-cases-06#section-3.10) over BIER was presented

- Few requirements were listed

- Operational details were described
  - Required Functional elements
    - PCE
    - Service Router
  - Suggested Protocols
    - Between Service Routers and PCE, Registration with PCE

Summary of updates

- Applicability of the use case towards services other than video delivery.

- Realization of the use case with existing solutions (without BIER).

- Clarification w.r.t existing technology
  - Is it overlay only? Why "Edge Multicast Flow" compute nodes cannot be used?

Applicability of the use case

- "HTTP Level Multicast" may be applied in other use cases such as Virtual Reality, V2X.

- Virtual Reality

  - Several users are joining a VR session at the same time, e.g., centered around a joint event.

  - Multiple requests are sent for the same content at any point.

- V2X

  - At a particular location, many vehicles may request geo-location, safety related information from the same content server at the same time.

- In POINT/RIFE EU Horizon 2020 project, HTTP Level Multicast use case has been executed on SDN based and ICN based underlay network

State of the art

- HTTP requests and responses are routed based on the URI associated with the request.

  - URI is used to identify Source and Destination,

- HTTP requests are routed using "path-based" forwarding mechanism.

  - Routing of HTTP request/response can be done based on named services and HTTP is used as a special named (application layer) service.

- Routing of those request is done via a "Service router".

State of the art

- Existing transport technology, such as SDN based forwarding may be used.

  - This utilizes path-based forwarding through SDN-based wildcard matching fields, supported with OF1.2+

- The Ethernet frame format at Layer 2, represents the topological links of a specific forwarding path in the transport network, as unique bits in a fixed size bit array

  - the approach utilizes the IPv6 source and destination fields for storing the bit array information

Clarification w.r.t existing solution

- The use case completely works as an overlay on BIER.

- The multicast here is ad-hoc, i.e., the multicast relations are built at the level of each HTTP response and can therefore vary from one request/response transaction to others.

- Edge multicast flow aggregators assume stable multicast relations that can be mapped onto, e.g., IP multicast.

Next steps

- We suggest to include an additional Applicability Statement documenting "How BIER can be applied to aggregate HTTP responses over a BIER infrastructure" (which we term as "HTTP Multicast").