Liferay® DEVCON

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Upgrade automation and zero-downtime

Improving the upgrade experience in Liferay 7.4

Photo by Daniel Seßler on Unsplash

How Liferay has changed in 7.4?

Cloud

- Focused on cloud-based environments
- Implementing Devops methodologies

Automation

Rolling Releases

- Frequent upgrades
- Automated processes

Reduce downtime

Low-code

- Customizations via UI
- No-code extensions

Online changes

Upgrading the Upgrade Framework

Zero-downtime upgrades

For custom tables:

- Online via Objects UI
- File processing via Batch Engine

Upgrade Automation

- Upgrade Report
- Log context
- Upgrade Mbean

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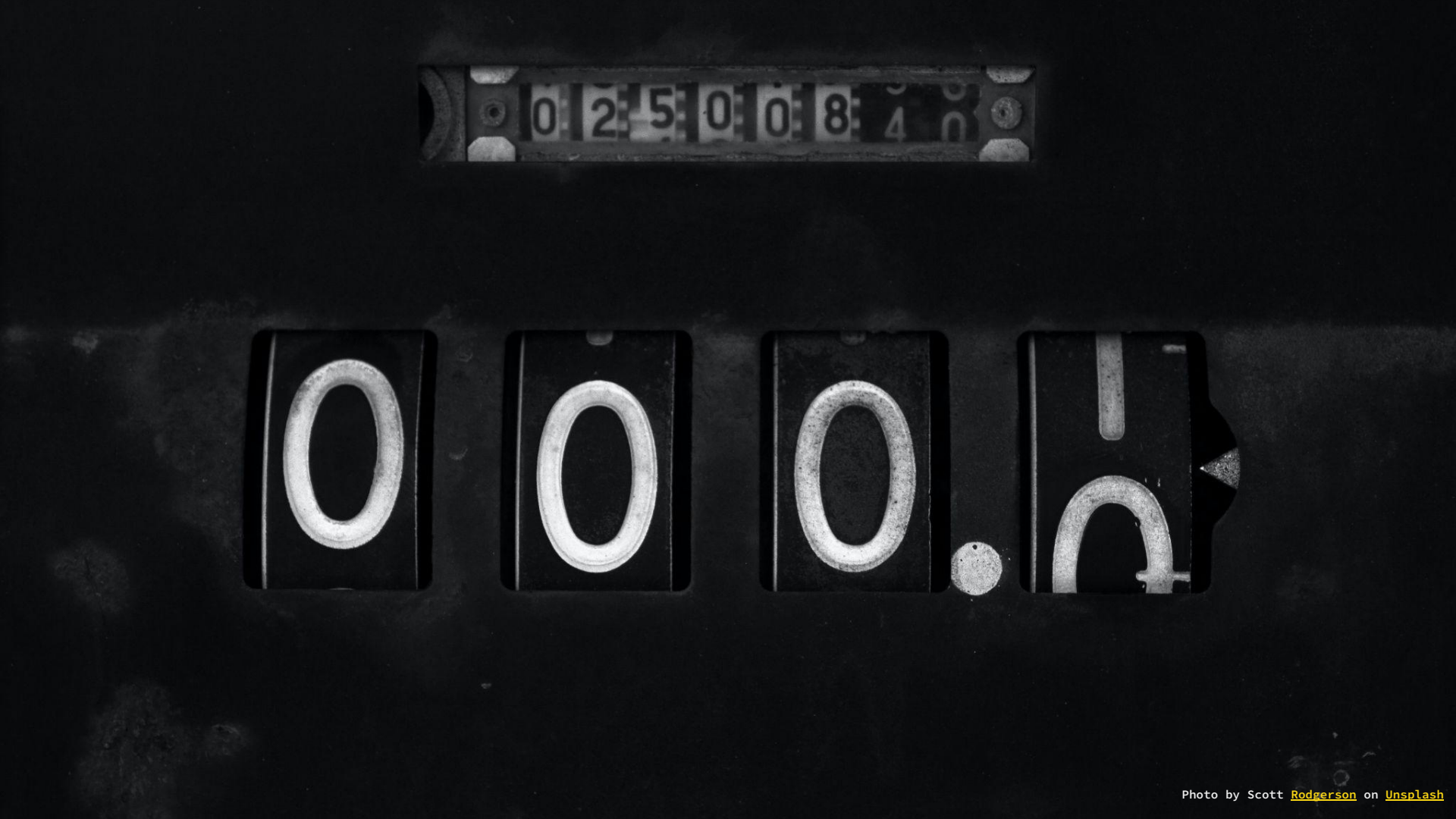

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Zero-downtime upgrades

- Currently working on schema version changes for Objects
- API and database changes are published at the same time
- Valid for all supported databases

Zero-downtime strategies

Transactional DDL

- Faster but longer table locks
- Native database task
- MySQL and Oracle does not support it

Shadow table

- More complex and slower but brief table locks
- Valid for all supported databases
- Compatible with non-schema changes

Zero-downtime upgrades lifecycle

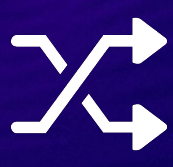
duplicate

modify

synchronize

copy

verify



switch

backup

Icons created by Catalin Fertu - Flaticon

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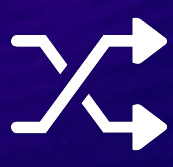

switch

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Zero-downtime - CREATION PHASE

- Shadow table creation
- No locks

Zero-downtime - MODIFICATION PHASE

- Column modifications on the shadow table
- No locks

Zero-downtime - SYNC PHASE

- Triggers created on table to replicate inserts, updates and deletes

Zero-downtime - COPY PHASE

- The data is copied in small chunks of data
- Small and short locks are generated to keep the synchronization with the triggers

Zero-downtime - VERIFICATION PHASE

- A checksum operation or similar is executed to ensure the shadow data is identical to the original data

Zero-downtime - SWITCH PHASE

- Tables renaming
- Atomic change (when supported)

Zero-downtime - CLEANUP & BACKUP PHASE

- Original table is kept as backup
- Cleanup is scheduled

Zero-downtime future

- Integration with:
  - Data upgrade processes
  - System tables
- Strong upgrade process categorization

Time for questions

Upgrade automation:

- Detailed upgrade information
- Live and accessible
- Parsable and easy to integrate

Zero-downtime upgrades:

- Schema changes for Objects
- Synchronized with API changes
- 1st phase ready by Summer 2023

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How was this session?

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