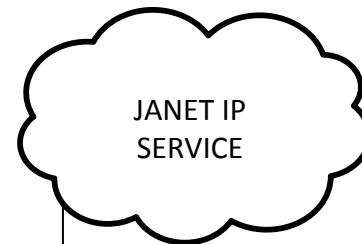
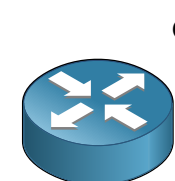
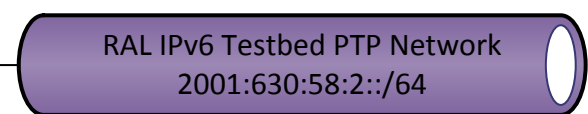
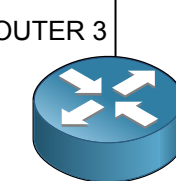
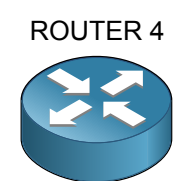
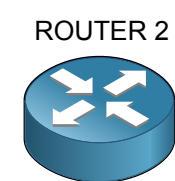
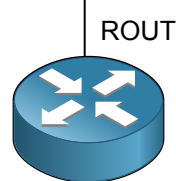
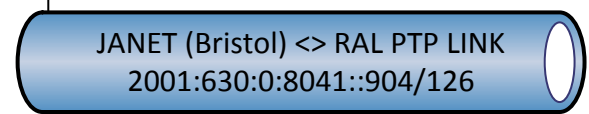
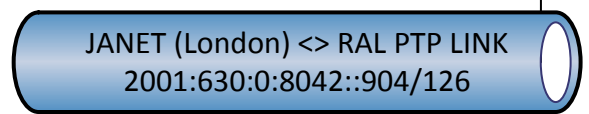
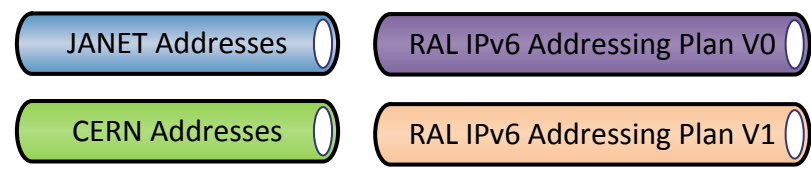


CERN

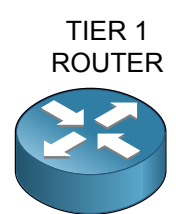


JANET IP SERVICE

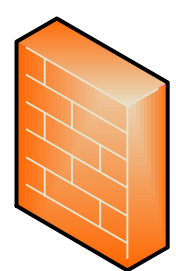
STFC RAL IPv6 Pilot - Network Design
Philip Garrad, September 2016



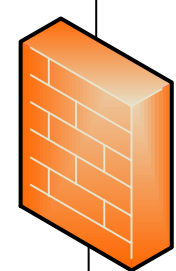
OPNR



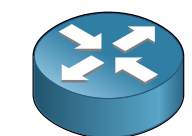
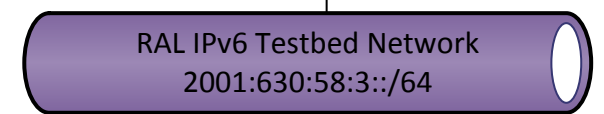
TIER 1 ROUTER



RAL SITE FIREWALL

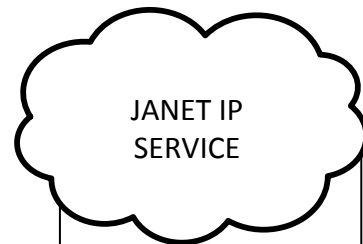
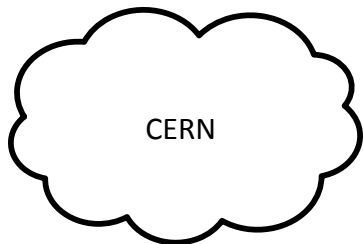


RAL IPv6 TESTBED FIREWALL



ROUTER D

Description
This is the starting position as of 01/09/2016

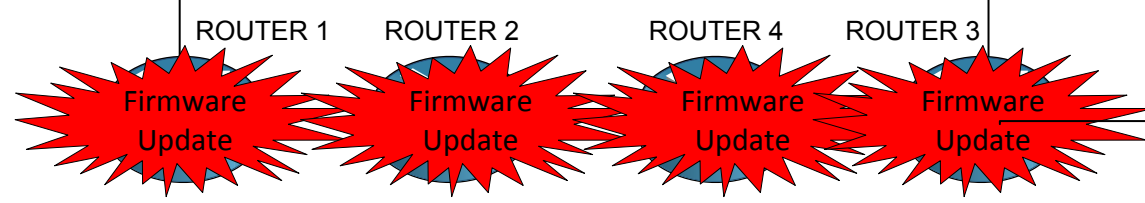


STFC RAL IPv6 Pilot - Network Design
Philip Garrad, September 2016

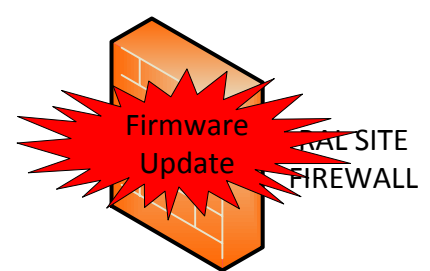
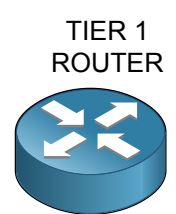
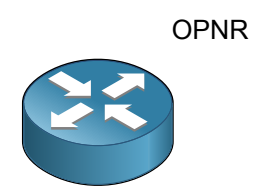
- JANET Addresses
- CERN Addresses
- RAL IPv6 Addressing Plan V0
- RAL IPv6 Addressing Plan V1

JANET (London) <> RAL PTP LINK
2001:630:0:8042::904/126

JANET (Bristol) <> RAL PTP LINK
2001:630:0:8041::904/126

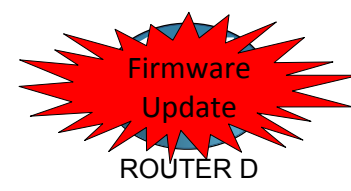


RAL IPv6 Testbed PTP Network
2001:630:58:2::/64

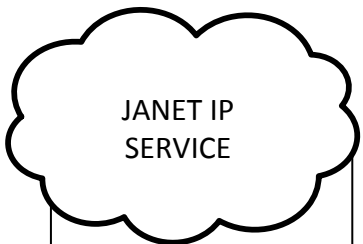
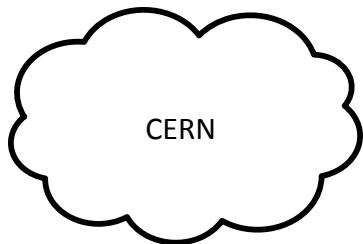


RAL IPv6 TESTBED FIREWALL

RAL IPv6 Testbed Network
2001:630:58:3::/64



Router 4 = 30/11, Routers 1,2,3 = 14/12, Firewall = 04/01, RTR-D = 11/10
All routers / firewalls should be running the latest firmware before we start (for maximum security and latest features)

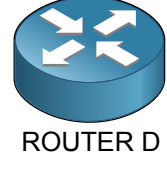
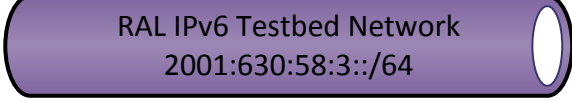
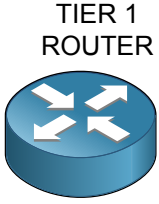
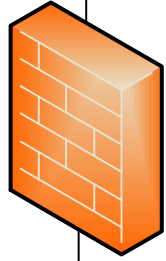
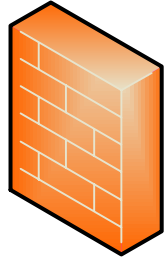
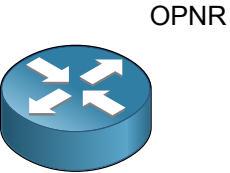
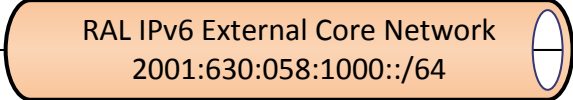
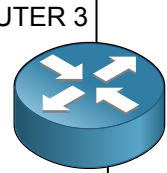
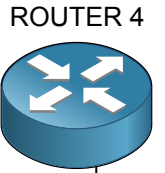
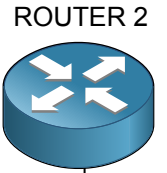
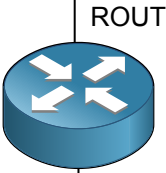
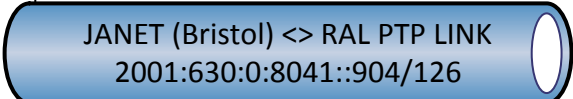
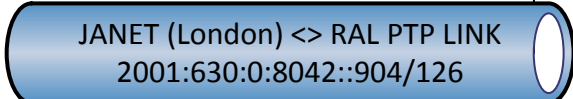


JANET Addresses

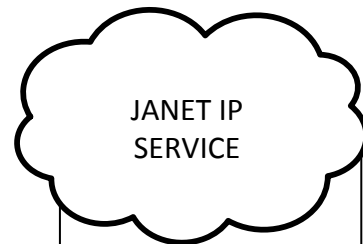
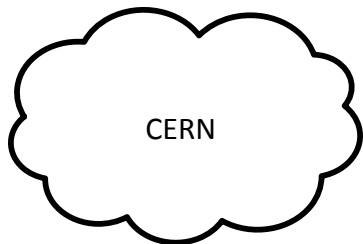
RAL IPv6 Addressing Plan V0

CERN Addresses

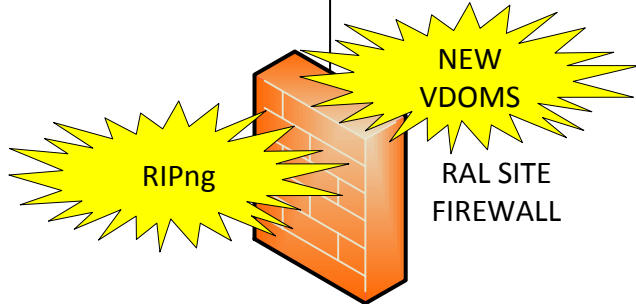
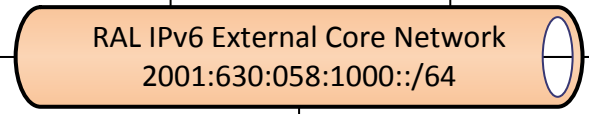
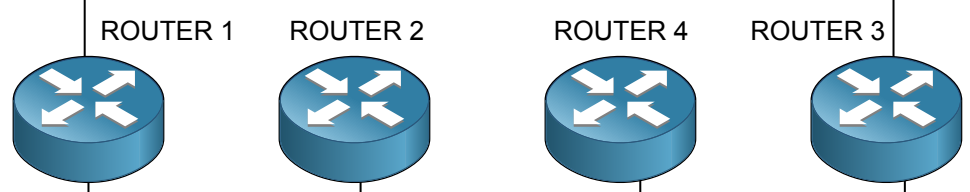
RAL IPv6 Addressing Plan V1



18/01/2017
Create an IPv6 external core network and connect the existing testbed firewall to that.

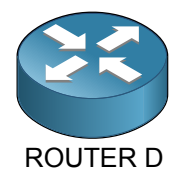
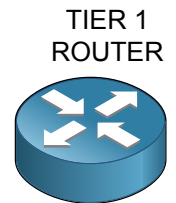
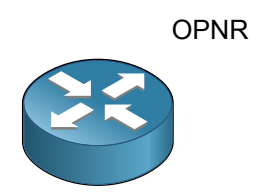
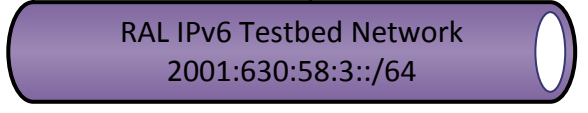
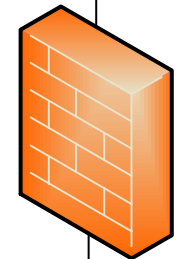


- JANET Addresses
- CERN Addresses
- RAL IPv6 Addressing Plan V0
- RAL IPv6 Addressing Plan V1

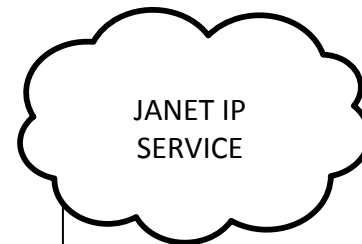
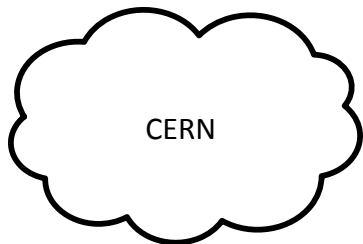


RAL Firewall will use 2 new VDOMS called 6ROOT and 6CORE with physical connections to R1/R3 and Core1/Core2

RAL IPv6 TESTBED FIREWALL



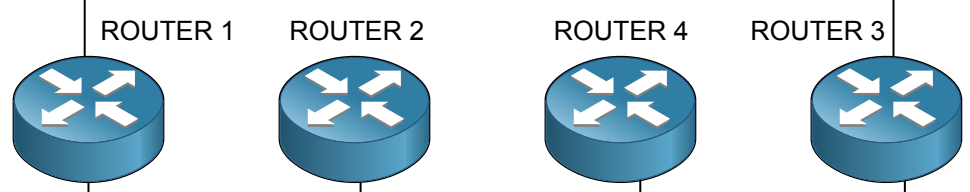
25/01/2017
Create two new IPv6 only VDOMs in the firewall and connect it to the external core.



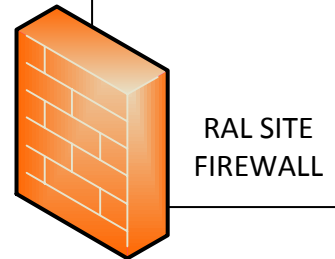
JANET Addresses	RAL IPv6 Addressing Plan V0
CERN Addresses	RAL IPv6 Addressing Plan V1

JANET (London) <> RAL PTP LINK
2001:630:0:8042::904/126

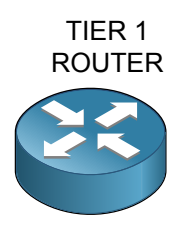
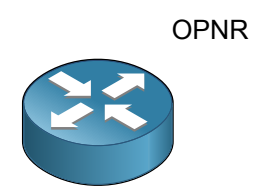
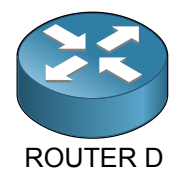
JANET (Bristol) <> RAL PTP LINK
2001:630:0:8041::904/126



RAL IPv6 External Core Network
2001:630:058:1000::/64

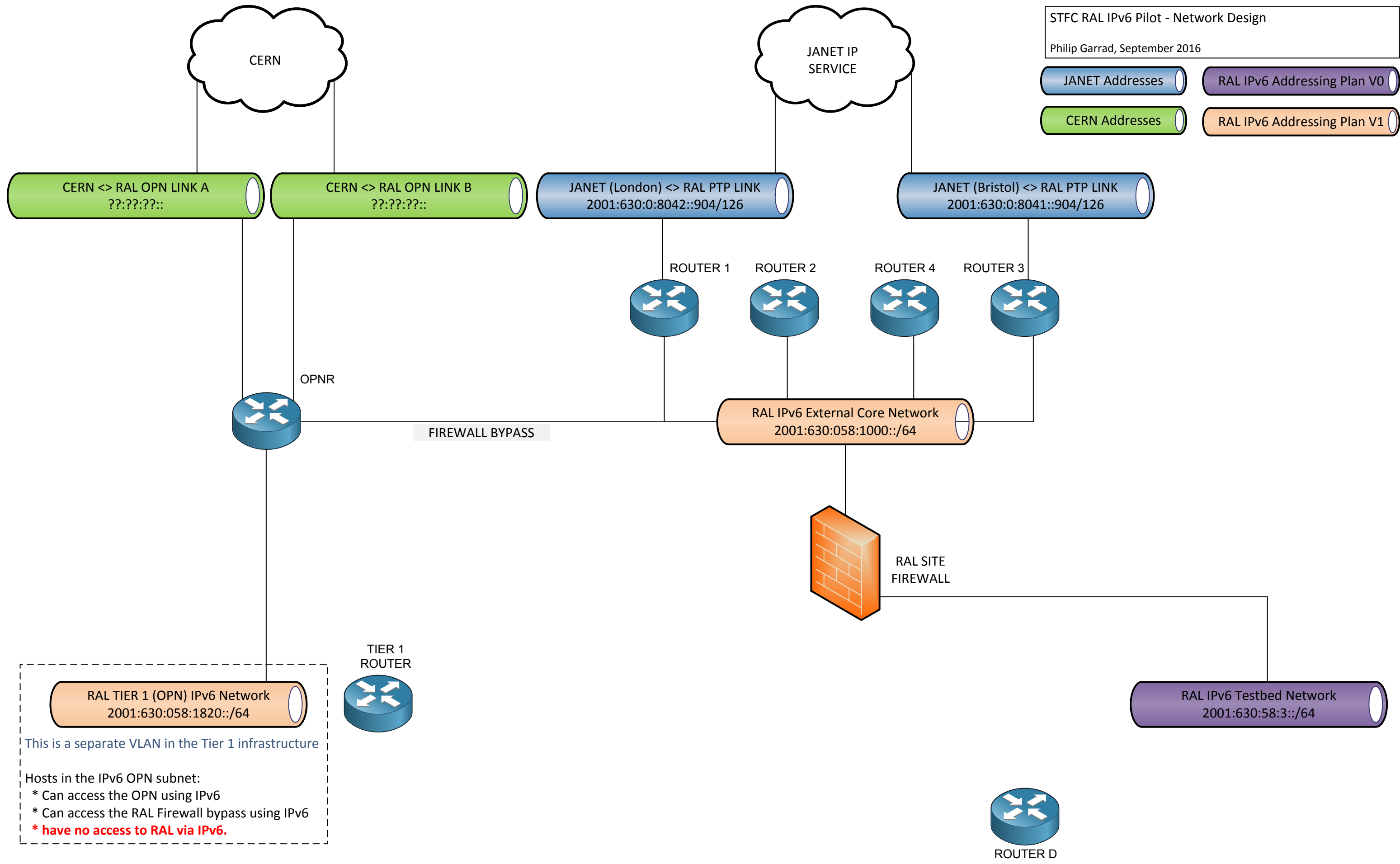


RAL IPv6 Testbed Network
2001:630:58:3::/64



01/02/2017
Move the RAL IPv6 testbed off of the dedicated testbed firewall onto the RAL Site firewall.

JANET Addresses	RAL IPv6 Addressing Plan V0
CERN Addresses	RAL IPv6 Addressing Plan V1



RAL TIER 1 (OPN) IPv6 Network
 2001:630:058:1820::/64

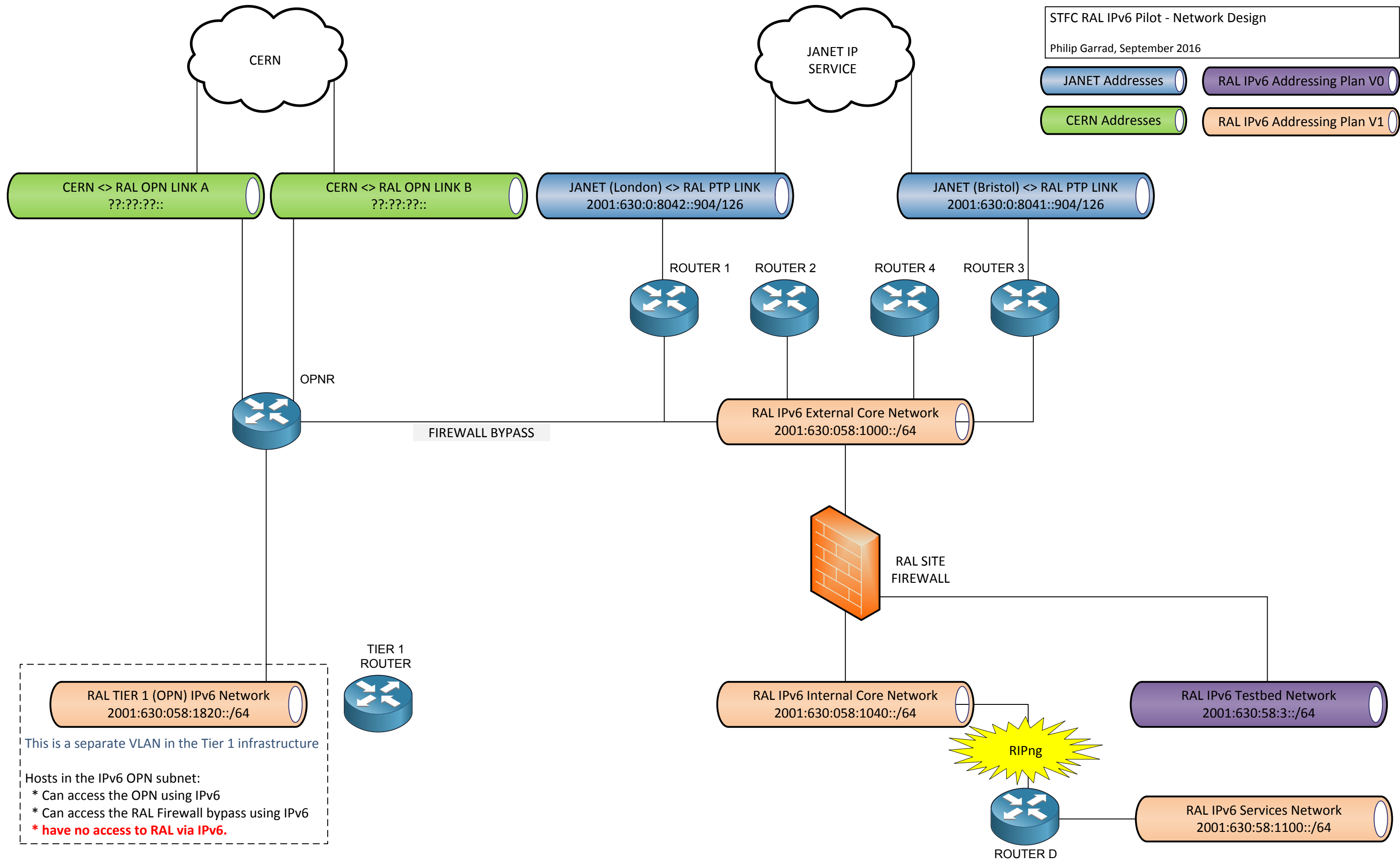
This is a separate VLAN in the Tier 1 infrastructure

Hosts in the IPv6 OPN subnet:

- * Can access the OPN using IPv6
- * Can access the RAL Firewall bypass using IPv6
- * **have no access to RAL via IPv6.**

08/02/2017
 Create an IPv6 subnet within TIER1 for their OPN accessible hosts
**** QUESTION ** How is the TIER 1 IPv6 network going to be structured?**

JANET Addresses	RAL IPv6 Addressing Plan V0
CERN Addresses	RAL IPv6 Addressing Plan V1







RAL TIER 1 (OPN) IPv6 Network
 2001:630:058:1820::/64

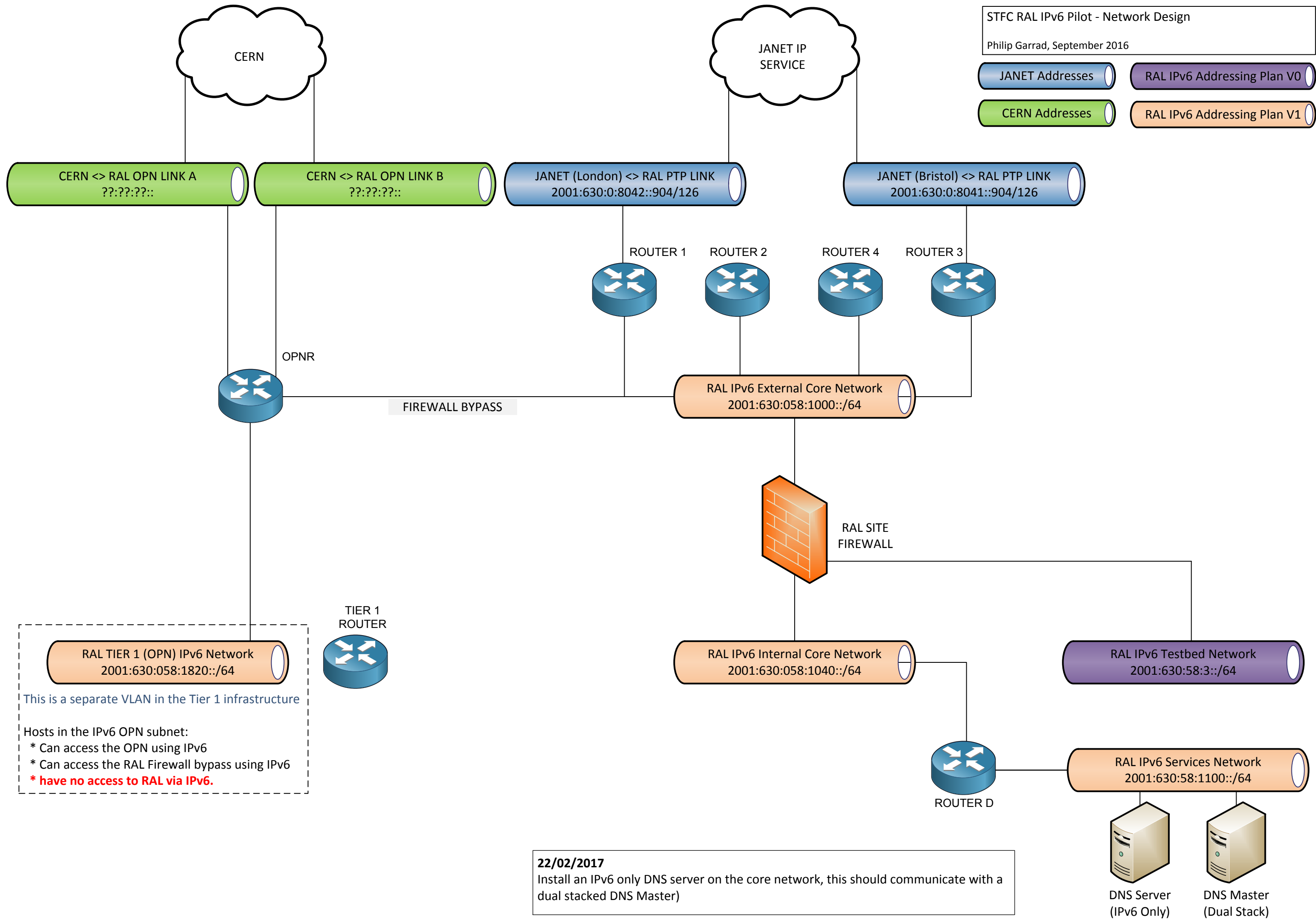
This is a separate VLAN in the Tier 1 infrastructure

Hosts in the IPv6 OPN subnet:

- * Can access the OPN using IPv6
- * Can access the RAL Firewall bypass using IPv6
- * **have no access to RAL via IPv6.**

15/02/2017
 Create an IPv6 internal core network and an IPv6 Subnet on Router D.

 JANET Addresses	 RAL IPv6 Addressing Plan V0
 CERN Addresses	 RAL IPv6 Addressing Plan V1







RAL TIER 1 (OPN) IPv6 Network
`2001:630:058:1820::/64`

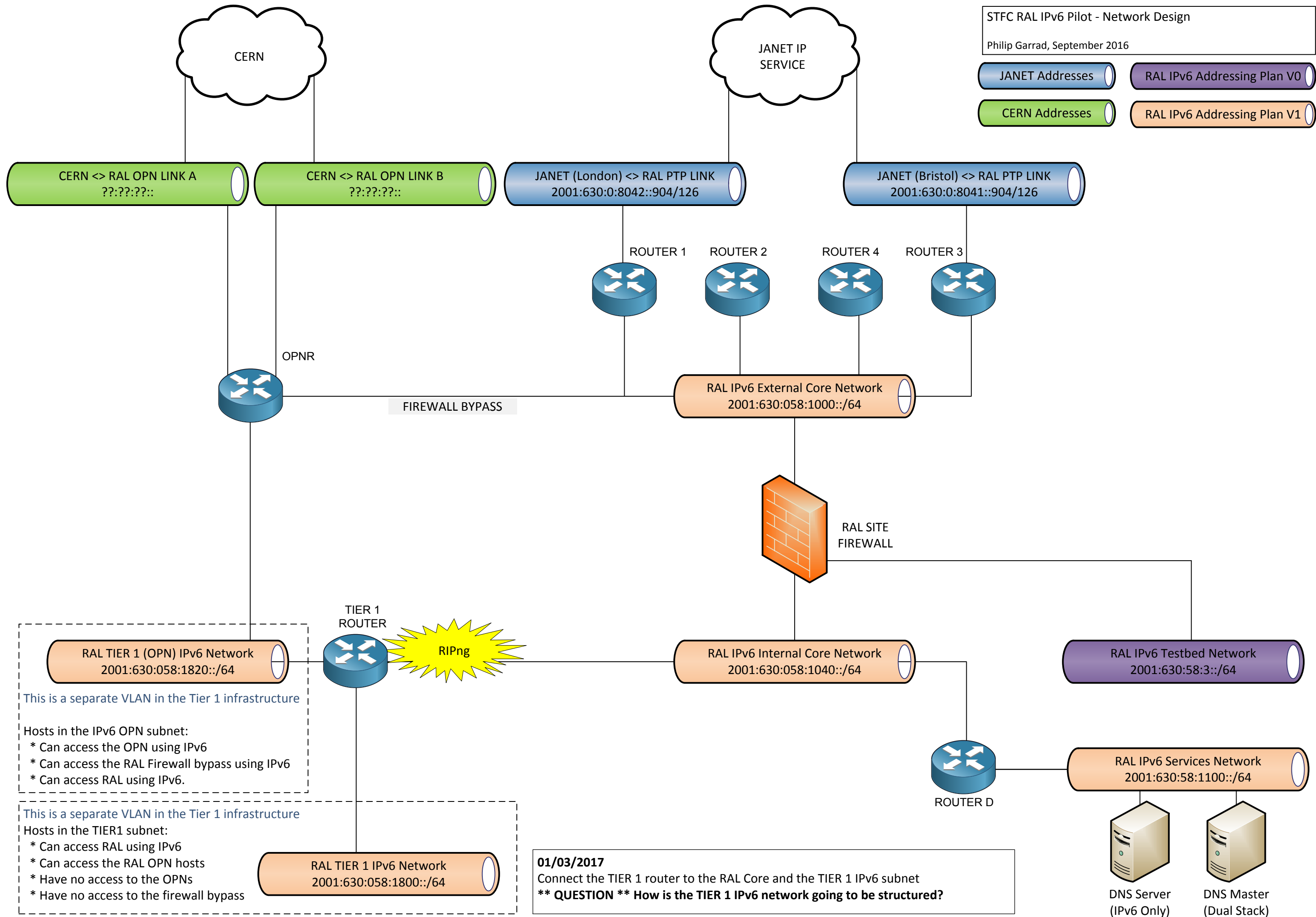
This is a separate VLAN in the Tier 1 infrastructure

Hosts in the IPv6 OPN subnet:

- * Can access the OPN using IPv6
- * Can access the RAL Firewall bypass using IPv6
- * **have no access to RAL via IPv6.**

22/02/2017
 Install an IPv6 only DNS server on the core network, this should communicate with a dual stacked DNS Master)

 JANET Addresses	 RAL IPv6 Addressing Plan V0
 CERN Addresses	 RAL IPv6 Addressing Plan V1

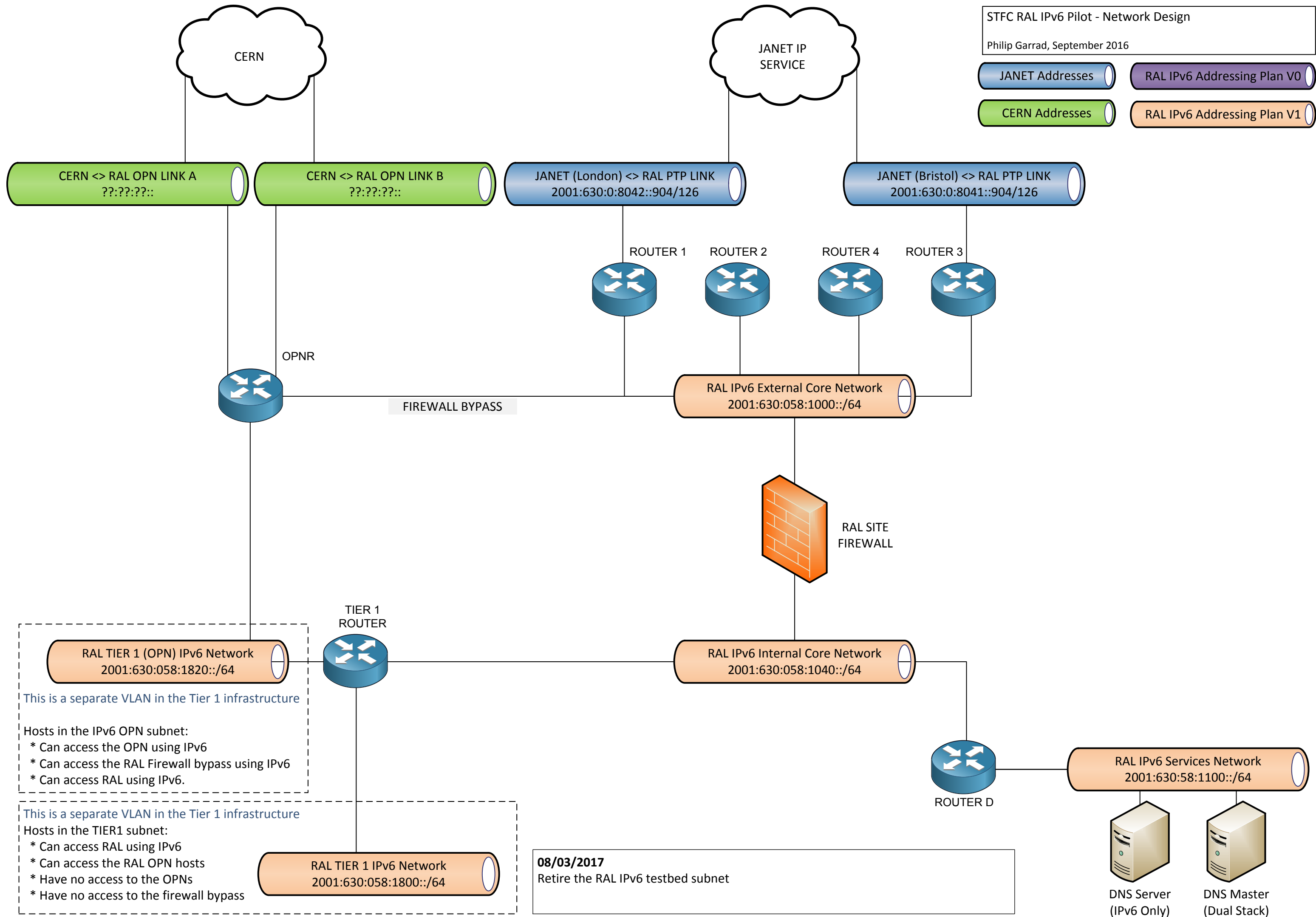


This is a separate VLAN in the Tier 1 infrastructure
Hosts in the IPv6 OPN subnet:
* Can access the OPN using IPv6
* Can access the RAL Firewall bypass using IPv6
* Can access RAL using IPv6.

This is a separate VLAN in the Tier 1 infrastructure
Hosts in the TIER1 subnet:
* Can access RAL using IPv6
* Can access the RAL OPN hosts
* Have no access to the OPNs
* Have no access to the firewall bypass

01/03/2017
Connect the TIER 1 router to the RAL Core and the TIER 1 IPv6 subnet
**** QUESTION ** How is the TIER 1 IPv6 network going to be structured?**

JANET Addresses	RAL IPv6 Addressing Plan V0
CERN Addresses	RAL IPv6 Addressing Plan V1



08/03/2017
 Retire the RAL IPv6 testbed subnet