URLs and HTTP Response Forms for Multicast

`draft-singer-appsawg-mcast-url-00`

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Multicast Delivery Protocols: System or Transport?

- Traditionally viewed as a system (vertical)

- Yet we could view them as a transport (horizontal)

- What does it take to view them as a transport protocol that fits in?

Fitting into the Transport Landscape

- Available resources are ideally addressed by URLs

- The 'threads' of the Web *are* URL references; we can also redirect into a multicast

- Relative URLs are important for dynamism (e.g., rehosting)

- If we use DNS names we can also get some dynamic capability

- It is also really convenient to get explicit status (HTTP-like); we can then re-direct out of multicast

- Given these, it could have system software support with very similar API interface to HTTP

What Does a URL Form Need?

- Today multicasts are addressed by 'header files' (e.g., SDP)

- Classes of information in them:

  needed to *get going* (addresses etc.)

  needed to know whether it's *worth trying* (e.g., availability period)

  alternatives

  repair services, feedback addresses, etc.

- Propose we focus on the first two: the minimum 'hook'

- Other info can be in higher layer (e.g., in a manifest or program guide), or carried in-band (e.g., repair information)

Requirements for the URL Form

- Data needed by ALC/LCT (see the RFC) to get going

- Validity information (time period, ideally network where the multicast is available)

- URLs must be valid to the specifications, and support relative forms

- Steer clear of query and fragment parts (we do not own them)

Draft Form

- {prefix}{mid}{suffix}

- prefix:

    fcast://destination:port/source:TSI

- mid: /name:value pairs e.g., start-time

- suffix: /label: and the URI label of the file in the multicast

- Example:

    fcast://232.0.0.1:5620/broadcast.example.com:527353
    /start:35776638264/network:media.example.com
    /label:http://news.example.com/stuff.mp4

Result Codes

- Fcast metainformation has HTTP headers EXCEPT the result code

- We propose a new metainformation format that puts the status line (including result code) back

- Example useful codes:

  Success

  Partial content

  Redirect

  Not found (here)

Open Questions

- Details, escaping, exact syntax

- What is in what layer: document enclosing the URI, the URI, carried in-band in the multicast

- Leveraging DNS

- How to constrain relative URLs (e.g., how far up can ".." go?)