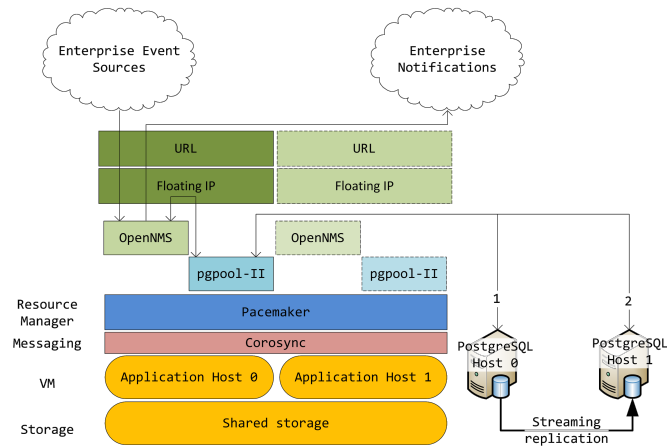# Table of Contents

Architecture

Figure 1. Basic architecture for the OpenNMS cluster setup

The above diagram describes the basic architecture. It is important to notice that *CMAN/Ricci/Rgmanager* will be used for *RHEL/CentOS 6*, and *Pacemaker* will be used for *RHEL/CentOS 7*.

The *RedHat Cluster* consist on two machines (or virtual machines) for the *Primary OpenNMS*, and the *Standby OpenNMS*.

Each *OpenNMS* machine will have *pgpool-II* installed. This will be the gateway to the *PostgreSQL Cluster*. In other words, in terms of *OpenNMS*, the database is installed locally, even knowing that *PostgreSQL* is not running on the *OpenNMS* servers.

The *pgpool-II* configuration is another common resource that can be hosted on an external machine (like the *OpenNMS* configuration and data directories).

The cluster will provide a floating IP, which will be used by the operators to access the active *OpenNMS* server.

In case of a failure, the floating IP, the shared file systems, the *pgpool-II* application and the *OpenNMS* application will be moved to the standby server.

The *PostgreSQL Database* will have its own cluster using streaming replication between the master and the standby server, and will use *pgpool-II* to access the *PostgreSQL Cluster*.

Because security is important, *SELinux* must be configured to be "enforcing", and the internal firewall (iptables on *RHEL/CentOS 6*, or *firewalld* on *RHEL/CentOS 7*) must be enabled on all the servers involved on this cluster solution.

Fencing/Stonith

Fencing is a vital part of clustering which helps maintain data integrity by ensuring that out-of-sync, misbehaving nodes are removed from the cluster before they can do damage.

This is one of the first things you'll want to configure, if you want to avoid trouble. Nodes without a configured fence device sometimes can hang the entire cluster, as the other nodes wait for it to be fenced (which will be a very very long time if you haven't configured fencing at all).

This can be accomplished in a variety of ways; for example, powering off the node via a remote power switch, disabling a *Fiber Channel* switch port, or powering off the virtual machine on which the cluster node is hosted through the *VM Manager* (like *vCenter*).

STONITH ["Shoot The Other Node In The Head" or "Shoot The Offending Node In The Head"], sometimes called *STOMITH*

["Shoot The Other Member/Machine In The Head"], is a technique for fencing in computer clusters. You can see either the term "Fence" (or "Fencing"), or the term *STONITH* interchangeable on this document. Typically *CMAN* environments uses the term *Fencing*, while *Pacemaker* environment uses the term *Stonith*.

It is recommended to investigate which fencing mechanism works better for the final deployment and configure it properly to avoid "split-brain" situations and potential corruption of the data.