Incremental HTTP Messages

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recap

the problem

senders and recipients cannot rely on incremental delivery of partial messages, since some implementations will buffer or delay message forwarding

RFC 9110 Section 7.6

but some applications need such behavior

Incremental: ?1 (individual draft -00)

- the header indicates the sender wants the HTTP message to be forwarded incrementally
- if the header exists, intermediaries should forward incrementally
- when intermediaries cannot, they reject / reset the request rather than buffering, as buffering leads to deadlocks / timeouts
- the header is advisory - Incremental is an extension, we cannot change how existing HTTP intermediaries work

issues

- signalling:
  - tri-state (or more?)
  - requests indicating preferences about responses
  - intermediaries signaling capability to servers
- definition of "incremental" delivery

tri-state (or more?) #3041

status quo	intermediary action
no header	default behavior
Incremental: ?1	deliver incrementally or signal error

tri-state (or more?) #3041

status quo	tri-state	intermediary action
no header	no header	default behavior
Incremental: ?1	Incremental: always	deliver incrementally or signal error
N/A	Incremental: preferred	deliver incrementally if feasible, fallback to buffering
N/A	Incremental: not-preferred	buffer entire request if possible, otherwise deliver incrementally

requests indicating preferences about responses [#3042](#3042)

- client sends prefer: incremental
- if intermediary cannot deliver the response incrementally, it rejects the request
- otherwise, intermediary forwards the request to the server, and forwards the response to the client incrementally

requests indicating preferences about responses [#3042](#3042)

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with tri-state, we need a dedicated header to communicate all the options

intermediaries signaling capability to servers [#3043](#)

- rationale:
  - avoid unnecessary work (covered also by prev. issue)
  - better observability at the server side
- straw-man:
  - with status quo, either:
    - Response-Capabilities: incremental
    - Can-Respond-Incrementally: ?1

intermediaries signaling capability to servers
#3043

- rationale:
  - avoid unnecessary work (covered also by prev. issue)
  - better observability at the server side
- straw-man:
  - with status quo, either:
    - Response-Capabilities: incremental
    - Can-Respond-Incrementally: ?1   i.e., "not-preferred" is not supported
  - with tri-state:
    - Incremental-Response-Options: <u>always, preferred</u>

signalling questions

- Re tri-state,
  - Original proposal only has hard-fail (deliver incrementally or reject).
  - Do we want to introduce other modes that do not hard-fail?
- Re other signalling mechanisms, do we need them?

definition of "incremental" delivery [#3007](#)

- how long (time) or how much data (bytes) can intermediaries buffer before forwarding them downstream?
  - time-bound - would be okay if the duration is small
  - byte-bound - to support arbitrary application protocol, intermediaries cannot buffer indefinitely, even if the data being buffered is 1 byte