



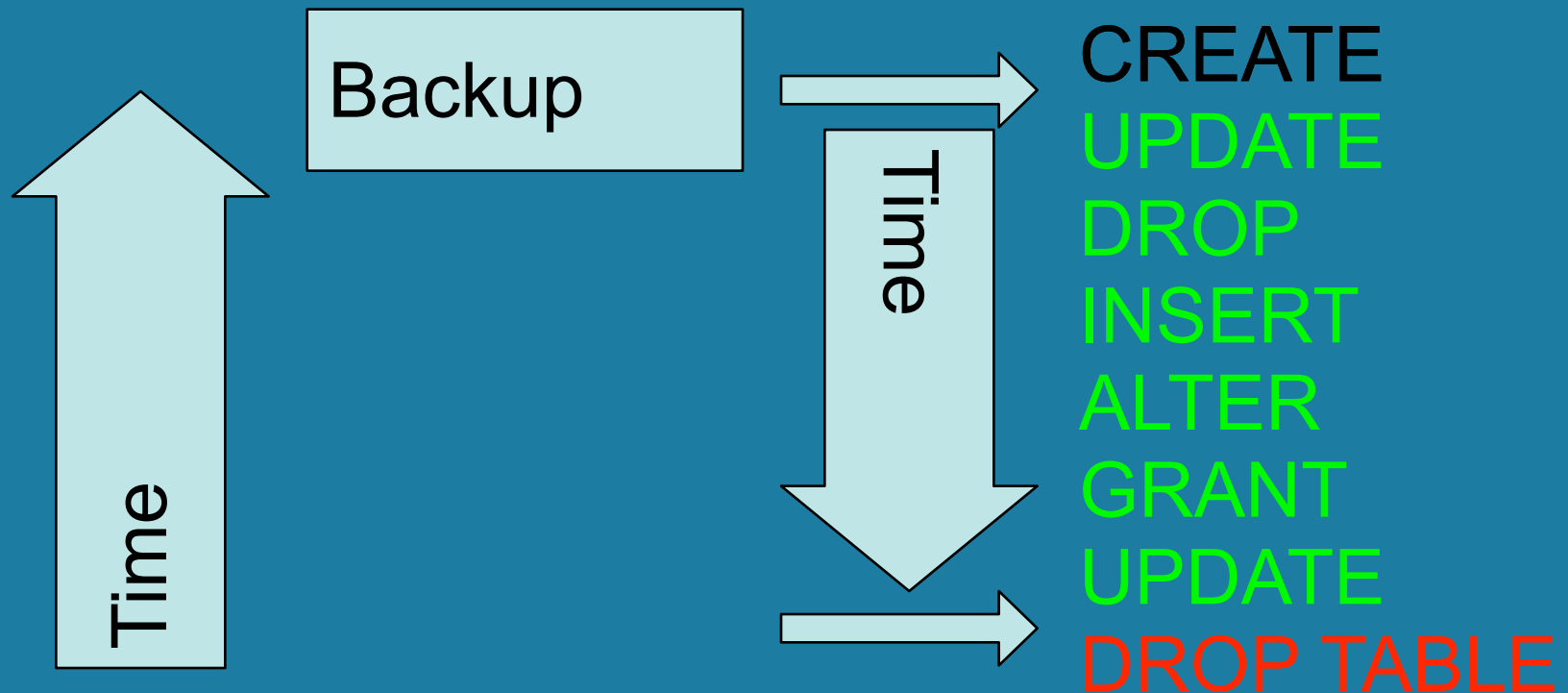
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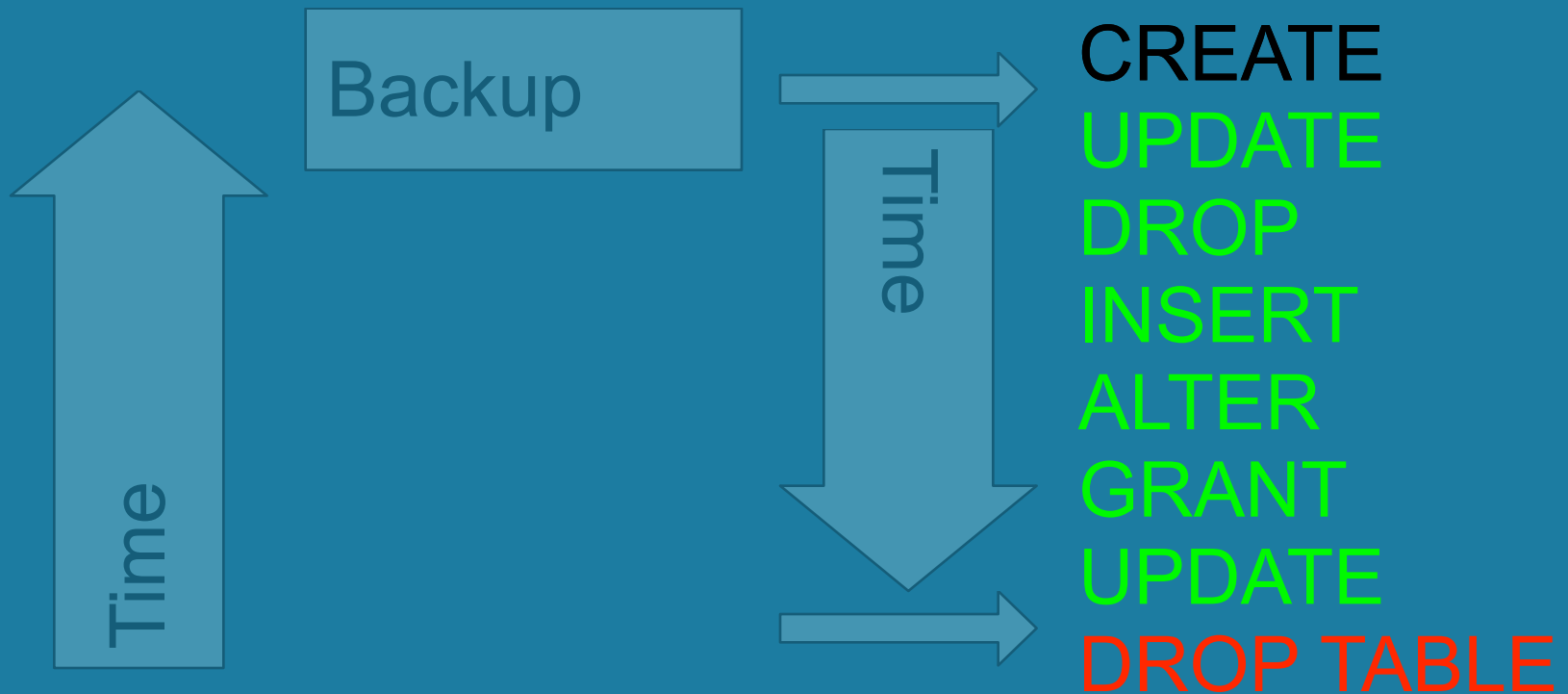
Backup & Recovery Basics

Kai Voigt, MySQL
Instructor

Time Machine



Time Machine



The Binary Logfile

```
[mysqld]  
log-bin  
expire-logs-days=3
```

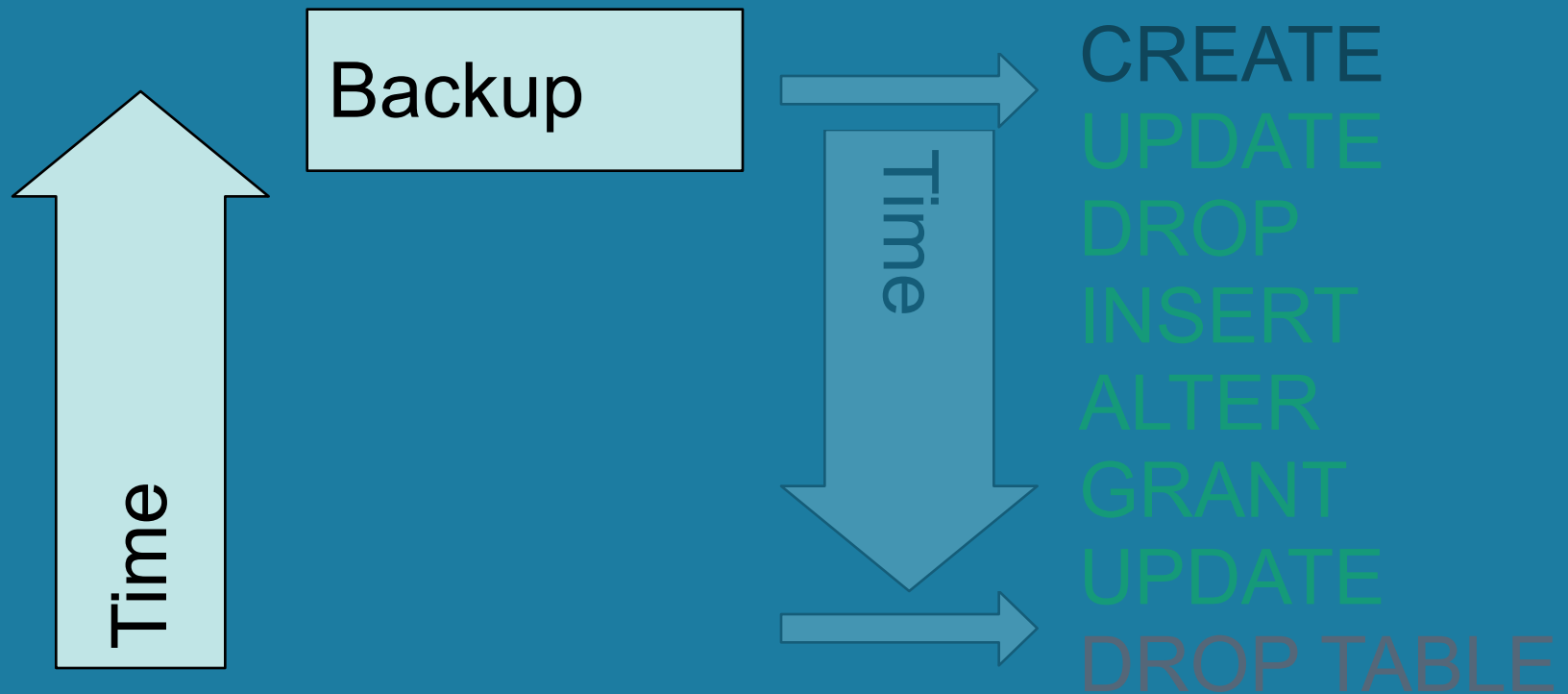
```
-rw-rw---- 1 _mysql _mysql      125 Mar  4 13:58 localhost-bin.000001  
-rw-rw---- 1 _mysql _mysql      166 Mar  4 14:05 localhost-bin.000002  
-rw-rw---- 1 _mysql _mysql 2976388 Mar  6 15:27 localhost-bin.000003  
-rw-rw---- 1 _mysql _mysql 724138 Mar 14 08:58 localhost-bin.000004  
-rw-rw---- 1 _mysql _mysql    224 Mar 11 09:54 localhost-bin.index
```

mysqlbinlog

```
# mysqlbinlog kai-voigts-macbook-pro-bin.000004

#8314 17:39:44 server id 1  end_log_pos 724166      Intvar
SET INSERT_ID=4080/*!*/;
# at 724166
#8314 17:39:44 server id 1  end_log_pos 724276      Querythread_id=3
SET TIMESTAMP=1205512784/*!*/;
SET @@session.sql_mode=0/*!*/;
INSERT INTO City (Name) VALUES ("Santa Clara")/*!*/;
# at 724276
#8314 17:39:53 server id 1  end_log_pos 724364      Querythread_id=3
SET TIMESTAMP=1205512793/*!*/;
DELETE FROM City LIMIT 4/*!*/;
# at 724364
#8314 17:40:2 server id 1  end_log_pos 724467      Querythread_id=3
SET TIMESTAMP=1205512802/*!*/;
UPDATE City SET Population=Population*2/*!*/;
```

Time Machine



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Methods

Consistency

Temperature

Storage Engine

Speed

Cost

Perfect Backup	✓	Hot	All	Fast	Free
No Backup		Hot	All	Fast	Free
Catholic Backup		Hot	All	Fast	: -)
Copy DataDir	✓	Cold	All	Fast	Free
Copy MyISAM Files	✓	Warm	MyISAM	Fast	Free
Copy InnoDB Files	✓	Cold	InnoDB	Fast	Free

Methods

Consistency

Temperature

Storage Engine

Speed

Cost

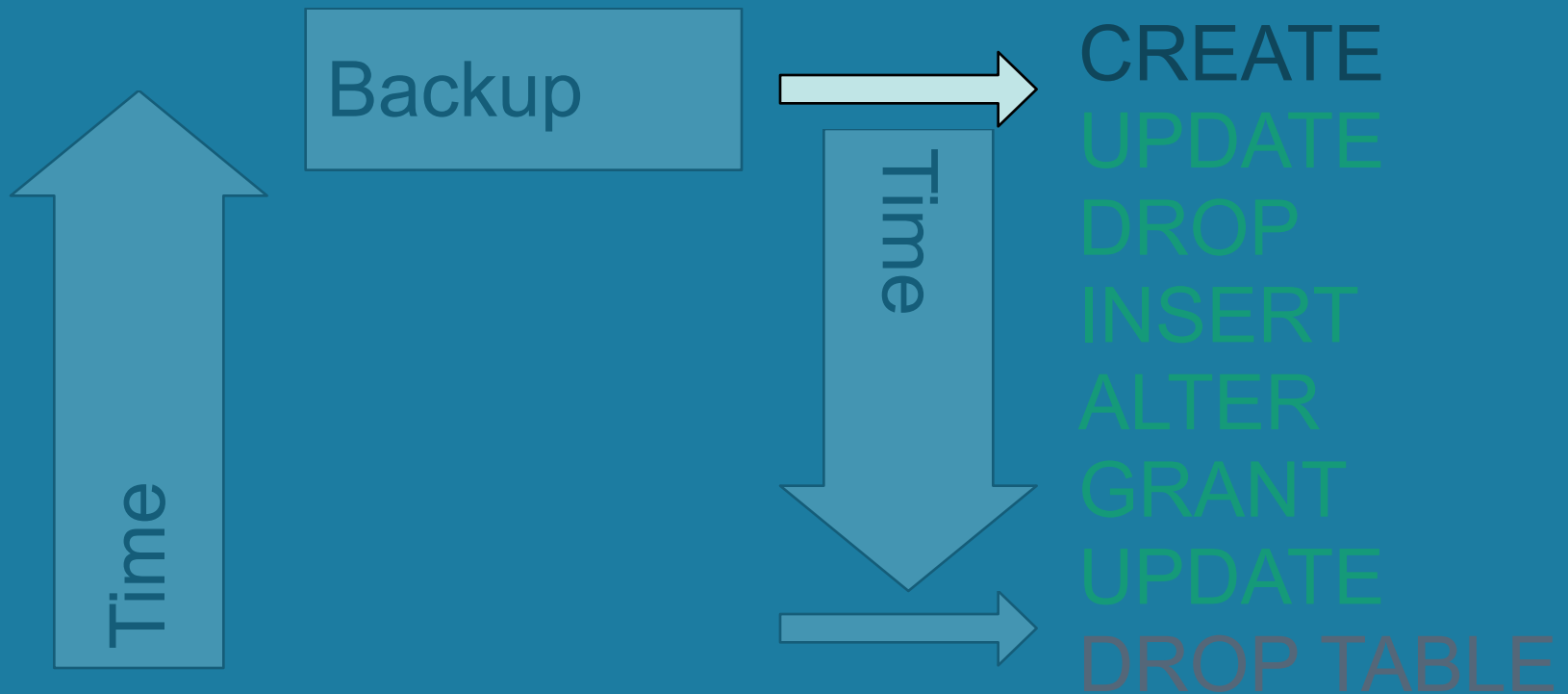
Perfect Backup	✓	Hot	All	Fast	Free
InnoDB Hot Backup	✓	Hot	InnoDB	Slow	\$
mysqldump	✓	Warm	All	Slow	Free
mysqldump --single-transaction	✓	Hot	InnoDB	Slow	Free
Replication	✓	Hot	All	Fast	Free
Filesystem Snapshot	✓	Hot	All	Fast	Free

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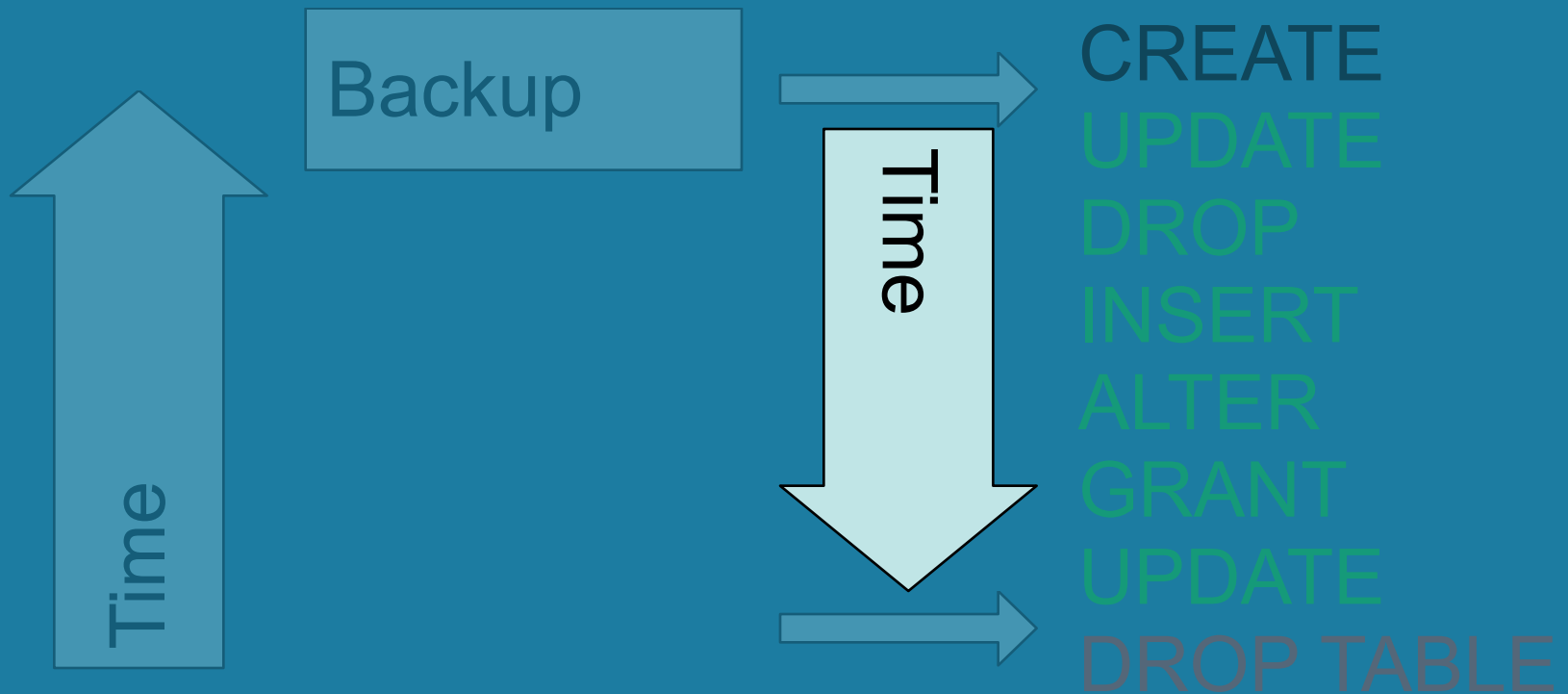
Time Machine



Record Binlog position

- `mysqldump --master-data`
- `SHOW MASTER STATUS`
- `ls -l`
- `cat master.info`

Time Machine



Point In Time Recovery

- mysqlbinlog
 - start-position
 - stop-position

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Home Work

- Create a Full Backup
- Do useful Changes
- Do stupid Changes
- Go back in Time

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The non-Basics

- Large Data
 - Filtering
 - Offsite Recovery
 - Multiple Storage Engines
 - Distributed Data
-
- MySQL 6.0 - Online Backup

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Thank you!

- kai@mysql.com
- <http://dev.mysql.com/doc/refman/5.1/en/backup-and-recovery.html>

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