Multicast HTTP using BIER


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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”).