Content-Centric Networking (CCNx) @ Information Centric Networking RG (ICNRG)

RFC 8569: Content-Centric Networking (CCNx) Semantics
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RFC 8609: Content-Centric Networking (CCNx) Messages in TLV Format
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Information Centric Networking (ICN) is a shift from host-based networking using endpoint addresses to named content. CCNx, first announced in 2009, and revised in 2014, uses a combination of URI-like path names and hash names to fetch content secured via publisher signatures.
Example Use Case

**Interest**
/example.com/photo.manifest, keyed=0x4423...

**CCNx Network**

**Consumer**

**Interest**
/storage/sfo, hash=0x7289...
/storage/nyc, hash=0xa3b1...

**Content Object**
/Payload 0x7289...
/Payload 0xa3b1...

**Publisher Or Cache**

**Content Object**
/example.com/photo.manifest, Locators=/storage/sfo, /storage/nyc
Signature (keyed=0x4423...)
Implementations

• Community ICN (CICN)
  • Linux Foundation (https://wiki.fd.io/view/Cicn)
  • Vector Packet Processing (VPP), Socket-like I/O, Qt/QML video player

• CCN-Lite
  • University of Basel (http://ccn-lite.net)
  • User space, Linux kernel, OMNeT++, Android, Arduino (Uno and AtMega328, 2 KiB RAM), RFduino (32 KiB RAM), RIOT, and Docker

• Cefore
  • NICT (National Research Institute in Japan) (https://cefore.net)
  • Lightweight & extensible with a simulator and emulator.

• Hybrid ICN
  • Linux Foundation (https://wiki.fd.io/view/HICN)
  • CICN integrated with IPv6 forwarding – beyond an overlay
  • High-performance mobile video tests at large US carrier
  • Internet Area WG: https://datatracker.ietf.org/doc/draft-muscariello-intarea-hicn