How to help financial customers use Tencent CloudMariaDB

For MariaDB 2020 Fest

by terazhu
2020 09
01  Why we choose MariaDB
02  User's requirements
03  What we do to enhance MariaDB
Why we choose MariaDB

New Features
- Threads pool
- DDL WAIT and NOWAIT, CETs, S3...

More Engines
- MyRocks
- ColumnStore

license
- LGPL, potential risk

Open
- decisions can be reviewed and debated
User's Requirement

Security

Scale out / update

Fully replication

High Availability 99.99%>

Window function, Multi source sync, CETS
...
Security

Before
- Transmission encryption data authentication

When
- Kernel-level security policy
- SQL firewall
- Mis-operation prevention

After
- Operation and maintenance audit
- Database audit
- Server audit
- Super access control

National standard Industry Certification
Audit Log
- Check the log
  - ...

Audit Strategy
- Combine the instance
  - Action
  - Let it go
  - Alarm
  - ...

Audit Rule
- regular expression
  - Include
  - Not include
  - Equal/unequal to
  - Client Ip
  - Execution time
  - Users...
The entire switching process is fully automatic without human intervention.

Strict handover process to ensure the data consistency.
Multi data center solve split-brain problem
Fully replication

Active

Main Thread

SQL in parallel

Serial commit

binlog

Stand by 1

IO Thread

 commits sequentially

Read binlog

Read & Apply

Relay log

Stand by 2

Asynchronous threads group
Multi-source synchronization component
<table>
<thead>
<tr>
<th>monitor</th>
<th>prevention</th>
<th>analysis</th>
<th>Alarm</th>
<th>Rapid positioning</th>
<th>Emergency response</th>
<th>optimization</th>
</tr>
</thead>
<tbody>
<tr>
<td>70+ items</td>
<td>SQL audit</td>
<td>Performance bottleneck</td>
<td>Availability status</td>
<td>Abnormal diagnosis</td>
<td>Traffic restrictions</td>
<td>One-click optimization</td>
</tr>
<tr>
<td>Multi</td>
<td>Execution plan and data review</td>
<td>Performance trend</td>
<td>Performance baseline</td>
<td>Real-time analysis and positioning</td>
<td>Quick upgrade</td>
<td>Automatic tuning</td>
</tr>
<tr>
<td>dimensional</td>
<td>Health protection</td>
<td>Capacity prediction</td>
<td>customize</td>
<td>One-click analysis</td>
<td>One-click kill</td>
<td>Expert advice</td>
</tr>
<tr>
<td>monitoring</td>
<td>Regular inspection</td>
<td>Security threat</td>
<td>Other anomaly</td>
<td>Scene analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine-grained</td>
<td>Monitor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>large screen</td>
<td>large screen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
User cases, A bank

- **Shenzhen**
  - IDC1: Master (Async replica to RO)
  - IDC2: Slave (Fully replica to Slave)
  - ZK: #1, #2

- **Shanghai**
  - IDC3: Master (Async replica to Slave)
  - Slave
  - ZK: #3, #4, #5

Async replica connects Master in IDC1 to Slave in IDC2, and Slave in IDC3.
THANK YOU!