In-network storage: caching analysis

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In-network storage, caching analysis

- MF-R3/GSTAR, CCN other content-centric architectures: in-network caching
- **Goal:** analyze *networks* of caches
  - request routed to known location, miss stream forwarded, content returned (and cached, with replacement)
  - modeling content caches: significant differences from:
    - queueing networks
    - blocking (circuit-switched) networks
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- previously:
  - content breadcrumbs: storage-aware routing to content caches elsewhere
  - approximate fixed point analysis of networks of caches

- currently: does steady state depend on initial conditions (ergodicty)?
  - existence of non-ergodic cases (replacement policy, topology, cache size)
  - sufficient conditions for ergodicity
    - topology (trees)
    - from individual ergodicity to system ergodicity
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- ergodicity (continued):
  - random replacement: ergodic
  - class of non-protective policies: all ergodic
- future
  - anycast routing to multiple custodians: power-of-2-chances advantages?
- mobility
- policy