

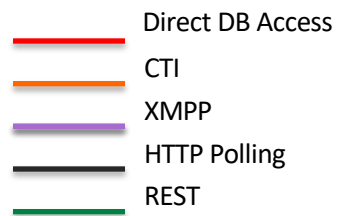
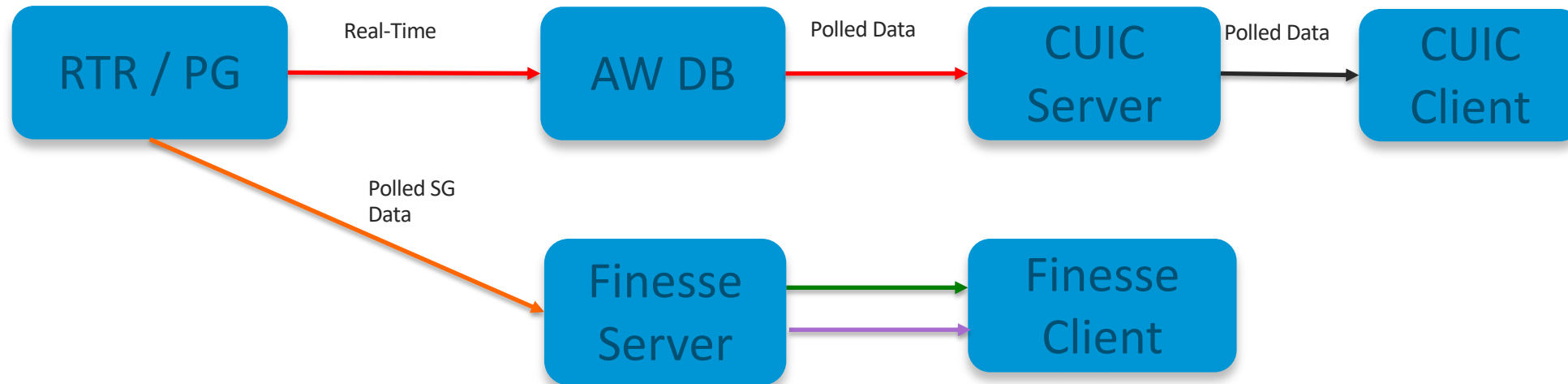


UCCE Live Data



Live Data Overview

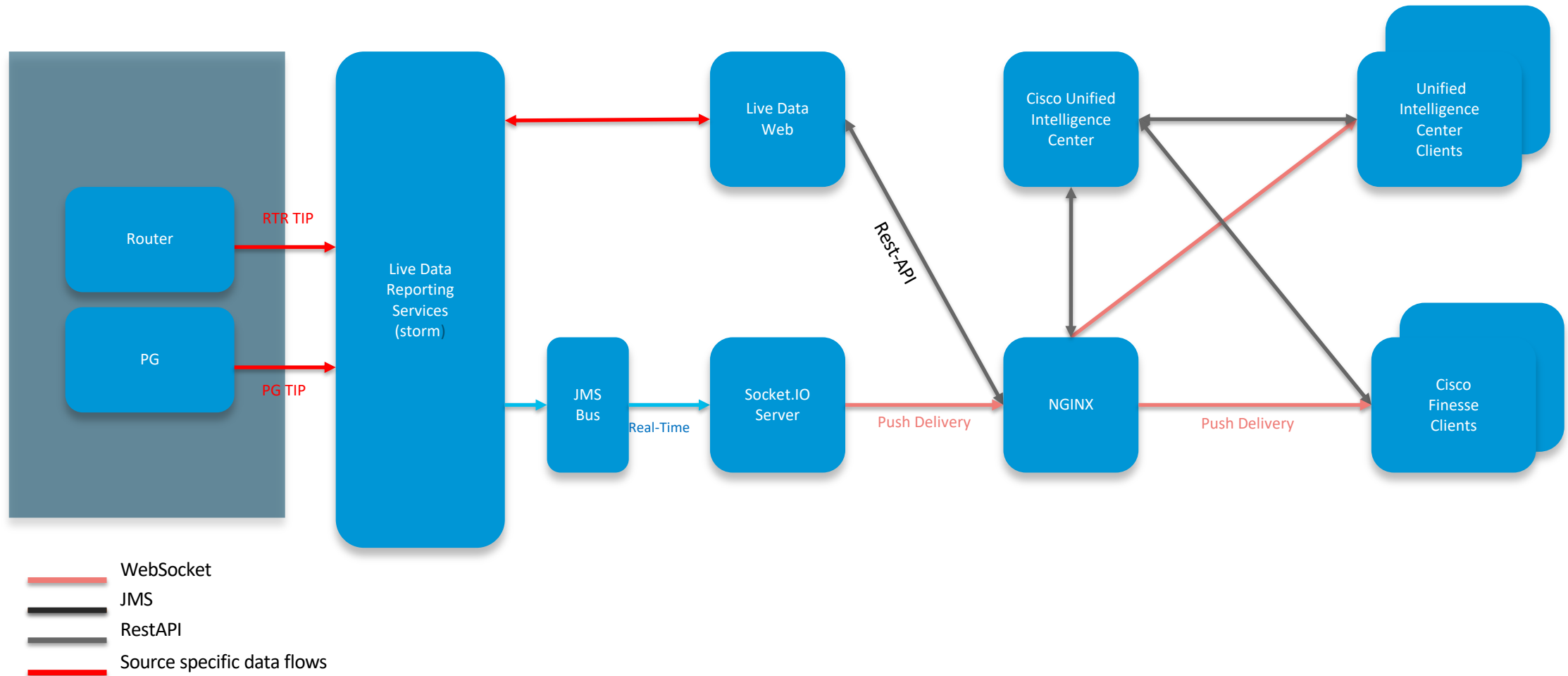
Legacy Real Time Reporting



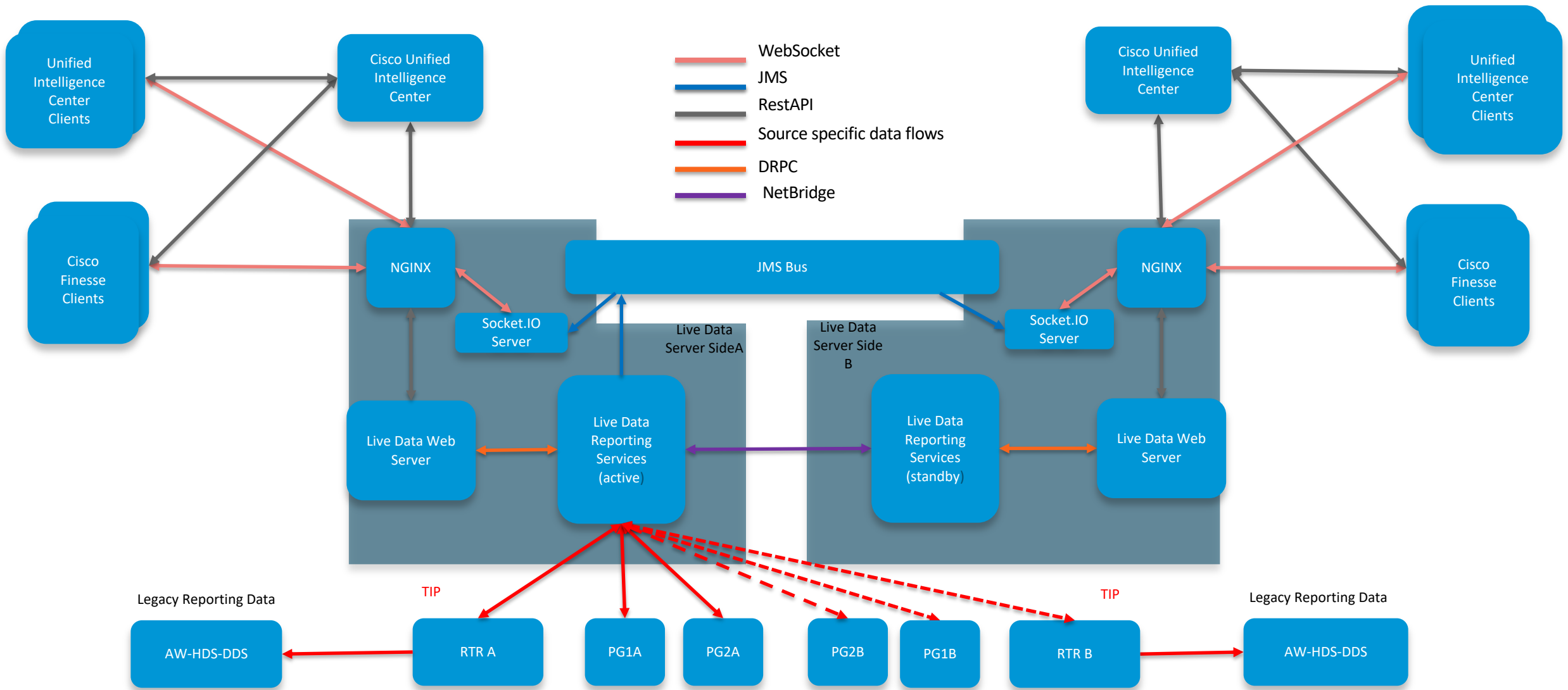
Issues:

- Multiple paths exist for RT reporting data
- The AW database is used as the transport for all RT data.
- No push path for RT data
- No way to join data from multiple applications

UCCE Live Data Reporting Data Flow (stand-alone)



UCCE Live Data Reporting Server (active-standby)



TIP/TOS Connections

TIP

- *Tempesta Interface Protocol*
- Only the active side has a TIP connection open to the Routers and PGs.

Tempesta

- Live Data internal project name

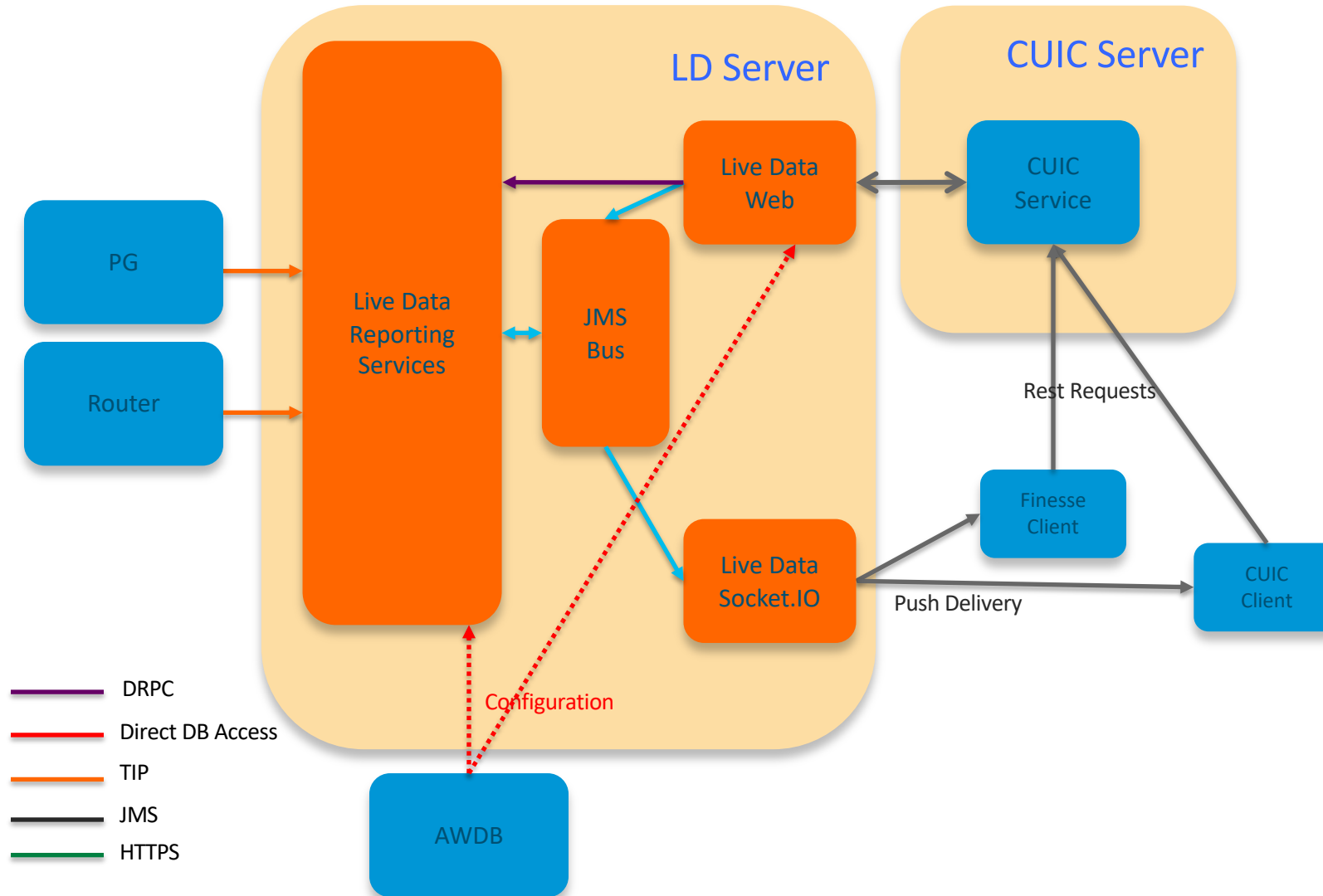
TOS

- *Test Other Side* protocol
- TOS is an internal Live Data protocol used to communicate state information between the Live Data Reporting system nodes.
- There will be a TOS connection from each Live Data Reporting Service to all RTRs and PGs

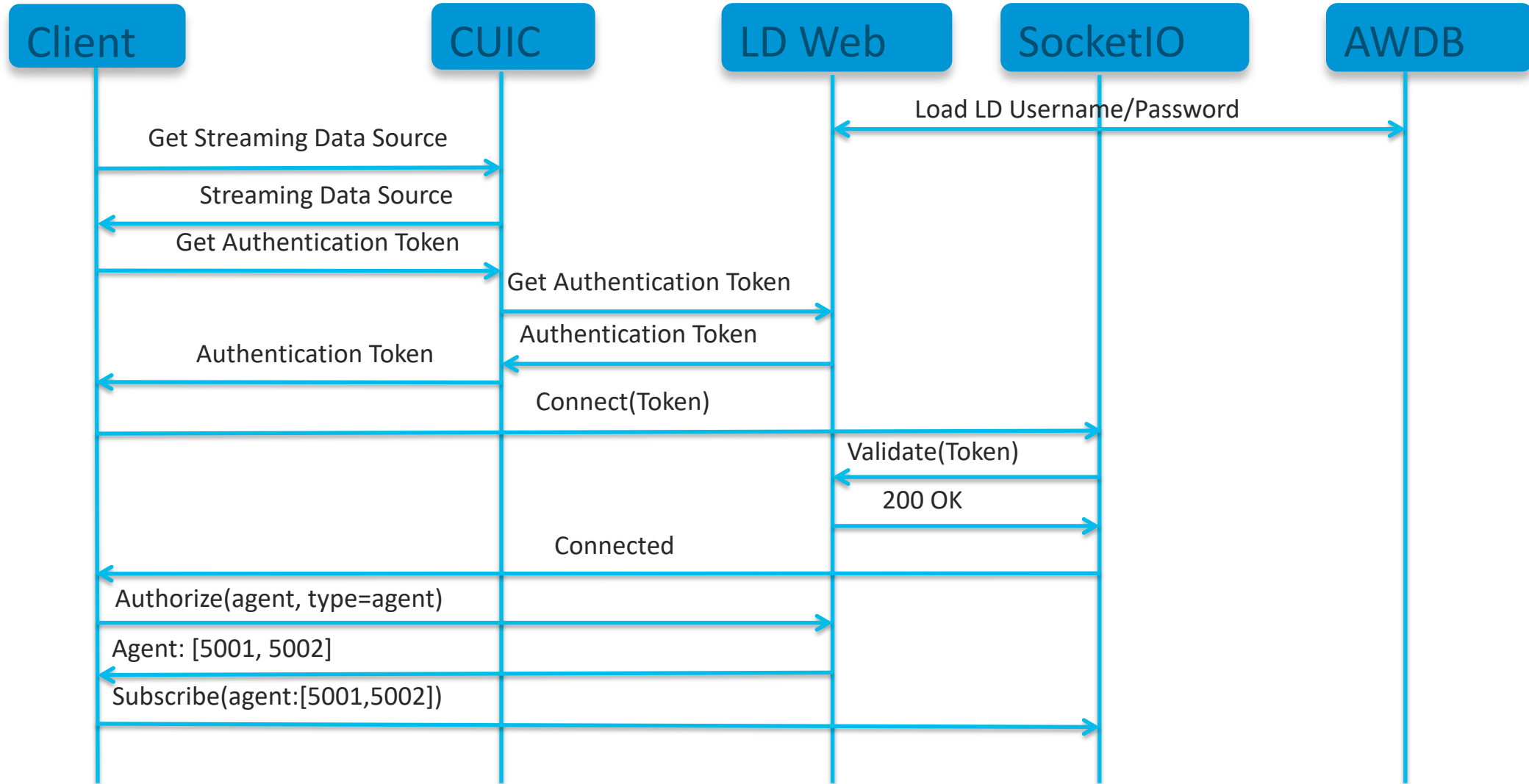
Live Data Interface with PG/Router (TIP)

- Router and PG's are “TIP Servers”
- Live Data is the “TIP Client”
- Initial Snapshot followed by event updates are sent to LD server.
- Events are queued on router and PG when there is no client
- By default the buffer size is 100,000 events
- TIP library monitors the memory and if the space is getting low the queue size will be reduced.

Live Data Configuration & Data Flow



User Login Data Flow



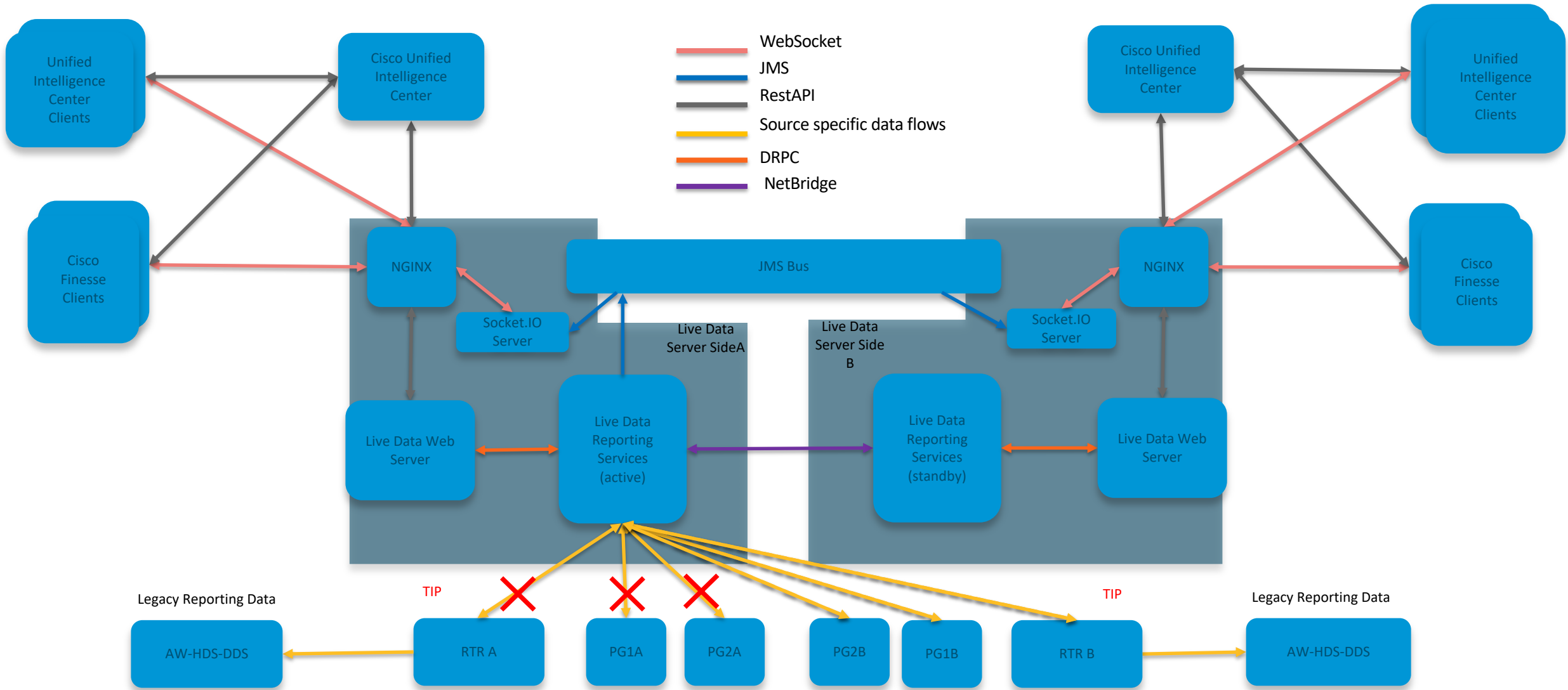
Live Data Failover

Live Data Failover

- Three types of failover
 - TIP connection to RTR\PG's
 - Live data services failure
 - Network Failure

- **TIP Connection**
 - Only one TIP connection is active at a time, either to Side A or to Side B
 - When the active TIP connection fails, the active Live Data server recovers to the idle TIP connection.

Live Data Failover: TIP Connection



Live Data Failover : Services Failure

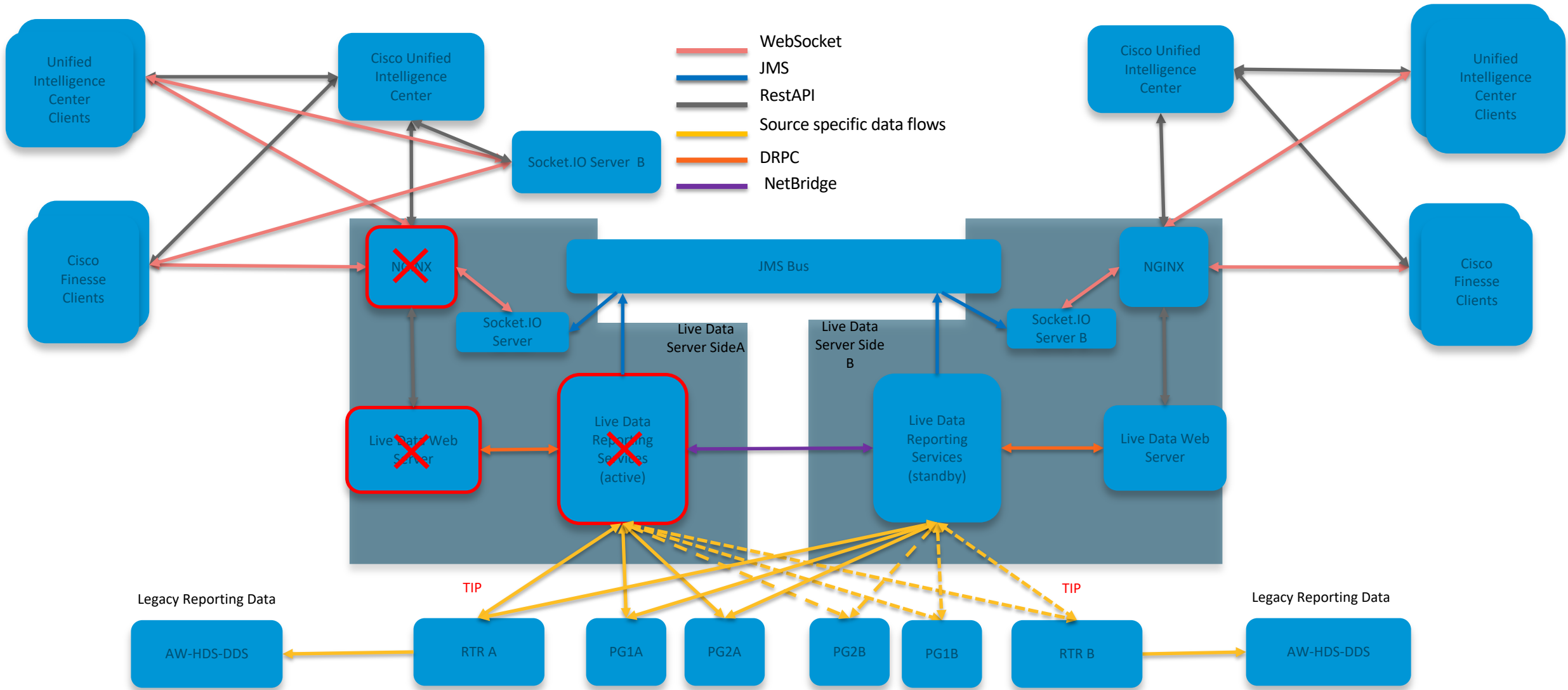
- Immediate Failover

- Zookeeper
- ActiveMQ
- WebServices
- DRPC
- NGINX
- Supervisor + Worker
- Router/PG's (depends upon PG numbers)

- Not immediate Failover

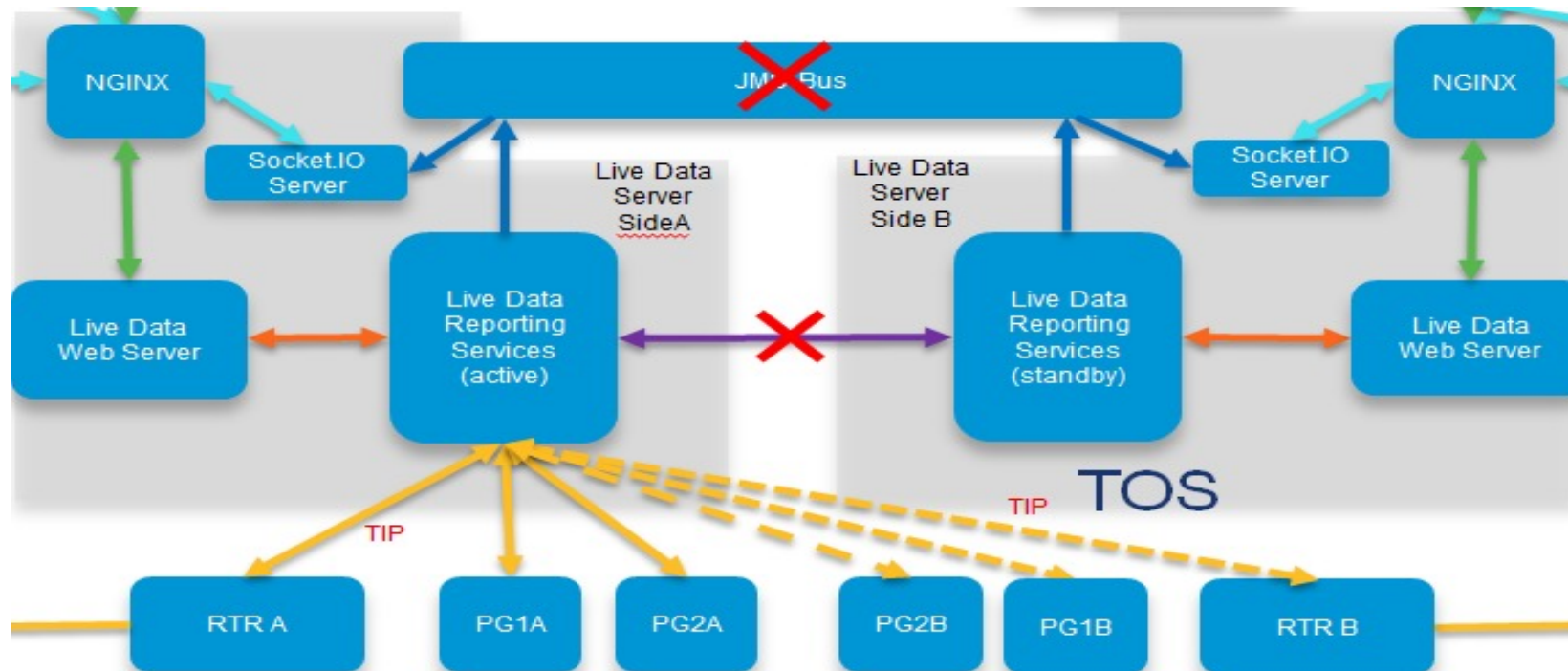
- Cassandra
- Nimbus
- Supervisor
- Socket.IO

Live Data Failure scenario 1: LD Services down



Live Data Failover : Network Failure

- **Scenario 1:**
 - Live Data server A side unable to talk to B side Live Data server
 - LD servers able to see the PG's and Routers



Live Data Failover : Network Failure

- **Expected Behavior: Scenario 1**

- LD Cluster Side A will make a TOS (Test Other Side) request to LD Cluster Side B via RTR- PG's

```
{"reqClusterName":"SideA","reqTimestamp":1372164720589,"msgType":"TOSRequest","requestId":12345,"respClusterName":"SideB"}
```

- The response is obtained

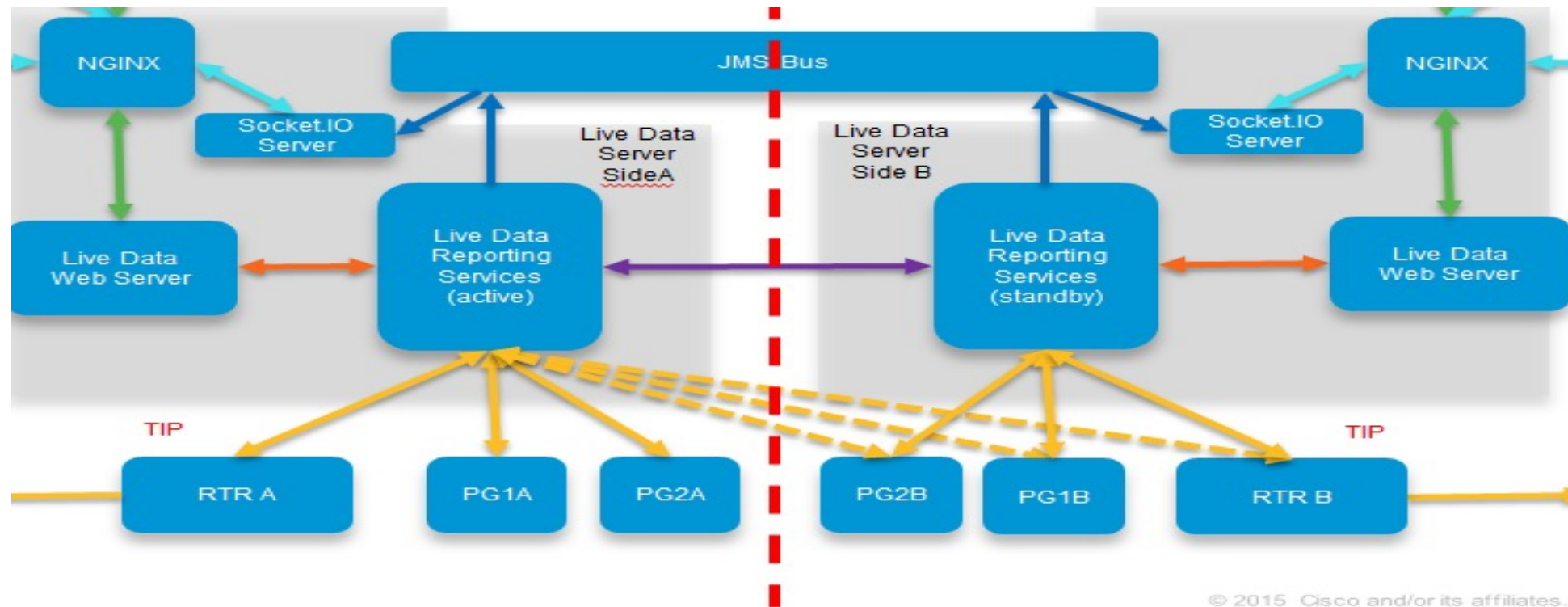
```
{"reqClusterName":"SideA","reqTimestamp":1372164720589,"msgType":"TOSResponse","requestId":12345,"respClusterName":"SideB","clusterState":"ACTIVE"}
```

- LD Cluster Side A goes “Isolated-Active”
- LD Cluster Side B goes “Out-of-Service”
- Socket.IO does not receive any events from JMS, resets moving clients to connect to A side

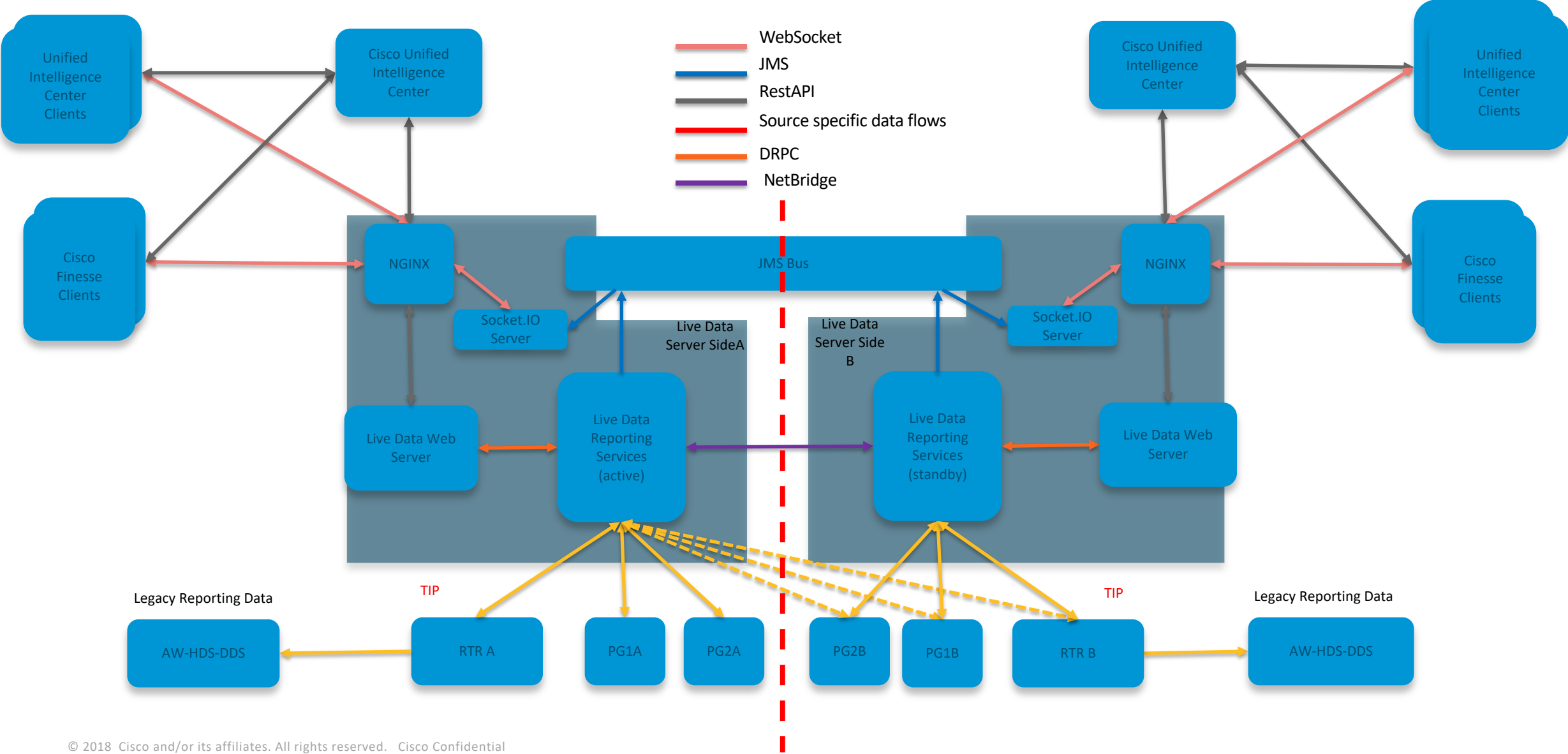
Live Data Failover : Network Failure

- **Scenario 2:**

- Side A - Side B connectivity is COMPLETELY severed 'Split Brain' or 'Active - Active'



Live Data Failure scenario 2: Side A - Side B connectivity down



Live Data Failover : Network Failure

- **Expected Behavior: Scenario 2**

- All connectivity between Side A and Side B is severed
- TOS is also down so LD Cluster Side B and A both cannot learn the others state (active/standby/OOS)
- LD Cluster A goes Isolated Active
- LD Cluster B goes Isolated Active
- The data consuming clients are basically unaware of the split brain.

- **Recovery Process**

- The server with connectivity to a larger number of PGs becomes active.
- When both sides have the same weight, Side A has a higher priority.

Cluster state	Description
PAIRED-ACTIVE	The cluster is in the active state and is communicating with the remote side.
PAIRED-STANDBY	The cluster is in the standby state and is communicating with the remote side.
ISOLATED-ACTIVE	The cluster is in the active state, but it is not communicating with the remote side.
ISOLATED-STANDBY	The cluster is in the standby state, but it is not communicating with the remote side.
SIMPLEXED-MODE	The cluster is working in simplex mode.
OUT-OF-SERVICE	The cluster is out of service.
CONNECTING	The cluster is attempting to do a handshake with the remote side.
TESTING	The cluster is unable to communicate with the remote side and is using the Test-Other-Side procedure to determine whether to become active or standby.

Live Data Configuration

UCCE 12.5 & 12.6

Configuration of Live Data

- Live Data Reporting Service Configuration for UCCE
 - Set Deployment type in CCE Admin
 - Add Secondary Live Data Server
 - Set Reporting Interval
 - Connect Live data servers to AWDB
 - Connect Live data servers to Machine Service records
 - Configuring Live servers' data-source in CUIC
 - Certificate configuration
 - Import Live data report templates into CUIC
 - Configure the Finesse Desktop Layout.

Live Data Serviceability

Disaster Recovery System Page

- For the procedure to backup and restore a Live Data server, see the Disaster Recovery System chapter in the Administration Console User Guide for Cisco Unified Intelligence Center at:
http://www.cisco.com/en/US/products/ps9755/prod_maintenance_guides_list.html
- You need to reconfigure Live Data aw-access information and reporting interval after performing a disaster recovery:
 - **set live-data aw-access**
 - **set live-data reporting-interval**

RTMT

- Live Data doesn't have an OAMP page, and thus for a Live Data standalone deployment, connect to the OAMP link of a CUIC server to download the RTMT tool.

The screenshot shows a web browser window with the address bar displaying `https://126cuicpub.jo123.local/oamp/Main.jsp#/tools`. The page title is "Cisco Unified Intelligence Center Administration". The main content area is titled "Tools" and contains a table with the following links:

Download RTMT Plugin for (Windows / Linux)
Disaster Recovery System
Cisco Unified Serviceability
Cisco Unified OS Administration
Network SNMP

On the left side, there is a vertical navigation menu with icons and labels for "Home", "User Management", "Device Configuration", and another partially visible icon.

RTMT

- In Trace & Log Central collect the Live Data related logs

The screenshot displays the RTMT Trace & Log Central interface. On the left, a navigation tree shows 'Tools' > 'Trace & Log Central' selected. The main window is titled 'Select LiveData Services/Applications' and contains a table for selecting services on different servers. A red arrow points to the 'CCE Live Data Storm Services' row, which has checkboxes checked for 'All Servers', 'acton-livedata1.bosto...', and 'acton-livedata2.bos...'. Below the table, there are sections for 'Application Logs' (with 'CiscoSyslog' selected) and 'Security Logs'. At the bottom, a log table shows entries with columns for Date, Machine Name, Severity, and App ID. A red arrow points from the 'Trace & Log Central' tool icon in the left tree to the log table.

Name	All Servers	acton-livedata1.bosto...	acton-livedata2.bos...
CCE Live Data ActiveMQ Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CCE Live Data Cassandra Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CCE Live Data NGINX Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CCE Live Data Socket.IO Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CCE Live Data Storm Services	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CCE Live Data Web Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CCE Live Data Zookeeper Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SNMP Java Subagent Adapter Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Date	Machine Name	Severity	App ID
Sep 23 14:52:20	acton-livedata1	Info	Cisco Service Manager : 142: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:52:20	acton-livedata1	Info	Cisco Service Manager : 141: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:52:10	acton-livedata1	Critical	Cisco AMC Service : 20: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:52:10	acton-livedata1	Critical	Cisco AMC Service : 19: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:40	acton-livedata1	Critical	Cisco AMC Service : 18: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:40	acton-livedata1	Critical	Cisco AMC Service : 17: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:33	acton-livedata1	Critical	Cisco Service Manager : 140: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:33	acton-livedata1	Critical	Cisco Service Manager : 139: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:33	acton-livedata1	Critical	Cisco Service Manager : 138: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:33	acton-livedata1	Critical	Cisco Service Manager : 137: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:33	acton-livedata1	Critical	Cisco Service Manager : 136: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:33	acton-livedata1	Critical	Cisco Service Manager : 135: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:33	acton-livedata1	Critical	Cisco Service Manager : 134: acton-livedata1.boston.com: Sep 23 2015
Sep 23 14:51:33	acton-livedata1	Critical	Cisco Service Manager : 133: acton-livedata1.boston.com: Sep 23 2015

CLI: Useful Commands

- utils service list

```
admin:utils service list page
Requesting service status, please wait...
System SSH [STARTED]
Cluster Manager [STARTED]
Cisco SCSI Watchdog [STARTED]
Service Manager [STARTED]
Service Manager is running
Getting list of all services
>> Return code = 0
A Cisco DB[STARTED]
A Cisco DB Replicator[STARTED]
CCE Live Data ActiveMQ Service[STARTED]
CCE Live Data Cassandra Service[STARTED]
CCE Live Data NGINX Service[STARTED]
CCE Live Data Socket.IO Service[STARTED]
CCE Live Data Storm DRPC Service[STARTED]
CCE Live Data Storm Nimbus Service[STARTED]
CCE Live Data Storm Supervisor Service[STARTED]
CCE Live Data Web Service[STARTED]
CCE Live Data Zookeeper Service[STARTED]
Cisco AMC Service[STARTED]
Cisco Audit Event Service[STARTED]
:enter for 1 line, space for one page, q to quit_
```

- utils dbreplication runtimestate

SERVER-NAME	IP ADDRESS	PING (msec)	DB/RPC/ DbMon?	REPL. QUEUE	Replication Group ID	REPLICATION SETUP (RTMT) & Details
livea	14.10.201.17	0.021	Y/Y/Y	0	(g_2)	(2) Setup Completed
liveb	14.10.201.18	0.378	Y/Y/Y	0	(g_3)	(2) Setup Completed

CLI: Useful Commands

- Show live-data failover

Primary LD Server

```
admin:show live-data failover
# Failover settings..
Cluster failover enabled: true
Cluster ID: A
Remote side addr: not applicable for the publisher in auto-config
Auto config enabled: true

# ActiveMQ NetBridge..
Established

# Cluster state..
PAIRED-ACTIVE
```

Secondary LD Server

```
admin:show live-data failover
# Failover settings..
Cluster failover enabled: true
Cluster ID: B
Remote side addr: livea
Auto config enabled: true

# ActiveMQ NetBridge..
Established

# Cluster state..
PAIRED-STANDBY
admin:
```

Cluster state	Description
PAIRED-ACTIVE	The cluster is in the active state and is communicating with the remote side.
PAIRED-STANDBY	The cluster is in the standby state and is communicating with the remote side.
ISOLATED-ACTIVE	The cluster is in the active state, but it is not communicating with the remote side.
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SIMPLEXED-MODE	The cluster is working in simplex mode.
OUT-OF-SERVICE	The cluster is out of service.
CONNECTING	The cluster is attempting to do a handshake with the remote side.
TESTING	The cluster is unable to communicate with the remote side and is using the Test-Other-Side procedure to determine whether to become active or standby.

CLI: Useful Commands

- Show socketio status

```
admin:show socketio status
Server Status: Active
JMS Brokers: tcp://localhost:61616,tcp://14.10.201.18:61616
Active Broker: Local
Client Count: 0 (polling: 0)
```

• **Client count:** Connection request in Socket i\o mode

• **Polling:** Connection request in polling mode (Ex: Browser in compatibility mode)

- Show live-data commands

```
admin:show live-data
show live-data aw-access
show live-data cuic-datasource
show live-data failover
show live-data machine-services
show live-data reporting-interval
show live-data secondary
show live-data syslog-server
show live-data trace*
```

CLI: Collecting Logs

- Command to list the live data services log folder

`file list activelog /livedata/logs/*`

```
admin:file list activelog /livedata/logs/*
<dir>    livedata-activemq
<dir>    livedata-cassandra
<dir>    livedata-jsadkagt
<dir>    livedata-nginx
<dir>    livedata-storm
<dir>    livedata-web
<dir>    livedata-zookeeper
<dir>    socketio-service
dir count = 8, file count = 0
```

- Command to get the specific live data service log

`file get activelog /livedata/logs/livedata-storm/*`

```
admin:file get activelog /livedata/logs/livedata-storm/*
Please wait while the system is gathering files info ...done.
Sub-directories were not traversed.
Number of files affected: 13
Total size in Bytes: 511995
Total size in Kbytes: 499.99512
Would you like to proceed [y/n]? _
```

Collecting LiveData logs via CLI

// LiveData (All of the LD logs combined):

- *file get activelog livedata/logs/ recurs compress*

```
admin:file get activelog livedata/logs/ recurs compress
```

```
This command can take significantly long time,  
and can also affect the system wide IOWAIT on your system.
```

```
Would you like to proceed [y/n]?y
```

```
Please wait while the system is gathering files info ...
```

Collecting LiveData logs via CLI

// CCE Live Data ActiveMQ:

- file get activelog livedata/logs/livedata-activemq

// CCE Live Data Cassandra Service:

- file get activelog livedata/logs/livedata-cassandra

// CCE Live Data NGINX Service:

- file get activelog livedata/logs/livedata-nginx

// CCE Live Data Socket.IO Service:

- file get activelog livedata/logs/socketio-service

// CCE Live Data Storm Services:

- file get activelog livedata/logs/livedata-storm

// CCE Live Data Web Service:

- file get activelog livedata/logs/livedata-web

// CCE Live Data Zookeeper Service:

- file get activelog livedata/logs/livedata-zookeeper

Troubleshooting

Troubleshooting – Basic checks

Step 1. Check deployment types and versions:

- 2K - Co-resident CUIC-LD-IdS
- 4K and above - Standalone LiveData servers

Step 2. DNS & NTP config checks:

- Verify Forward and Reverse lookups
- NTP must be at a stratum of 4 or under

Step 3. Ensure the configurations have been done using FQDNs and NOT IPs

Step 4. For 12.5 and above – check CORS config

PCCE Troubleshooting Information

PCCE Livedatauser - How to recreate the user for 2K deployments

Step 1: On the co-resident CUIC-LD-IdS Pub CLI

- unset live-data aw-access primary
- unset live-data aw-access secondary

Step 2: Go to AW-1, using SQL Server Manager Studio (Use SA account)

- Delete the livedatauser user from
 - master Db
 - AW databases
 - Login under Security

Step 3: Do the same on AW-2.

Step 4: Restart the co-resident CUIC-LD-IdS cluster

Step 5: Restart Tomcat on both AWs

UCCE Troubleshooting Information

- **AW Server** : Check the **dbo.t_Machine_Service** Table to show that the correct user is setup and all the right ports have been populated
- **Router \ PG Server**: Confirm TIPS is configured properly in these registries
 - **Router** → HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, INC.\ ICM\instance\RouterA\TIP\currentVersion
 - **PG** → HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, INC.\ ICM\instance\RouterA\TIP\currentVersion
- Logs
 - **Router** → Router (RTR)
 - **PG** → OPC traces

Before you raise a TAC case

- Provide the exact version details including ES installs.
- Get a detailed problem description.
- Define business impact.
- Gather the DateTime information of issue.
- Reach out to TAC with above information.

