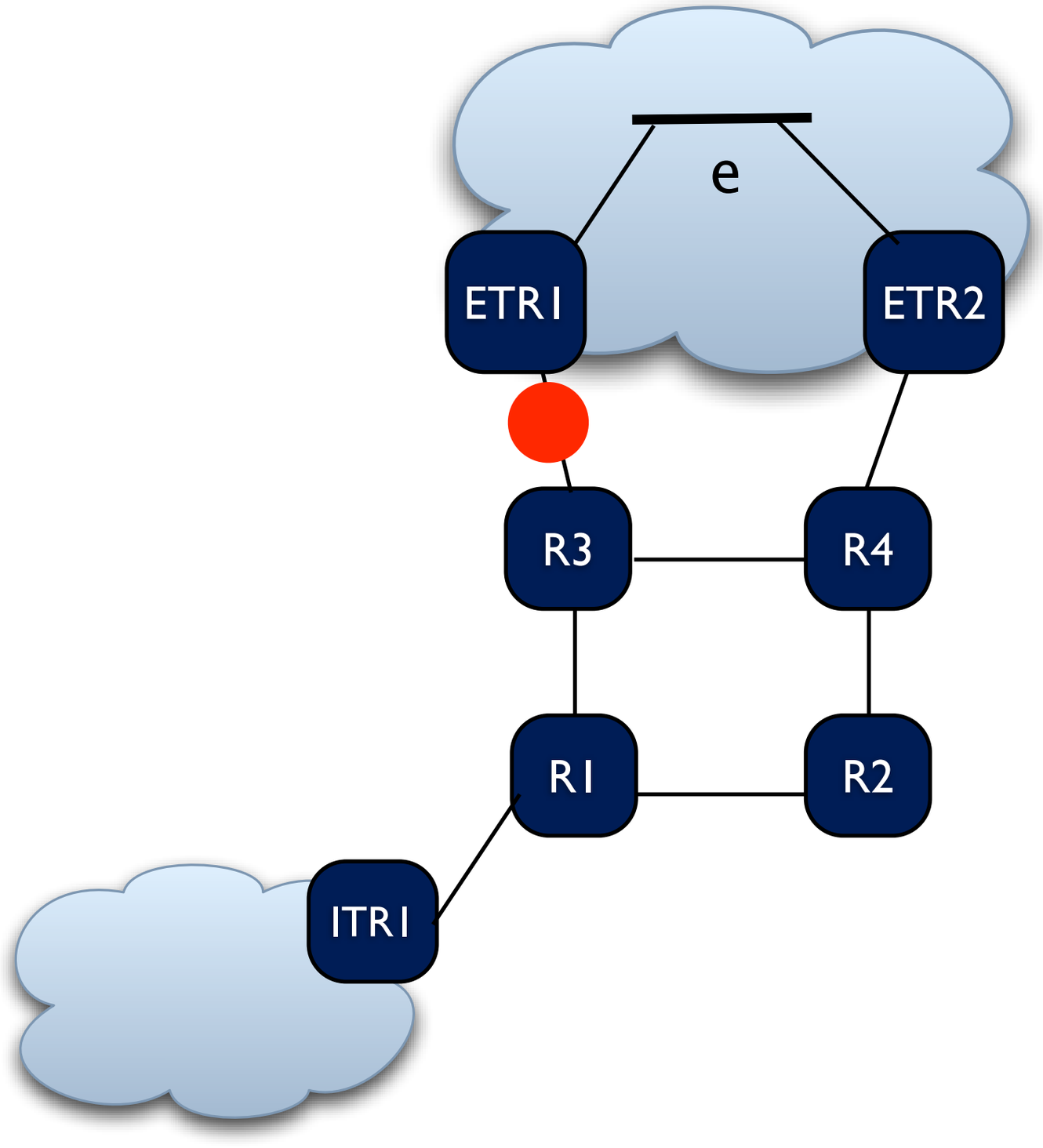
Preserving the reachability of EID prefixes in case of failures

draft-bonaventure-lisp-preserve-00

Olivier Bonaventure
Pierre Francois
Damien Saucez

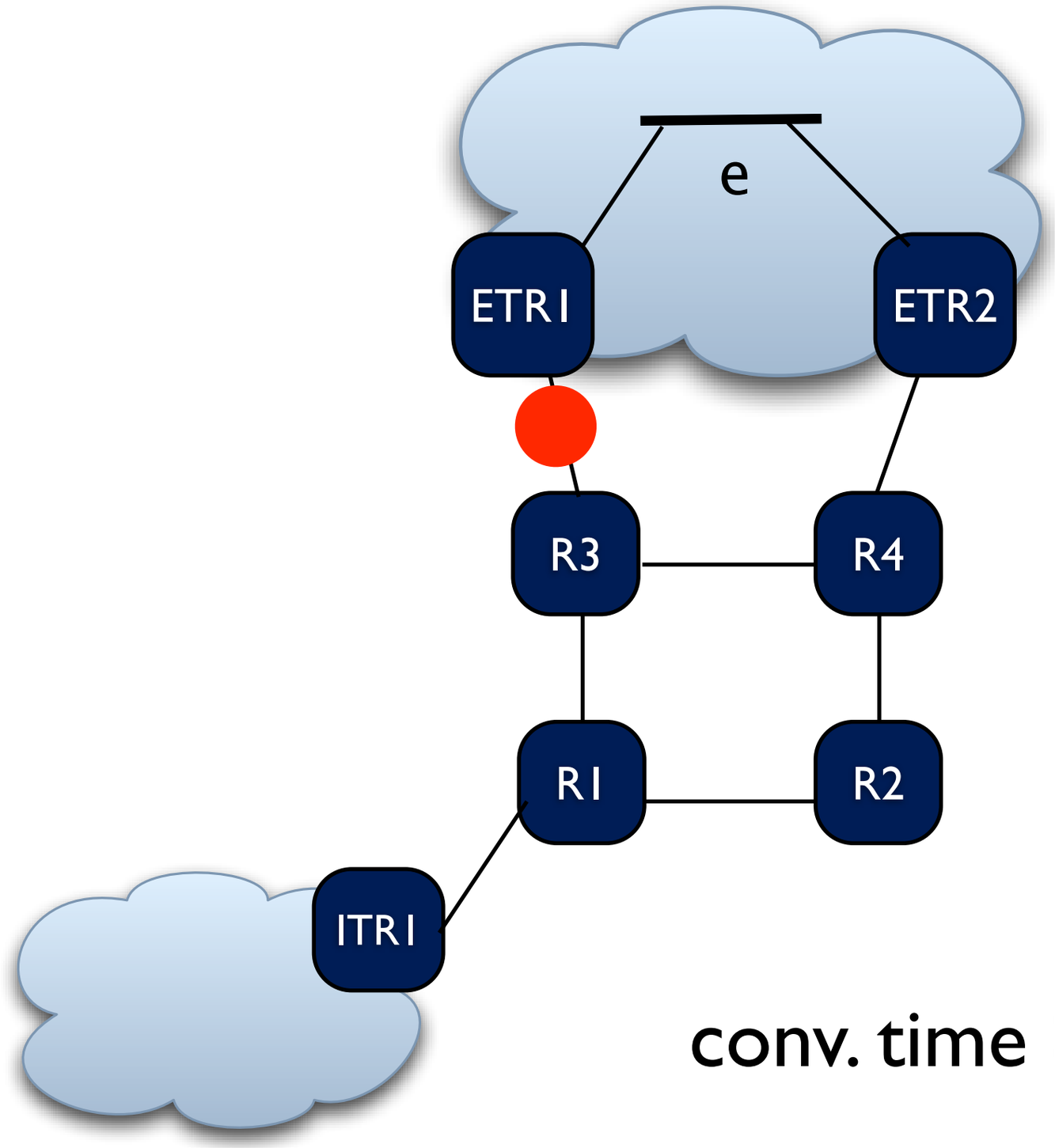
http://inl.info.ucl.ac.be

Today's Internet



- Recovery of **e**'s reachability ensured by BGP

Under LISP



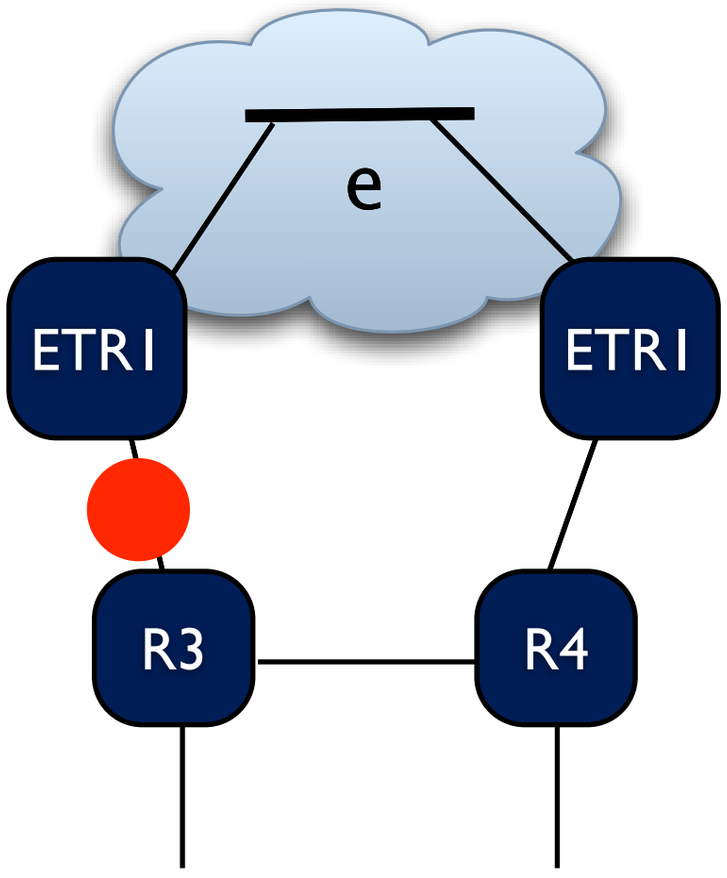
- **ETR2** "detects the failure"
- unsets reach bit of ETR1
  /
  Sets SMR bit on next packet sent to ITR1
- ITR1 gets the packet
- "De-activate" ETR1 **OR**
- Do a map request
  - ITR1 sends map-request for **e**
  - ITR1 gets replies
  - ITR1 updates its cache

conv. time > RTT

Motivation

- (faster) reachability recovery
  - upon failures (frequent, short)
- also with
  - asymmetric traffic
  - unidirectional traffic

Anycast RLocs

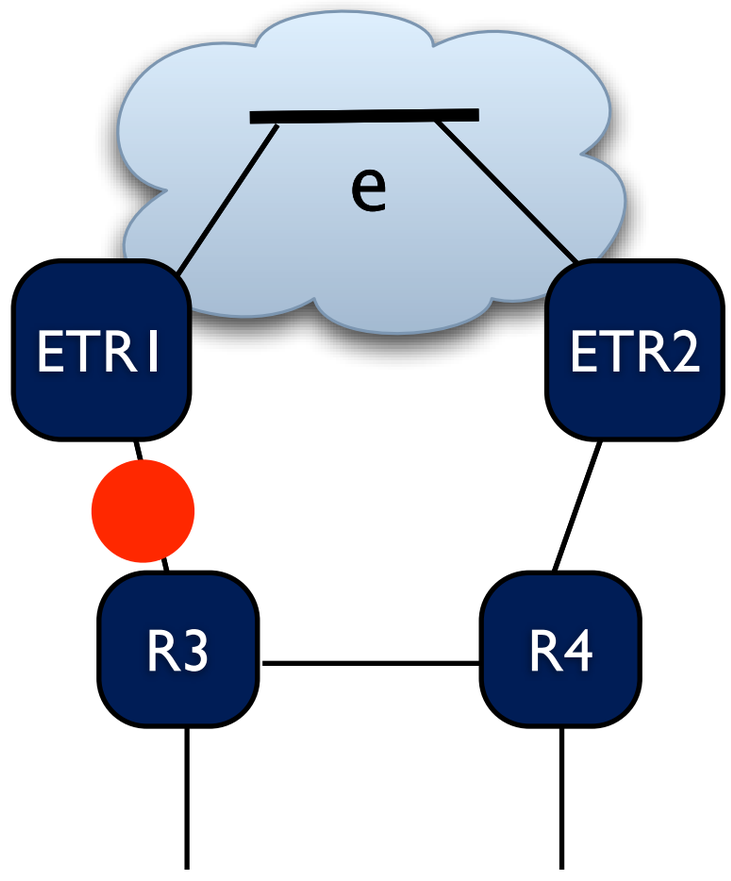


Always use anycast RLocs ?

- Uses of anycast analyzed in the draft
- Hard when ETRs are
  - in different IGP areas
  - in different ISPs

draft-bonaventure-lisp-preserve-00

Local/Fast "Reroute"



- Let R3 know that ETR2 is an alternate ETR (for e)
- R3 detects the failure
- Upon reception of LISP packets destined to ETR1 (e)
  - R3 "rewrites" the packet
  - destination of LISP packet becomes ETR2

Rewriting procedures
D Bit

- D Bit in LISP header
  - unset by ITR
  - rewriting routers set the D bit
  - not allowed to rewrite a packet with D Bit set

draft-bonaventure-lisp-preserve-00

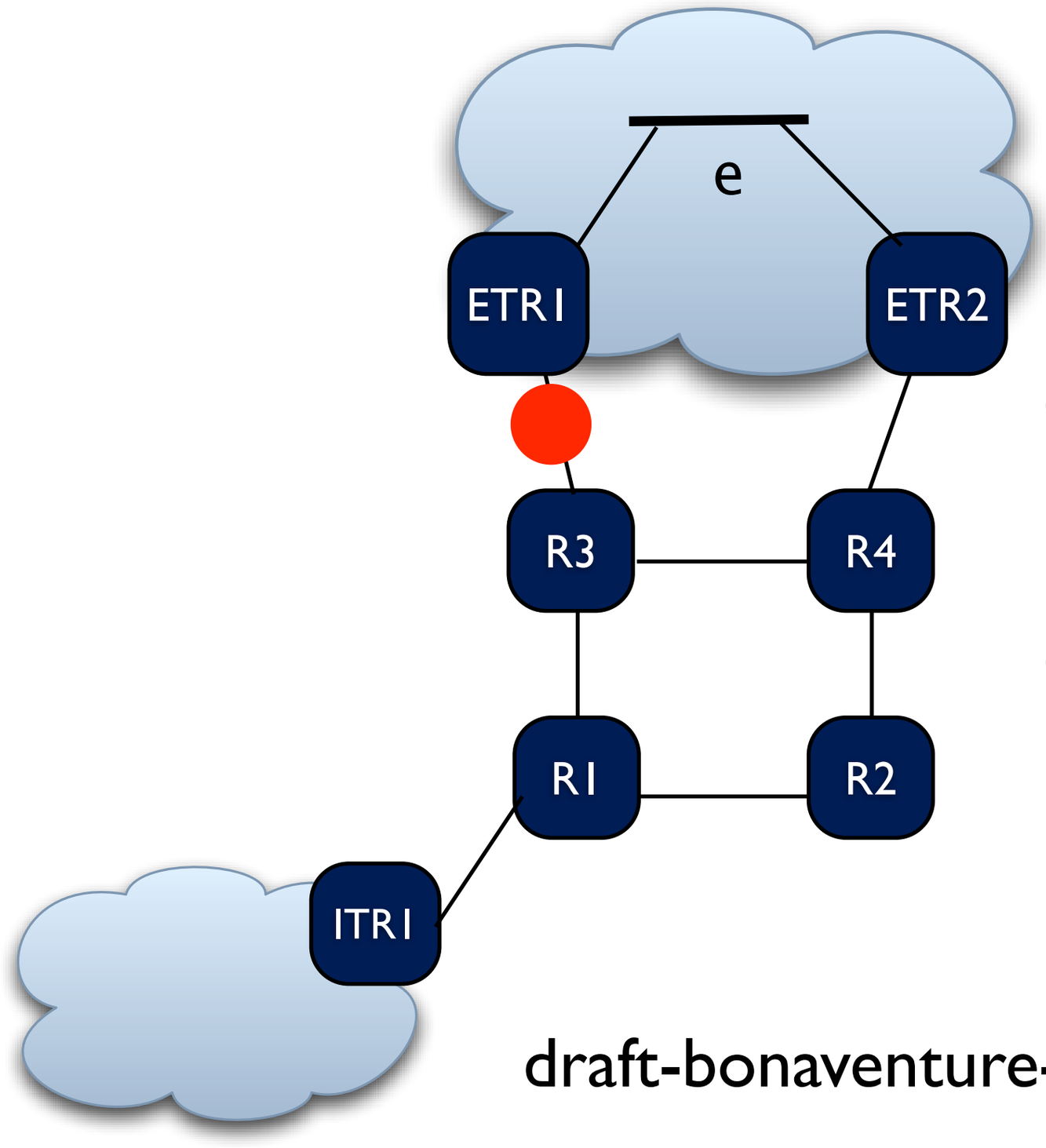
Rewriting procedures

Rewriting duration

- In theory, should be set to Cache TTL
  - default is 24h...

draft-bonaventure-lisp-preserve-00

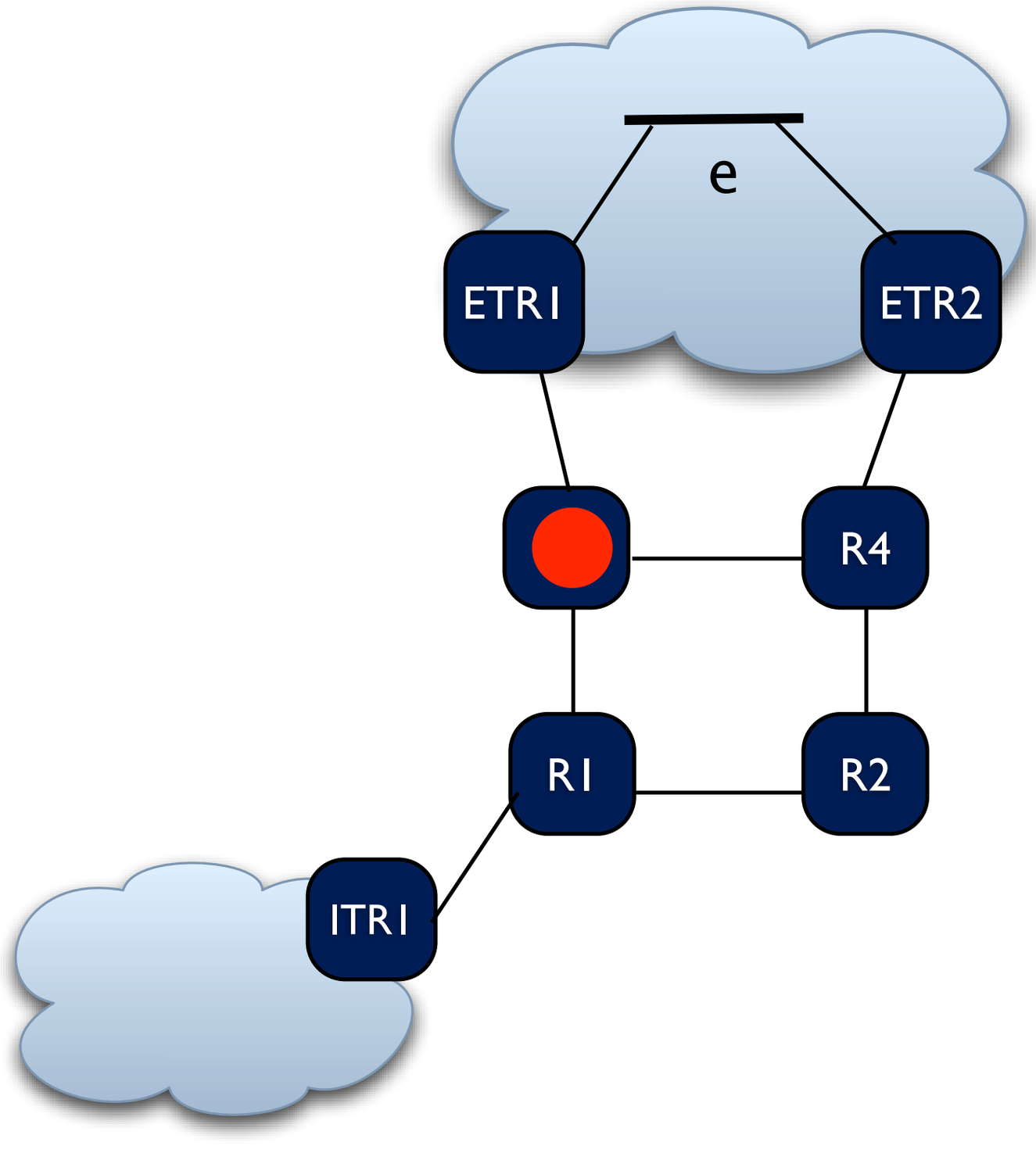
Rewriting vs...



- encap at R3
  - MTU concerns
- map and re-encap at R3
  - security concerns

draft-bonaventure-lisp-preserve-00

PE failure



- Less of a concern
- handled with a mix of
  - anycast (local) and
  - rewriting interfaces

Conclusions

- LISP reachability recovery is not very fast
- Local, transient, rerouting solutions may be applicable
- draft-bonaventure-lisp-preserve-00 provides preliminary insights on how such local rerouting can be performed