Internet Services over ICN in 5G LAN Environments

https://www.ietf.org/id/draft-trossen-icnrg-internet-icn-5gлан-00.txt

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Introduction

• Related WG Draft
  – Draft-irtf-icnrg-5gc-icn-00 (Enabling ICN in 3GPP's 5G NextGen Core Architecture), enabling ICN over 5G systems including 5GLAN.

• The present I-D: draft-trossen-icnrg-internet-icn-5glan-00
  – To enable Internet Services over ICN over 5GLAN.
  – Replaced “draft-trossen-icnrg-ip-icn-5glan-00”, which has been presented in IETF 105, Montreal.
Main Content in Present I-D

• Use Cases
• 5GLAN in 5G Next-Gen Core Network
• Internet Services over ICN over 5GLAN
  – ICN API to Upper Layers
  – HTTP over ICN, as example of Internet Service
  – Service Proxy Operations
  – Name Resolver (NR) Operations
  – Dual Stack Device Support
• Deployment Considerations
Primary Changes in Present I-D

• Change #1: Added the following paragraph to “4.2. Realization in Other Transport Networks”
  – “The proposed traffic engineering extensions to BIER, presented in [I-D.ietf-bier-te-arch], directly align with the SDN-based realization presented in Section 4.1, by proposing the same bitposition per transport link assignment being used, resulting in BIER bitstrings in which a dedicated forwarding path is encoded as a unique bitpattern containing said bitpositions of the chosen forwarding links. The BIER-TE controller plays a similar role as the northbound SDN controller application utilized for the solution in Section 4.1.”

• Change #2: Replaced “IP Services” with “Internet Services”
• 5.5. Flow Management
  – Describe how Internet transactions are mapped onto single transport relation with joint flow control across all transactions.
  – Describe handling of opportunistic multicast for HTTP.

• 5.7. Mobility Handling
  – Mobility here includes the originating and serving endpoint mobility.
  – The solution will utilize dynamic path updates, either initiated by the moving entity or proactively initiated by the PCE.
  – Result will always lead to direct path forwarding after mobility event, i.e., no anchor-based forwarding.
Future Demo related to Present I-D

- Plan to show demo in IETF 107, Vancouver
  - Demo will showcase the realization of Internet services over a Layer 2 (here SDN) transport network, using the ICN-based routing.
  - Terminal as well as service-proxy based solution will be shown.
  - Use cases will be
    - Quasi-synchronous HTTP-based video viewing
    - Mobile function offloading, based on micro-service approach on Android mobile devices