

Revisiting name-content binding: In-network namespace operations

breakout session
room Melnitz 1410 (scoring stage)

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When things were simple...

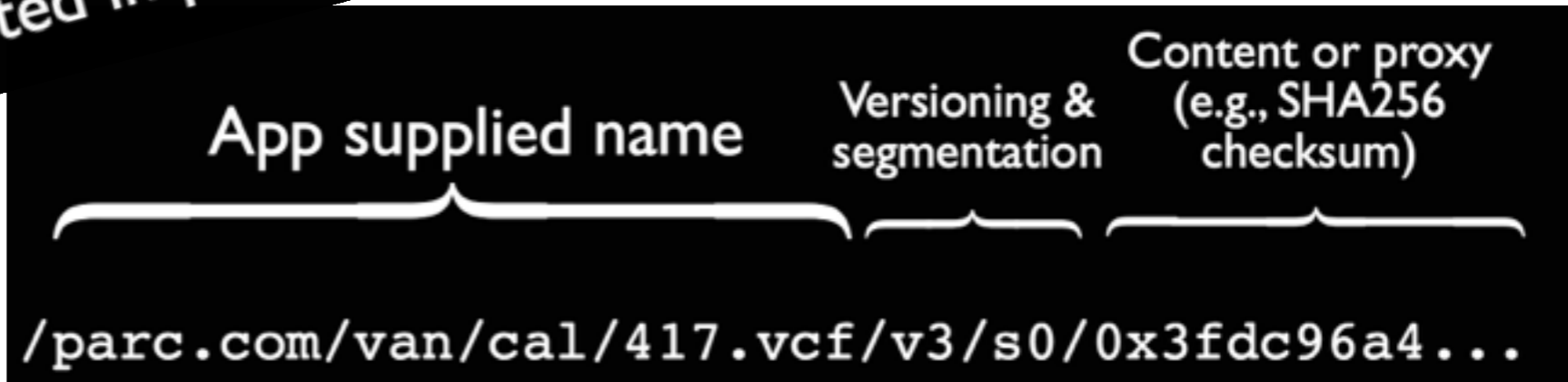
- CCN Names identify an information collection (not an information container).

- Name hierarchy indicates membership.

- The same information can have many names (web-like links).

Note that this binding is immutable

- Like IP, a CCN node imposes no semantics on names — meaning comes from application, institution and global conventions reflected in prefix forwarding rules.



.. and how developers use names

nameless object ***a “name” being just a digest***

overriding names ***redirection, LINK object, NDNS***

named functions ***lambda expressions with many names***

names with blanks ***unifiable names, wildcards***

attribute sets ***instead of hierarchy, data warehousing***

names expressing time-dependent
content proximity ***InfoMax***

crafting certification chains into the
data namespace ***schematized trust***

encrypted names,
one-time names, ...

Goal of this breakout session

- A. Do we have a name crisis?
 - collecting more evidences of “wild” names
 - review the list we have so far

- B. Discuss “who has to care”
 - network?
(name portion for routing, but also clever caching, certs)
 - storage side?
(name portion being a database query)

- C. Discuss network-assists for namespace operations
 - name rewriting (redirection, expression expansion)
 - namespace stitching (filesystem names, service chains)

Where this could lead ... (personal view)

- **Fight the overloading of names: disentangle concerns**
- “name neutrality test”:
does your app continue to work if name components are reshuffled?
- “name futureproofness test”:
does your app work in 10 years (changed providers, expired certs ...)
- Think in terms of a “mount” operation
(from Van’s talk on set reconciliation: purpose matters, not method)
 - “publishing” is exporting a namespace
 - implies rewriting
- **Lowlevel corollary:**
 - **Interests “with name slots”**
 - **multiple signatures (per carrier, per app, per stitching etc)**

Actual discussion

- New LINK object (redirection) triggers quite some discussion
 - security concerns
 - **agreement that functionality is desirable**, but methods to be studied and scrutinized
- Classic CCN&NDN naming does not provide ID/Locator separation *as names are topologically significant* and used for routing
 - problematic for producer mobility, for switching provider
- Audience has interest in name-less objects and **manifests**:
 - Nacho explains: Manifests are explicit data structures to enumerate names belonging to a collection
 - manifest-signing instead of signing each piece, pre-caching
 - replaces implicit model where name “stands for” a collection