HIP Rendezvous Options

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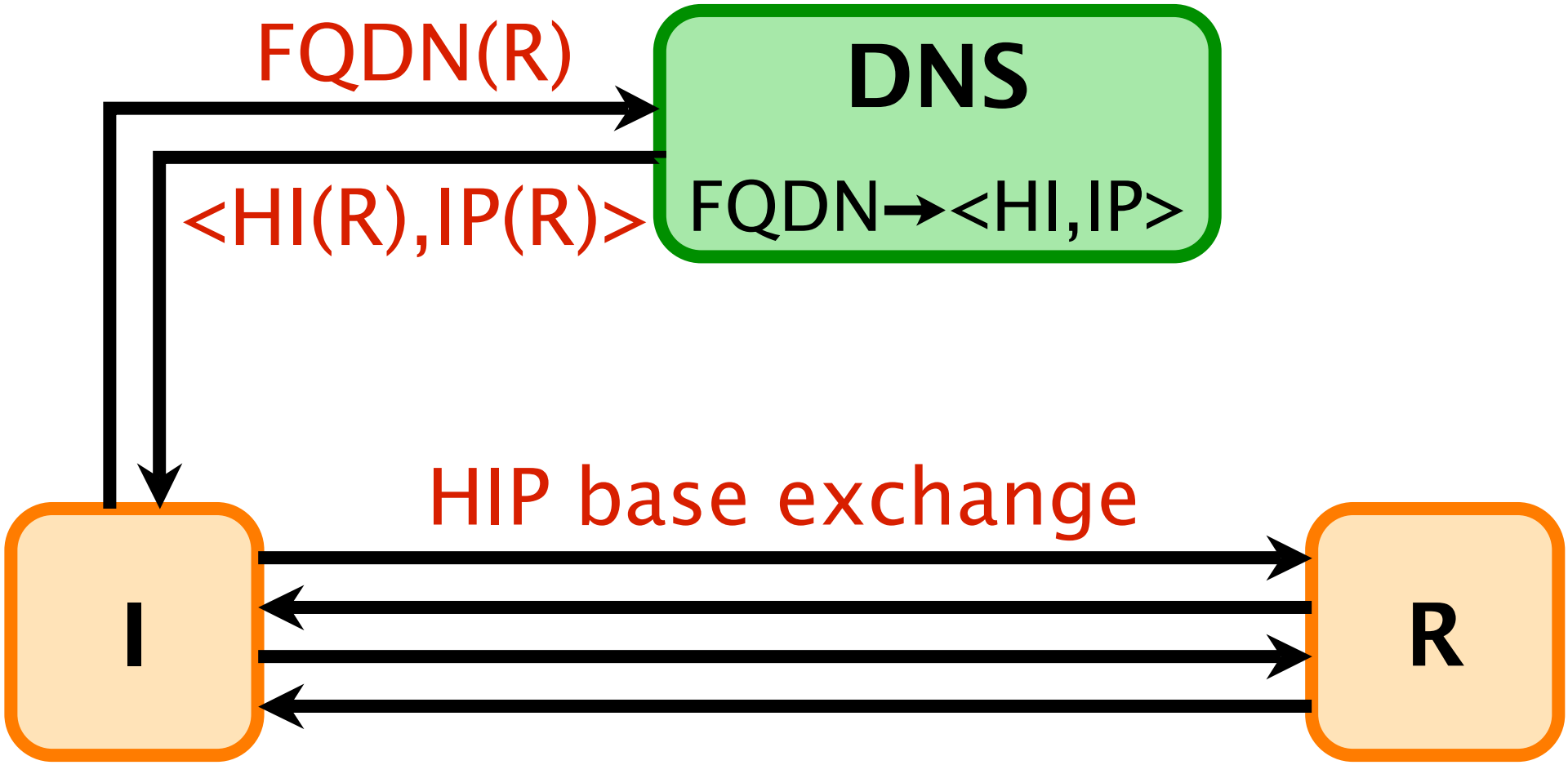
Introduction

- draft-eggert-hip-rendezvous
- ID is -00, talk is newer
- **design options, not solutions**

- 2 rendezvous scenarios
  - among HIP nodes
  - between HIP and non-HIP nodes

Basic HIP-to-HIP Scenario



Focus

- IP address changes
  - **mobility**, etc.
- readdress ongoing associations
  - REA: draft-nikander-hip-mm
- new associations?
  - DNS has FQDN→<HI,IP> map
  - **Strawman:**
    IP change → DNS update

Strawman Limitations

- zone signatures costly
- stale DNS cache → no connection
- IP lookup still requires FQDN

Analysis

- DNS maintains FQDN→<HI,IP>
- combines **2** maps
  - FQDN→HI **#1**
  - FQDN→IP **#2**

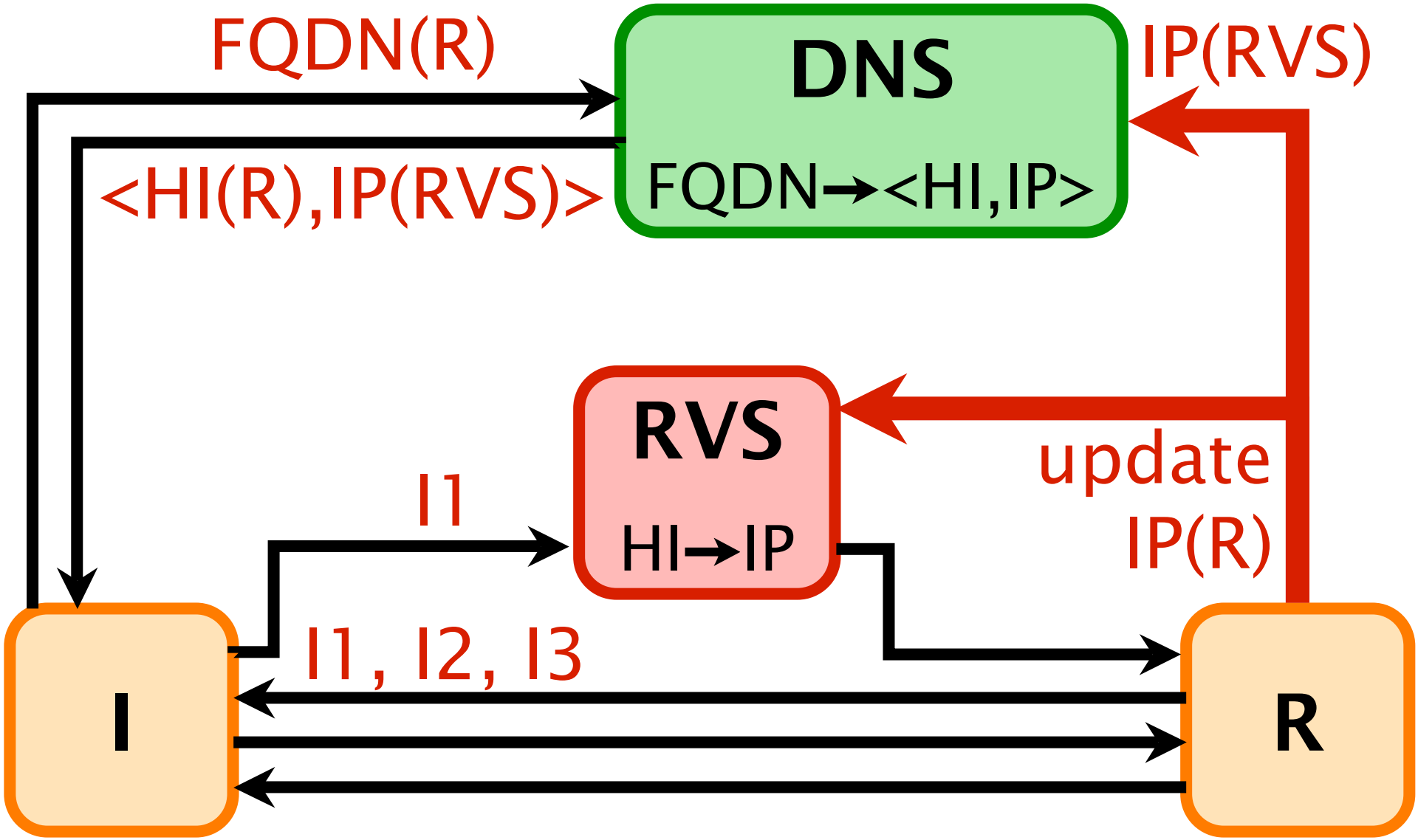
DNS
FQDN→<HI,IP>

- #1 in DNS for app compatibility
- #2 only used by HIP → **move**
  - and need only HI→IP for HIP

HI→IP Alternatives

- **rendezvous server (RVS)**
  - use HI→IP to relay to current IP(R)
  - some traffic flows via RVS
- **lookup service (LS)**
  - return IP(R) given HI(R)
  - 2-phase HIP lookup: FQDN→HI→IP
  - all traffic end-to-end

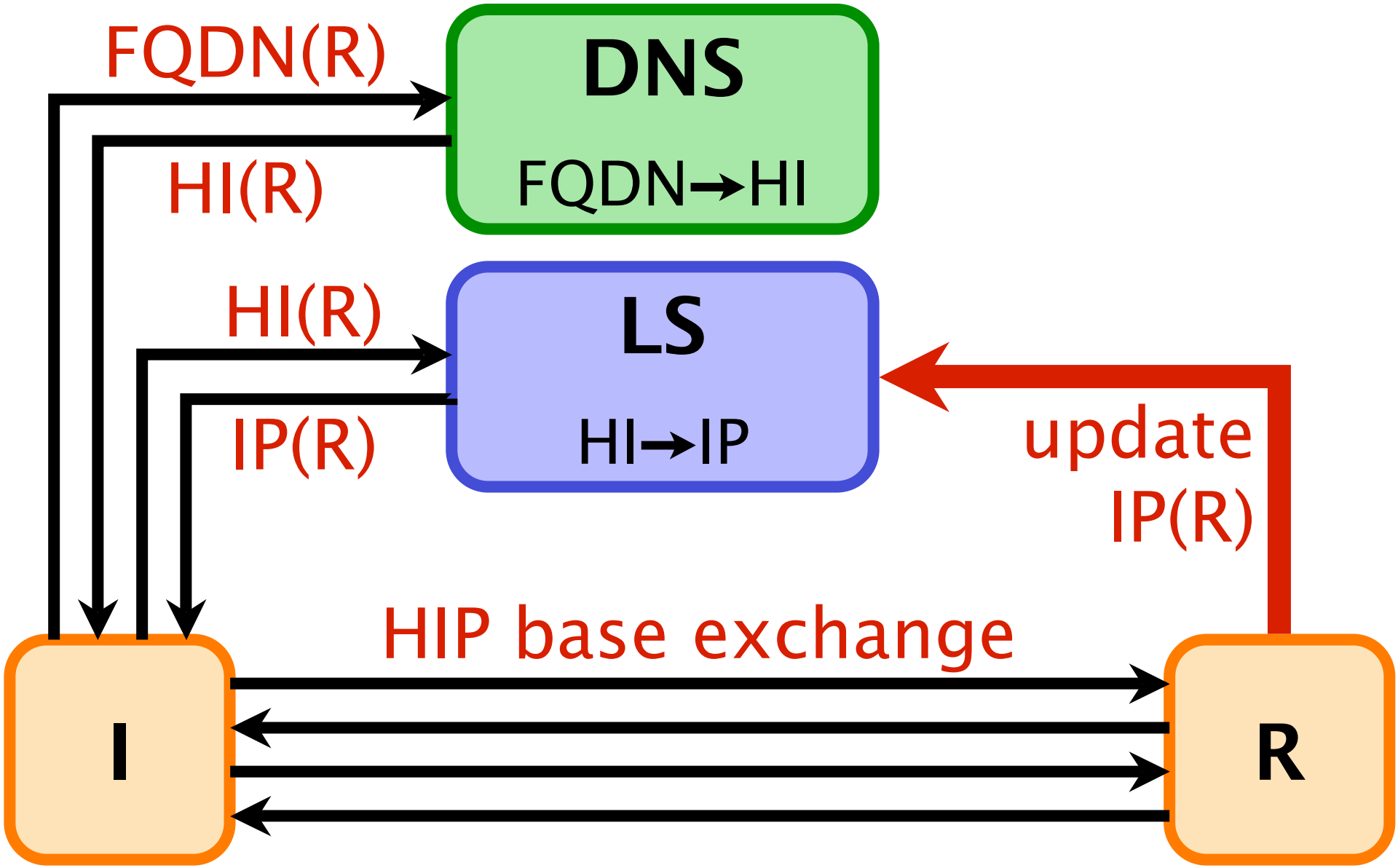
Rendezvous Server



RVS Discussion

- how to relay?
  - forward, NAT, etc.
- how to locate?
  - current HIP arch ID: overload A
  - has implications, details later

Lookup Service



LS Discussion

- can look up IP based on HI
  - inverse may be easier, too
- can tune data structure
  - DHT, etc.
- extra round-trip
- how to locate?

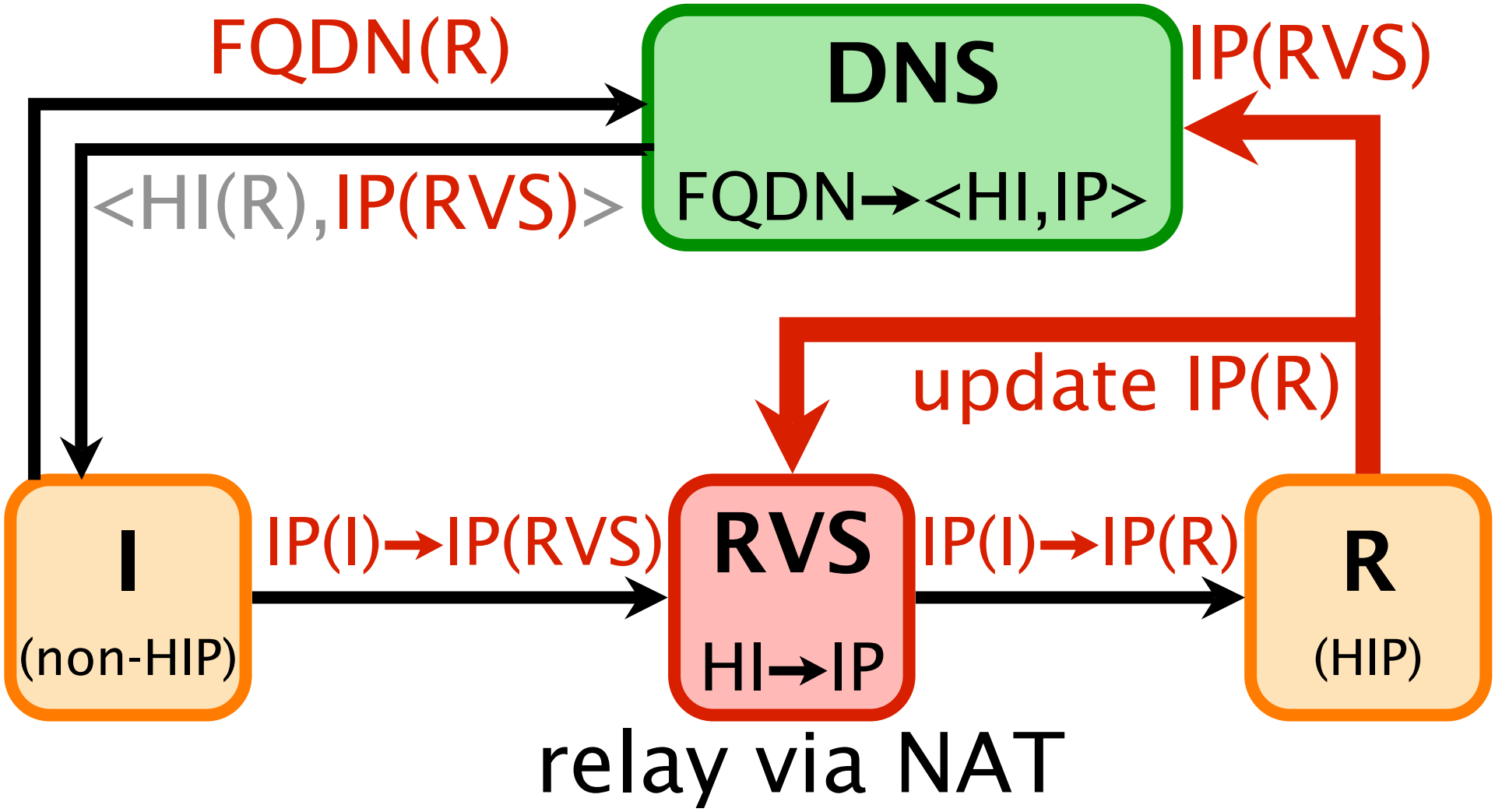
Non-HIP to HIP

- non-HIP: need FQDN→IP in DNS
  - IP: static + reachable
  - similar to MIP
- also similar to HIP-HIP RVS
- but for **all** traffic

Current Arch ID Issue

- current arch ID: IP(RVS) in DNS A
- changes semantics of DNS entry
  - **IP of node ≠ IP of relay for node**
- non-HIP nodes send to IP(RVS)
- RVS must **NAT** to relay
  - well-known general issues
  - how to identify HIP destination?
  - how to rev-NAT return traffic?

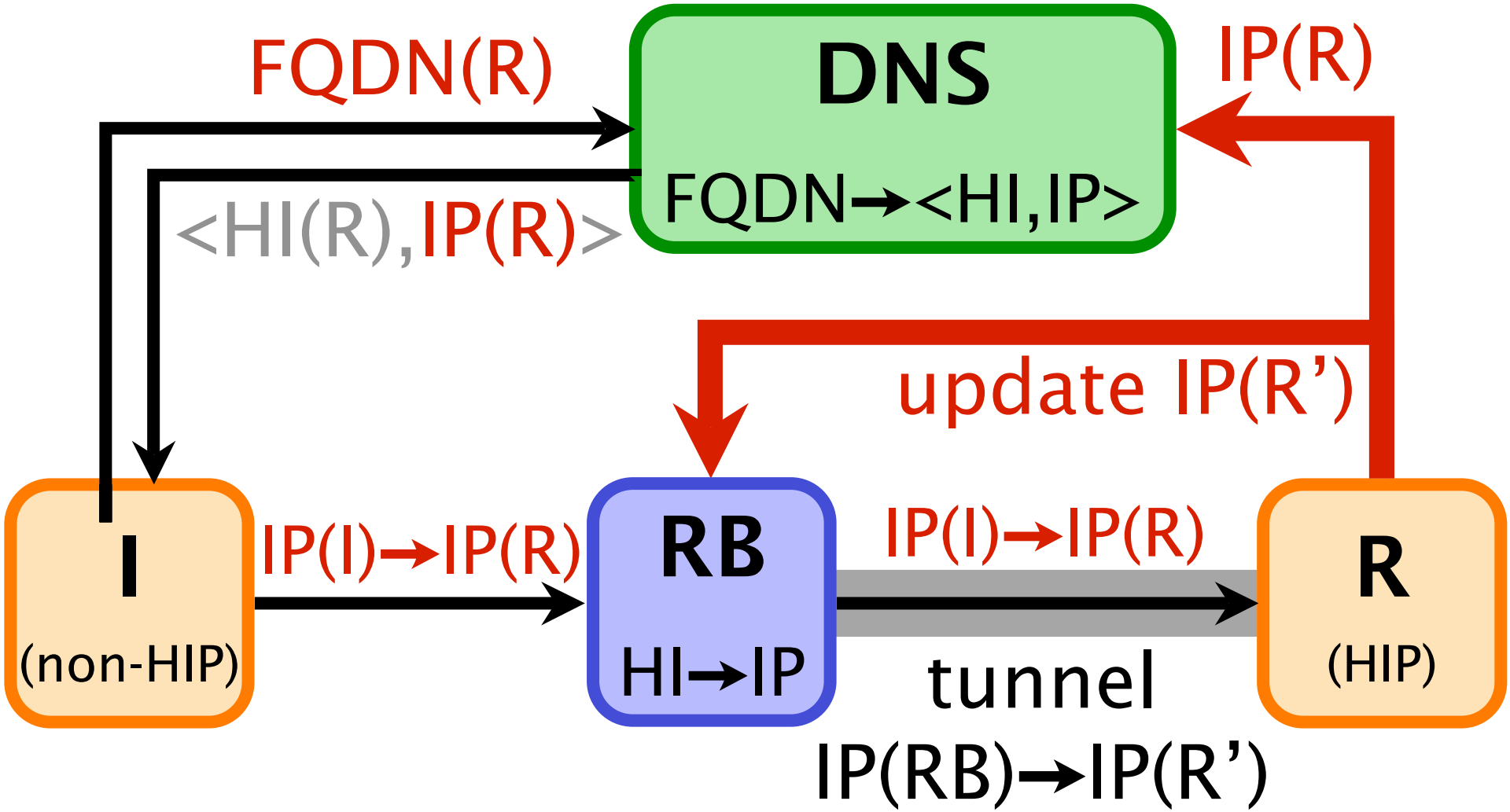
Non-HIP to HIP via RVS



Rendezvous Broker

- alternative to rendezvous server
  - similar to tunnel brokers
- **unique, static IP per HIP node**
  - from block delegated to RB
  - register in DNS
- **tunnel** between RB and HIP node
- RB does vanilla **IP forwarding**

Non-HIP to HIP via RB



RVS vs. RB

- RB does IP fwd, RVS does NAT
  - RVS: well-known NAT issues
  - RB: tunnel has PMTU issues
  - RB solves dst ident + return traffic
- both RB + RVS need
  - setup protocol
  - address update protocol
- performance?
- security?

Conclusion

- reword HIP arch ID, RVS section
  - allow rendezvous alternatives
- investigate
  - lookup service for HIP-to-HIP
  - tunnels for non-HIP-to-HIP
- find other design alternatives
  - request WG/RG input

Questions

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