Intermediate: Identifying and resolving issues with Tungsten Replicator and Tungsten Clustering

continuent

Topics

In this short course we will:

- Discuss tools used to identify issues
- How to examine issues in the logs
- Resolve common replication issues
- Resolve common clustering issues
- Get more information about replication lag

Course Prerequisite Learning

- Basics: Introduction to Tungsten Clustering OR Introduction to Tungsten Replication
- Optional: Basics: Simple Tungsten Cluster Deployments
- Visit the Continuent website or Tungsten University on YouTube to watch these recordings
  - Continuent website https://www.continuent.com/videos/
  - Tungsten University on YouTube https://www.youtube.com/channel/UCZ9iU-7nT1RLNnJvITFCsWA or http://tinyurl.com/TungstenUni

How Do We Check the Health of an Installation?

Tools

- `trepctl`
  - `status` shows detailed status of replicator
  - `qs` gives a 2 line quick status (5.2+)
  - `services` show all of the replicator services known on this node
  - `status -r` *`s`* repeat status every *`s`* seconds
  - `Status -name tasks` shows status within the replicator pipeline
- `/opt/continuent/tungsten/cluster-home/bin/check*`
  - scripts used for basic monitoring of cluster, replication and backup status
  - can be used with nagios and zabbix
- Log files in `/opt/continuent/services_logs/`
  - log files from each component are symlinked here for easy access
  - These files are included in a `diag` used by Continuent Support
- `cctrl`
  - Used for Clustering
  - Complete picture and status of the Tungsten Cluster

trepctl status

```
Processing status command...
NAME                     VALUE
----                     -----
appliedLastEventId     : mysql-bin.000003:0000000000000810;3239940
appliedLastSeqno       : 224
appliedLatency         : 1.034
autoRecoveryEnabled    : false
latestEpochNumber      : 223
maximumStoredSeqNo     : 224
minimumStoredSeqNo     : 0
pipelineSource         : thl://db1:2112/
role                   : slave
serviceName            : east
state                  : ONLINE
```

Replicator states

- `ONLINE`
- `OFFLINE:NORMAL`
  - Replicator has been put into an OFFLINE state
  - no Replicator issues
- `GOING-ONLINE:SYNCHRONIZING`
  - Slave Replicator is trying to source, source is unavailable
  - Source Replicator is offline or perhaps there's a connectivity/firewall issue between the Replicators
- `OFFLINE:ERROR`
  - Replicator has gone OFFLINE due to an error
  - `trepctl status` will show a description of the error

continuent

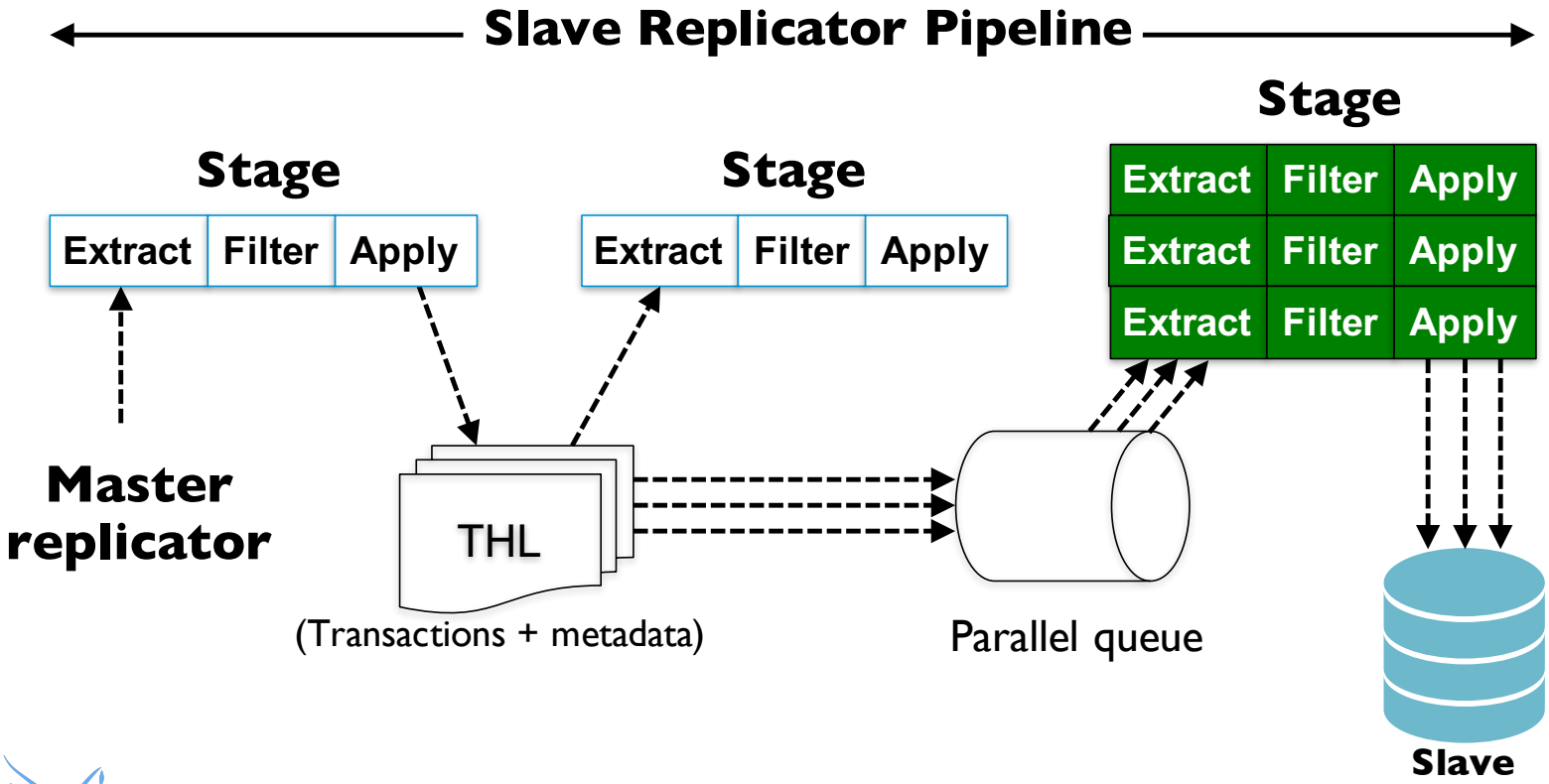
Cluster states

- `ONLINE`
- `OFFLINE`
  - Node will not accept connections through the connector for reads or writes.
  - When cluster policy is `AUTOMATIC`, an offline datasource will be recovered and brought back into the cluster.
  - If the cluster policy is `MAINTENANCE`, the datasource remains offline until explicitly brought back online.
- `SHUNNED`
  - Similar to OFFLINE
  - However, a SHUNNED datasource will NOT be automatically recovered into the cluster.
  - Nodes can manually SHUNNED, or can be SHUNNED due to an error
  - Typically used to perform maintenance on the underlying system.
- `FAILED`
  - A service has failed on the host, such as the MySQL server
  - After correcting the issue, the node can be bought into the cluster using the `recover` command

Demo

Diagnosing Replication Latency

Understanding Replicator Pipelines



Primary Causes of Latency

1. Large Transaction
2. Schema Change

- Transactions must be applied in serially in sequence
- Newer transactions must wait for the large transaction to complete
- Schema change is a large transaction if target table must be rebuilt

continuent

trepctl perf (version 5.2+)

- Displays performance statistics for each stage in the replicator
- Supports auto refresh option `-r s` where `s` is the number of seconds to refresh

```
Statistics since last put online 38.418s ago
Stage          | Seqno | Latency | Events | Extraction | Filtering | Applying | Other |  Total
remote-to-thl | 3246  | 1.143s  | 42     | 37.831s    | 0.001s    |  0.403s  | 0.011s| 38.246s
                       Avg time per Event |  0.901s    | 0.000s    |  0.000s  | 0.010s|  0.911s
thl-to-q       | 3246  | 1.209s  | 1654   | 37.113s    | 0.005s    |  1.090s  | 0.098s| 38.306s
                       Avg time per Event |  0.022s    | 0.000s    |  0.000s  | 0.001s|  0.023s
q-to-dbms      | 3235  | 3.746s  | 1644   | 22.226s    | 0.019s    | 15.242s  | 0.338s| 37.825s
                       Avg time per Event |  0.014s    | 0.000s    |  0.000s  | 0.009s|  0.023s
                         Filters in stage | mysqlsessions -> pkey
```

continuent

trepctl status –name tasks (all versions)

```
NAME                     VALUE
----                     -----
appliedLastEventId     : mysql-bin.000005:0000000000001149;1930649
appliedLastSeqno       : 239
appliedLatency         : 0.361
applyTime              : 0.079
averageBlockSize       : 0.750
cancelled              : false
commits                : 4
currentBlockSize       : 0
currentLastEventId     : mysql-bin.000005:0000000000001149;1930649
currentLastFragno      : 0
currentLastSeqno       : 239
eventCount             : 3
extractTime            : 7511.527
filterTime             : 0.0
lastCommittedBlockSize: 1
lastCommittedBlockTime: 7497.072
otherTime              : 0.0
stage                  : q-to-dbms
state                  : extract
taskId                 : 0
timeInCurrentEvent     : 2.613
```

Next Steps

- If you are interested in knowing more about Tungsten Clustering or Tungsten Replicator, and would like to try it out for yourself, please contact our sales team who will be able to take you through the details and setup a POC – sales@continuent.com
- Read the documentation at http://docs.continuent.com/
- Subscribe to our Tungsten University YouTube channel! http://tinyurl.com/TungstenUni
- Visit the events calendar on our website for upcoming Webinars and Training Sessions https://www.continuent.com/events/

continuent

For more information, contact us:

Eero Teerikorpi
Founder, CEO
eero.teerikorpi@continuent.com
+1 (408) 431-3305

Eric Stone
COO
eric.stone@continuent.com

MC Brown
VP Products
mc.brown@continuent.com

Chris Parker
Director, Professional Services EMEA & APAC
chris.parker@continuent.com

Matthew Lang
Director, Professional Services Americas
matthew.lang@continuent.com