Tech Talks

HellOps

Ernesto Garcia Garcia

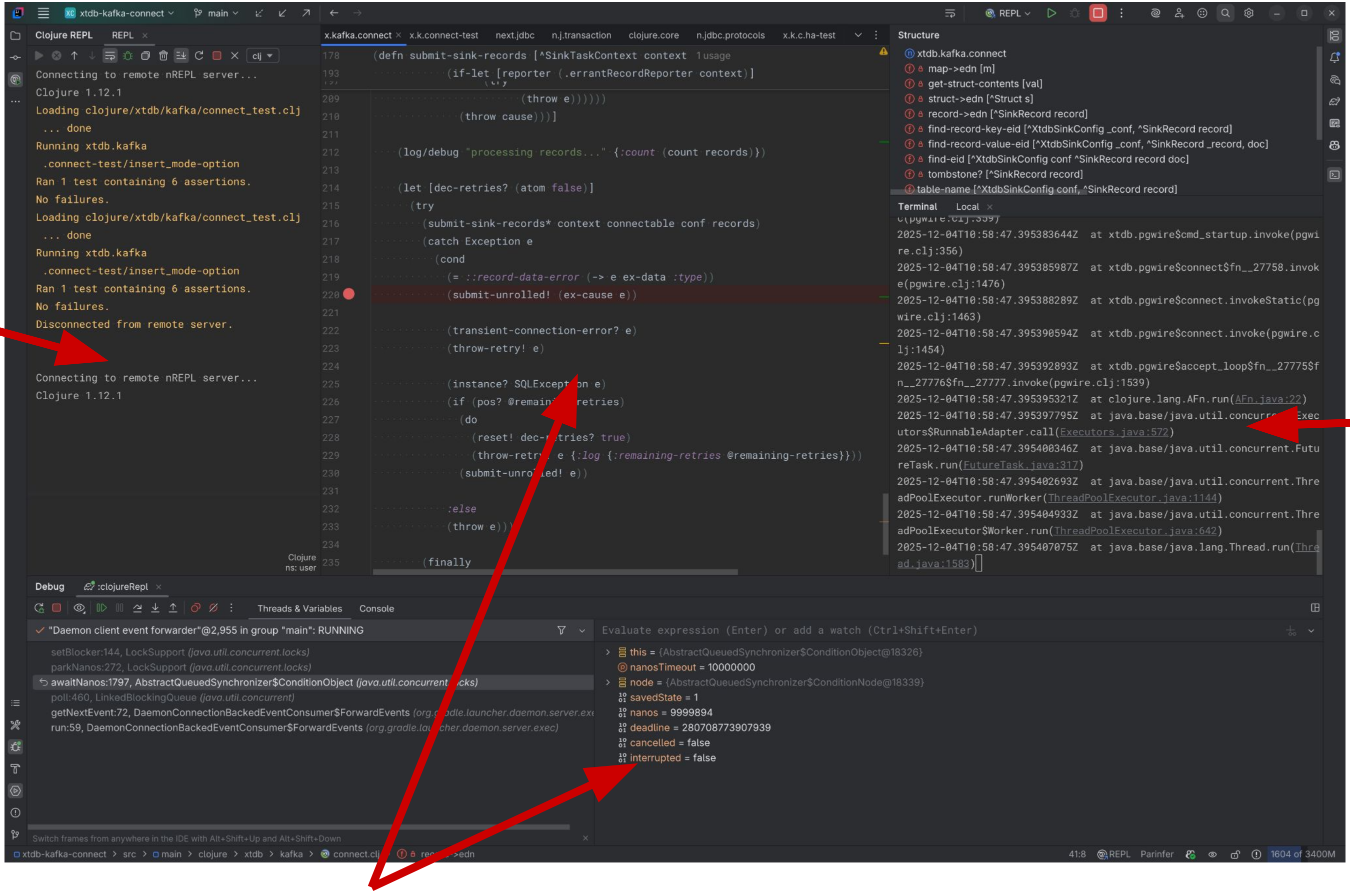
A little situation

Pager-duty. Woken up in the middle of the night…

In his laptop, finds an alert email, with a description of the problem, and a link

Clicks the link…

Running REPL



```
Connecting to remote nREPL server...
Clojure 1.12.1
Loading clojure/xtdb/kafka/connect_test.clj
 ... done
Running xtdb.kafka
 .connect-test/insert_mode-option
Ran 1 test containing 6 assertions.
No failures.
Loading clojure/xtdb/kafka/connect_test.clj
 ... done
Running xtdb.kafka
 .connect-test/insert_mode-option
Ran 1 test containing 6 assertions.
No failures.
Disconnected from remote server.


Connecting to remote nREPL server...
Clojure 1.12.1
```

```clojure
(defn submit-sink-records [^SinkTaskContext context   1 usage
          (if-let [reporter (.errantRecordReporter context)]
                        (throw e))))))
             (throw cause)))]

   (log/debug "processing records..." {:count (count records)})

   (let [dec-retries? (atom false)]
     (try
       (submit-sink-records* context connectable conf records)
       (catch Exception e
         (cond
           (= ::record-data-error (-> e ex-data :type))
           (submit-unrolled! (ex-cause e))

           (transient-connection-error? e)
           (throw-retry! e)

           (instance? SQLException e)
           (if (pos? @remaining-retries)
             (do
               (reset! dec-retries? true)
               (throw-retry! e {:log {:remaining-retries @remaining-retries}}))
             (submit-unrolled! e))

           :else
           (throw e))))

       (finally
```

Structure

- xtdb.kafka.connect
- map->edn [m]
- get-struct-contents [val]
- struct->edn [^Struct s]
- record->edn [^SinkRecord record]
- find-record-key-eid [^XtdbSinkConfig _conf, ^SinkRecord record]
- find-record-value-eid [^XtdbSinkConfig _conf, ^SinkRecord _record, doc]
- find-eid [^XtdbSinkConfig conf ^SinkRecord record doc]
- tombstone? [^SinkRecord record]
- table-name [^XtdbSinkConfig conf, ^SinkRecord record]

```
c(pgwire.clj:359)
2025-12-04T10:58:47.395383644Z  at xtdb.pgwire$cmd_startup.invoke(pgwi
re.clj:356)
2025-12-04T10:58:47.395385987Z  at xtdb.pgwire$connect$fn__27758.invok
e(pgwire.clj:1476)
2025-12-04T10:58:47.395388289Z  at xtdb.pgwire$connect.invokeStatic(pg
wire.clj:1463)
2025-12-04T10:58:47.395390594Z  at xtdb.pgwire$connect.invoke(pgwire.c
lj:1454)
2025-12-04T10:58:47.395392893Z  at xtdb.pgwire$accept_loop$fn__27775$f
n__27776$fn__27777.invoke(pgwire.clj:1539)
2025-12-04T10:58:47.395395321Z  at clojure.lang.AFn.run(AFn.java:22)
2025-12-04T10:58:47.395397795Z  at java.base/java.util.concurrent.Exec
utors$RunnableAdapter.call(Executors.java:572)
2025-12-04T10:58:47.395400346Z  at java.base/java.util.concurrent.Futu
reTask.run(FutureTask.java:317)
2025-12-04T10:58:47.395402693Z  at java.base/java.util.concurrent.Thre
adPoolExecutor.runWorker(ThreadPoolExecutor.java:1144)
2025-12-04T10:58:47.395404933Z  at java.base/java.util.concurrent.Thre
adPoolExecutor$Worker.run(ThreadPoolExecutor.java:642)
2025-12-04T10:58:47.395407075Z  at java.base/java.lang.Thread.run(Thre
ad.java:1583)
```

"Daemon client event forwarder"@2,955 in group "main": RUNNING

```
setBlocker:144, LockSupport (java.util.concurrent.locks)
parkNanos:272, LockSupport (java.util.concurrent.locks)
awaitNanos:1797, AbstractQueuedSynchronizer$ConditionObject (java.util.concurrent.locks)
poll:460, LinkedBlockingQueue (java.util.concurrent)
getNextEvent:72, DaemonConnectionBackedEventConsumer$ForwardEvents (org.gradle.launcher.daemon.server.exe
run:59, DaemonConnectionBackedEventConsumer$ForwardEvents (org.gradle.launcher.daemon.server.exec)
```

Evaluate expression (Enter) or add a watch (Ctrl+Shift+Enter)

```
this = {AbstractQueuedSynchronizer$ConditionObject@18326}
nanosTimeout = 10000000
node = {AbstractQueuedSynchronizer$ConditionNode@18339}
savedState = 1
nanos = 9999894
deadline = 280708773907939
cancelled = false
interrupted = false
```

last server logs

IDE in debug mode, paused at the error site

What has happened in-between

Faulty server quarantined, ready for connect-and-debug.

Faulty server has been disconnected from backend servers.

Another instance has been spawn in production as a replace.

Further information within reach for the developer:

- User journey before the issue
- Cross-service trace
- Database snapshot at the time of the issue - see XTDB :)

There’s an issue with this story

I HAVE MADE IT UP

Sharing a feeling…

Developers are being kept a too disconnected from production use

DevOps

Originally

Devs are Ops are Devs
- in a single team

...but actually

We just call Ops
“DevOps”, cause IaC

IaC

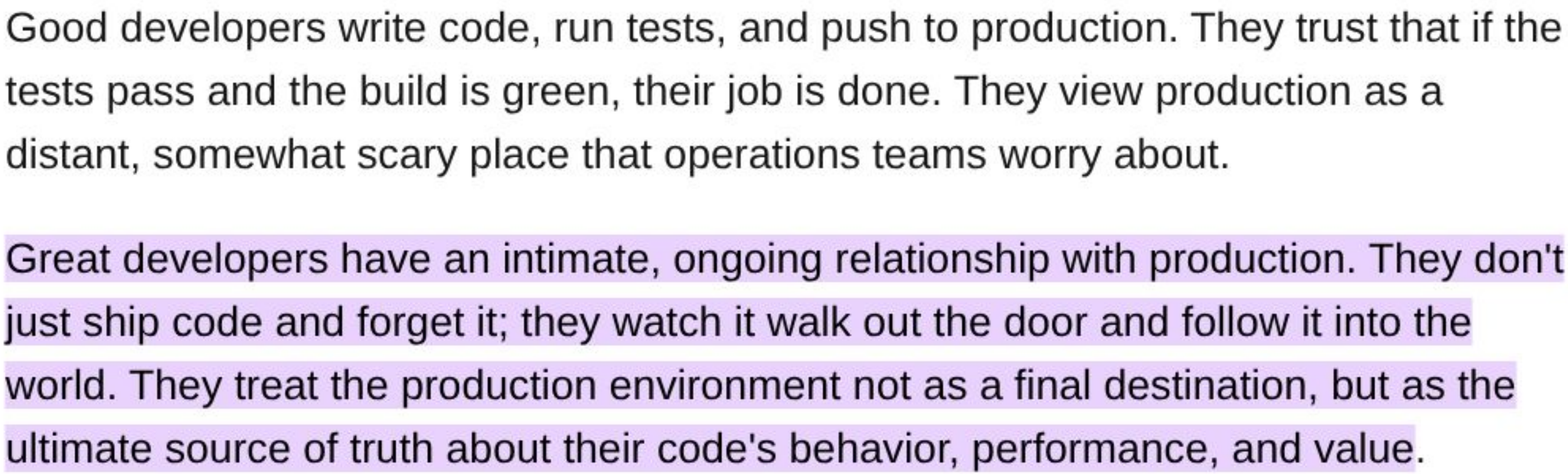
Problem: may build a wall between production systems and developers:

- Ceremony and wait for changes
    - Particularly important for logging
- Changes causing full re-deploys
- Barriers for inspecting the running production system

In addition:

- Could introduce too much tooling, foreign to devs

Quote



Good developers write code, run tests, and push to production. They trust that if the tests pass and the build is green, their job is done. They view production as a distant, somewhat scary place that operations teams worry about.

Great developers have an intimate, ongoing relationship with production. They don't just ship code and forget it; they watch it walk out the door and follow it into the world. They treat the production environment not as a final destination, but as the ultimate source of truth about their code's behavior, performance, and value.

by [thebitforge@dev.to]
“10 developer habits…”

Production as your bench

Challenge your assumptions. Include asserts in your code

Schedule sanity checks

Add meaningful log events, execution data, and metrics:

collect as detailed data as needed

expose full histogram distributions, instead of percentiles

tweak your logging levels until satisfied.

Run tests in production. Plan for having a part of the user base for tests. Build admin/technical UIs.

What can we do?

Do what you can from your position

Don’t accept established directly

Do not get trapped into static configurations

Look for solutions for security

Build functions into the software

Expected:

- Productivity
- Opening up new opportunities