需求的提出和讨论

The recent performance degradation on the Model Explorer seems
to be related to the ElementTypes or NewChild menu. It builds
a lot of commands (Running into the FSReadOnlyHandler many
times) to check for executability

I see several surprising things here:

- Building a Command from a Request to determine if a Handler
should be enabled is known to be expensive and should be avoided
- The FSReadOnlyHandler is supposed to be cached and shouldn't
be queried so many times for the same element (In this case
the selected element in the ModelExplorer)

It really seems that the new child (and caching issue in the
ReadOnly manager) is at cause, but this wouldn't explain why
this has degraded so much in M6... More investigation is
required

New Gerrit change created:
https://git.eclipse.org/r/44960

Created attachment 252061 [details]
Performance improvement by Gerrit patch 44960

The Gerrit review 44960 addresses the problem of the
resource read-only state not being cached, and so
incurring the expense of checking resource attributes
many many many times.

The attachment shows before and after screenshots of
the hotspots identified by YourKit in the JVM between
right-clicking on the Model Explorer and the appearance
of the menu. The methods related to read-only handling
in the before image are entirely absent from the report
in the after image.

See the Gerrit review for details of the fix (which is
a fairly significant change).

Note that this patch does not entirely fix the problem. Performance of the menu is much improved, but it is still terrible. But this fix does also address an unknown number of other performance bottlenecks as yet unidentified. And it has no relation to ~~bug 463631~~.

Eclipse Genie 🔴ECA 2015-04-01 04:58:07 EDT
Gerrit change https://git.eclipse.org/r/44960 was merged to [master].
Commit:
http://git.eclipse.org/c/papyrus/org.eclipse.papyrus.git/commit/?id=cfd5e356715c4ec194961f3499514012c9144057

Camille Letavernier ✅ECA 2015-04-01 05:00:07 EDT
> Gerrit change https://git.eclipse.org/r/44960 was merged to [master].

This improves the general performances but, as mentioned in Comment 2, does not entirely fix the issue. ElementTypes & NewChild menu performances still need to be improved

Toni Siljamaki 🔴ECA 2015-04-23 07:14:27 EDT
*** ~~Bug 465276~~ has been marked as a duplicate of this bug. ***

Christian Damus ✅ECA 2015-04-23 18:20:56 EDT
Created attachment 252700 [details]
Create Child menu performance snapshot

It seems fairly clear (see attached grab of YourKit hotspot analysis) that the calculation of the Create Child menu is the bottleneck, now. It used to be that this menu was entirely described by a model, but now it seems to be calculated according to the executable-ness of all possible edit commands that would add new elements to containment features of the selection? It is not entirely surprising that delegation to the Edit Service to create all of these commands just to see whether they are executable should be costly ...

It is not readily apparent (to me) what can be done to improve the performance of this ...

Camille Letavernier ✔ECA 2015-04-24 04:16:03 EDT
The New Child Menu model is (as far as I know) unchanged since Luna. Or did I miss something?

I think the only thing that changed is the element types framework itself, so the computation of the commands is slower. It would be nice to know why

Of course, the creation of commands to test executability is always a bad practice and should be avoided, but I suspect this is not the only issue here. Rémi is currently looking at Approve Requests to see if/how this can be improved

Remi Schnekenburger ✔ECA 2015-04-24 04:27:11 EDT
Before creating the command, the edit service tries to approve the create request. This is an opprotunity for the framework not to create the command, but to ask the edit helper and the associated advices if they agree for the creation.

simple tests on the approve request for specialization types based on the profile would be to reject the request as soon as the dependent profile is not loaded for example.

I also know that for the extended types (the framework on which element type configuration is coming from), there were some methods in the edit service that were rather time costly to invoke (somethign like getMatchingadvices()), when looking for the matching elements. I could make huge performances improvments by changing a few algorithms. I will look in the near future for the potential bottlenecks there.

Camille Letavernier ✔ECA 2015-04-24 04:40:35 EDT
*** ~~Bug 464676~~ has been marked as a duplicate of this bug. ***

Toni Siljamaki ⊖ECA 2015-04-24 04:51:56 EDT
Try execution profiling. :)

Comment 11 Remi Schnekenburger ✔ECA 2015-04-24 05:06:54 EDT

(In reply to Toni Siljamäki from comment #10)
> Try execution profiling. :)

Thanks, I am not a developer beginner...

Comment 12 Remi Schnekenburger ✔ECA 2015-05-06 04:09:39 EDT

First attempt to optimize the creation of the menu, but
there is still a lot of space for improvments...
The commands are not always created for tests, using
the approveRequest() system. However, the command to
get the edit context request is still slow because of
the getMacthingAdvice() from ElementTypeRegistry. A
cache registry is being setup to overcome this
limitation.

Comment 13 Toni Siljamaki ➖ECA 2015-05-07 18:56:16 EDT

I can verify that the right-click response time in Model
Explorer is now
downto ~3 seconds in the latest nightly = a significant
improvement.

Hev not tested on lage models.

Comment 14 Camille Letavernier ✔ECA 2015-05-11 04:47:43 EDT

The remaining issue seems to be an Eclipse Platform (UI)
regression: when doing a right-click, the menu is
refreshed (re-computed) ~300 times before being
displayed!

Installing Papyrus Nightly (M7+) on Eclipse Platform
M5 shows no performance issue

Comment 15 Patrik Nandorf ✔ECA 2015-05-11 06:20:22 EDT

Just tried installing Papyrus Nightly on top of Eclipse
modelling M5 but I get NPE when right clicking:

java.lang.NullPointerException
     at
org.eclipse.emf.ecore.util.EcoreUtil.getURI(EcoreUt
il.java:3048)

```
        at
org.eclipse.papyrus.uml.service.types.helper.advice
.AbstractStereotypedElementEditHelperAdvice.approve
Request(AbstractStereotypedElementEditHelperAdvice.
java:81)
        at
org.eclipse.gmf.runtime.emf.type.core.edithelper.Ab
stractEditHelper.approveRequest(AbstractEditHelper.
java:267)
        at
org.eclipse.gmf.runtime.emf.type.core.edithelper.Ab
stractEditHelper.getEditCommand(AbstractEditHelper.
java:131)
        at
org.eclipse.gmf.runtime.emf.type.core.Specializatio
nType.getEditCommand(SpecializationType.java:238)
        at
org.eclipse.gmf.runtime.emf.type.core.requests.Crea
teElementRequest.getEditContextCommand(CreateElemen
tRequest.java:313)
        at
org.eclipse.gmf.runtime.emf.type.core.requests.Crea
teElementRequest.getEditHelperContext(CreateElement
Request.java:440)
        at
org.eclipse.papyrus.infra.gmfdiag.common.helper.Def
aultEditHelper.getEditHelperAdvice(DefaultEditHelpe
r.java:320)
        at
org.eclipse.gmf.runtime.emf.type.core.edithelper.Ab
stractEditHelper.getEditCommand(AbstractEditHelper.
java:125)
        at
org.eclipse.gmf.runtime.emf.type.core.MetamodelType
.getEditCommand(MetamodelType.java:107)
        at
org.eclipse.papyrus.infra.services.edit.internal.El
ementEditService.getEditCommand(ElementEditService.
java:85)
        at
org.eclipse.papyrus.infra.newchild.CreationMenuFact
ory.buildCommand(CreationMenuFactory.java:393)
        at
org.eclipse.papyrus.views.modelexplorer.newchild.Mo
```

```
delExplorerMenuFactory.buildCommand(ModelExplorerMe
nuFactory.java:64)
      at
org.eclipse.papyrus.infra.newchild.CreationMenuFact
ory.constructMenu(CreationMenuFactory.java:352)
      at
org.eclipse.papyrus.infra.newchild.CreationMenuFact
ory.populateMenu(CreationMenuFactory.java:128)
      at
org.eclipse.papyrus.views.modelexplorer.newchild.Mo
delExplorerDynamicNewChild.fill(ModelExplorerDynami
cNewChild.java:72)
      at
org.eclipse.ui.internal.menus.DynamicMenuContributi
onItem.fill(DynamicMenuContributionItem.java:208)
      at
org.eclipse.jface.action.MenuManager.doItemFill(Men
uManager.java:722)
      at
org.eclipse.jface.action.MenuManager.update(MenuMan
ager.java:804)
      at
org.eclipse.jface.action.MenuManager.update(MenuMan
ager.java:663)
      at
org.eclipse.e4.ui.workbench.renderers.swt.MenuManag
erRenderer.processContents(MenuManagerRenderer.java
:610)
      at
org.eclipse.ui.internal.PopupMenuExtender.addMenuCo
ntributions(PopupMenuExtender.java:411)
      at
org.eclipse.ui.internal.PopupMenuExtender.menuAbout
ToShow(PopupMenuExtender.java:381)
      at
org.eclipse.jface.action.MenuManager.fireAboutToSho
w(MenuManager.java:331)
      at
org.eclipse.jface.action.MenuManager.handleAboutToS
how(MenuManager.java:464)
      at
org.eclipse.jface.action.MenuManager.access$1(MenuM
anager.java:459)
```

```
        at
org.eclipse.jface.action.MenuManager$2.menuShown(Me
nuManager.java:491)
        at
org.eclipse.swt.widgets.TypedListener.handleEvent(T
ypedListener.java:255)
        at
org.eclipse.swt.widgets.EventTable.sendEvent(EventT
able.java:84)
        at
org.eclipse.swt.widgets.Display.sendEvent(Display.j
ava:4480)
        at
org.eclipse.swt.widgets.Widget.sendEvent(Widget.jav
a:1413)
        at
org.eclipse.swt.widgets.Widget.sendEvent(Widget.jav
a:1437)
        at
org.eclipse.swt.widgets.Widget.sendEvent(Widget.jav
a:1418)
        at
org.eclipse.swt.widgets.Menu._setVisible(Menu.java:
198)
        at
org.eclipse.swt.widgets.Display.runPopups(Display.j
ava:3860)
        at
org.eclipse.swt.widgets.Display.readAndDispatch(Dis
play.java:3418)
        at
org.eclipse.e4.ui.internal.workbench.swt.PartRender
ingEngine$9.run(PartRenderingEngine.java:1151)
        at
org.eclipse.core.databinding.observable.Realm.runWi
thDefault(Realm.java:337)
        at
org.eclipse.e4.ui.internal.workbench.swt.PartRender
ingEngine.run(PartRenderingEngine.java:1032)
        at
org.eclipse.e4.ui.internal.workbench.E4Workbench.cr
eateAndRunUI(E4Workbench.java:156)
```

```
        at
org.eclipse.ui.internal.Workbench$5.run(Workbench.j
ava:648)
        at
org.eclipse.core.databinding.observable.Realm.runWi
thDefault(Realm.java:337)
        at
org.eclipse.ui.internal.Workbench.createAndRunWorkb
ench(Workbench.java:592)
        at
org.eclipse.ui.PlatformUI.createAndRunWorkbench(Pla
tformUI.java:150)
        at
org.eclipse.ui.internal.ide.application.IDEApplicat
ion.start(IDEApplication.java:138)
        at
org.eclipse.equinox.internal.app.EclipseAppHandle.r
un(EclipseAppHandle.java:196)
        at
org.eclipse.core.runtime.internal.adaptor.EclipseAp
pLauncher.runApplication(EclipseAppLauncher.java:13
4)
        at
org.eclipse.core.runtime.internal.adaptor.EclipseAp
pLauncher.start(EclipseAppLauncher.java:104)
        at
org.eclipse.core.runtime.adaptor.EclipseStarter.run
(EclipseStarter.java:380)
        at
org.eclipse.core.runtime.adaptor.EclipseStarter.run
(EclipseStarter.java:235)
        at
sun.reflect.NativeMethodAccessorImpl.invoke0(Native
Method)
        at
sun.reflect.NativeMethodAccessorImpl.invoke(NativeM
ethodAccessorImpl.java:57)
        at
sun.reflect.DelegatingMethodAccessorImpl.invoke(Del
egatingMethodAccessorImpl.java:43)
        at
java.lang.reflect.Method.invoke(Method.java:606)
```

```
        at
org.eclipse.equinox.launcher.Main.invokeFramework(M
ain.java:648)
        at
org.eclipse.equinox.launcher.Main.basicRun(Main.jav
a:603)
        at
org.eclipse.equinox.launcher.Main.run(Main.java:146
5)
        at
org.eclipse.equinox.launcher.Main.main(Main.java:14
38)
```

(In reply to Camille Letavernier from comment #14)
> The remaining issue seems to be an Eclipse Platform
(UI) regression: when
> doing a right-click, the menu is refreshed
(re-computed) ~300 times before
> being displayed!
>
> Installing Papyrus Nightly (M7+) on Eclipse Platform
M5 shows no performance
> issue

Comment 16 Camille Letavernier ✔ECA 2015-05-11 08:21:40 EDT
This exception can be caused by a Profile which isn't
defined (Or the definition cannot be found). It's worth
reporting a specific bug for this, since such issues
should result in a user warning rather than an exception

Comment 17 Toni Siljamaki ➖ECA 2015-05-12 06:57:37 EDT
Testing Mars M7 with Papyrus UML 1.1.0.201505110452.

Expaning an activity with ~40 nodes in it in Model
Explorer.
Righ-clicking on an activity node takes ~1 second
before the menu pops up.
Right-clicking on the activity takes ~3 seconds before
the menu pops up.

My main issue now is the incresing cost in memory. (new leaks, I guess)
Was just up to 1.2 GB Memory cost for one customized model.

When that happens, the right-clicking menu runs very slow.

Comment 18 Camille Letavernier ✓ECA 2015-06-03 11:17:08 EDT
Workaround pushed to Master in 2076c29

This workaround depends on Eclipse RC4 (Bug 467000), which will be available on Friday

I leave the bug opened since this is not a proper fix; just a temporary workaround

Comment 19 Camille Letavernier ✓ECA 2015-06-03 11:50:49 EDT
Commit df36bae improves the contribution: if the user explicitly disables the workaround, don't do anything (Rather than forcing the workaround).

This should limit conflicts with other projects incompatible with this workaround

Comment 20 Camille Letavernier ✓ECA 2015-06-08 04:41:19 EDT
> This workaround depends on Eclipse RC4 (Bug 467000), which will be available on Friday

Eclipse 4.5RC4 is now available:
http://download.eclipse.org/eclipse/downloads/

Using this version of Eclipse + Papyrus Nightly should solve (workaround) the performance issue

Comment 21 Patrik Nandorf ✓ECA 2015-06-08 06:50:10 EDT
(In reply to Camille Letavernier from comment #20)
> > This workaround depends on Eclipse RC4 (Bug 467000), which will be available on Friday
>
> Eclipse 4.5RC4 is now available:
> http://download.eclipse.org/eclipse/downloads/
>

> Using this version of Eclipse + Papyrus Nightly should
solve (workaround)
> the performance issue

Seems to work fine now on Ubuntu

Comment 22 Toni Siljamaki ⊖ ECA 2015-06-09 02:36:42 EDT
Trying to update to 4.5RC4 to test this by using the
http://download.eclipse.org/eclipse/updates/4.5mile
stones
according to instruction, but the innstallation takes
foverer.

Something wrong with the server you know about?
Yesterday I had to abort after several hours.

Comment 23 Camille Letavernier ✔ ECA 2015-06-09 03:37:52 EDT
Yes, there are some issues with the Eclipse Download
servers:
https://dev.eclipse.org/mhonarc/lists/cross-project
-issues-dev/msg11979.html

Comment 24 Toni Siljamaki ⊖ ECA 2015-06-09 07:13:54 EDT
Just managed to update to 4.5RC4 and latest Papyrus
build.

This workaround makes Model Explorer as responsive as
in Luna.

Comment 25 Remi Schnekenburger ✔ ECA 2015-06-11 10:19:51
EDT
The performances in the model explorer are good using
the workaround provided for Papyrus by the platform
team.

However, a solid fix should be found to avoid using this
workaround in the future.
Bug 467000 is the one to follow for the platform side.