

Doc No: SC22/WG21/N3380
PL22.16/12-0070
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Project: JTC1.22.32
Reply to: Kyle Kloepper
Riverbed Technology
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Minutes

PL22.16 Meeting No. 58
WG21 Meeting No. 53
6-10 February 2012 Kona, Hawaii, USA

1. Opening activities

Clamage calls the meeting to order at 8:36 (UTC-10) Monday 6 February 2012.

1.1 Opening comments, welcome from host

Tom Plum welcomes the attendees and provides organizational information.

1.2 Introductions

Clamage has attendees introduce themselves.

1.3 Meeting guidelines (Anti-Trust)

Clamage directs group to the following websites without further comment:

- http://www.incits.org/pat_slides.pdf
- <http://www.incits.org/inatrust.htm>

1.4 Membership, voting rights, and procedures for the meeting

Clamage explains this is a joint meeting of WG21 and PL22.16 and describes straw polls. Nelson reviews guidelines for filling in the attendance sheet.

1.5 Agenda review and approval

Clamage presents the agenda (document PL22.16/11-0087 = WG21/N3317). There is one change: end time on Tuesday will be at 4 p.m. instead of 5 p.m. because of the dinner cruise which departs at 5 p.m.

Motion to approve the agenda as amended:

Moved by: Crawl

Seconded by: Liber

PL22.16		WG21	
In favor:	28	In favor:	7
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

1.6 WG progress reports and work plans for the week

Progress Reports

Each Working Group chair presents group progress and plans for the coming week.

Core Working Group (CWG)

Miller reports 80 issues since Bloomington. Maurer is providing a lot of drafting. Hinnant has written issue 1313 and taken it out of ready status to have discussion. Several other items moved out of ready status to have more discussion. Browns paper will be considered and decide to move at this meeting or the next. Any questions?

Library Working Group (LWG)

Meredith reports LWG will talk about what will be done with future TRs. EWG should look at ranged objects and fixed point numbers papers. There are another four papers concurrency should look at. 19 issues in ready status and 2 in tentatively ready. 56 new issues and another 20 in review or open status.

Evolution Working Group (EWG)

Stroustrup opens assuming there will be a large group discussion on time scale. EWQ will have another time discussion following that one. There are four times as many proposals as there is time to handle them. Presentations will be given on major issues. Stroustrup requests that CWG feeds all extensions to EWG for consideration. Miller agrees that that is CWG policy.

Stroustrup continues by commenting that there should be an overall direction to the language.

Concurrency Working Group

Crowl says there are a few small papers to work through and remaining defects as to what the meaning of lock free is.

1.7 Approval of the minutes of the previous meeting

Motion to approve the minutes (N3315/N3316)

Moved by: Halpern

Seconded by: Hinnant

PL22.16		WG21	
In favor:	28	In favor:	7
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

1.8 Liaison reports

WG14 Report

Plum reports that the C received a 2011 revision number. C is currently working on technical specification for secure coding rules driven by CERT and CMU. They are also starting a floating point addendum to match changes in IEC 754.

1.9 Editor's report

Du Toit thanks everyone who is contributing editorial fixes. The draft sources are up on github (<https://github.com/cplusplus/draft>). Brown asks if there are plans to produce color coded change marks. Du Toit says an automated system is in the works. Du Toit is also planning to have the same cycle Becker did and have changes reviewed the week before mailing deadline.

1.10 New business requiring actions by the committee

Clamage asks if there is any new business. No response.

2. Organize subgroups, establish working procedures.

Sutter starts off discussion about schedule with a presentation (http://wiki.edg.com/twiki/pub/Wg21kona2012/Documents/WG21_Futures_Ideas_-_Sutter.pdf). Sutter prefaces the presentation by saying this is a starting point, not a definitive direction.

After break Clamage thanks Sutter for the presentation and group discusses future direction for C++.

Abrahams says that it is conspicuous that Sutter starts this effort without talking to Boost, which gets hundreds of thousands of downloads a week. He adds that Sutter is starting at a deficit with Boost. Sutter responds by saying that this effort started two days ago. Abrahams says he has a problem with Sutter giving presentation at the beginning of committee meeting as position as convener and not accepting questions. Sutter replies that there is a discussion being had now and typically an entire presentation is gone through before fielding questions.

Kosnik requests that Sutter upload his presentation. He also says that there should be a library TR every two years and then during the next two year period the most recent TR should get into the language. He is in favor of extending the language. Halpern seconds. He would like topic TRs as they come up and does not want to wait five years for them.

Stroustrup says that he is neutral not having been part of PCL or Boost. He says that Sutter is proposing something new and different. If we could double what we are producing in the next five years, we could at most increase the library size by 50%, but it won't make a nick in the huge difference in library size as compared to other vendors. Interfaces should be shared, publically available, and cleaned up. PCL is trying to solve a different problem. This committee cannot deal with this magnitude. We work at a different level of detail.

Adamczyk comments that the only thing that matters is the users. The book authors don't matter, but agrees we should not try to change too much. About trains leaving the station: concerned that as a standard we have responsibility to make sure everything works together. An extreme version is a core feature changing back and forth (e.g. noexcept) that causes hundreds of changes in library. The only way to keep standard in less than 10 years is to limit scope. He does not want to see large proposals.

Sutter cares about book authors as that is who users learn the language from.

Vollmann generally agrees with Adamczyk, but thinks big changes should be proposed soon. That way they have time to be integrated. He does not like the ship train model as it favors small changes.

Stroustrup says that if we want to ship in 2016 we can handle at most one big thing.

Austern says that it is not about quantity of libraries but the kind of libraries. TR1 was about low level tools. He sees a large gap with C++ and high level libraries.

Spicer says that for Java and C# there is one vendor who chooses the release cycle. Some things can't be done with our long cycle time. The Boost people have a better idea about what libraries could be static for longer or which need to change faster than our cycle time.

Clow says that it takes a lot of discipline to say no to new features using the ship train model.

Crowl says that we want to be careful to find the one feature needed instead of the four features not needed. In some cases five proposals come in and they all get boiled down to a single proposal. We don't want to lose that in a desire to ship.

Dawes says this was tried with current standard with TR2. It did not work and TR2 was set aside. There was just not enough manpower. Nelson asks how much additional work was spent in LWG reacting to major core language changes. Dawes replies that it was a huge amount. Concepts were a major language change.

Boyouki says that having good foundation libraries is much more important. He wants to reduce the preprocessor and wants very good concurrent containers.

Stroustrup observes that we do not have the resources of a development organization. We have to do something different to add SMS or other high level libraries. He says that Sutter's proposal for PCL is a different mechanism for breaking into that domain.

Becker reminds us of the Iron Triangle of features, quality, and ship date. Pick any two. The decision we made for C++11 feature set did not leave us time for TR2.

Meredith asks how we work with libraries for standards outside our committee (e.g. XML or JASON). He is not sure that big standard is correct place for those bindings.

Spicer asks who PCL people are and how they differ from us in the room. Sutter responds by saying it does not exist but it is a call. It includes people inside

companies. At least submit interfaces if they can't open source code. It needs to be brought into our style guides.

Dawes says it would be great if there was a non-profit place where proposals would come together, but cannot take the output of that and pass it to the standards committee. When they are done they're done, but it has nothing to do with WG21.

Stroustrup says that PCL cannot be separated from this group. The organization should not be us, but should not be distinct. Have to make sure it does not become a separate form or lobbying group.

Seymour says we have to conform to other ISO standards. SC 32 WG 23 has a database standard with C bindings. That is not something Java has to deal with.

Willcock is not sure if Java writes formal standards or documents an implementation. Creating unambiguous standards takes more time. One nice thing about having items not in the standard is dealing with embedded systems.

Stroustrup repeats that if we want an order of magnitude improvement we must do something in a different way. He says that the C binding is dragging the programming down. It does not help the C++ community.

Sommerlad says the Java libraries are huge because they have a lot of duplication. He cannot comment on C# libraries. Some of them are frameworks. We can't take a piece of it and use it independently. He says not to be afraid of Java standard library as it is redundant (sometimes with bad implementations) and we can do better.

Adamczyk says it is hard to work if we do not know what our schedule is like. He asks if we want a standard 3, 6, 10 years from now. We are meeting two times a year. He did not hear too many comments that addressed that.

Meredith asks if we should be targeting a TC for bug fixes in the next year or be expecting new features. Austern recommends against doing a TC as that slowed down the committee in 98.

Stroustrup says we want C++16, that it cannot ship without language changes, and that it cannot ship with major changes. It will be C++16. Not ship train model but it is what it is. Have PCL.org or something to get the proposals in soon.

Sutter says the most important date is not when to ship but when we stop accepting new proposals. For C++16 we would stop accepting proposals at the end of 14.

Nelson clarifies what closing the door means: new things for considerations or included in working draft? Sutter answers with new things with an R number.

Nelson asks Stroustrup which library features are needed to avoid angering the community. Stroustrup answers that people will be really pissed off if there is nothing they can talk about as being new. If there is nothing they can call a marquee feature. Yasskin does not think that the marquee feature has to be a language change. It could be a library addition.

Spicer says the date that we **say** we are not accepting new paper is not important. The important date is when we **actually** stop accepting features.

Dawes asks if that include major library additions. Stroustrup answers that we want to limit core, but hope that does not limit library progress.

Dawes asks what we do when people come to us with library proposals after we take a vote of interest: do we then have a two way vote to check TR2 or standard? The other option is we run everything through TR2. Stroustrup says he is not greatest fan of TRs, but can't tell library what to do. His formula is aggressive. He would like all the libraries in the usual style such as large integers and sockets library.

Austern comments about the schedule. What we saw with C++11 is changes to core language are more disruptive. He suggests having two different stop consideration dates.

Austern asks if we should be even be considering concepts proposal when targeting C++16. Stroustrup answers by saying we can handle at most one major proposal in the 2016 timescale. Not sure we can take a large one in that timescale. The idea is when we know we are going to ship we must start working on bigger things for the next release before this one. If we decide these things should come in we implicitly decide on C++22.

Willcock expresses preference to have C++16 be mostly be language changes and new libraries end up in TR. He does not want to standardize obsolete libraries or workarounds for missing language features.

Vollmann agrees with Sutter in that it is premature to talk about shipping date for standard. It is ok to talk about date we close the door. Talking about 14 to close the door is ok. But shipping date is nonsense.

Sutter understand and agree with Nelson and Halpern about crisp closing door. Initial proposal is first concrete proposal. Not idea. It may or may not have wording, but it

should. It is a good idea to separate core and library closing door. Would want 13 close door core, 14 close library, FCD 15, FDIS 16.

Stroustrup says it is hard to close down stream of new things. If we close down EWG new things will get in through other groups as fixes or minor changes. People should be excited about libraries, but 90% of people talking in public they want language features.

Boyouki asks why we have to think about 16 or 22 instead of 18 or 19. He also asks why we think about shipping date instead of feature set. Adamczyk says there are two models: ship train model and family vacation model.

Dennett says we need to define and stick to deadlines. Having end target date is useful to work backwards to know when we need to have other dates.

Meredith says the act of closing down EWG is part of the problem. Having EWG open for business releases the pressure. Stroustrup adds that it also allows CWG to throw things back to EWG. Miller, Willcock, and Sutter agree.

Halpern suggests that the next standard have a codename. Sutter suggests C++ Fudge Sandwich. Stroustrup suggests Titanic.

Brown says there was an item in Sutter's presentation about focusing on broad libraries. There was a comment to not focus on niche areas. We are talking about popularity in some senses. The niche that Sutter was using was Brown's niche. He would like to find good libraries, would like to write a good proposal and write good specification, and would like to see a lot of good stuff including niches.

Brown would like to press for decisions. We need to know general direction. He would rather have it today rather than Friday, but certainly at this meeting. Austern agrees with making a decision soon (ideally today).

Talbot says if we don't deliver what is popular people will not use the language. Things are moving really fast. We need a way to move faster. Stroustrup says we can move faster if \$100 million is thrown in.

Halpern says he is hearing that closing around 2014 makes sense. Have library decide on its own whether or not to have a TR. Perhaps LWG could come up with a recommendation for the large group.

The 5 year sounds good to Halpern, and sounds like others agree.

Spicer says our job is not pushing the envelope in terms of technology. Allen clarifies by asking if that what Sutter was talking about: getting in new libraries to push the envelope. Spicer says we are not worried about part that is moving really fast just parts that are standard.

Stoughton counsels against including new features just because someone else has done it. When building a house use a hammer for one thing and a screwdriver for another. A hammer makes a lousy screwdriver. We should not just be expanding our library just because someone else has.

Clamage breaks off the discussion for lunch.

Carruth says we should be able to make new library features shiny if we bring the exciting ones to C++. We are dooming ourselves to failure if we use XML parsing as example. There is nothing less exciting. We need to frame our perspective around exciting library features (e.g. RPC, distributed computation). If we focus on those they will give tremendous interest.

Dawes says the committee does not write proposals. It passes them. If you think there is one write it design it and submit it.

Vollmann says I think it is premature to talk about date. I don't want to here at this meeting or the next that X proposal does not fit in our timeframe. Sutter says he does not want to shoot them down as we are putting them up, but he does want to properly set expectations. Is it a breadbox, pill case, or The Grand Canyon?

Stoughton says we have to say at some meeting that it is the dividing line.

Meredith says shipping in 2016 raises issues in LWG. A TR does not have time to get feedback. It is quite awkward for LWG. He asks if LWG should shoot for TR or standard. Stoughton says maybe library does not produce TR, just produce a standard. Austern agrees.

Spicer says we should talk about features and then talk about schedule based on that. It is difficult to nail something down at this point without knowing what we are going for. Once you have a large set of features then you can decide what will fit in a time frame. You cannot come up with a schedule without having an idea of what to accomplish.

Sutter strongly wishes that was possible, but says it is not how we have ever worked or can work. Spicer responds that the alternative is picking a date and getting a

random set of features. Sutter asks if we should just wait for proposals for a year or two and then decide. Spicer says yes.

Du Toit says it makes sense not to control, but to enable, proposals. If we do not tell people now what the cutoff date is it will be harder to submit proposals. Du Toit advocates that we 1. pick two dates 2. advertise 3. keep our eyes open and let the proposals come in.

Nelson says what we have been talking about is prioritization. He thinks that EWG would set what priorities of proposals are.

Plum says he has heard a number of good, but contradictory, suggestions and he agrees with all of them. This leads him to say it is too early to decide if we will adopt a schedule driven model or if we will use a feature driven approach. One way to make this more clear is to choose a date that (say a year from now) is the last time we will accept brand new proposals.

Stroustrup receive 60 suggestions for new language features every year independent of what the committee will be doing. Until we declare we are closing the door. Then it goes up. Once the door is closed the suggestions go down and complaints go up. More suggestions come from with this group than outside of it.

Carruth says the most consistent feedback he gets from people asking how to write a proposal is they don't know when to write them. Uncertainty makes people scared and they run away. This is also with users. Having expectations helps people use the language. Knowing when to expect change is very useful for people.

Sutter agrees with Carruth. The predictability helps everyone. It will help us get features right sooner and compilers will be able to move faster. Things are byte size and more manageable.

Seymour answers the question of when to write a proposal: as soon as possible.

Dennett explains why it can help to have deadline for proposals: the people who we are hoping to get proposals from have other deadlines also. A lack of priorities keeps them from writing proposals. Without a deadline to submit a proposal it is low priority and will keep being pushed back. Plum likes what James said and suggests the deadline for new proposals would be next October.

Sutter suggests that we are close to have a straw poll about whether to be more schedule driven or feature driven.

Talbot asks if it's possible to do this whole cycle with less stuff and if we can pick a few things and focus and get them done. Sutter says it is largely proportional exponentially to the stuff in it. It is why C++11 was so big.

Carruth seconds Sutter's suggestion for a straw poll. All the previous comments have been on a schedule based proposal. Plum clarifies that his proposal was to provide a compromise between schedule based and feature based.

Crowl asks what no new proposals mean. He asks what happens when there are three proposals to fix a problem and a fourth one (better than the rest) comes in after the deadline. Stroustrup suggests that we look at concrete examples. He says it is the only time we agree.

Spicer does not have problem with schedule approach, but asks how schedule is decided upon.

Du Toit says we should decide to define not just the next deadline, but the next two.

Abrahams asks if there any provision for designing a roadmap. He also asks what are we going to fill that work time with and if we are going to figure that out together. Last time it was haphazard. Adamczyk says this is what makes us different from an ordinary product development: there is no one who says this is what is gets done. We can't do that here. Abrahams ask if Adamczyk is saying there is no point in trying to do roadmap.

Stroustrup say that there is no point trying to do a roadmap. Abrahams states that no battle plan survives contact with the enemy. It seems unrealistic to do a roadmap and not expect it to change, but that does not mean it is useless. Stroustrup says if Abrahams knows how to make one you can suggest it.

Carruth says that in addition to specifying deadline for when to submit we should also specify some date when submitter gets a result. That is the only reward structure.

Nelson says we are hampered by having nothing concrete to talk about. He suggests we should go to working groups to get more concrete.

Maurer's opinion is that it is time to wrap up here. Clamage agrees.

Sutter says it would be a loss if we did not see if we have consensus. We are trying to avoid duplicate discussions in LWG and EWG.

Lavavej asks if we thought about having a committee blog. He says we should have something less formal than N papers.

Clamage says a straw proposal would be interesting.

There is discussion about what straw poll to take.

Straw poll: No standard before 2022

Room	
Strongly for	0
Weakly for	4
Don't know or don't care	15
Weakly against	19
Strongly against	20

Straw poll: Pick a year at this meeting that we want to be a target for completion of the next standard

Room	
Strongly for	30
Weakly for	18
Don't know or don't care	5
Weakly against	6
Strongly against	2

Straw poll: Pick a year at this meeting that we want to cut off new concrete feature proposals for the next standard without picking a completion date

Room	
Strongly for	26
Weakly for	12
Don't know or don't care	4
Weakly against	7
Strongly against	4

Straw poll: Target completion of C++1y in 2016

Room	
Strongly for	14

Weakly for	12
Don't know or don't care	14
Weakly against	9
Strongly against	5

Straw poll: Target completion of C++1y in 2017

Room	
Strongly for	5
Weakly for	23
Don't know or don't care	17
Weakly against	4
Strongly against	1

Straw poll: Target completion of C++1y in 2018

Room	
Strongly for	9
Weakly for	9
Don't know or don't care	14
Weakly against	16
Strongly against	6

Clamage announces that those present will break up into working groups until Thursday afternoon. He notes that the committee is in recess until then.

3. WG sessions (Core, Library, and Evolution).

The group breaks up to meet in separate working group sessions.

Tuesday 7 February 8:00 a.m. – 4:00 p.m.

4. WG sessions continue.

Wednesday 8 February 8:00 a.m. - 5:00 p.m.

5. WG sessions continue.

Thursday 9 February 8:00 a.m. - 11:30 p.m.

6. WG sessions continue.

Thursday 9 February 1:00 p.m. – 2:45 p.m.

7. General session.

7.1 WG status and progress reports.

Clamage calls general session to order. Clamage asks for working group status reports.

Core Working Group

Miller displays CWG report

(http://wiki.edg.com/twiki/pub/Wg21kona2012/CoreWorkingGroup/core_report.html)

. There is a general round of applause for Maurer for providing so much drafting for CWG.

Miller presents point 1.

Sutter asks is this diverges from C. Miller says that it does.

Orr asks if there are any platforms that copying an undefined value causes problems. Miller says there are none that we know of.

Miller moves on to point 2.

Nelson asks is there was a survey of implementations affected. Miller is aware of Sun implementation. He is not aware of others. Sutter asks if this also diverges from C. Miller says it does. P. J. Plauger says it persists for historical reasons. Miller says implementation defined behavior is being mandated.

Miller moves on to point 3.

Brown asks if resolutions affect Annex C of the compatibility section and if not, should they. Miller says annex tracks valid C programs becoming an error in C++. This goes the other direction making an undefined C program defined in C++.

Meredith asks if this will cause SFINAE issues. Miller says it could.

Miller asks if anyone else from CWG has anything else to bring up. No response.

Miller says there is only one motion. Have 58 issues ready in N3330.

Sutter asks if any of these DRs where semantics from C programs are changed or made invalid. Miller defers to others.

Stroustrup asks if any of the DRs qualify as language extensions. Miller says there are two. EWG has discussed previously. Default arguments for lambdas are now allowed and return type of lambdas is broadened (this allows specifying by body of lambda). Merrill thought EWG had discussed this previously. Stroustrup says EWG has not considered these issues, but it should.

974 and 975 are withdrawn. There will be 56 issues instead of 58.

Crowl asks if issue 1441 is on list. Vollmann says no as it is not in pre-meeting. It will be moved at Portland. Crowl would like Concurrency to take a look at the issue. Miller says they will take the discussion offline.

Clamage asks if there is further discussion. No response.

Clamage asks if there is any objection from PL22.16 members to unanimous consent. No response. Sutter asks heads of delegation who approve to raise hands. 8 hands are raised indicating unanimous consent.

Library Working Group

Meredith reports on LWG
(<http://wiki.edg.com/twiki/bin/view/Wg21kona2012/LwgReport>).

Meredith announces formation of networking subgroup with Kyle Kloepper as possible chair. Sutter asks if this group will have meetings outside of standard WG21 meetings. Kloepper says that it will.

Sutter appoints Kyle Kloepper as chair of Networking Study Group. He says that meetings should be announced over library reflector.

Brown asks if this is the same as when we formed concurrency. Sutter says we have not done this before.

Sutter congratulates Kloepper as new chair for Networking Study Group. Sutter asks Hans Boehm if he will chair a group on concurrency and parallelism. Boehm accepts.

Sutter says we have two study groups. Sommerlad ask about formalism of study group preventing non-members from participating. Sutter says this is not a problem.

Meredith continues presenting LWG motion 1.

Stroustrup asks what the answer for issue 2013 is. Meredith believes the answer is yes, but will have to check fine print. Stroustrup asks for a brief reasoning. Meredith says it was ready coming into meeting.

After further discussion motion is amended to remove issue 2013.

Clamage asks if there is further discussion. No response.

Clamage asks if there is any objection from PL22.16 members to unanimous consent. No response. Sutter asks heads of delegation who approve to raise hands. 8 hands are raised indicating unanimous consent.

Meredith presents LWG motion 2.

Clamage asks if there is any discussion. No response.

Clamage asks if there is any objection from PL22.16 members to unanimous consent. No response. Sutter asks heads of delegation who approve to raise hands. 8 hands are raised indicating unanimous consent.

Concurrency Working Group

Boehm reports on Wiki

(<http://wiki.edg.com/twiki/bin/view/Wg21kona2012/ConcurrencyWorkingGroup>) and says there are no formal motions.

Evolution Working Group

Stroustrup summarizes Wiki

(<http://wiki.edg.com/twiki/bin/view/Wg21kona2012/EvolutionWorkingGroup>) and gives credit to Voutilainen for taking excellent notes.

Sutter asks if the modules people are going to have teleconference or face to face meeting between now and Portland. Gregor says face to face will be hard but will try for teleconference.

Sutter asks if they want a Study Group. Stroustrup says yes. Sutter asks who the chair will be. Gregor volunteers. Sutter announces there is a Study Group for modules and Doug Gregor is the chair.

Wong says that they have been holding transactional memory meetings. Sutter says that is different as the three appointed study groups are things that have been talked about and are in scope for new standard.

There is discussion about finishing this afternoon with formal motions and closing. Sutter takes a straw poll and finds there is no consensus and motion fails. The meeting agenda remains unchanged.

7.2 Presentation and discussion of proposed responses to public comments. Straw votes taken.

Clamage asks if there is any other business. No response.

Group breaks into subgroups for the rest of the day.

Thursday 9 February 2:45 p.m. – 5:00 p.m.

8. WG sessions continue.

Friday 10 February 8:00 a.m. – 11:30 a.m.

9. WG sessions continue

Friday 10 February 1:00 p.m. – 2:00 p.m.

10. Review of the meeting

Clamage calls the meeting to order. Roll call shows 21 PL22.16 and 8 WG21 voting members present.

10.1 Motions

Core motions

Move we apply all issues in ready status from [N3330](#) except for issues [974](#), [975](#), and [1302](#), to the C++ Working paper: [292](#) [332](#) [388](#) [462](#) [482](#) [483](#) [535](#) [539](#) [565](#) [577](#) [597](#) [712](#) [729](#) [1003](#) [1093](#) [1226](#) [1250](#) [1251](#) [1260](#) [1262](#) [1264](#) [1265](#) [1275](#) [1282](#) [1288](#) [1293](#) [1295](#) [1296](#) [1297](#) [1298](#) [1301](#) [1305](#) [1306](#) [1308](#) [1311](#) [1324](#) [1327](#) [1329](#) [1333](#) [1336](#) [1340](#) [1345](#) [1346](#) [1347](#) [1350](#) [1352](#) [1355](#) [1357](#) [1362](#) [1364](#) [1365](#) [1366](#) [1367](#) [1368](#) [1369](#)

Moved by: Miller

Seconded by: Hedquist

PL22.16		WG21	
In favor:	21	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Library motions

Motion 1

Move we apply the resolutions of all issues in "Ready" and "Tentatively Ready" status from [N3318](#), with the exception of issue 2013, to the C++ Working Paper.

- [1214](#) Insufficient/inconsistent key immutability requirements for associative containers
- [2009](#) Reporting out-of-bound values on numeric string conversions
- [2010](#) is_* traits for binding operations can't be meaningfully specialized
- [2015](#) Incorrect pre-conditions for some type traits
- [2021](#) Further incorrect usages of result_of
- [2028](#) messages_base::catalog over specified
- [2033](#) Preconditions of reserve, shrink_to_fit, and resize functions
- [2039](#) Issues with std::reverse and std::copy_if
- [2044](#) No definition of "Stable" for copy algorithms
- [2045](#) forward_list::merge and forward_list::splice_after with unequal allocators
- [2047](#) Incorrect "mixed" move-assignment semantics of unique_ptr
- [2050](#) Unordered associative containers do not use allocator_traits to define member types
- [2053](#) Errors in regex bitmask types
- [2061](#) make_move_iterator and arrays
- [2064](#) More noexcept issues in basic_string
- [2065](#) Minimal allocator interface
- [2067](#) packaged_task should have deleted copy c'tor with const parameter
- [2069](#) Inconsistent exception spec for basic_string move constructor
- [2096](#) Incorrect constraints of future::get in regard to [MoveAssignable](#)
- [2102](#) Why is std::launch an implementation-defined type?

Moved by: Meredith

Seconded by: Liber

PL22.16		WG21	
In favor:	21	In favor:	8

Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion 2

Move we apply [N3346](#), Terminology for Container Element Requirements - Rev 1, to the C++ Working Paper.

Moved by: Meredith

Seconded by: Halpern

PL22.16		WG21	
In favor:	21	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Additional Motions

Nelson moves to thank the hosts. Applause ensues.

10.2 Review of action items, decisions made, and documents adopted by the committee

None.

10.3 Issues delayed until today.

Clamage asks if there are other issues. Sommerlad announces a call for papers for a refactoring tools conference that will be taking place in Rapperswil, Switzerland.

11. Plans for the future

11.1 Next and following meetings

Sutter presents the meeting schedule for upcoming meetings:

- 15-19 October 2012: Portland, Oregon, USA – Sponsored by Intel
- 15-19 April 2013 (tentative): Bristol, UK
- Fall 2013: Chicago, Illinois, USA – Sponsored by DRW Trading Group
- Spring 2014: Rapperswil, Switzerland
- Fall 2014: Urbana-Champaign, Illinois, USA – Sponsored by The University of Illinois at Urbana-Champaign

Meredith asks if we can move back to six day meetings. Stroustrup says six day meetings would be helpful for EWG. After some discussion Sutter takes a straw poll to check for consensus.

Straw poll: Switch from current five day meetings to six day meetings

Room		WG21	
In favor:	29	In favor:	6
Opposed:	8	Opposed:	0
Abstain:	12	Abstain:	2

Sutter decides there is consensus to switch to six day meeting. Too late to switch Portland, but Bristol may be able to change to six day meeting.

After further discussion a straw poll is taken for when to have consensus building session and formal voting.

Straw poll: When to have consensus building meeting and formal votes

Room	
Friday morning, Saturday morning	11
Friday afternoon, Saturday morning	15
Friday afternoon, Saturday afternoon	17

Sutter says we will stick with original proposal of Friday afternoon consensus building and Saturday afternoon closing. Spicer requests a straw poll to see if there is stronger preference for Saturday morning or Saturday afternoon.

Straw poll: When to have consensus building meeting and formal votes

Room	
Friday morning, Saturday morning	11
Friday afternoon, Saturday morning	15
Friday afternoon, Saturday afternoon	17

Sutter says it looks like a tie. He suggests that we think about it and make the call in Portland.

Sutter announces the new Study Group chairs. He asks SG4 chair Kyle Kloepper if they plan to have meetings between now and Portland. Kloepper says SG4: Networking will be having a teleconference in March and a face to face early summer.

Sutter states the Dawes is chair for SG3: File System. Dawes has already departed Kona and will announce meetings via reflector. Sutter says that SG1: Concurrency and Parallelism (chair: Hans Boehm) will have a meeting in Redmond sometime early summer.

Sutter also announces the teleconference that takes place the Friday before each face to face meeting. The teleconference does no technical work. Its purpose is to go through all papers to make sure they will be handled.

Sutter gives short presentation on ISO process. A key point is that with a TR the votes can be done between meetings. If Sutter is informed in Portland a final ballot could come as early as the spring 2013 UK meeting.

11.2 Mailings

Nelson reviewed the following mailing deadlines:

- Post-Kona: 24 February 2012
- Pre-Portland: 21 September 2012

12. Adjournment

P.J. Plauger moves to adjourn, Hedquist seconds. Motion passes by unanimous consent.

The meeting adjourns at 09:57 (UTC-10) Friday 19 August 2011.

Attendance

Company/Organization	NB	Representative	Mon	Tue	Wed	Thu	Fri	Sat
Apple		Howard E. Hinnant	V	V	V	V	V	
Apple		Doug Gregor	A	A	A	A	A	
Bloomberg		John Lakos	V	V	V	V	V	
Bloomberg		Alisdair Meredith	A	A	A	A	A	
Bloomberg		Dietmar Kühl	A	A	A	A	A	
BoostPro Computing		David Abrahams	V	V	V	V	V	
BoostPro Computing		John Wiegley	A	A	A	A	A	
Carnegie Mellon University		David Svoboda	V	V	V	V	V	
Cisco Systems		Martin Sebor	V	V	V	V	V	
Dawes		Beman G. Dawes	A	A	A	A		
Dinkumware		P. J. Plauger	V	V	V	V	V	
Dinkumware		Tana Plauger	A	A		A	A	
DRW Holdings		Nevin Liber	V	V	V	V	V	
Edison Design Group		J. Stephen Adamczyk	V	V	V	V	V	
Edison Design Group		Jens Maurer	A	A	A	A	A	
Edison Design Group		William M. Miller	A	A	A	A	A	
Edison Design Group		John H. Spicer	A	A	A	A	A	
Edison Design Group		Daveed Vandevoorde	V	V	V	V	V	
Embarcadero Technologies		Dawn Perchik	V	V	V	V	V	
Fermi Nat. Accelerator Lab		Walter E. Brown	V	V	V	V	V	
Fujitsu Laboratories of America		Maarten Wiggers	V	V	V	V		
Gimpel Software		James Widman	V	V	V	V	V	
Google		Lawrence Crowl	V	V	V	V	V	
Google		Matthew Austern	A	A	A	A	A	
Google	JL	JC van Winkel	A	A	A	A	A	
Google		James Dennett	A	A	A	A	A	

Company/Organization	NB	Representative	Mon	Tue	Wed	Thu	Fri	Sat
Google		Dean Michael Berris	A	A	A	A	A	
Google		Chandler Carruth	A	A	A	A	A	
Google		Richard Smith	A	A	A	A	A	
Google		Jeffrey Yasskin	A	A	A	A	A	
Hewlett-Packard Development		Hans Boehm	V	V	V	V	V	
IBM	CA	Michael Wong	V	V	V	V	V	
IBM		Nikhil Joshi		A	A	A		
Indiana University		Jeremiah Willcock	V	V	V	V		
Intel		Clark Nelson	V	V	V	V	V	
Intel		Pablo Halpern	A	A	A	A	A	
Intel	CA	Stefanus Du Toit	A	A	A	A	A	
Intel		Tatiana Shpeisman		A	A			
Intel		Justin Gottschlich		A	A			
Intel		Robert Geva	A	A	A	A		
Microsoft		Herb Sutter	A	A	A	A	A	
Microsoft		Niklas Gustafsson	A	A	A			
Microsoft		Jonathan Caves	V	V	V	V	V	
Microsoft		Stephan Lavavej	A	A	A	A	A	
NVidia		Vinod Grover	V	V	V	V	V	
NVidia		Olivier Giroux	A	A	A	A	A	
Oracle		Stephen D. Clamage	V	V	V	V	V	
Perennial	US	Barry Hedquist			V	V	V	
Plum Hall		Thomas Plum	V	V	V	V	V	
Programming Research Group		Richard Corden	V	V	V	V	V	
Programming Research Group		Christof Meerwald	V	V	V	V	V	
Red Hat		Jason Merrill	V	V	V	V	V	
Red Hat		Benjamin Kosnik	A	A	A	A	A	
Riverbed Technology		Kyle Kloepper	V	V	V	V	V	

Company/Organization	NB	Representative	Mon	Tue	Wed	Thu	Fri	Sat
Riverbed Technology		Neal Meyer	A	A	A	A	A	
Roundhouse Consulting		Pete Becker	V	V	V	V	V	
Seymour		Bill Seymour	V	V	V	V	V	
Symantec		Mike Spertus	V	V	V	V		
Texas A&M University		Bjarne Stroustrup	V	V	V	V	V	
Texas A&M University		Andrew Sutton	A	A	A	A		
PL22.16 Non-members								
HSR	CH	Peter Sommerlad	N	N	N	N	N	
LTK Engineering		Alan Talbot	N	N	N	N	N	
University Carlos III	ES	J. Daniel Garcia	N	N	N	N	N	
University of Nice	FR	Jean-Paul Rigault	N	N	N	N	N	
Vollmann Engineering	CH	Detlef Vollmann	N	N	N	N	N	
	FI	Ville Voutilainen	N	N	N	N	N	
	UK	Roger Orr	N	N	N	N	N	
		Faisal Vali	N	N	N			
		Saeed Amrollahi Boyouki	N	N	N	N	N	
Qualcomm		Marshall Clow	N	N	N	N	N	
Irdeto		Mick Stoughton	N	N	N	N	N	