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Subject: Ide MT

Posted by [mirek](#) on Wed, 16 Feb 2011 09:42:41 GMT

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(A reply to PM)

raxvan wrote on Wed, 16 February 2011 04:27Hello,

I would like to know if do you want to keep the ide single threaded?

So far yes.

Quote:

Because the design of Include Assist was made to work with a thread, and i have to do some major refactoring to adjust to this. Also i was planning to add some more nice features and all of the would work nice if i could use the CoWork. Features like The minimap from Sublime text, and more features to the assist.

Actually, I will have to check the patch yet to see it... But generally, the idea that you are REQUIRING CoWork and MT is frightening me a bit, because CoWork by definition does the same thing in ST just as in MT (performs a loop), the only difference is that in MT it runs parallel.

Quote:

Anyway , i just don't like keeping everything on a single thread, and if more stuff is going to be added the ide will start to work slow .

Well, that is debatable. In the moment I will see we need MT, I am for going that path.

So far, there was no such real requirement and the ide is generally fast. #include Assist is definitely not the case that would require this.

BTW, strictly speaking, MT flag slows down single-threaded code. In current U++ incarnation, it is in low percents, but still...

Mirek

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Subject: Re: Ide MT

Posted by [raxvan](#) on Wed, 16 Feb 2011 10:06:12 GMT

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mirek wrote on Wed, 16 February 2011 10:42

Actually, I will have to check the patch yet to see it... But generally, the idea that you are

REQUIRING CoWork and MT is frightening me a bit.

I shouldn't . I find it natural for time consuming tasks to run them on a separate thread.

Quote:

Well, that is debatable. In the moment I will see we need MT, I am for going that path.

Having a MT flag, even if not on the primary configuration, would be nice .

Quote:

So far, there was no such real requirement and the IDE is generally fast. #include Assist is definitely not the case that would require this.

Fast, except the ubuntu version. If I have more than ~50 files opened it will run really slow even if I do just typing or scrolling the source file.

Raxvan.

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Subject: Re: Ide MT

Posted by [mirek](#) on Wed, 16 Feb 2011 10:11:49 GMT

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raxvan wrote on Wed, 16 February 2011 05:06mirek wrote on Wed, 16 February 2011 10:42  
Actually, I will have to check the patch yet to see it... But generally, the idea that you are  
REQUIRING CoWork and MT is frightening me a bit.

I shouldn't . I find it natural for time consuming tasks to run them on a separate thread.

Problem is, with MT and CoWork, there is absolutely no guarantee that it will run in separate thread...

If you really feel like you absolutely need to run something in separate thread, then create Thread and start it

But there are many catches with MT and GUI. E.g. something as trivial as hitting close button of TheIDE would cause you a lot of pain...

Quote:

Fast, except the ubuntu version. If I have more than ~50 files opened it will run really slow even if I do just typing or scrolling the source file.

Well, that is just weird. I do not see a reason why this should be slow.

But then again, I still have to check your code...

Mirek

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Subject: Re: Ide MT

Posted by [dolik.rce](#) on Wed, 16 Feb 2011 10:18:45 GMT

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Hi Mirek,

I have one remark to this topic, although not really related to MT. The initialization of Assist++ and Topic++ at the start of theide can be quite lengthy, especially for big projects on slow computer (like mine ). As none of these is directly necessary for programmer to work, they could be simply performed in background. Only if the programmer decides to bring up Assist before the scan is complete, he might have to wait, but otherwise he can start working couple seconds earlier. No wasting time, time is money Also applications that start quickly IMHO look much more "cool", in comparison to bloated, slow to start software (Don't you hate it when you have to look 30s at splash screen before you can start to do some simple editing job in OpenOffice? ).

This is of course possible to implement in ST as well. Possibly the best solution would be to provide some generic way to allow such tasks to run using callbacks and ProcessEvents() in ST and Threads in MT, so that in both cases maximum efficiency would be achieved.

Best regards,  
Honza

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Subject: Re: Ide MT

Posted by [unodgs](#) on Wed, 16 Feb 2011 10:50:03 GMT

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You're right Honza about ide startup. Although theide startup time is very fast comparing to other popular ides watching assist and topic parsing progress is annoying. IMO going MT is the right step, even if it costs a little bit (besides cpus are getting more and more cores).

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Subject: Re: Ide MT

Posted by [mirek](#) on Wed, 16 Feb 2011 10:52:48 GMT

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Hm, actually, I might not have noticed before (well, at 3.2Ghz it is not quite noticeable), but it looks to me that at the start there is quite a long "Indexing topic" phase.

I guess before opening Pandora's box, we should simply try to optimize that out. In fact, if I remember well, I was considering this some time ago, I believe that the issue there is simply that caching mechanism of topic indexing is suboptimal... but then again, it was minor issue to wait 3

seconds at the start of theide so far...

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Subject: Re: Ide MT

Posted by [koldo](#) on Wed, 16 Feb 2011 11:11:57 GMT

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Hello all

I also agree with Honza. It would be good to open TheIDE immediately and perhaps to see a progress bar at the bottom of the screen indicating the indexing.

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Subject: Re: Ide MT

Posted by [raxvan](#) on Wed, 16 Feb 2011 11:30:41 GMT

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mirek wrote on Wed, 16 February 2011 11:11

Problem is, with MT and CoWork, there is absolutely no guarantee that it will run in separate thread...

If you really feel like you absolutely need to run something in separate thread, then create Thread and start it

Ow , i had no idea about that. Perhaps CoWork should always run tasks in a separate thread. Initially i was going to use a Thread but i found out that CoWork was much easier to use.

mirek wrote on Wed, 16 February 2011 11:11

But there are many catches with MT and GUI. E.g. something as trivial as hitting close button of TheIDE would cause you a lot of pain...

I think the best solution would be the one Honza proposed:

"provide some generic way to allow such tasks to run using callbacks and ProcessEvents() in ST and Threads in MT, so that in both cases maximum efficiency would be achieved."

In any case, The support for MT should be added because CPU-s will probably not get a lot faster, and adding more features will not make thing easier.

Raxvan.

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Subject: Re: Ide MT

Posted by [mirek](#) on Wed, 16 Feb 2011 11:46:15 GMT

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koldo wrote on Wed, 16 February 2011 06:11Hello all

I also agree with Honza. It would be good to open TheIDE immediately and perhaps to see a progress bar at the bottom of the screen indicating the indexing.

It would. It could also mean that for the next year, theide will be unstable...

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Subject: Re: Ide MT  
Posted by [mirek](#) on Wed, 16 Feb 2011 11:50:31 GMT

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raxvan wrote on Wed, 16 February 2011 06:30mirek wrote on Wed, 16 February 2011 11:11  
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Ow , i had no idea about that. Perhaps CoWork should always run tasks in a separate thread. Initially i was going to use a Thread but i found out that CoWork was much easier to use.

The idea there is CoWork is 'optimized optimization' to fully exploit all cores.

E.g. it only starts limited number of worker threads per application and those never finish (until app exit). Then assigns pieces of work to them as needed.

If you would use CoWork just to run a thread in parallel on more places in the app, it can easilly happen that there will be no threads available.

Mirek

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Subject: Re: Ide MT  
Posted by [dolik.rce](#) on Wed, 16 Feb 2011 12:56:47 GMT

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mirek wrote on Wed, 16 February 2011 12:46koldo wrote on Wed, 16 February 2011 06:11Hello all

I also agree with Honza. It would be good to open TheIDE immediately and perhaps to see a progress bar at the bottom of the screen indicating the indexing.

It would. It could also mean that for the next year, theide will be unstable...

I definitely don't want that But I hope there is enough developers willing to test any new code before it is merged in the trunk, so that it is thoroughly tested and we are sure it is stable.

I posted first draft of a class that could help with this in separate thread (it doesn't belong here, as it might be used in any application, not only theide).

Honza

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Subject: Re: Ide MT

Posted by [raxvan](#) on Wed, 16 Feb 2011 13:08:39 GMT

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mirek wrote on Wed, 16 February 2011 12:50raxvan wrote on Wed, 16 February 2011 06:30mirek wrote on Wed, 16 February 2011 11:11

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Ow , i had no idea about that. Perhaps CoWork should always run tasks in a separate thread. Initially i was going to use a Thread but i found out that CoWork was much easier to use.

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E.g. it only starts limited number of worker threads per application and those never finish (until app exit). Then assigns pieces of work to them as needed.

If you would use CoWork just to run a thread in parallel on more places in the app, it can easilly happen that there will be no threads available.

Mirek

A thread pool fits perfectly for a variety of use cases. I don't think there will be a problem using a CoWork in a lot of places, as long as the size limitation of the queue is removed. I can see from the implementation the limit is caped to 128 and after that the job will run on the requesting thread.

I used CoWork in the idea that in the future this will be used in some other places too, avoiding thread spamming.

Raxvan.

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Subject: Re: Ide MT  
Posted by [mirek](#) on Wed, 16 Feb 2011 14:43:52 GMT  
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raxvan wrote on Wed, 16 February 2011 08:08

A thread pool fits perfectly for a variety of use cases. I don't think there will be a problem using a CoWork in a lot of places, as long as the size limitation of the queue is removed. I can see from the implementation the limit is capped to 128 and after that the job will run on the requesting thread.

I believe the limitation is a smart move - 128 work chunks is enough to keep worker threads busy, so main thread can do a work chunk instead of waiting for any worker thread to be available.

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Subject: Re: Ide MT  
Posted by [mirek](#) on Wed, 16 Feb 2011 14:49:44 GMT  
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dolik.rce wrote on Wed, 16 February 2011 07:56

I definitely don't want that But I hope there is enough developers willing to test any new code before it is merged in the trunk, so that it is thoroughly tested and we are sure it is stable.

I simply believe it is not worth investing resources there. I would optimize ST first.

Frankly, I am afraid that main problem with MT is that it "does not look that hard". Usually this opinion sustains until the first deadlock or race condition

I would suggest to analyze "what is slow" in the first before making hasty and disastrous decisions...

Mirek

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Subject: Re: Ide MT  
Posted by [dolik.rce](#) on Wed, 16 Feb 2011 15:19:04 GMT  
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mirek wrote on Wed, 16 February 2011 15:49dolik.rce wrote on Wed, 16 February 2011 07:56  
I definitely don't want that But I hope there is enough developers willing to test any new code before it is merged in the trunk, so that it is thoroughly tested and we are sure it is stable.

I simply believe it is not worth investing resources there. I would optimize ST first.

Frankly, I am afraid that main problem with MT is that it "does not look that hard". Usually this opinion sustains until the first deadlock or race condition

I would suggest to analyze "what is slow" in theide first before making hasty and disastrous decisions...

Mirek

Sure, all I said was that the slow parts could be done in background. I even stated that it can be easily done in ST. If you can optimize the processing, well that's a bonus But I think it is not strictly required - especially if the progress window wouldn't block me from using theide.

Honza

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Subject: Re: Ide MT

Posted by [mdelfede](#) on Sun, 20 Feb 2011 19:19:32 GMT

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mirek wrote on Wed, 16 February 2011 15:49

.....

Frankly, I am afraid that main problem with MT is that it "does not look that hard". Usually this opinion sustains until the first deadlock or race condition

I fully agree, and tested by myself in my app

It's enough to test/set a variable in the wrong place to have really hard to find bugs there.

It took to me quite long to have my MT app stable because of such subtle bugs... I guess that for theide would be a nightmare for long time.

Ciao

Max

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