Exercise description:

You are a small colocation and broadband provider and you are an LIR. You received a /32 allocation: 2001:DB8::/32

You currently have 3000 DSL customers and 1000 colocation customers. 500 colocation customers are connected on each switch. Also, you provide e-mail, www, proxy, usenet, VoIP and DNS services to them.

Step 1: Assign the /48 per POP

Step 2: Decide the size of the assignments per device Step 3: Decide the size of the customer assignments Step 4: Fill in the addressing plan accordingly

Some things to consider:

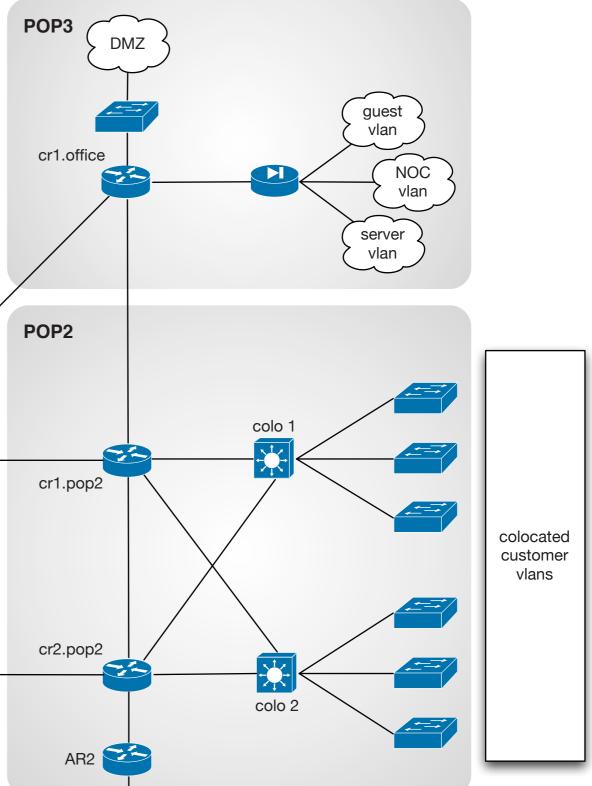
• The most important goal with IPv6 is aggregation.

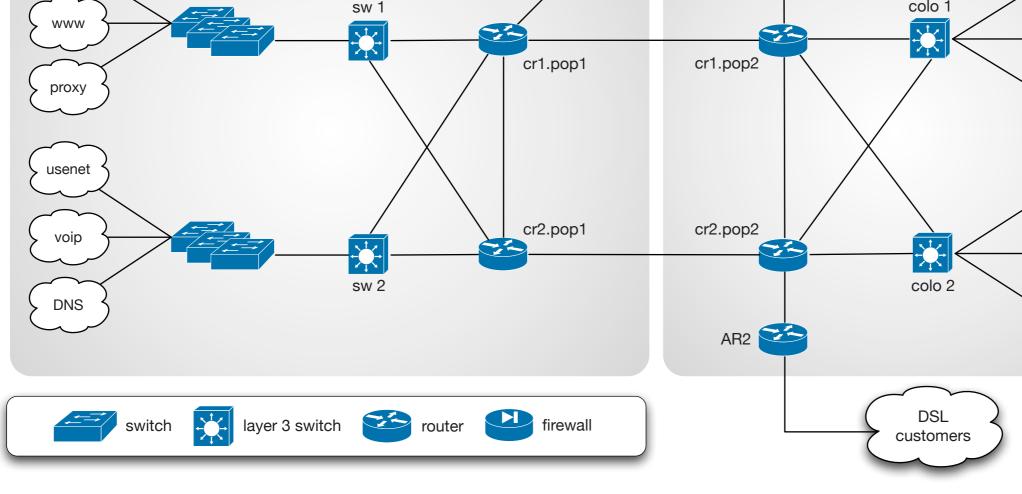
POP1

mail

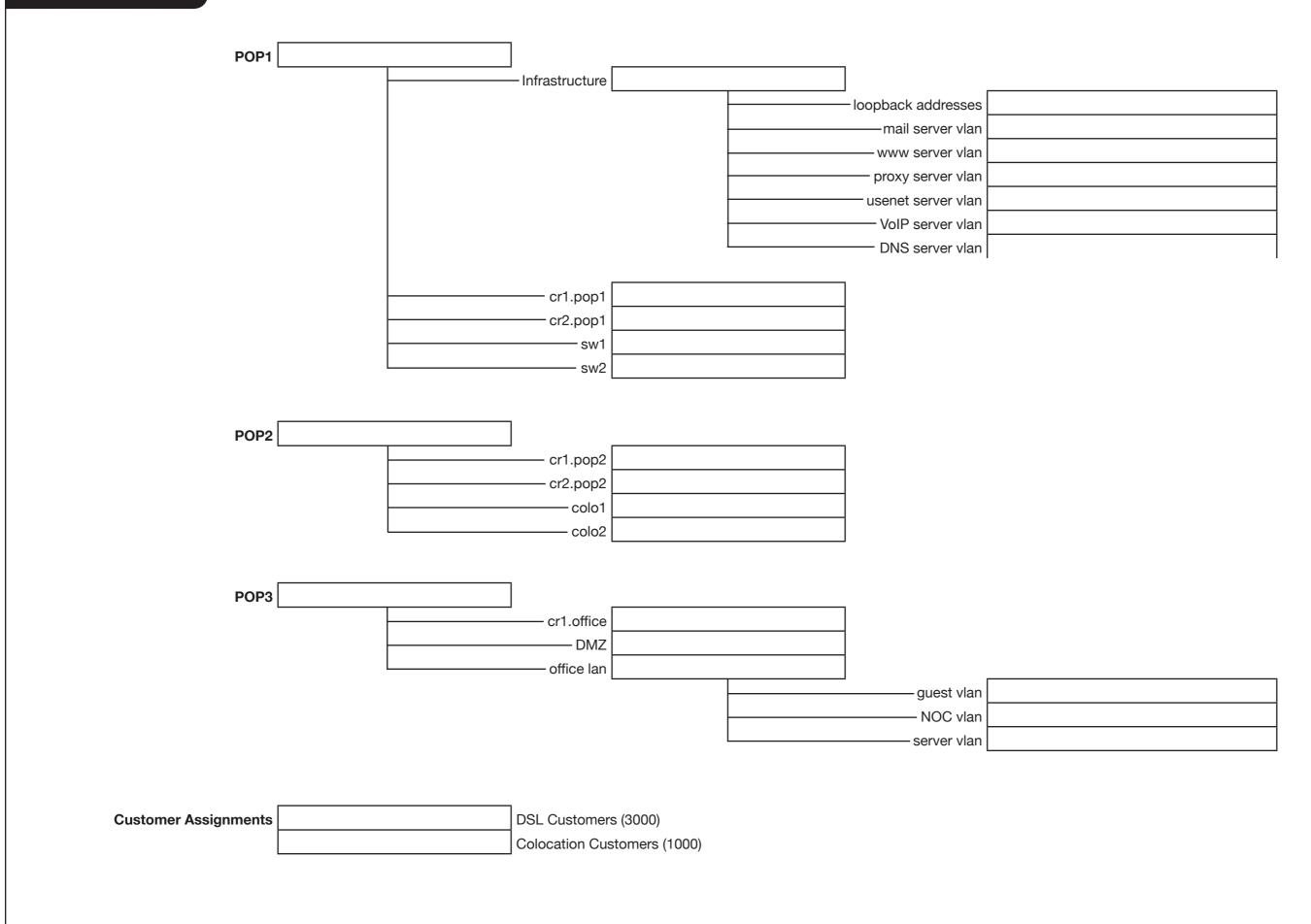
- You can assign a /48 per POP without sending a request to the RIPE NCC.
- For your most important connections/equipment, use the easiest to remember addresses. (loopbacks etc.)
- For administrative ease (DNS and your mind), it is recommended you assign on 4-bit boundary:

Prefix	Number of /64 subnets
/48	65.536
/52	4096
/56	256
/60	16
/64	1





Your prefix: 2001:DB8::/32



		Infrastructure	2001:DB8:0000:0	0000::/52	-	2001:DB8:0000:0000::
					-	2001:DB8:0000:0000::
					mail server vlan	2001:DB8:0000:0001::
					www server vlan	2001:DB8:0000:0002::
					proxy server vlan	2001:DB8:0000:0003::
					usenet server vlan	2001:DB8:0000:0004::
					VoIP server vlan	2001:DB8:0000:0005::
					DNS server vlan	2001:DB8:0000:0006::
		cr1.pop1	2001:DB8:0000:1	000::/52		
		cr2.pop1	2001:DB8:0000:2	2000::/52		
		sw1	2001:DB8:0000:3	8000::/52		
		sw2	2001:DB8:0000:4	000::/52		
[2001:DB8:0001:3 2001:DB8:0001:4			
POP3	2001:DB8:0002::/48					
			2001:DB8:0002:1			
		office lan	2001:DB8:0002:3	3000::/52		
					Ū.	2001:DB8:0002:2000:
						2001:DB8:0002:2001:
					server vlan	2001:DB8:0002:2002:

::/64
::/64
::/64
::/64
::/64
::/64
::/64

)::/64	
1::/64	
2::/64	

Answers:	alterna	tive 2

POP1	2001:DB8:0000::/48					
		- Infrastructure	2001:DB8:0000:0	000::/56]	
					 loopback addresses 	2001:DB8:0000:0000::
						2001:DB8:0000:0001::
						2001:DB8:0000:0002::
						2001:DB8:0000:0003::
						2001:DB8:0000:0004::
						2001:DB8:0000:0005::
						2001:DB8:0000:0006::
		cr1.pop1	2001:DB8:0000:0	100::/56		
		cr2.pop1	2001:DB8:0000:0	200::/56		
		sw1	2001:DB8:0000:0	300::/56		
		sw2	2001:DB8:0000:0	400::/56		
	2001:DB8:0001::/48	cr2.pop2 colo1	2001:DB8:0001:0 2001:DB8:0001:0 2001:DB8:0001:0 2001:DB8:0001:0	200::/56 300::/56		
		cr1.office	2001:DB8:0002:1	000::/56		
		DMZ	2001:DB8:0002:2	000::/56		
		office lan	2001:DB8:0002:3	000::/56		
					guest vlan	2001:DB8:0002:3000:
					NOC vlan	2001:DB8:0002:2001::
					server vlan	2001:DB8:0002:2002::
Customer Assignments	2001:DB8:1000::/44 (/56 each) 2001:DB8:2000::/36 (/48 each)	DSL Customers				
	2001:DB8:2000::/36 (/48 each)	Colocation Cus	tomers (1000)			

)::/64	
::/64	
2::/64	
8::/64	
::/64	
5::/64	
61:/64	

)::/64
::/64
2::/64