HIP Resolution & Rendezvous Problem Description

draft-eggert-hiprg-rr-prob-desc-00

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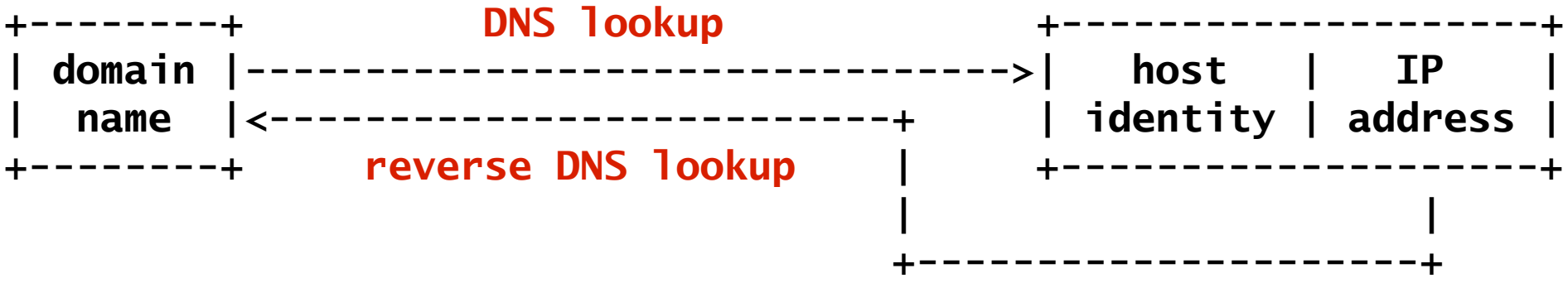
About

- ID does **not** propose specific rendezvous/resolution solutions
- instead, describes
  - rendezvous/resolution problem
  - specific associated issues
- proposed solutions can reference ID and discuss whether and how they address the issues

Terminology

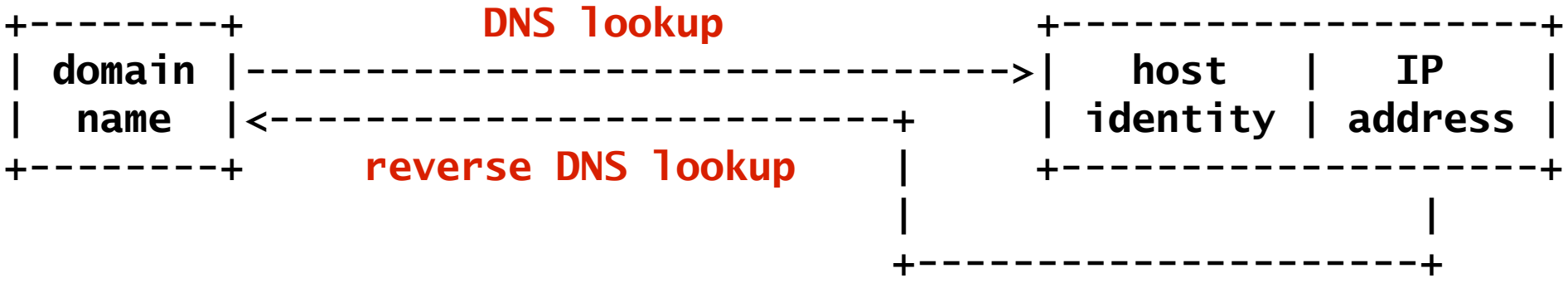
- **resolution**
  - resolving a host identity into its set of IP addresses
- **rendezvous**
  - process by which two nodes obtain enough information about one another to initiate communication
  - purposefully vague, need to refine

Issue 1: DNS Dependency



- IP works fine without a deployed DNS
  - HIP *currently* uses DNS infrastructure to resolve FQDN into <HIT*, IP*>
- **changing the architecture to depend on a deployed DNS is problematic**

Issue 2: Direct Communication



- HIP's *current* use of DNS prevents direct communication
  - must know the peer's FQDN
  - can't talk to a peer even when HIT is known
- **problematic, if the goal is to replace IP addresses with HITs above the network layer**

Issue 3: Reverse Lookup

- **reverse lookups are useful**
  - from IP to HIT
  - from HIT to FQDN
- current DNS-based WG draft may support
  - IP to HIT with new entries in *in-addr.arpa*
  - HIT to FQDN with a new root *hit.arpa*
- **possible new resolvers should support reverse lookups, too**

Issue 4: Rendezvous with DNS

- HIP currently requires DNS reachable at known IP addresses
- **it may be useful to let hosts use HIP to talk to DNS servers**
  - DNS servers would have well known identities instead of IP addresses
  - DNS servers could be easily mobile and multihomed
    - (easier than with anycast)

Issue 5.1: Middlebox Traversal

- middleboxes are a reality
- **for deployment success, the rendezvous procedure must traverse them**

- problem description exists
  - draft-stiemerling-hip-nat-02
- solutions being investigated
  - result of workshop, HIP-over-STUN, etc.

Issue 5.2: Location Privacy

- some operators are concerned about exposing globally routable IP addresses to end hosts
  - “you can attack it more easily if you know where it is”
- **proposals should consider if and how they may support location privacy**

Issue 5.3: Mobility & Multihoming

- how to rendezvous between moving peers
  - for *new* HIP associations
  - (existing ones use REA)
- tradeoffs
  - reachability
  - routing efficiency
  - high-rate mobility

- **proposed solutions should discuss if and how they support this**

Issue 5.4: Legacy Interoperation

- how to interoperate between HIP and non-HIP nodes
  - "just use IP"
  - but would be nice if *some* of the benefits of HIP could be had
- **proposed solutions should discuss how they interact with legacy nodes**

Next Steps

- would like more group feedback!
  - are all identified issues valid?
  - are we missing any?
- make this an RG document?

Questions

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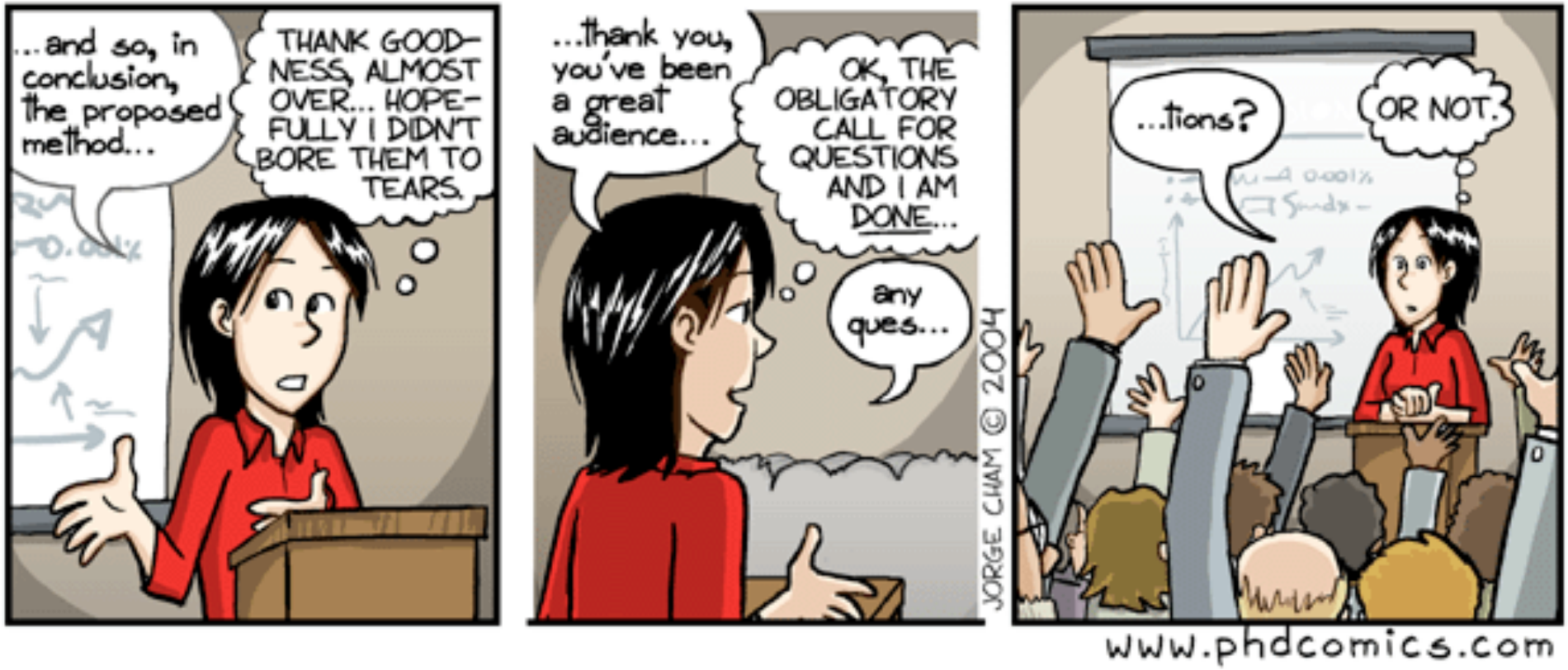

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