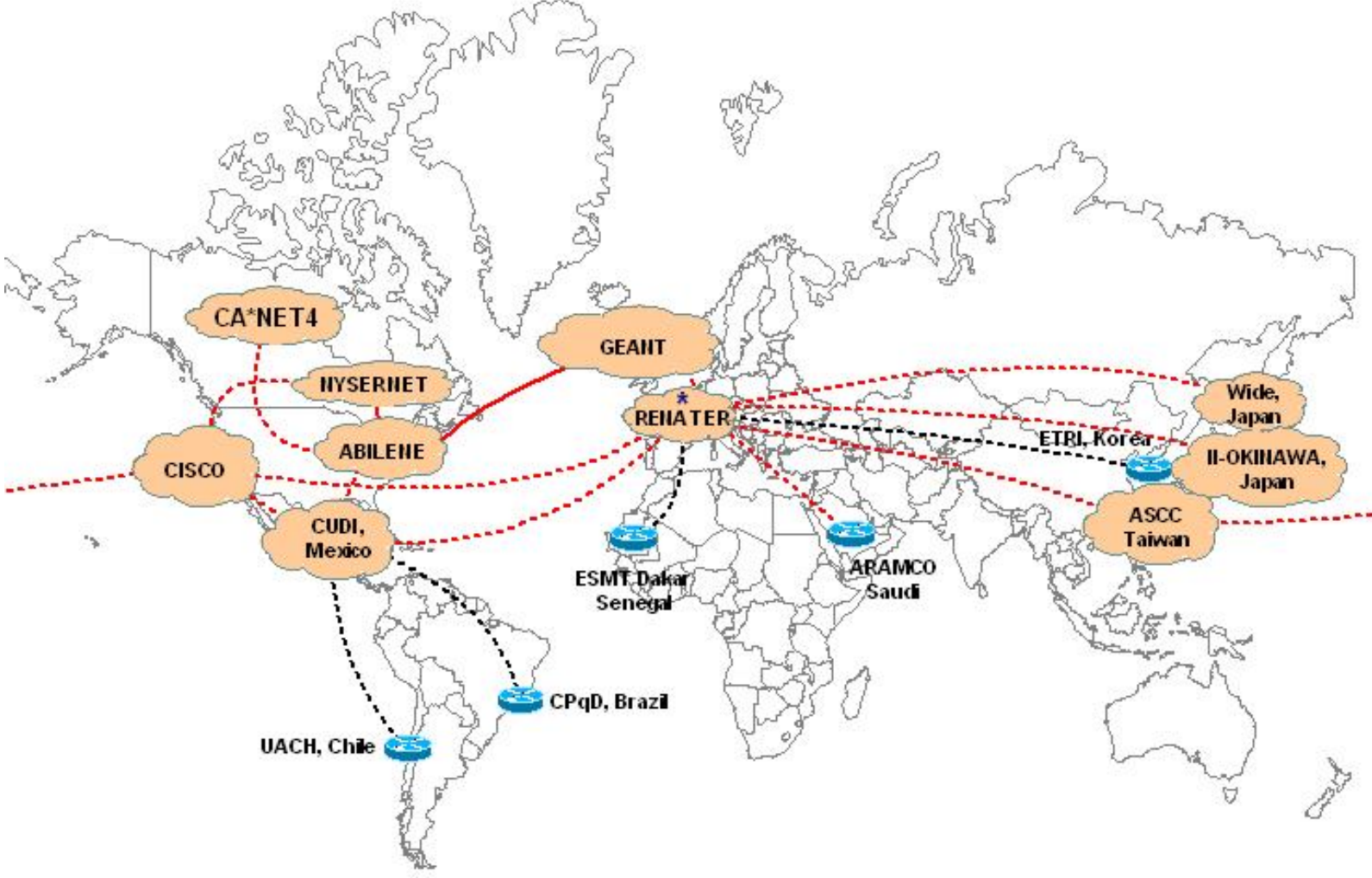


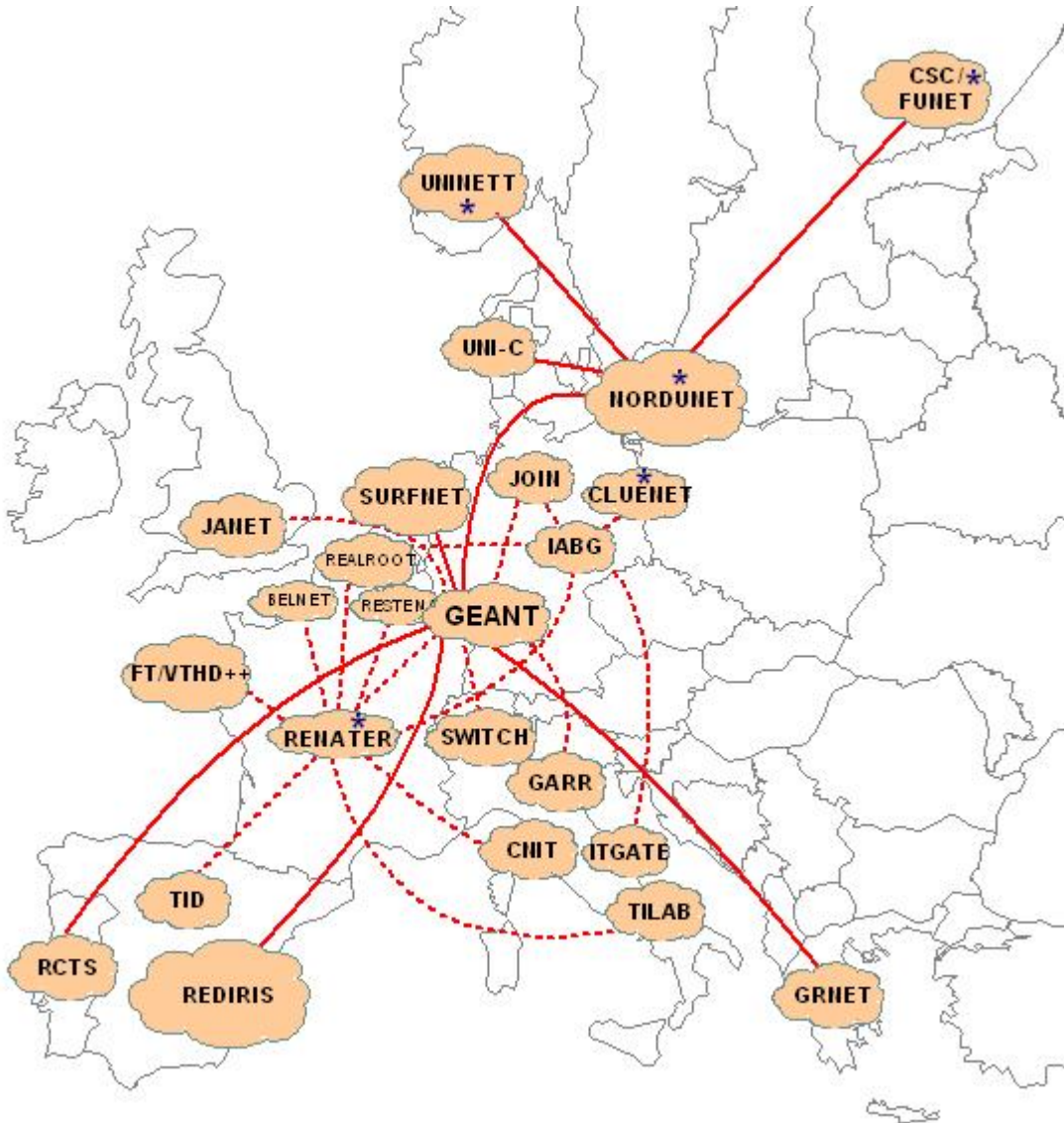


IPv6 multicast update

Jerome.Durand@renater.fr









Is this network alive ?

- Connection requests still coming (average of 2 per month)
- But not much activity on the M6Bone mailing-list
 - Have you subscribed ???





DBeacon

- Remember multicast beacon ?
 - Matrix with multicast active measurements
- It does better...
 - IPv6 and IPv4 enable
 - ASM and SSM enable
 - distributed
 - well implemented
 - robust
 - nice
 - people ready to improve it and integrate comments





DBeacon

	S1	S2	S3	S4	S5	S6	S7
RENATER R1		6	10	10	10	8	6
RAP R2	6		11	11	11	9	5
EGIM/MRS/FR R3	10	11		2	9	11	11
Univ. Provence R4	10	11	2		9	11	11
LAAS-CNRS R5	10	11	9	9		8	11
INRIA_SOPHIA R6	8	9	6	6	8		9
Universite_paris13 R7	6	5	11	11	11	9	





DBeacon

- DBeacons talk all together in a configured group
- Reports are also sent using multicast
- Matrix can be setup on every DBeacon
- Problem if multicast does not work...
 - DBeacons can disappear from your matrix!
 - Does that mean the DBeacon is not working?
 - Does that mean the multicast is not working?
 - Need to get used to it first





DBeacon

- And it is linked with SSMPing !
 - I let Stig update you on that one
- Still things to be worked on...
 - Documentation
 - Alarms
 - Unicast reporting (for people that want to keep the old model)





QoS Metrics

- Not only IPv6 only but interesting 😊
- 7 probes deployed in RENATER for active measurements
 - IPv4/IPv6
 - know we start using them to monitor multicast
- Probes support both IPv4 and IPv6 multicast 😊





QoS Metrics

- Probes can be configured to listen on groups
 - Stream can be specified (e.g. mpg2)
- Probes can rate quality based on some ITU defined standards
 - R-Factor...
- Very useful when multicasting conferences!
- A complete update next time if you are interested 😊





MRD6

- We have now on Linux PC...
 - MLDv2
 - MBGP
 - PIM-SMv2
- Certainly a good way for some people to start IPv6 multicast!





Embedded-RP

RFC3956





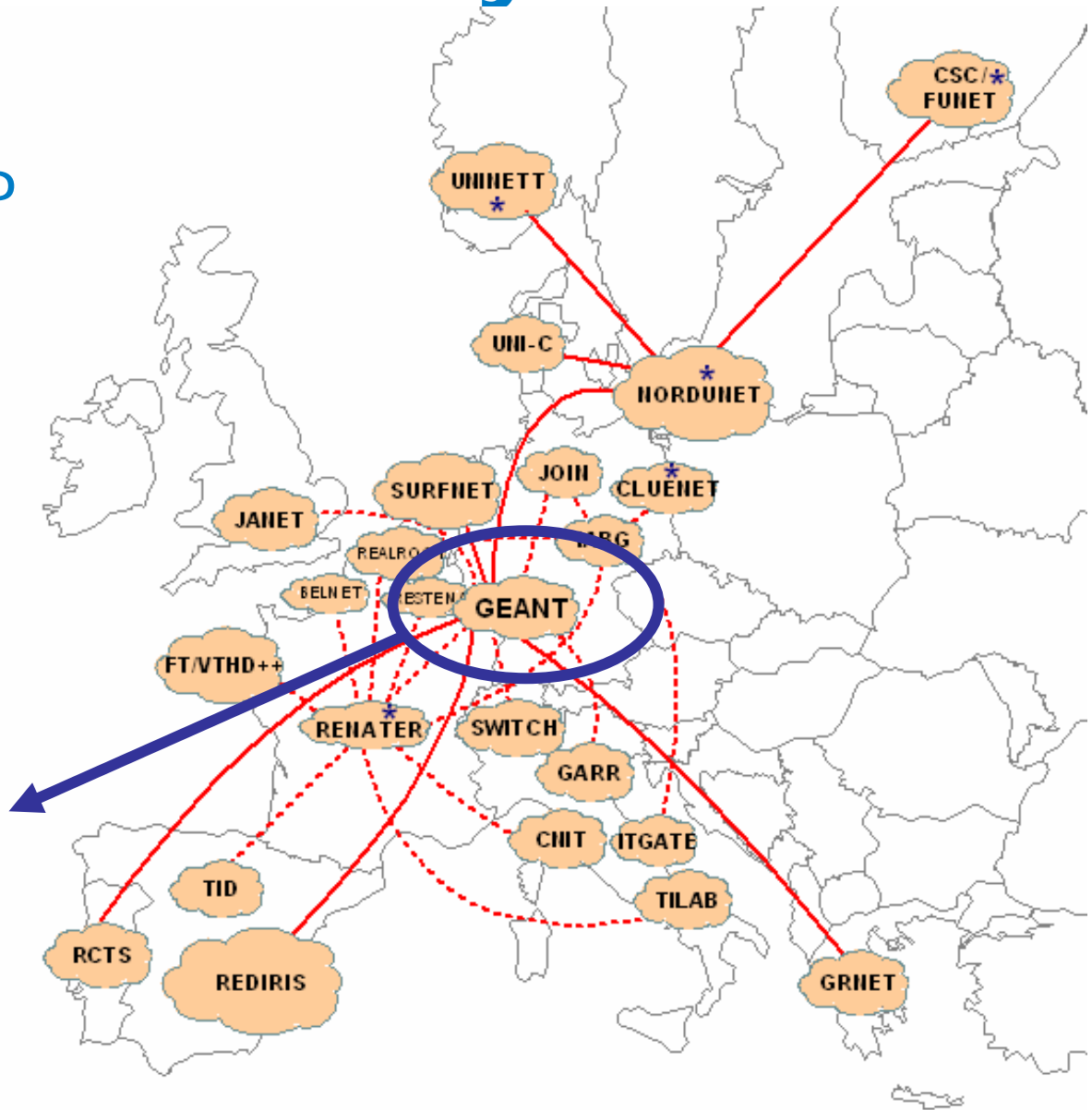
Today

- A single global RP in RENATER

- Open to anyone
- Statically configured everywhere

- Embedded-RP starts to be deployed

- Not yet supported in GEANT
- April 2006
 - 16 months delayed...





Embedded-RP

- Is the only solution for IPv6 interdomain Any-Source Multicast
 - RFC 3956
 - Implemented in CISCO, JUNIPER...
 - When not supported, Embedded-RP's can be statically configured !
- We would like to go into that direction
 - Have only Embedded-RP's
 - Happy to keep offering the global RP for transition period
 - But we need to move on!





Tomorrow (date depending on Dante)

- Embedded-RP's configured in NREN's
 - No need to have one Embedded-RP in GEANT
 - But we need to have other Embedded-RP's supported !!!
- Embedded-RP configured in RENATER
 - Open to everyone
 - Can be configured statically if not supporting Embedded-RP
 - Ensures no one loses the service when moving on...
- A single global RP in RENATER
 - Open to anyone
 - Idea is to have less and less usage of this resource and have people use Embedded-RP's instead





The day after tomorrow

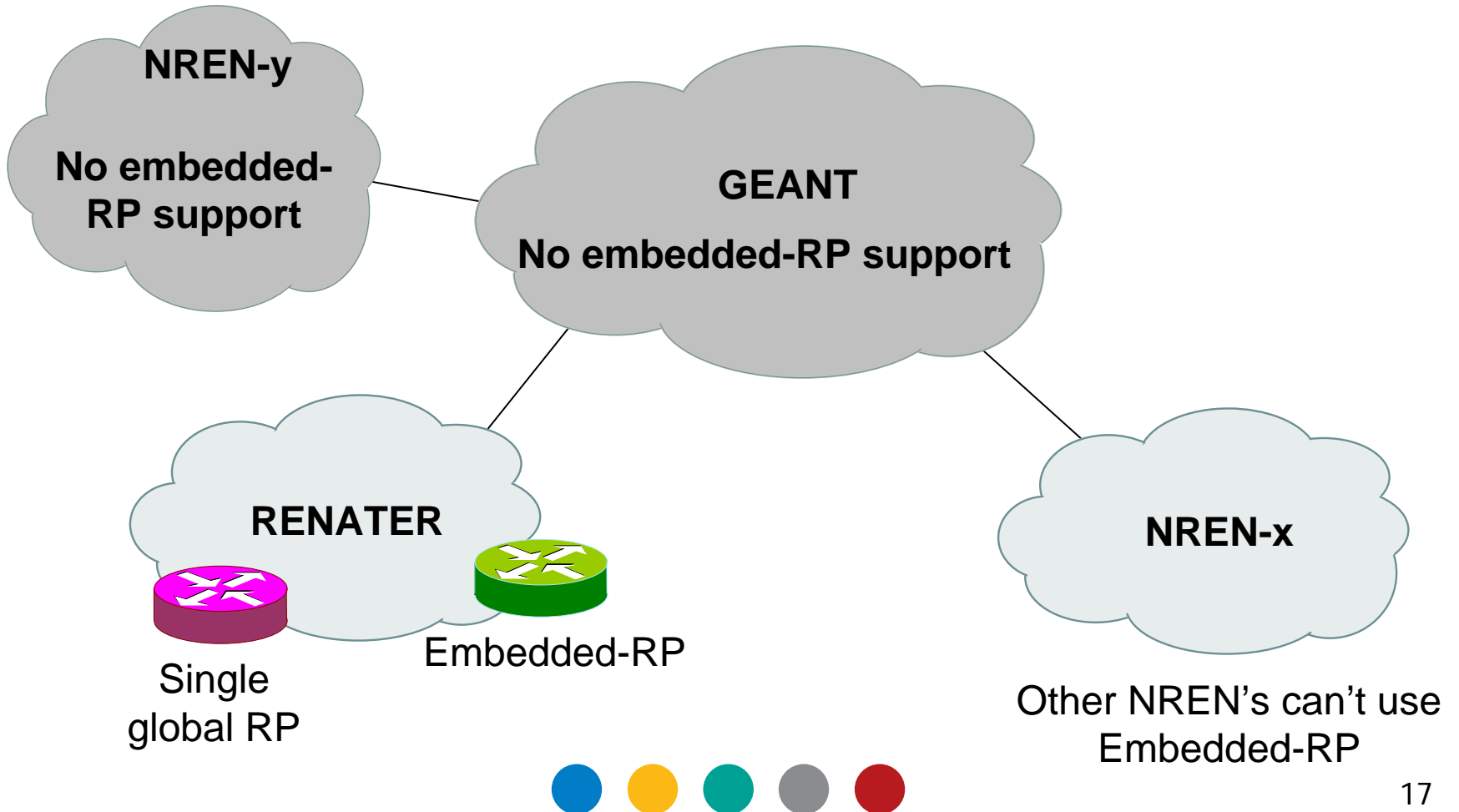
- We remove the global RP in RENATER
- We make sure people can keep using an open Embedded-RP in RENATER
 - Well advertised
 - Along with web-based session directory (or like)
- 6 months would be needed to have people all using embedded-RP





Recap... Phase 0

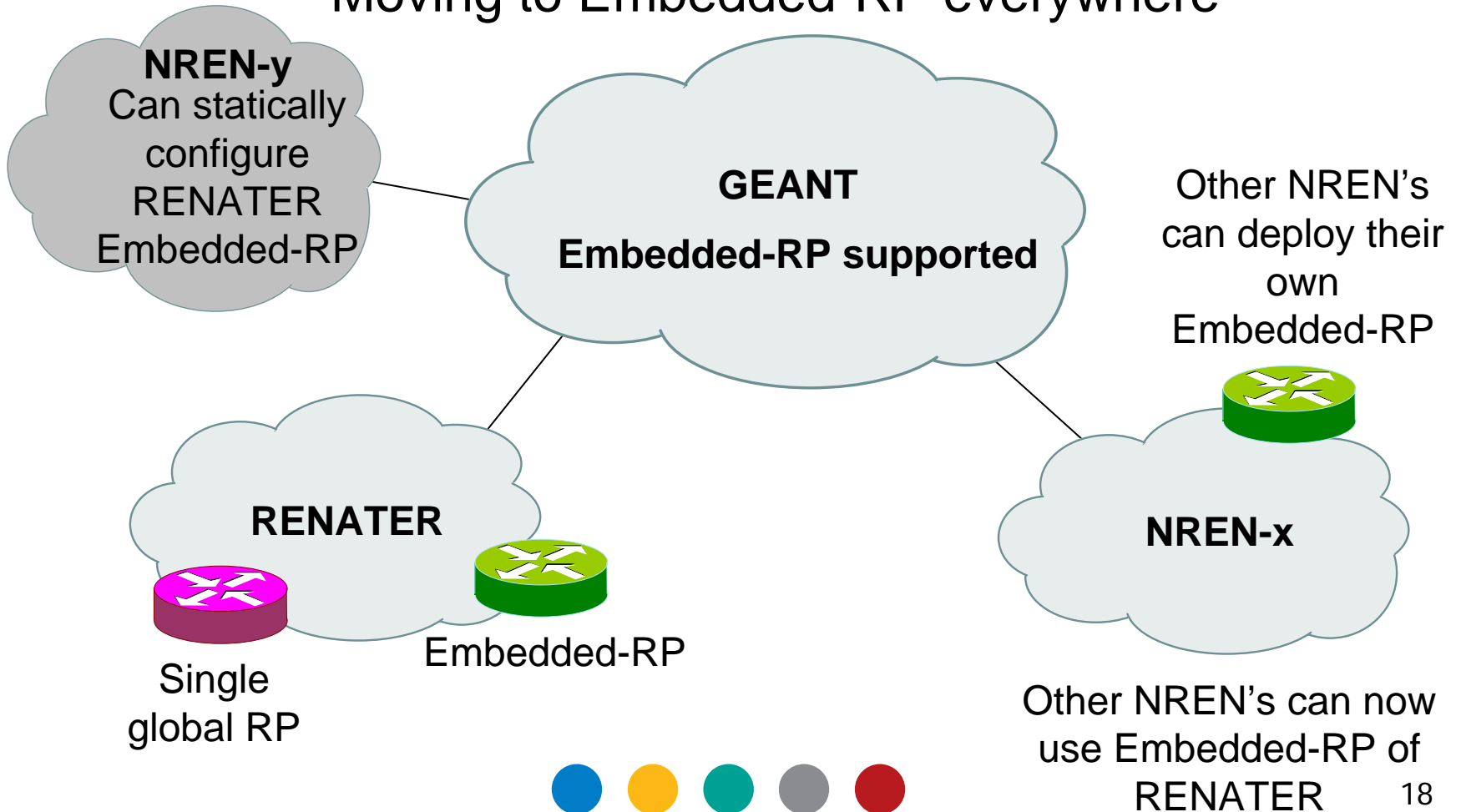
RENATER RP configured statically everywhere





Recap... Phase 1

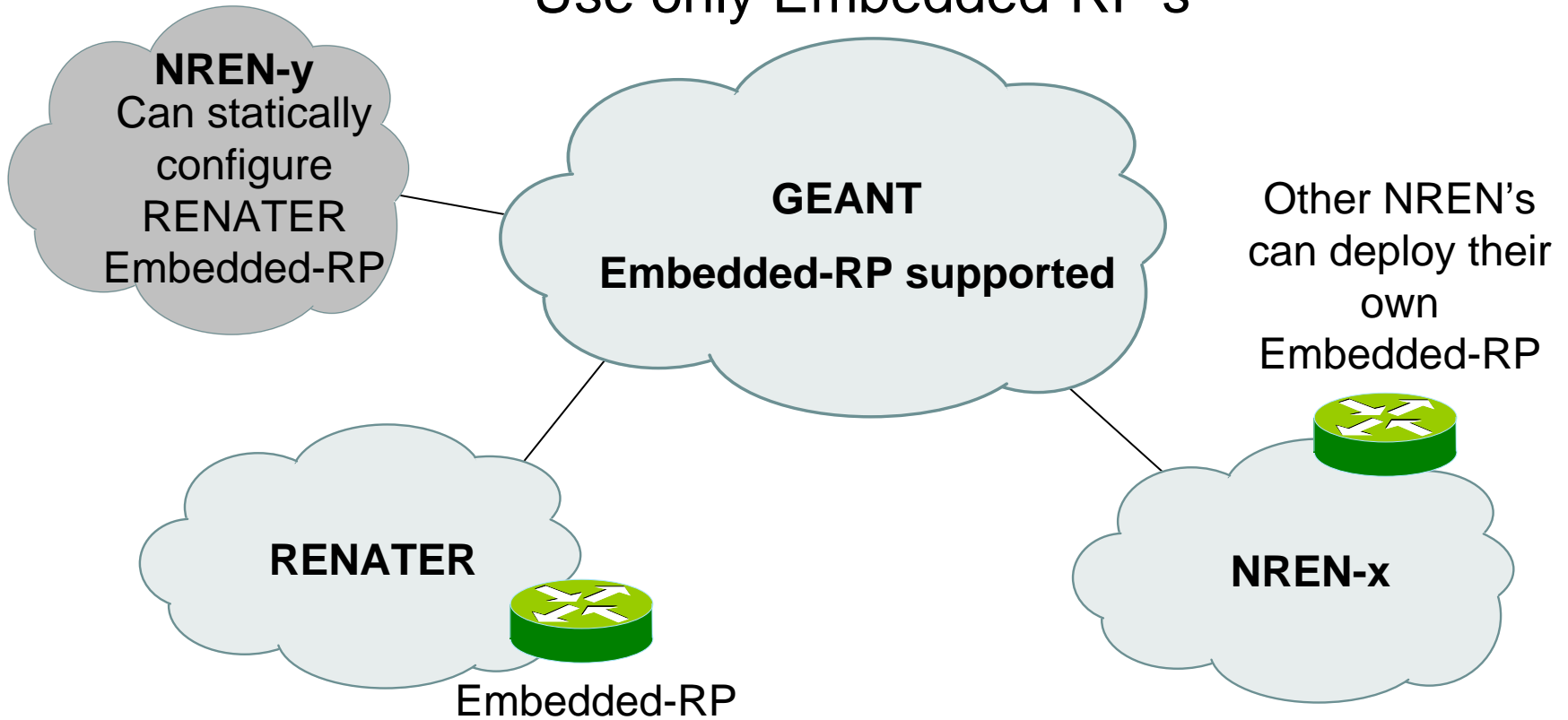
RENATER RP still configured statically everywhere
Moving to Embedded-RP everywhere





Recap... Phase 2

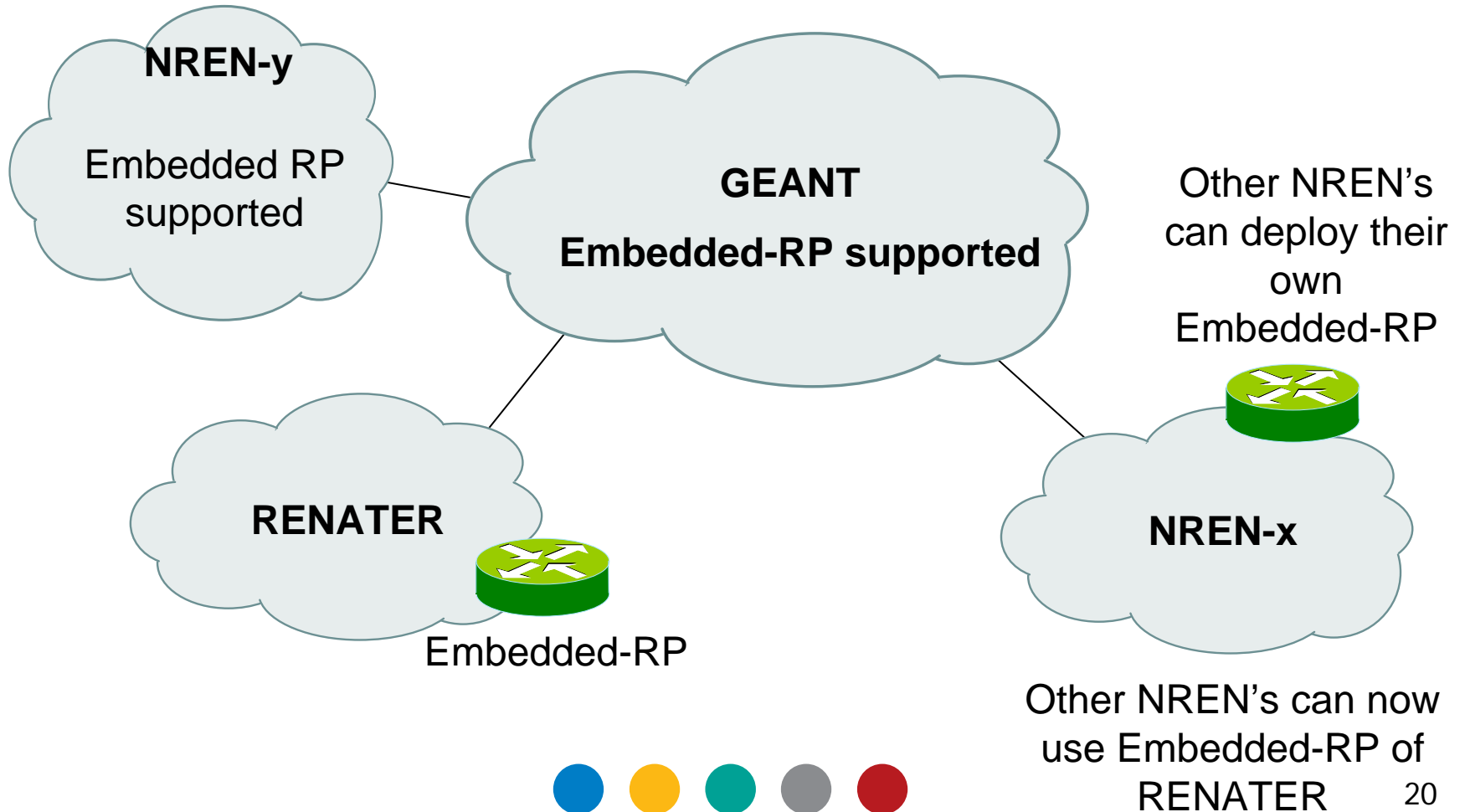
Removing the global RP
Use only Embedded-RP's



Other NREN's can now
use Embedded-RP of
RENATER



Recap... Phase 3



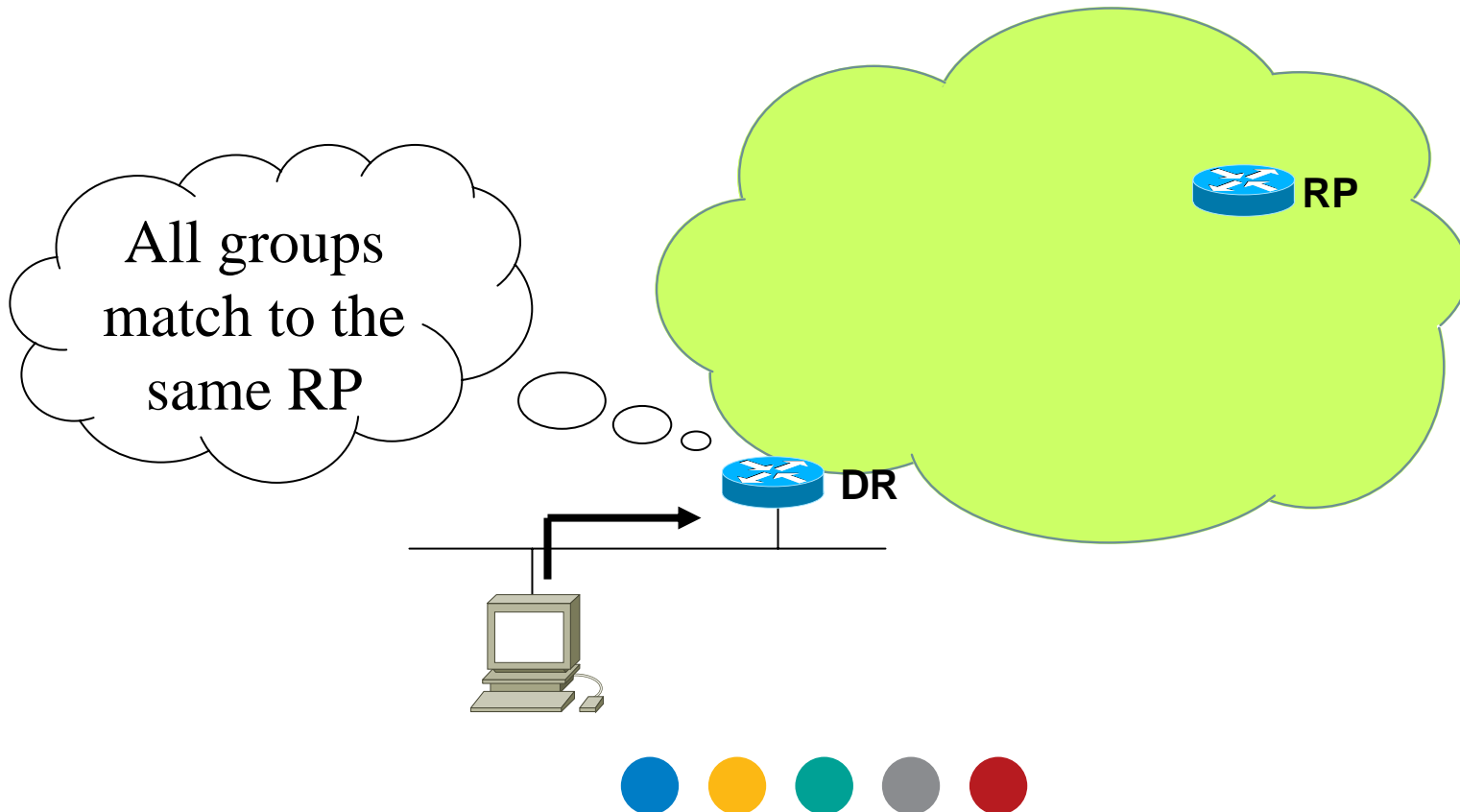


I am an end-user, how do I know the RP to be used ?



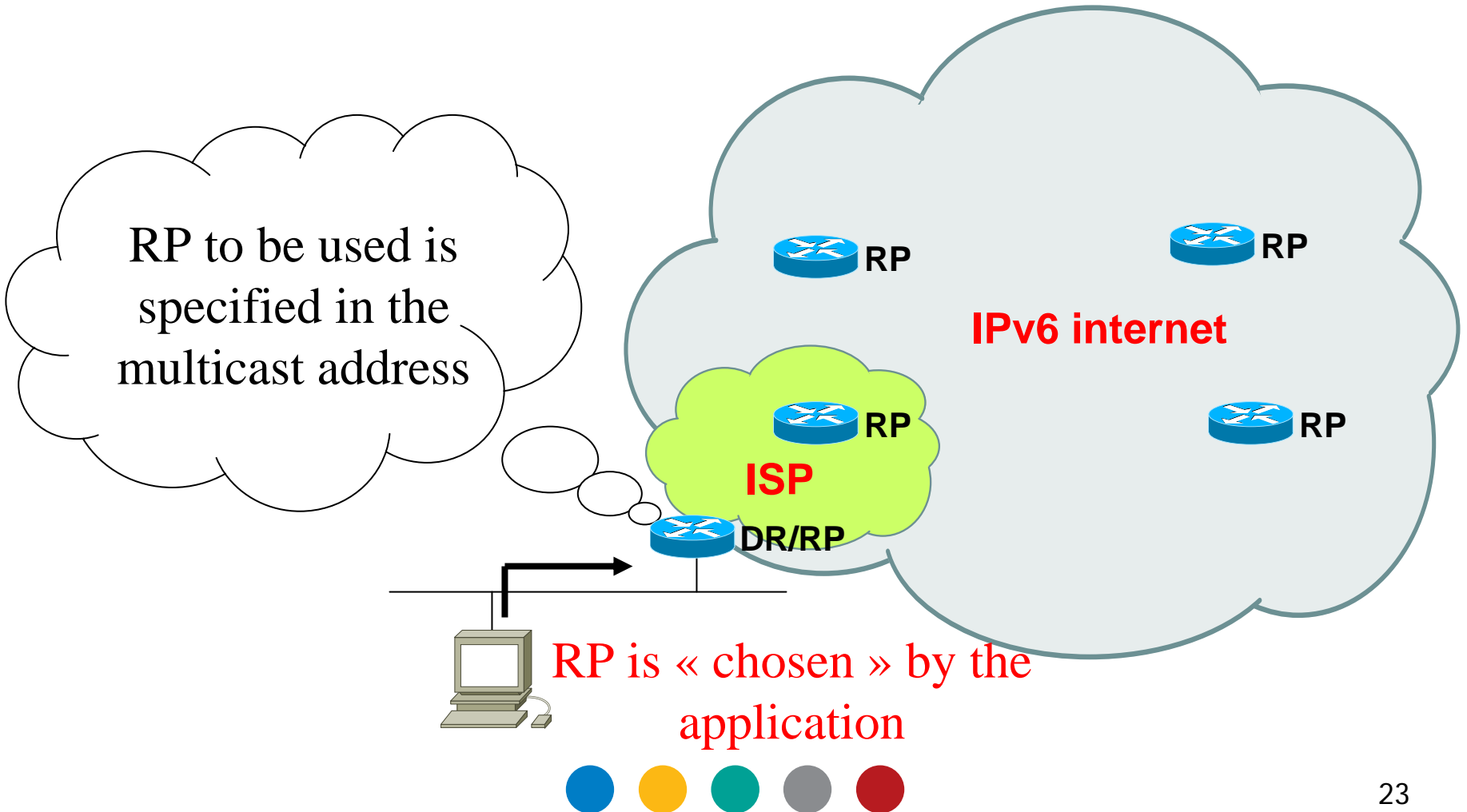


IPv4





IPv6 embedded-RP





Choice of the address ?

How do applications find the RP address to use ?

- End-users cannot manually create a multicast address from an RP address:

RP Address 2001:660:3001:104::**8/64**

Multicast address **FF7E:0840:2001:660:3001:104:1234:abcd**

- Some kind of IPv6 multicast address assignment is necessary





Choice of the address ?

- Don't expect IETF to solve this problem
 - I've tried a bit...
 - draft-jdurand-ipv6-multicast-ra-00.txt
 - draft-jdurand-assign-addr-ipv6-multicast-dhcpv6-01.txt
 - draft-jdurand-all-drs-are-rps-00.txt
- There will not be any protocol for this
 - At least this is my understanding
- That does not mean there is no way to move forward !





How to make use of Embedded-RP ?

- Allocate multicast prefixes to your customers
 - Based on an embedded-RP you have deployed
- Web-based multicast session directory
 - Allocating embedded-RP addresses !!!
 - No one cares the address, it's becoming just a click from a web page!
 - Volunteers to provide such a tool ?
 - Prototype on www.m6bone.net
- Client server multicast applications
 - Clearly the new way of doing things
 - Server takes care of addresses to use... Embedded-RP ?? 😊
 - Conference XP
 - OMconf - Kind of multi-user videolan (RENATER - ARISTOTE tool)





The end

- Any question ?
- www.m6bone.net
- Trainings soon for EUMEDCONNECT community
 - Multicast (February)
 - IPv6 - 6DISS (April) www.6diss.org

