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## **SG5: Transactional Memory (TM) Meeting Minutes 2013/02/25-2013/03/04**

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## Minutes for 2013/02/25 SG5 Conference Call

Minutes for 2013/02/25 SG5 Conference Call

Attendees:

Hans, Torvald, Victor, Mike Spear, Michael W, Justin, Maged.

> Agenda:

>

> 1. Opening and introductions

>

> 1.1 Roll call of participants

>

> 1.2 Adopt agenda

Adopted.

> 1.3 Approve minutes from previous meeting, and approve publishing

> previously approved minutes to ISCPP.org

Approved.

> 1.4 Review action items from previous meeting

>

> 1.4.1 Maged has the IBM legal contact names, checking Oracle and

- > Intel to set up a joint time to meet.
- > Intel trying to connect with a lawyer, Oracle and IBM has
- > identified their legal rep. Intel has internal dependencies.

Maged: Ball is in Oracle's court.

Justin: Some additional delays on Intel's side. But just a minor setback probably.

- > 1.4.2 Everyone to continue discussion on exceptions examples

Done.

- > 1.4.3. Torvald to develop his alternate exception proposal

Not much progress on this.

- > 1.4.4 Everyone update your status for Bristol meeting: Bristol UK
- > registration deadline Feb 12: preferred dates of our meeting (Tuesday
- > April 16 to Thursday April 18)

>

- > 1.4.5. Everyone: Review important links:
- > a. Prioritize TM discussion ahead of Bristol based on the
- > following page

> <http://wiki.edg.com/twiki/bin/view/Wg21bristol/SG5>

>

> b. Writing Standaresse for current TM draft

> <http://jmaurer.awardspace.info/wg21/tmspec.html>

>

Done.

> 2. Main issues

>

> 2.1 Continue to Discuss P2 item of Suggestion 3 Unified of

> <http://wiki.edg.com/twiki/bin/view/Wg21bristol/SG5>

>

> Actively continue with the current exception discussion on how

> nesting, cancel, and exceptions interact. Make a decision on the

> exception behavior of the strong/atomic transactions once we have a

> detailed proposal for abort-on-exception behavior that addresses all

> the issues. Make the decision on [ [outer]], [ [may\_cancel\_outer]] and

> cancel-throw in the context of the same discussion.

>

> Review Victor's proposal.

[Sorry if I missed some parts of the discussion. Please add missing stuff.]

Michael W (MW): Better understanding of this proposal.

Victor: Proposal is the minimal proposal. But would like to see more.

Something in the direction of Torvald's proposal might be a good idea.

One open question is what happens when an unsafe exception is thrown out of a [cancel-on-escape] proposal; this is currently missing.

Hans: Prefers not to mix exceptions and cancellation. Prefers not to cancel arbitrary code (cancel from a distance). Unsure about the use cases of the latter.

Victor: Until utility of cancellation is clear, we don't want to need to spell it out.

Mike Spear, Justin: some concerns about implementation costs / runtime overheads when closed nesting is required.

Victor: Difference between semantics and implementation concerns regarding forcing flat nesting. From a semantic point of view, we want to support closed nesting or we're losing modularity.

[More discussion. Can't type as fast as Victor talks...]

Hans: If concern about implementation costs, not supporting cancel-on-escape might be a way to weasel out. Might want to discuss

whether we want to make some things like cancel-on-escape explicitly optional.

Mike Spear: Is it okay for an attribute to change the meaning of code.

Hans: No, not okay.

MW: Don't need to address this right now, can do that when we get closer to working on wording. Leaving it as an attribute right now is fine, but eventually we'll need something different.

Hans: Might be good to use a placeholder keyword now (no final spelling) to preempt potential discussions.

Justin: Mark might be looking at integrating safe-by-default into the spec.

AI for Mark: Are you working on this.

MW: Proposals are for getting feedback.

Torvald: For the spec, are we saying that we're ripping out everything related to cancellation, and start from scratch with either Victor's, Mark's or another proposal?

MW: Yes, essentially.

Victor: Meet on the March 11 instead of the March 18 to have more time before?

[Several people liked the idea.]

> Review Torvald's proposal.

Torvald: Two major issues:

1) Communicating data out of a transaction (like `make_safe(e)` in Victor's proposal). Want to run user-code, because it's like a custom copy constructor. Perhaps can start with something like a `memcpy()`, and build more complex things on top of that. Unclear how the interface should look like, and whether we need something that's better integrated with the rest of the language (ie, more than `memcpy()`).

2) How do we refer to the txn we want to cancel? Perhaps automatically bind to some kind of txn context in the (progress handler) lambda?

Mark's proposal used the nesting depth as kind of an ID.

Victor: What makes things unsafe except un-allocated memory and inconsistent data?

Hans: Another example are reference-counted data. Dangling pointers, and similar.

Mike Spear: Could we have a special class for exceptions that contains an array for any data that the programmer wants to escape from the transaction?

> 3. Any other business

>

> 4. Review

>

> 4.1 Review and approve resolutions and issues [e.g., changes to

> SG's working draft]

>

> 4.2 Review action items

>

>

> 5. Closing process

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> 5.1 Establish next agenda

MW:

1) [??? Review any proposals?]

2) Safe-by-default if possible



## Minutes for 2013/03/04 SG5 Conference Call

Minutes by Michael Scott

The current secretary rota list is:

Paul M, Mark, Hans, Victor, Mike Spear, Jens Maurer,  
Tatiana, Michael W, Justin, Maged, Torvald, Michael Scott

Reminder: We use the Secretary Rota to determine who is responsible for minutes at any given meeting. The first name on the list that is present at the meeting will be responsible for them. Upon completing the minutes, they should move their name to the end of the rota. In face-to-face meetings, minutes duties will be assigned for a morning session or an afternoon session or an evening session (if applicable) so as to distribute the load fairly (but not too fine grained; consider it a transaction).

### 1. Opening and introductions

#### 1.1 Roll call of participants

Hans Boehm, Justin Gottschlich, Victor Luchangco, Maged Michael, Mark Moir, Torvald Riegel, Michael Scott, Tatiana Shpeisman, Mike Spear, Michael Wong

#### 1.2 Adopt agenda

done

#### 1.3 Approve minutes from previous meeting, and approve publishing

done

previous minutes are all online at [iscpp.org](http://iscpp.org) this point

#### 1.4 Review action items from previous meeting

legal

##### 1.4.1 Legal issues surrounding submission of existing CppTM draft spec

Maged: Nothing new at IBM since last time.

Mark: Oracle legal rep. has the info; haven't heard back from him yet.

Tatiana: Intel ready to talk to Oracle and IBM; not aware of any concerns.

- 1.4.2 Mark to write up SBDBD ("safe by default by default"), a.k.a. "reducing annotation requirements for transaction\_safe functions".
- 1.4.3. Torvald to write up his alternate exception proposal
- 1.4.4. Victor to write up Minimal exception proposal

Victor: What form are write-ups needed in?

M. Wong: Should summarize both proposal and subsequent discussion: things that have changed, unresolved issues.

Purpose is to facilitate discussion in Bristol.

No particular format required.

We don't have to make a formal submission, but if we don't the standards committee may have doubts about whether we're active. (Most people don't read our minutes.)

M. Scott: what about relaxed v. atomic txns?

M. Wong: Waiting until after Bristol on this.

Minimal exceptions:

Some correspondence, but no sig. changes since Victor's proposal.

SBDBD:

Victor: has implications for various other things, inc. exceptions.

1.4.5 Everyone update your status for Bristol meeting: Bristol UK registration deadline Feb 12: preferred dates of our meeting (Tuesday April 16 to Thursday April 18)

Everyone who is going is presumably set at this point.

For the record:

The following link will take you to the WG21 tab of the ACCU booking site:

<http://www.cvent.com/events/accu-2013/custom-22-09ec03b22c4f4a0a832e28126a4585fc.aspx>

Select wg21 registration only

select full wg21 event

select Marriot if possible

select April 16-18 hotel as a minimum, but you are welcome to increase this time.

The longer invite N3397:

<http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2012/n3397.pdf>

1.4.5. Everyone: Review important links:

- a. Prioritize TM discussion ahead of Bristol based on the following page <http://wiki.edg.com/twiki/bin/view/Wg21bristol/SG5>

b. Writing Standares for current TM draft  
<http://jmaurer.awardspace.info/wg21/tmspec.html>

## 2. Main issues

2.1 Continue to Discuss P2 item of Suggestion 3 Unified of  
<http://wiki.edg.com/twiki/bin/view/Wg21bristol/SG5>

Actively continue with the current exception discussion on how nesting, cancel, and exceptions interact. Make a decision on the exception behavior of the strong/atomic transactions once we have a detailed proposal for abort-on-exception behavior that addresses all the issues. Make the decision on `[[outer]]`, `[ [may_cancel_outer]]` and `cancel-throw` in the context of the same discussion.

Note that there is no formal proposal yet; we have not submitted anything.

We could

- start from blank slate

- start from draft spec

Mark: propose

- start from draft spec;

- excise lots of stuff via SBDBD;

- clarify that relaxed txns are equivalent to a global lock with some special rules & relationship to atomic txns;

- incorporate minimal exceptions;

- treat Torvald's proposal separately

Victor: agree

Torvald: prefer NOT to incorporate minimal exceptions

Tatiana: Why change anything wrt relaxed txns?

Mark: Simply clarify meaning of draft spec.

What if we don't have legal permission yet to submit the draft spec?

Mark: pass around a doc, but don't submit officially.

Tatiana/M. Wong: the official route is the only one

Mark: hope the lawyers get it done on time, but want to do `_something_` even if they don't

Tatiana: could submit a paper with SBDBD, minimal exceptions, and the relaxed txns agreement, with `_reference_` to the existing spec

Mark: that's ok as a fallback; would much prefer single unified doc

Tatiana: don't think can do a unified doc w/out legal permission, which we won't be able to get in time

M. Scott: how about both? Modify the (unsubmitted) spec and submit a summary.

Maged: worried about adding content to the spec, which increases the amount of stuff we have to get the lawyers to agree to release.

M. Wong: concur. Might be better to start from scratch. Not clear how much we could borrow from the original.

Tatiana: don't think we could modify the doc in 2 weeks anyway.

Victor: thinks we might; willing to do the work, with help from Mark/Torvald for SBDBD -- But only if he's allowed to cut and paste.

M. Wong: We need to resolve the legal issue!

M. Scott: worried about using pieces of old spec; fair use is quite limited

Torvald: ok if we re-write; copyright is only on the text.

Victor: willing to look into the possibility of doing a re-write that references the original where re-writing doesn't make sense.

Tatiana: could write a summary of old proposal, describe changes

Hans: if we're not doing a single paper, why not just have several small change docs?

Victor: prefer not to force people to read the original.

Hans: most people have seen the old proposal; will need to describe the differences.

Tatiana: don't want to have to repeat unchanged material (e.g., txn expressions)

Torvald/Hans: there exists a summary paper from the Kona standards mtg; could start from that (assuming it's legally unencumbered)

"Transactional Language Constructs for C++" -- Justin will mail out

SBDBD: Mark will try to get it written up w/in a week.

Victor: will send, by Friday, his assessment of what can be done with the current spec.

M. Spear: volunteer to help.

M. Wong: me too

Victor: will not be putting Torvald's alternate exception proposal in the main doc.

Torvald: prefers to leave any sort of cancel out of the submission several: disagree

M. Wong: let's see what Victor comes up with. We can vote then if necessary.

Torvald: not sure if he'll have the alternative proposal done in time.

Justin: wishes we could support flat nesting; has talked to Victor off-line about this.

Victor: definitely like the goal, but don't see how to do it.

### 2.1.1. Review Victor's proposal writeup

- 2.1.2. Review Torvald's proposal writeup
- 2.1.3. Review Mark's SBDBD proposal writeup

No writeups yet to discuss.

- 3. Any other business  
none

#### 4. Review

- 4.1 Review and approve resolutions and issues [e.g., changes to SG's working draft]  
none

#### 4.2 Review action items

- Victor to attempt to create new doc, possibly extending N3341
  - others to help/review/object as fast as possible
- Mark to write up SBDBD
  - possibly to be incorporated into Victor's doc
- Tatiana or Justin to send around source for N3341
- Torvald to write up alternative exceptions proposal
- IBM/Intel/Oracle people to keep after their respective lawyers to free up the current spec for submission; use Bristol as leverage

#### 5. Closing process

##### 5.1 Establish next agenda

##### 5.2 Future meetings: March 11

Mar 11 teleconference: Continue review of writeups; further discuss Bristol paper submissions.

[no Mar 18 or Mar 25 meetings]

Apr 01: Prep for Bristol, mostly slide prep (last call before Bristol; also Easter Monday)

Apr 15: Bristol

##### 5.3 Adjourn