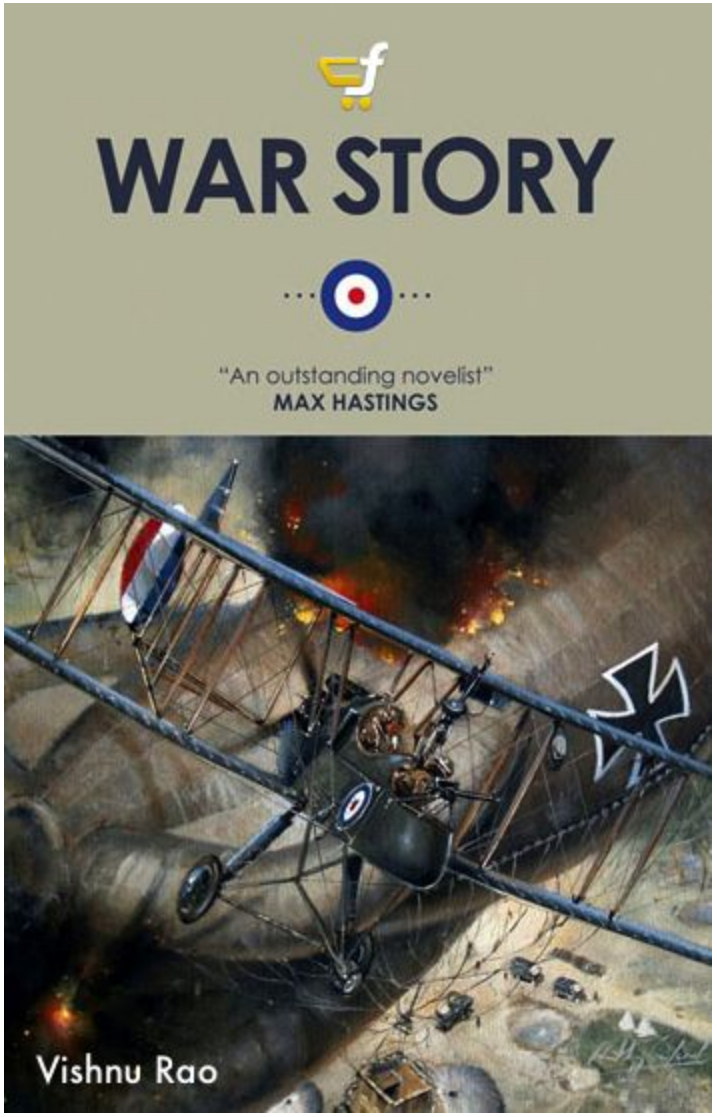
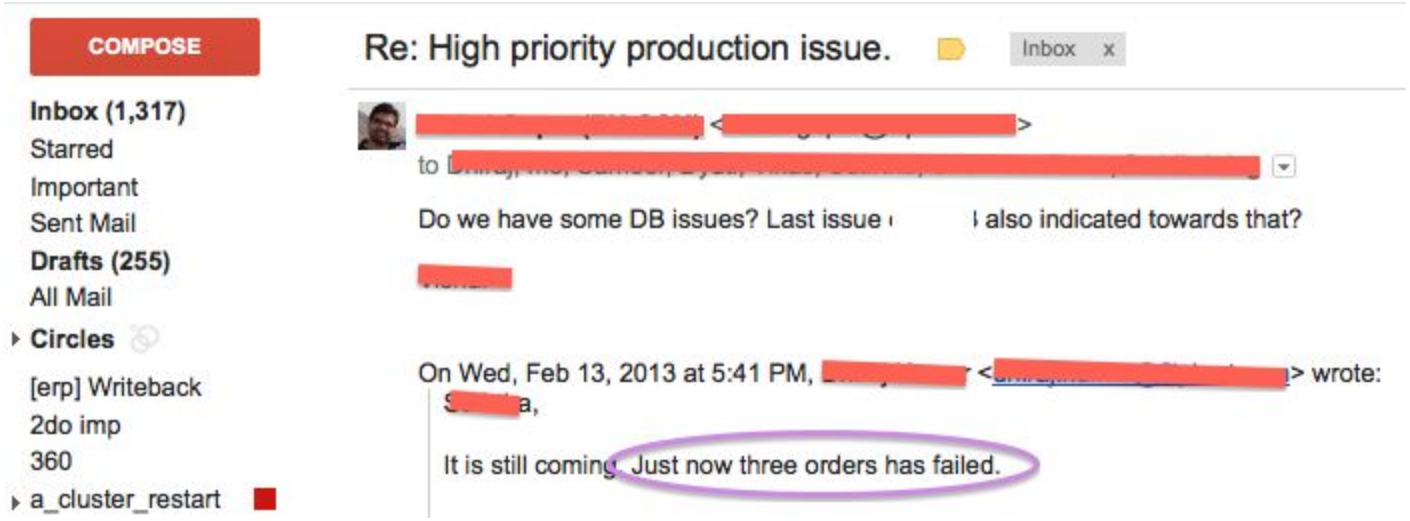

WAR STORY
"An outstanding novelist"
MAX HASTINGS
Vishnu Rao

BASED ON A
TRUE STORY


COMPOSE
Inbox (1,317)
Starred
Important
Sent Mail
Drafts (255)
All Mail
Circles
[erp] Writeback
2do imp
360
a_cluster_restart
Re: High priority production issue.
Inbox x
to
Do we have some DB issues? Last issue
also indicated towards that?
On Wed, Feb 13, 2013 at 5:41 PM,
wrote:
a,
It is still coming. Just now three orders has failed.

REGD. NO. H/SD-23

INDIAN HERALD

NATIONAL ENGLISH DAILY

Founder & Editor: THAKUR V. HARI PRASAD

SPECIAL SUPPLEMENT

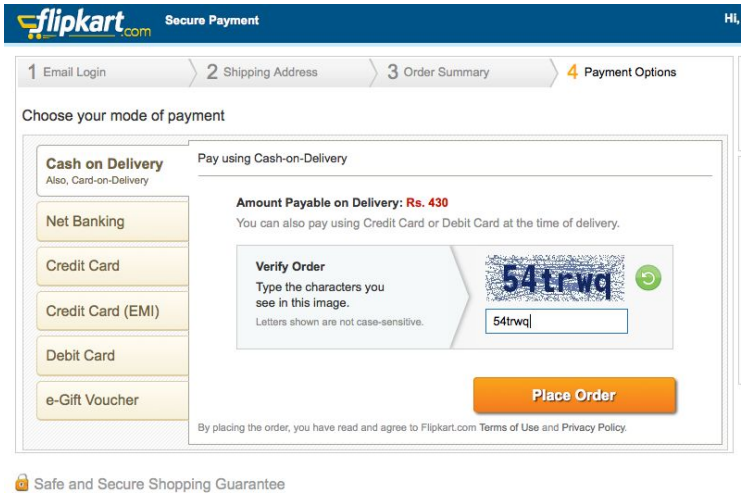
2 Pages · HYDERABAD, Thursday, June 26, 1975 · PRICE 15 Paise

EMERGENCY DECLARED

Where do we start ?

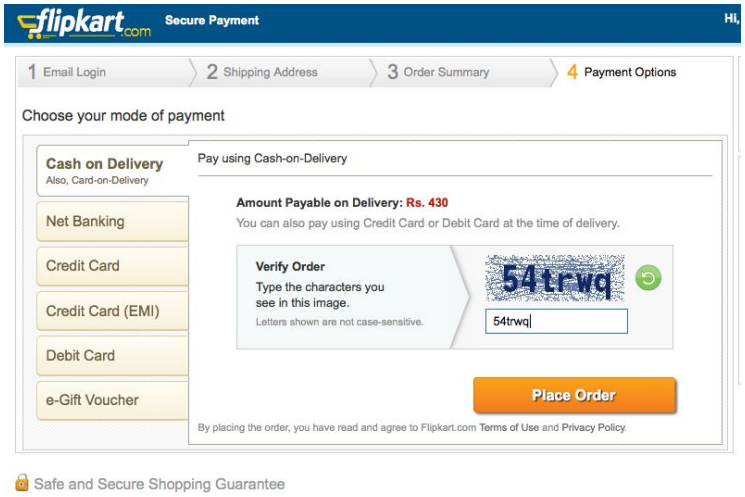
Where do we start ?

- UI



Where do we start ?

- UI



- Server Log

```
INFO  [2013-07-23 09:44:06,270] org.eclipse.jetty.server.AbstractConnector: Started InstrumentedBlockingChannelConnector@0.0.0.0:8213
INFO  [2013-07-23 09:44:06,274] org.eclipse.jetty.server.AbstractConnector: Started SocketConnector@0.0.0.0:8081
WARN  [2013-07-23 09:44:36,342] [redacted] CHANGING INCIDENT HUB status to DISABLED
INFO  [2013-07-23 09:59:10,688] org.eclipse.jetty.server.Server: Graceful shutdown SocketConnector@0.0.0.0:8081
```

The error message:

[errorMessage] => org.hibernate.exception.LockAcquisitionException: Could not execute JDBC batch update; nested exception is javax.persistence.PersistenceException: org.hibernate.exception.LockAcquisitionException: Could not execute JDBC batch update

[trace] => Exception Thrown of type class org.springframework.orm.jpa.JpaSystemException with trace ::

Questions?

Questions?

- Names of Tables involved ?

Questions?

- Names of Tables involved ?

- Storage Engine/Type of Tables involved ?
  - Innodb or MyISAM or Memory or Blackhole

trivia

What's a Storage Engine in MySQL?

trivia

What's a Storage Engine in MySQL?

Ans:

It decides how to store / retrieve data from the disk.

trivia

```
Interface StorageEngine{

    public void insertRow();

    public Rows selectRows(int to, int from);

    public void deleteRows(int pos);

}
```

trivia

```
class BlackHole implements StorageEngine{

    public void insertRow(){
        // do nothing
    }

    public Rows selectRows(int to, int from){
        return EmptySet;
    }

    public void deleteRows(int pos) {
         // do nothing
    }
}
```

Locks:

- Table Lock - happens *only* in MyISAM
- Row Locks - happen *only* in Innodb
- Index Locks - indexes on table columns

Questions?

- Names of Tables involved in TXN ?
- Types of Tables involved ?
  - Innodb or MyISAM or Memory or Blackhole
- What are the queries hitting the tables ?
  - Updates/ delete / inserts / SELECTS

Most common Lock Error:

1205 (ER_LOCK_WAIT_TIMEOUT)

Lock wait timeout expired.

Most common Lock Error:

1205 (ER_LOCK_WAIT_TIMEOUT)
Lock wait timeout expired.

The statement that waited too long was rolled back (not the entire transaction).

i.e. Txn - A waited for Txn - B & it timed out.

Most common Lock Error:

1213 (ER_LOCK_DEADLOCK)
Encountered a deadlock.

A waits for B which waits for A.

Interesting, These
2 errors DID not
crop up in the logs

The tables, queries in TXN

Table:

PAYMENT (InnoDB)

Query (multiple update in txn):

UPDATE PAYMENT

set **payment_id = 'xyz'**

where

last_modified = <> and

payment_id = 'xyz'

and status = <> and user = <>

Guess work...

" Interesting fact:

I was looking for differences between database1 and database2 variables.

One variable which was distinctly missing from database1 while there in database2 is innodb_merge_sort_block_size.

This is used by fast_index_creation (which is set to ON for both servers) to create indexes faster.

The absence of it on database1 might be resulting in it taking more time in updating/creating indexes. "

Guess work...

Its some MySQL Bug

Lets do something else.

Lets do something else.

- Look at MySQL server Logs

Lets do something else.

- Look at MySQL server Logs.
- Since the table is InnoDB. lets see status of the engine.

"show engine innodb status"

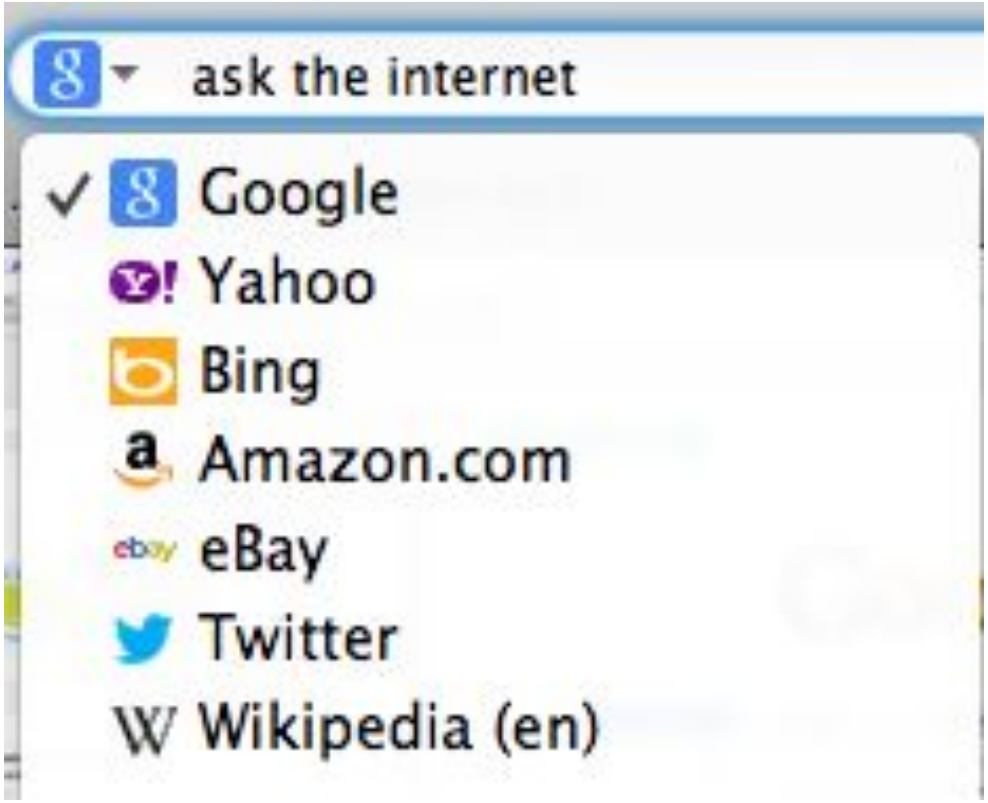
"show full processlist"

trivia

"show engine innodb status"

- current transactions
  - what locks they hold
  - how long they are active
- status of mysql server threads
- latest detected deadlocks

Search more...


ask the internet
Google
Yahoo
Bing
Amazon.com
eBay
Twitter
Wikipedia (en)

Now the real questions ?

How frequently does the exception occur ?
[10/60 times]

what time did the last error occur ?
[08:28 pm Thursday, Feb 13, 2013 (IST)]

SHERLOCK
HOLMES
IN THEATERS DECEMBER 2009
MYSTERY
SOLVED

The most important

"The Exception was thrown immediately"

i.e.

when one tried to acquire lock through update
the exception was immediate

THE MYSTERY
REVEALED

It was Deadlock

The latest detected deadlock in 'show engine innodb status' clearly listed down the same tables.

&

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&

time of deadlock = time of logged exception

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The latest detected deadlock in 'show engine innodb status' clearly listed down the same tables.

&

time of deadlock = time of logged exception

&

We all know - deadlock resolution is immediate hence the exception immediately thrown.

Then Y we no see it in logs?

Then Y we no see it in logs?

some where in hibernate-spring code.

```
try{
    //do some db operation
}catch ( Exception actual_cause ){
   String new_err_msg = "lock acquisition exception";
   throw new Exception(new_err_msg);
}
```

i.e. the actual cause was not propagated.

Lessons learnt:

1) do not do guess work

(proove your hypothesis - reproduce error)

2) The cause/culprit mostly sits in front of you, but you choose to ignore it.

3) Never ignore Deadlocks - (http://*pt-deadlock*)

4) MySQL is your friend - help her to help you.

Thank you.

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