Razorback Requirements Document

**Q4 Multiple Dispatcher Support**

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## 

Table of Contents

[Introduction 3](#_Toc310424386)

[Customer Focus Statement 3](#_Toc310424387)

[Requirements 3](#_Toc310424388)

[Messaging 3](#_Toc310424389)

[Active/Standby Configuration 3](#_Toc310424390)

[Active/Active Configuration 3](#_Toc310424391)

[Implementation 5](#_Toc310424392)

[Metrics 5](#_Toc310424393)

[Impact 5](#_Toc310424394)

[Future Work 5](#_Toc310424395)

[Enhancements 5](#_Toc310424396)

## Introduction

Razorback will support more than one dispatcher online at any point in time, both in a Active/Standby configuration and in an Active/Active configuration.

## Customer Focus Statement

In order to support the remaining two enterprise features (Localities, and high availability) Razorback will support having more than one dispatcher online at any one point in time.

## Requirements

### Messaging

* All inter dispatcher communication will take place over a topic on the message queue called the Dispatcher Bus (DBUS).
* There will be the following initial message types on the DBUS:
  + Routing Table Update – A copy of the current routing table.
  + Routing Table Request – A request for the current routing table.
  + Routing Table Announcement – An announcement including the current routing table serial number.

### Active/Standby Configuration

* Within a single locality it will be possible to have one dispatcher acting as the Active (Master) Dispatcher (MD) and one acting as the standby (Slave) Dispatcher (SD)
* The first online dispatcher in a locality will become MD for that locality.
* The second dispatcher to come online in a locality will become the SD for that locality,
* No more than two dispatchers may be online in locality at one point in time, trying to start a third dispatcher within a locality will result in that dispatcher quitting with an error message.
* The slave dispatcher will only take over the master dispatchers responsibilities after it has not received a Hello message from that dispatcher in the configured dead time (Default 10 seconds).

### Active/Active Configuration

* It will be possible to have multiple active dispatchers online at one point in time if they are in different localities.
* In this configuration one dispatcher will be elected as the Dedicated Dispatcher (DD).
* The DD will be responsible for managing the block routing table, as such all registration requests should be directed to it over the command and control channel.
* The DD will periodically broadcast the routing table serial number on the DBUS so that other dispatchers can make sure they have an up to date copy.
* When the DD makes a change to the routing table it will broadcast a routing table update message on the DBUS.
* If a dispatcher requires a more up to date copy of the routing table it will send a request to the DD over the DBUS, after which the DD will send a copy of the table back of the DBUS to the requestor.
* Each dispatcher will be assigned an administrative preference value to be used when electing a new DD.
* A new DD will be elected using the following process. If there are no other dispatchers online, you are automatically the DD. The DD will not change unless an event occurs that causes the current DD to go offline or it is administratively demoted. When the current DD goes off line all dispatchers will evaluate the currently online dispatchers and attempt to elect a new DD.
  + If there is only one remaining dispatcher it is the new DD.
  + If there is more than one dispatcher still on line then the MD with the lowest priority value will become the new DD.
  + If all remaining MD’s have the same admin priority then the new DD is the MD for the lowest locality id.

## Implementation

### Startup Process



### Re-Election Process



## Metrics

* Message size
* Message count

## Impact

* Requires changes to the dispatcher:
  + Event submission
  + Judgment processing
  + Log processing
  + Flags coping thread

## Future Work

### Enhancements

* TBD