Percona XtraBackup Current and Future State

What's the future of the open-source industry standard for MySQL hot backup?

Tyler Duzan
Product Manager for MySQL & Cloud
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Who Am I?

- **My name is Tyler Duzan**

- **Product Manager for MySQL Software and Cloud at Percona**

- **Previously was an Ops/Security Engineer for 13 years**

- **Active in the Open Source community since 2003**

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What is XtraBackup?

- **Enterprise-Grade**
- **Cloud-Integrated**
- **Supports MyRocks**
- **100% Free and Open Source Software**
- **Online Hot Backup for MySQL**

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XtraBackup

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What is XtraBackup

- **xtrabackup –**
  - Main binary utility, performs the backup and preparation stages
- **xbstream –**
  - Both a file format and a utility. This allows simultaneous compression and streaming of backup data
- **xbcrypt –**
  - Supports encryption and decryption of backups, integrates with xbstream
- **xbcloud -**
  - Provides a method to perform streaming backups to supported cloud object storage. Currently supports the S3 API and the Swift API

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Current State

Split Binaries for PXB 8.0 and PXB 2.4

- **MySQL 8.0 introduced a new data dictionary and redo log format**

- **Data dictionaries in MySQL 8.0 give many great advantages, but are fundamentally incompatible with the necessary code paths for supporting 5.7**

- **Oracle also split their MySQL Enterprise Backup binaries for the same reasons**

- **PXB 2.4 and 8.0 are independent release series, both still actively developed.**

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MyRocks Consistent Backups

- **New data dictionary format relies on InnoDB, which means even in a purely MyRocks database the system tables would still use InnoDB**

- **Added checkpointing into MyRocks both in Percona Server and upstream in FB-MySQL**

- **Checkpointing allows us to gather an LSN at the point in time of the backup, in order to appropriately process the MyRocks WAL**

- **Utilizing the log_status table allows us to match consistency to InnoDB binary log while backing up all InnoDB databases including the system tables**

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Support for Streaming Cloud Object Storage

- **Added into xbcloud as a necessary feature for enabling the use of MySQL w/ XtraBackup in a Kubernetes environment**

- **Expanded capabilities of xbcloud and added support for the S3 API**

- **S3 API works with AWS S3, Minio, Google Cloud Storage, and others**

- **Allows a backup to be executed where nothing is written locally to disk, it is all immediately streamed offsite.**

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Roadmap Overview

Security Improvements

- **Support transition encryption keys to ensure that PXB based SST can succeed when every PXC member in a cluster uses a different unique encryption keey**

- **Tighter integration with Hashicorp Vault, including the use of Vault to generate a unique encryption key for each backup before it transits the wire.**

- **Support for the PS 8.0 Encryption Threads and Key Rotation feature when it becomes GA**

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Performance Improvements

- **New flag that will auto-tune the value typically set by --use-memory by analyzing the MySQL redo log**

- **Support adjustable chunk sizing in xbstream and xbcloud**

- **Make --parallel work on a chunk level in xtrabackup rather than a file level for speeding up backups of large single-file databases**

- **Add exponential back-off into our xbcloud API wrappers to reduce failures during retries**

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Improved Integrations

- **Add Native Google Cloud Storage support to xbcloud**

- **Add Native Azure Blob support to xbcloud**

- **MyRocks Incremental Backups**

- **Support restoring/retrieving from tarballs with xbcloud**

- **Add support for IAM Roles in our S3 integration in xbcloud**

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Questions?

Please Reach Out if You Have Ideas/Concerns

- **tyler.duzan@percona.com**
- **Zendesk Support Tickets**
- **File a New Feature in JIRA**

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