HA (High Availability) FastTree

Two Server Setup and Testing

Procedure

Revised February 8, 2016

Overview

To ensure that FastTree doesn't create a single point of failure in our system, we can implement a solution to make FastTree highly available – HA (High Availability) FastTree. This is accomplished by deploying new logic that automatically replicates all data to a separate node(s). This solution incorporates a load balancer that directs all traffic to the primary server. If the primary server is unavailable, FastTree automatically fails over to the passive redundant server.

Single FastTree server

In a single FastTree server setup, data is sent from Evo through the DataTrax Services (DTS) to the DataTrax server. Logic then pushes certain data, such as distributor additions to the tree and volume, instantly. The logic also simulates an actual commissions run and exports information in large files as often as callbonus runs directly to FastTree.

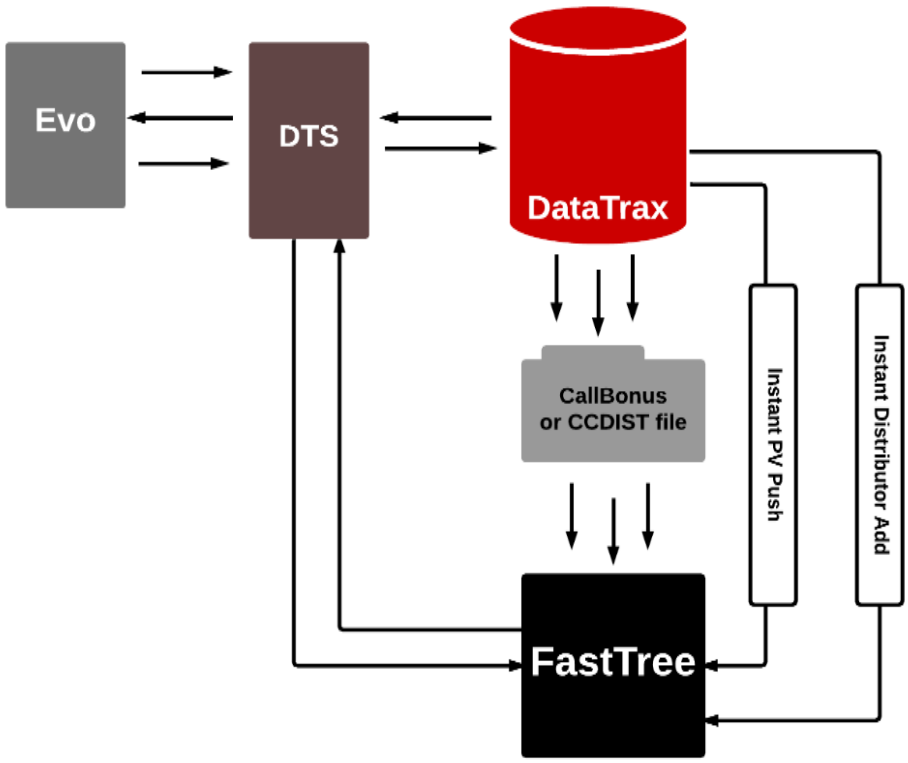

Figure 1 Single FastTree Server

Two FastTree Servers

Setting up multiple FastTree servers provides redundant nodes for data, as real time replication takes place. The data is sent and makes its way to both servers in the following ways:

Importing large reporting files

DataTrax can be configured to write an import file of the large reporting files to a local host file on the DataTrax server. A notification is sent to the two FastTree servers informing them that a file is ready to import. The first FastTree server available grabs the notification and downloads the file. Once the download is completed, the FastTree server lets the host server know that it's ready to receive more information.

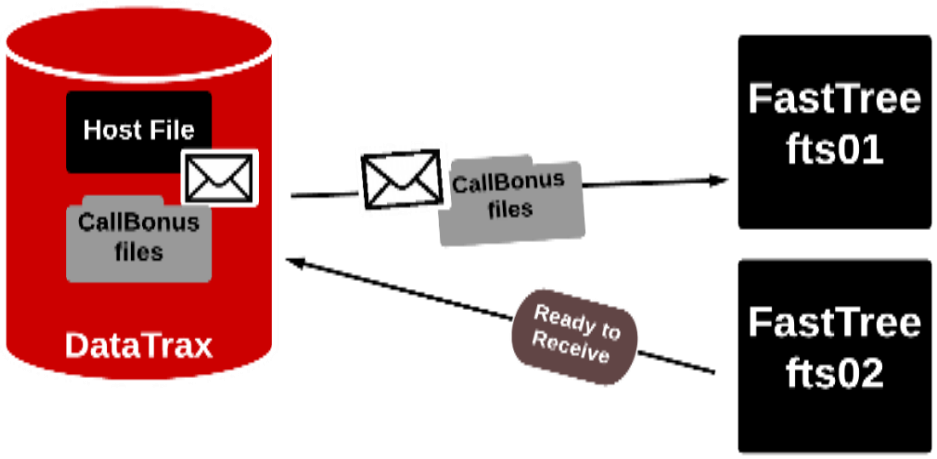

Figure 2 Multiple FastTree Servers Download

Once the initial FastTree server is done downloading the import file, the secondary FastTree server grabs the notification and downloads the import file.

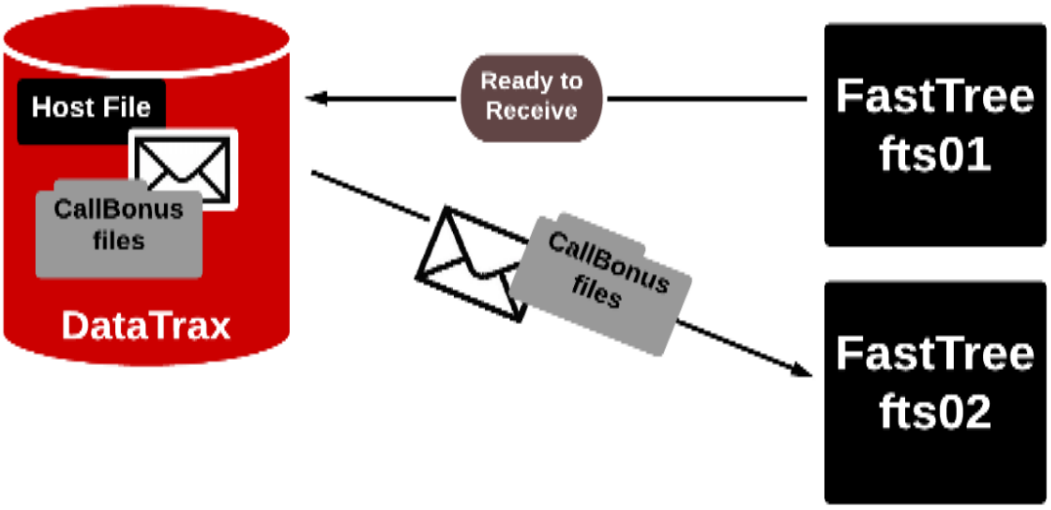

Figure 3 FastTree Servers Download to Server 2

Real Time Data

The data that is pushed in real time has to do with distributor additions to the tree and orders that create volume. This data is handled in such a manner that the instant push makes it to every server in near real-time. This insures that the instant hits are happening constantly and staying up to date.

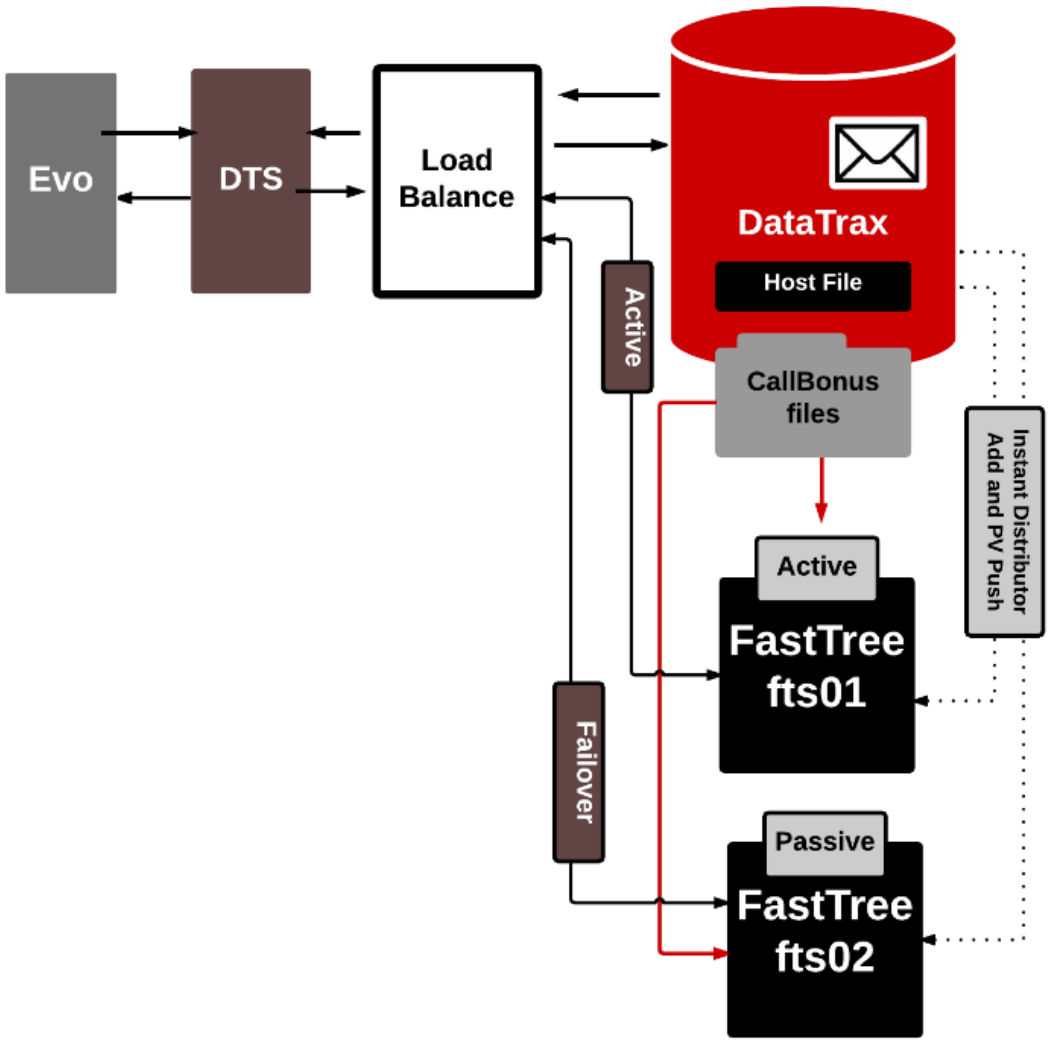

Figure 4 Download of Instant Push File and Big Import file

Managing Traffic

The various imports are managed by the system by a load balancer:

The Load Balancer

The Load Balancer directs the data to a primary FastTree server. A second FastTree server is designated as the passive failover server.

As mentioned previously, both instant hits and the batch import files are updated in real-time to both servers, so that in the event of a failure, the passive server can resume the primary server's work immediately.

Note: If needed, additional FastTree servers can be added as passive failover servers to provide redundant fault tolerance. However, standard configuration is one primary server and one secondary server.

Deploying HA FastTree

The following systems need to be in place in order to deploy HA FastTree:

1. Designated FastTree Servers. Usually there will be two servers with FastTree, but this is dependent upon the customer's setup
2. Vsched running on the customer's DataTrax servers
3. HA FastTree configuration setup

Programs to be deployed

The following programs need to be deployed:

1. FastTree Push Program
2. Recompile dotbon1 and deploy
3. ccstree.acu
4. ccsdist.acu
5. ftxfer.acu
6. oe3387sb.acu
7. tcmdst.acu

Configuring HA FastTree Settings

The following configuration needs to be setup:

1. /datatrax/fasttree needs to have:
    - FT50201 directory
    - hosts.50201 file
    - systems needs to make sure the names and ports are visible
2. CBLDATATRAX has to have the following: FastTree-cluster-transfer-{dev, tst,pre,live}=Y
3. CBLDATATRAX needs to be updated to hit VIP instead of actual FTree Server
4. CBLDATATRAX – Check instant ports to make sure setup properly

Host file

You specify the FastTree servers that the messages should be sent through within the host's file. Locate the settings for the Host File in /datatrax/fasttree.

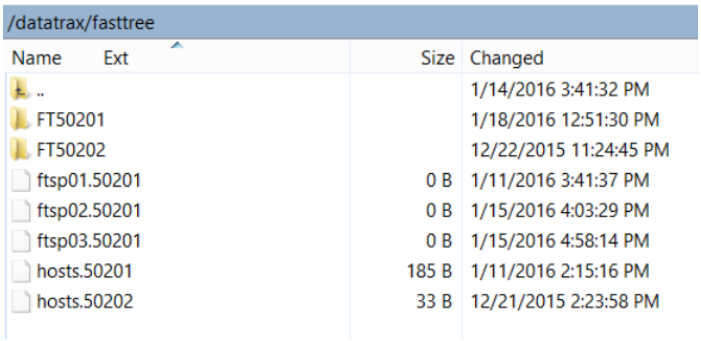

Figure 5 /datatrax/fasttree screenshot

In the hosts.50201 file, you can find the two FastTree servers:

```
ftsp01.dot.client.infotraxsys.com 50100 50201
ftsp02.dot.client.infotraxsys.com 50100 50201
```

The FT50201 and FT50202 directories are used to store temp files. If someone is debugging, you can use these directories as well.

Configuration file

You will need to modify the CBLDatatrax configuration when deploying HA FastTree. You can locate the CBLDatatrax configuration file at i/Datatrax/dot.

Important Settings

The following four lines in the CBL are important when setting up the FastTree servers:

`FastTree-server-test=gpvp01.dot.client.infotraxsys.com`	This line points to the HA Proxy Load Balancer. The Proxy Load Balancer distributes the load across all FastTree Servers set up in the host file.
`FastTree-server-port-test=50100`	The port in this line is used for reporting in conjunction with the HA Proxy Load Balancer.
`FastTree-cluster-transfer-test=Y`	This line enables the new FastTree Cluster setup to be used. You can edit the line to point to a different environment instead of “test,” such as “live” or “preview.” You can edit this setting to N

	or comment out the setting to not run FastTree Cluster.
FastTree-Instant-Server-Port=50201	The instant server port is used for all updates from the host file. When the cluster transfer test is set to Y, the local host port is used for all instant updates. The updates are sent out to the defined FastTree servers defined in the host file.

CBLDatatrax Settings:

```
[FastTree]
FastTree-MDIR-live=dot
FastTree-MDIR-test=dot-pre
FastTree-MDIR-sample=dot-dev
FastTree-server-live=ftree.infotraxsys.com
FastTree-server-test=gpvp01.dot.client.infotraxsys.com
FastTree-server-sample=gpvp01.dot.client.infotraxsys.com
FastTree-server-port-live=8081
FastTree-server-port-test=50100
FastTree-server-port-sample=50100
FastTree-dir-live=/fasttree/dot/live
FastTree-dir-test=/fasttree/dot/pre
FastTree-dir-sample=/fasttree/dot/bonus
FastTree-upload-live=/fasttree/upload
FastTree-upload-test=/fasttree/upload
FastTree-upload-sample=/fasttree/upload
FastTree-enabled-primary-live=N
FastTree-enabled-primary-test=Y
FastTree-enabled-primary-sample=N
FastTree-enabled-secondary-live=N
FastTree-enabled-secondary-test=N
FastTree-enabled-secondary-sample=N
FastTree-enabled-tertiary-live=N
FastTree-enabled-tertiary-test=N
```

```
FastTree-enabled-tertiary-sample=N
Fasttree-Primary-Output-Option=ALL
#FastTree-zipped-transfer=N
#FastTree-decoupled-transfer=N
#FastTree-zip-process=zip-7
#FastTree-unzip-process=gunzip

FastTree-cluster-transfer-test=Y

#only needed if customers not defined as such in dssdb
#FastTree-Customer-Status-List=XYZ

#Instant push port defaults to this and should rarely be
different
FastTree-Instant-Server-Port=50201

Fasttree-Customers-are-Rank-Zero=Y

#Instant push live default is Y if fasttree enabled=Y and using
oe3387sb
#FastTree-Instant-Push-Test=Y
#Instant push for non-live is N
FastTree-Instant-Push-Test=Y
FastTree-Instant-Push-Sample=N
```

Monitoring FastTree hits

In order to monitor hits to and from the FastTree servers, you will need to access the log files through a browser. You can either "tail" the log files and have the output redirected to your screen, or you can have the hit echoed back to your screen so you can see what being sent.

To "tail" the log files

1. Launch a browser.
2. Enter http://[*system name*]:50200/debug/[*mtree*].log. For example, http://evo1-vpn.infotraxsys.com:50200/debug/mtree.log.
    - For FastTree logs, use "mtree.log"
    - For televox/voicecast hits (such as messaging), use "htelevox.log"
    - For Instant PV Pushup hits, use "hpushup.log"

To echo the hit

1. Launch a browser.
2. Enter http://[*system name*]:50200/debug.txt. For example http://evo1-vpn.infotraxsys.com:50200/debug.txt.