

Security Level:

# Requirements of Name Resolution Service in ICN draft-dong-NRS-requirement-00

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# Critical issue in ICN: name resolution

- **How to map content name to the actual content within the network**
- **Different approaches for name resolution**
  - Out of band
  - Inband
  - Hybrid
  - Manifest
- **Critical issue**
  - For availability
  - Security
- **Attempted to write down the key requirements of a name resolution system**
- **Open up conversation, all feedback and contribution welcome!**

# draft-dong-NRS-requirement-00

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# NRS: Definition

- **Definition:** The Name Resolution Service (NRS) is defined as the service that is provided by ICN infrastructure to help a client to reach a specific piece of content, service, or host using a persistent name.
- **Examples :** iDNS [18], Global Name Resolution Service (GNRS)[9], and Locator/ID Separation Protocol (LISP)[26][27] based approaches, etc...

# Inband vs Out of band

- In the draft, denoted as 'standalone' and 'name based routing' approaches
- Standalone: a specific infrastructure to return a content location based upon a content name
- Name-based routing: combines the name resolution step with a name-based routing
- Hybrid: a subset of the nodes perform a name based routing, with (some form of) tunneling in between these nodes
- Manifest: resolve the name into a manifest that includes more names and/or locations

# Requirements I

- **Some “must”, some “should”!**
- **Guarantee**
  - Name resolution returns a result if name exists
- **Delay Sensitivity**
  - In a timely manner
- **Minimum Inter-Domain Traffic**
  - Without too much impact on traffic
- **Failure Resilience**
  - NRS nodes may fail, should be graceful
- **Accuracy**
  - Good results

# Requirements II

- **Security and accessibility**
  - Tamper proof, scoped, DoS,
- **Scalability**
  - A lot of objects out there
- **Time Transiency**
  - Content may be ephemeral/short lived
- **Support for manifest**
  - Allow for some indirection in the resolution
- **Interoperability**
  - With some other resolution mechanisms, for instance in the context of IoT
- **Resolution Result Selection**
- **Heterogeneity**

# Requirements III

- **Resolution Result Selection**
  - All results, best result, any result? One or more?
- **Heterogeneity**
  - Multiple naming schemes
- **Unspecified Content Name**
  - Parameter based resolution? Resolution without a name?



# Conclusions

- **Trying to focus the conversation**
- **Involvement/feedback/contributions welcome**
- **Converge onto a set of “musts”**

# Thank you

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