

A photograph of a field with a path and trees in the background. The foreground is filled with tall, yellowish-brown grasses. A dirt path leads from the bottom center towards the middle ground. The background consists of a line of green trees under a clear sky.

Xtext + Sirius : <3

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Who am I ?

CTO @ Obeo

Involved with Eclipse since 2006, Modeling PMC, Councils..

Strategic Member of the Eclipse Foundation



EcoreTools 2.x,

The Modeling Package,

Extended Editing Framework,

ATL

...



Focused on **domain specific modeling** technologies
50 people working on products and customer projects
Services : training, consulting and Open Innovation
Tool Vendor



Eclipse **Sirius**

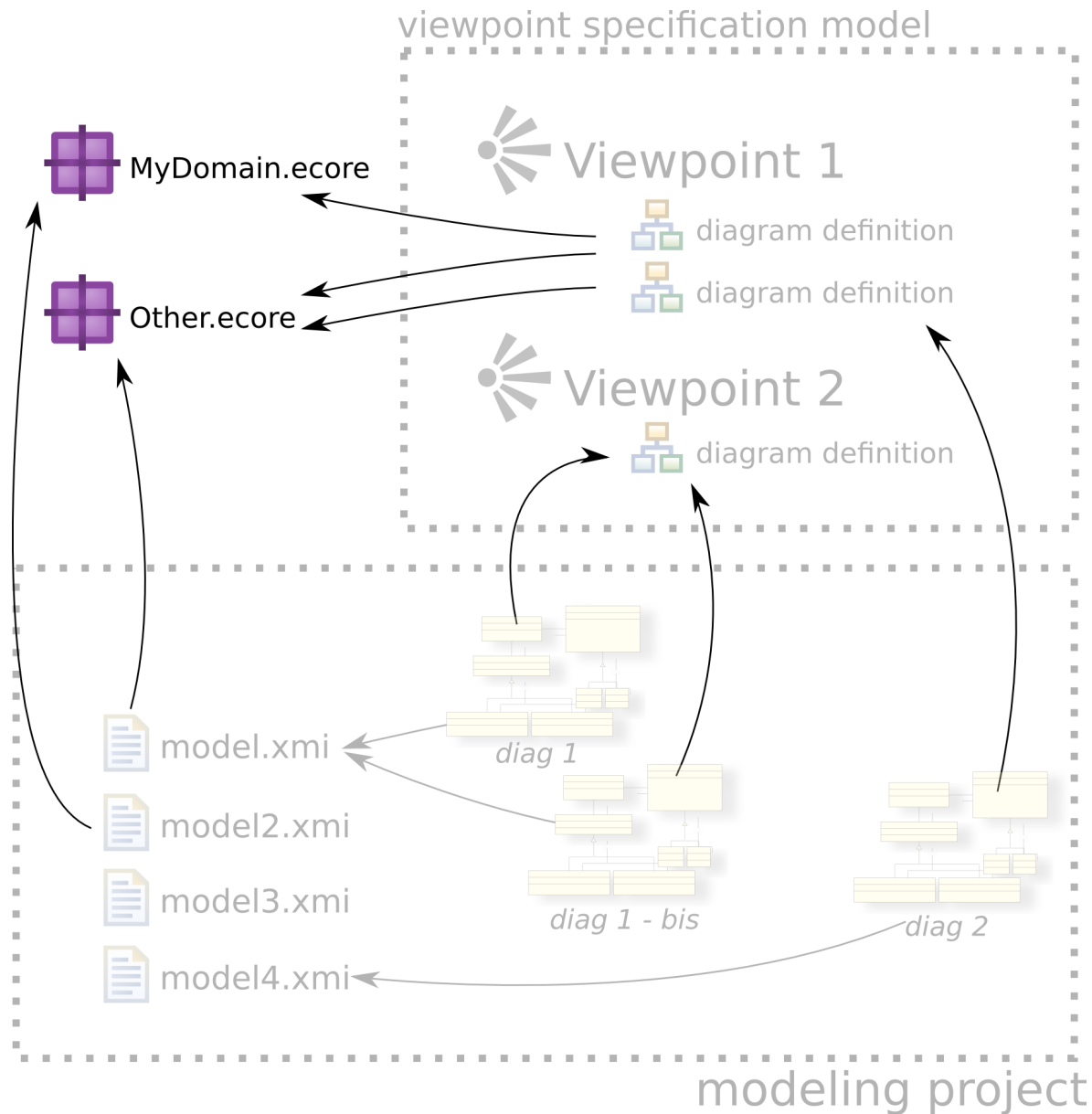
A deep space photograph of the Sirius constellation, also known as the Dog Star. The image shows a dense field of stars against a black background. The constellation's stars are arranged in a pattern that resembles a dog's head and neck. The text "Eclipse Sirius" is overlaid on the left side of the image in a white, sans-serif font. The word "Eclipse" is in a regular weight, while "Sirius" is in a bold weight. The background is filled with numerous stars of varying brightness and colors, including white, yellow, and blue. The overall composition is centered, with the constellation's main stars forming a diagonal line from the upper left to the lower right.

« *Sirius aims at providing specific multi-view workbenches through **diagram, table** or **tree** modeling editors.*

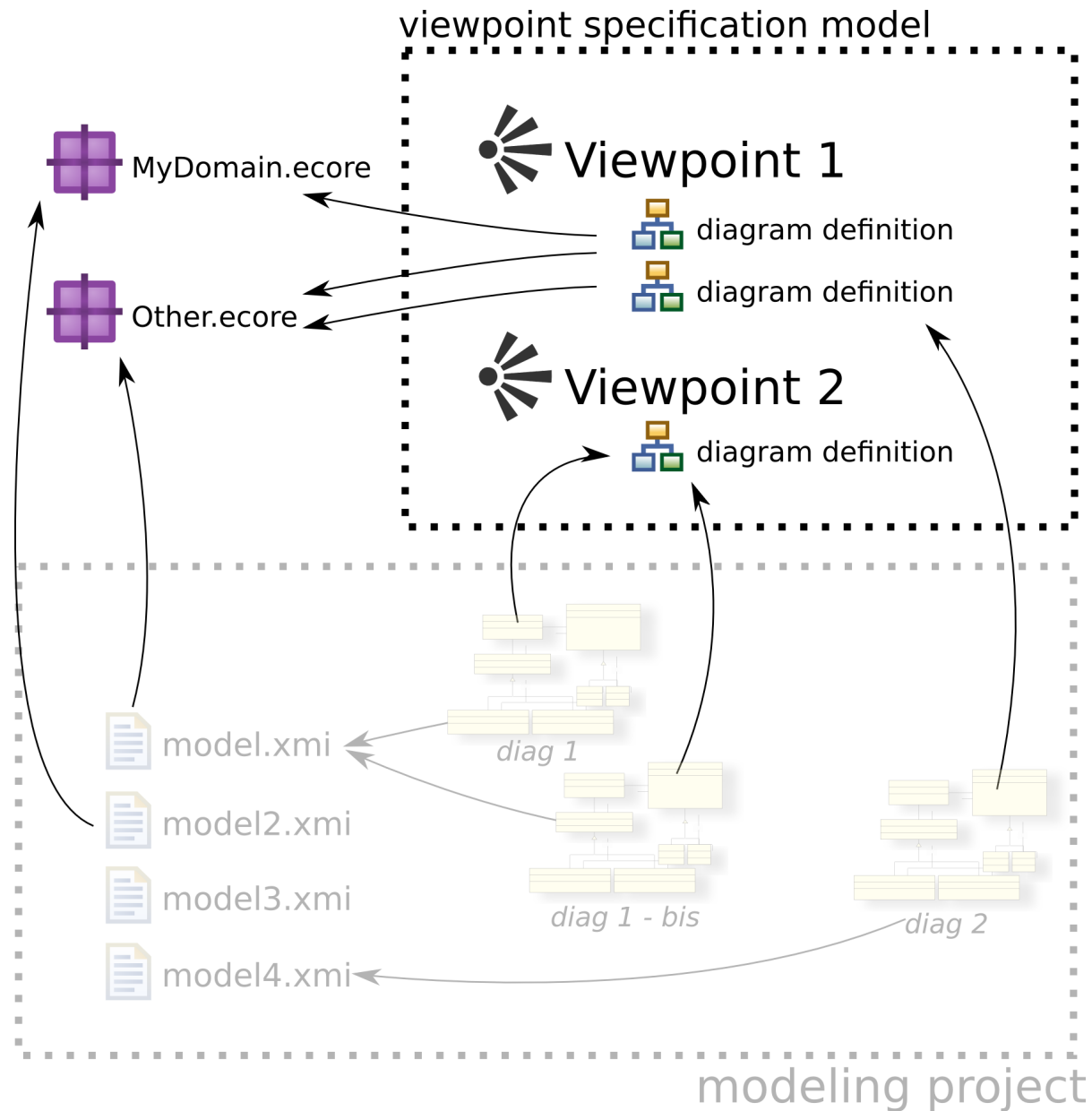
*Users can easily define **their own modeling workbench**, even with very little technical knowledge of Eclipse, while still being able to deeply customize it when needed. »*



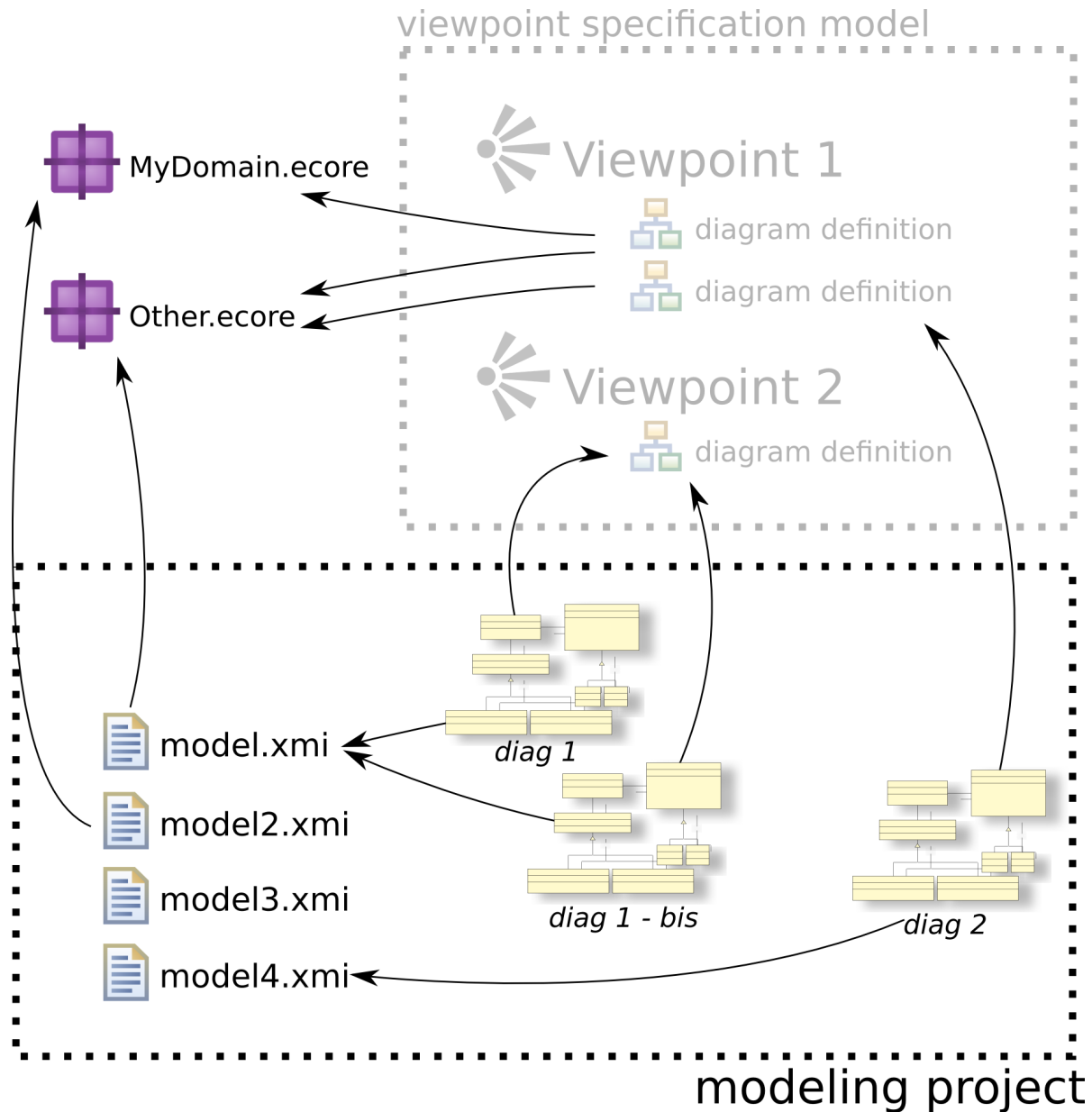
Sirius Principles



Sirius Principles



Sirius Principles



Textual + Graphical ?



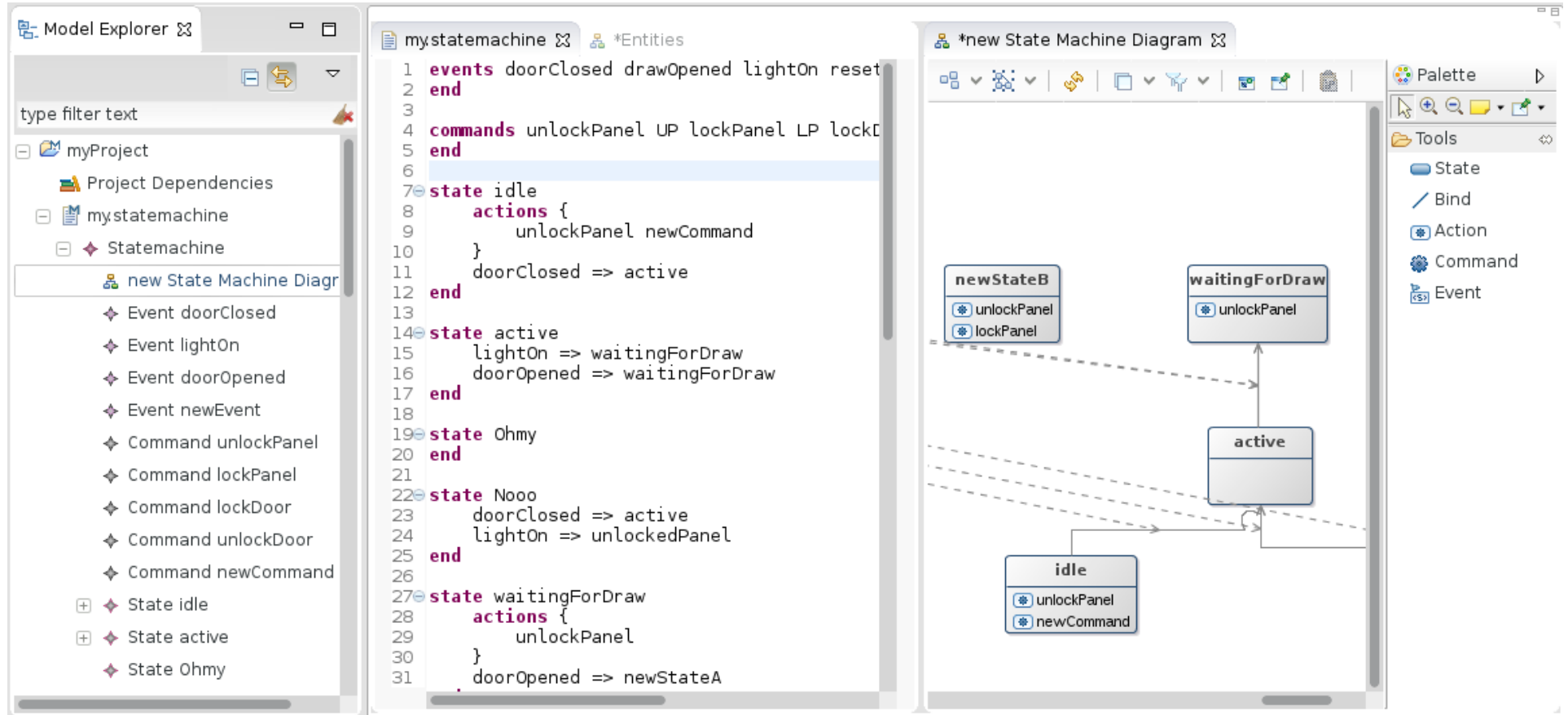
Text is better:

- at operations and sequence
- when combining (expressions)
- ...
- for some users

Diagram is better :

- relationships
- analyzing a design
- ...
- for some users

Two views of the same model

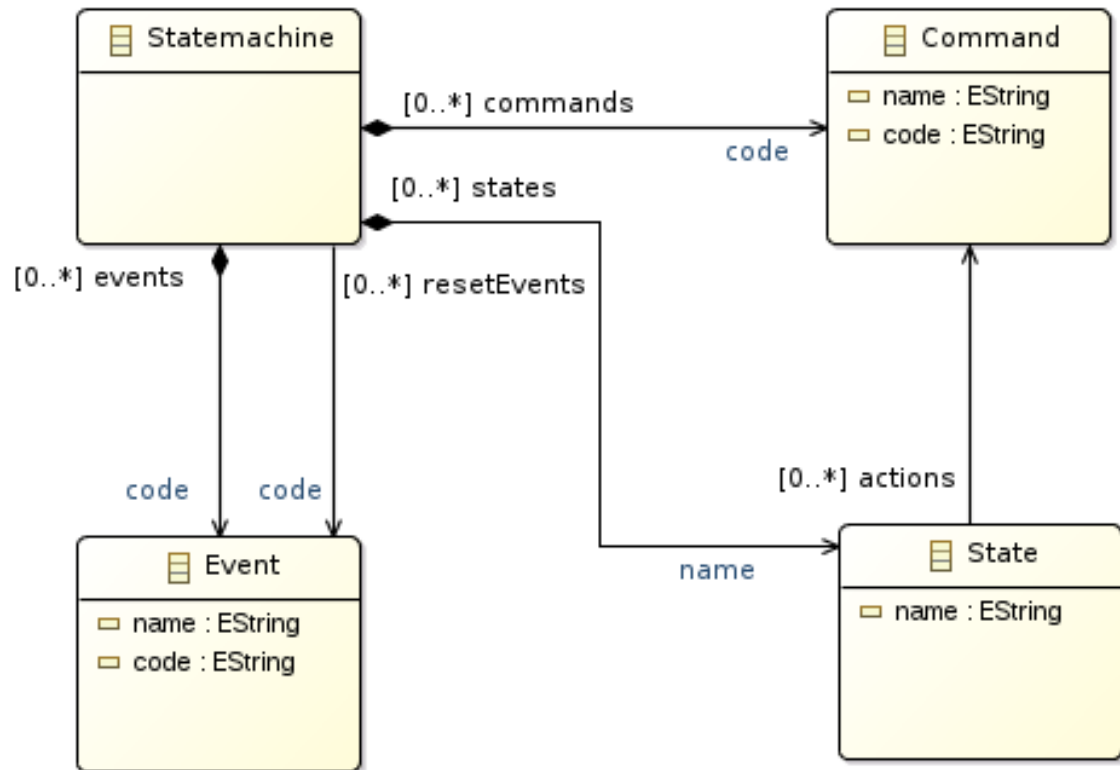


File/Workspace level integration

DSL syntax used as the serialization format

DSL AST used in the Sirius Editor

The StateMachine Demo



Xtext 2.6.0












Sirius 1.0.0 RC1

Eclipse Luna

<https://github.com/ObeoNetwork/Xtext-Sirius-integration>

How To ?

Sirius

<input type="checkbox"/> 	Sirius Core Runtime	1.0.0.201405260918
<input type="checkbox"/> 	Sirius Documentation	1.0.0.201405260918
<input type="checkbox"/> 	Sirius IDE Support for Acceleo	1.0.0.201405260918
<input type="checkbox"/> 	Sirius Integration with EEF	1.0.0.201405260918
<input type="checkbox"/> 	Sirius Integration with XText	1.0.0.201405260918
<input type="checkbox"/> 	Sirius Runtime IDE	1.0.0.201405260918
<input type="checkbox"/> 	Sirius Runtime Support for Acceleo 3	1.0.0.201405260918
<input type="checkbox"/> 	Sirius Runtime Support for OCL	1.0.0.201405260918
<input type="checkbox"/> 	Sirius Samples	1.0.0.201405260918
<input type="checkbox"/> 	Sirius Specification Editor Support for Acceleo	1.0.0.201405260918
<input type="checkbox"/> 	Sirius Specification Environment	1.0.0.201405260918

Caveats : the referencing

href="my.statemachine#//@states.4"

The screenshot shows a state machine editor interface. On the left, a tree view displays the state machine structure: 'statemachine' (root), 'Statemachine' (child), and 'states : State' (selected). The 'states' property is highlighted in blue. Below the tree, a 'Properties' panel is visible, showing a table of properties for the selected 'states' property. The table has two columns: 'Property' and 'Value'. The properties listed are: 'Changeable' (true), 'Container' (false), 'Containment' (true), 'Default Value Literal' (empty), 'Derived' (false), and 'EKeys' (name : EString).

Property	Value
Changeable	true
Container	false
Containment	true
Default Value Literal	
Derived	false
EKeys	name : EString

href="my.statemachine#//@states[name='active']"

Caveats : Am I serializable ?

The screenshot shows a state machine diagram editor with a central workspace and several toolbars. A 'Problem Occurred' dialog box is open in the center, displaying a red 'X' icon and the following text:

Save All Failed
ID may not be empty.
Semantic Object: Statemachine.commands[4]->Command'newCommand'

The dialog has 'OK' and '<< Details' buttons. Below the main text, there is a scrollable area containing the same error message.

The background workspace shows a state machine diagram with states: 'newStateB' (containing 'unlockPanel' and 'lockPanel' actions), 'waitingForI' (containing 'unlockPan' action), 'active', and 'idle' (containing 'unlockPan' action). A 'newCommand:' event is shown at the top. The left sidebar contains a 'Properties' tab and a 'Problems' tab. The bottom sidebar shows a 'Semantic' tab with a table of properties.

Property	Value
Statemachine	
Reset Events	

Caveats : **Am I serializable ?**



Provide graphical feedback ASAP

Tools should create serializable elements by default

Caveats : limitations being addressed



[430724] Sirius might Serialize a bit too much

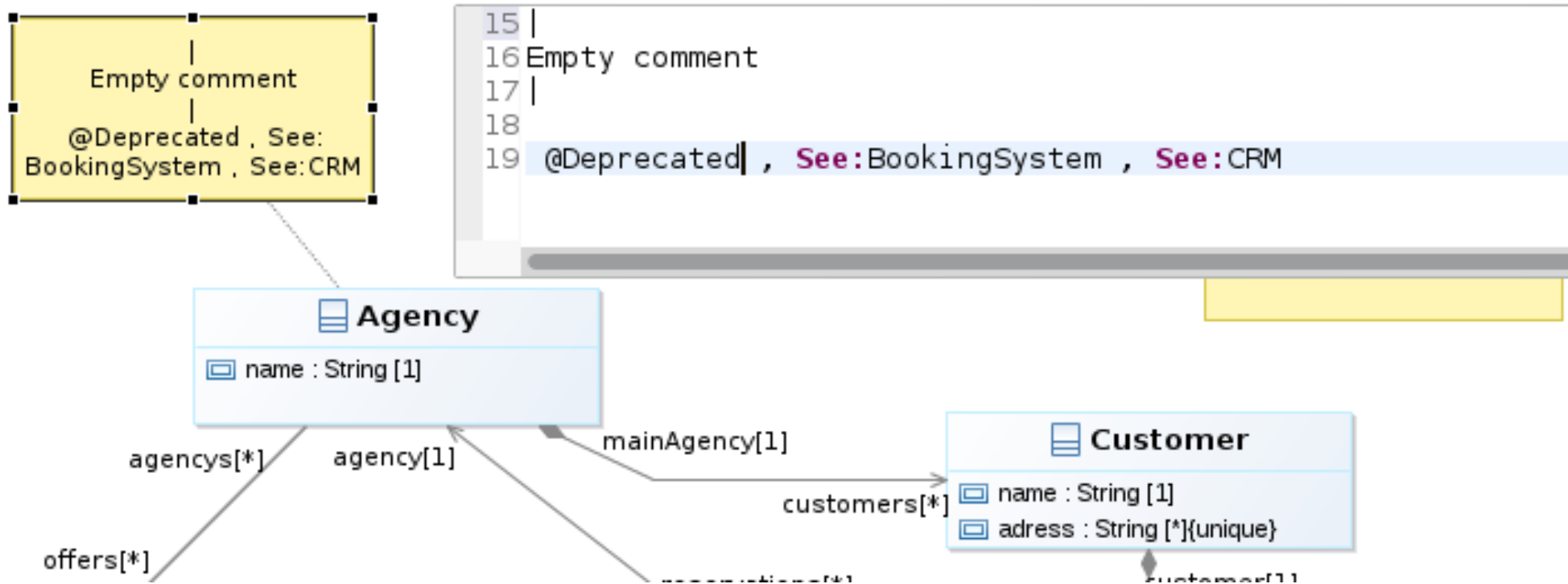
~~[432931] Xtext prevent Serialization with false positives~~

[..] DSL's with Xbase

Embedding



Embedding syntax in a diagram

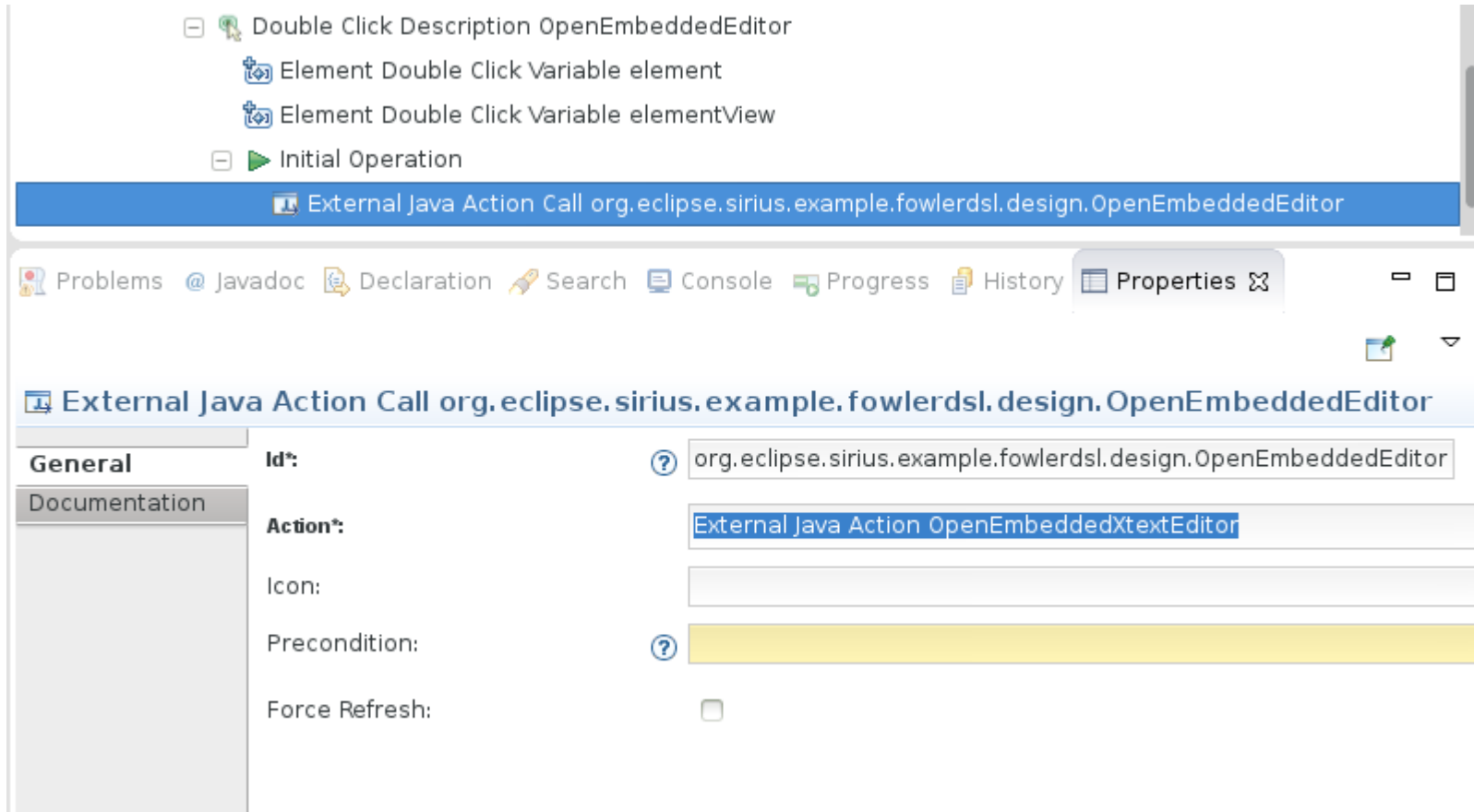


Embedding syntax in a diagram



```
71 state newState0
72   actions {
73     lockPanel |
74   }
75
76 end
```

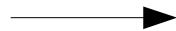
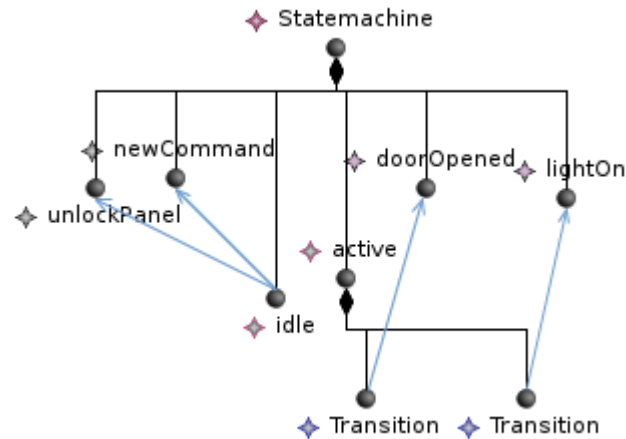

How To ?



Example and « base framework » here :

<https://github.com/ObeoNetwork/Xtext-viewpoint-integration>

Behind the Scene



```
commands unlockPanel UP lockPanel
end
```

```
state idle
  actions {
    unlockPanel newCommand
  }
  doorClosed => active
end
```

```
state active
  lightOn => waitingForDraw
  doorOpened => waitingForDraw
end
```

```
state Nooo
  doorClosed => active
  lightOn => unlockedPanel
end
```

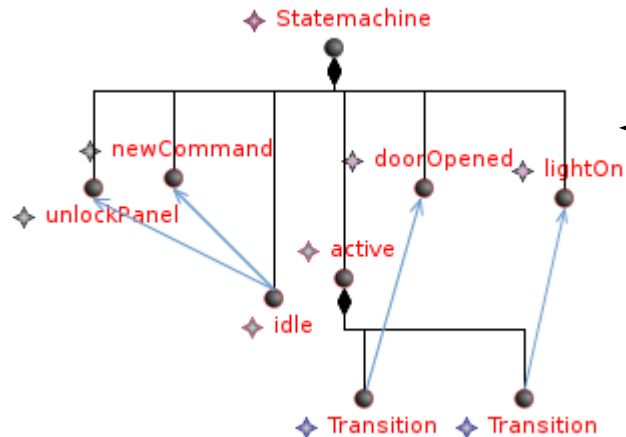
```
state waitingForDraw
  actions {
    unlockPanel
  }
  doorOpened => newStateA
end
```

```
state unlockedPanel
end
```



```
29 state waitingForDraw
30   actions {
31     unlockPanel
32   }
33   doorOpened => newStateA
34 end
35
```

Behind the Scene



```
commands unlockPanel UP lockPanel
end

state idle
  actions {
    unlockPanel newCommand
  }
  doorClosed => active
end

state active
  lightOn => waitingForDraw
  doorOpened => waitingForDraw
end

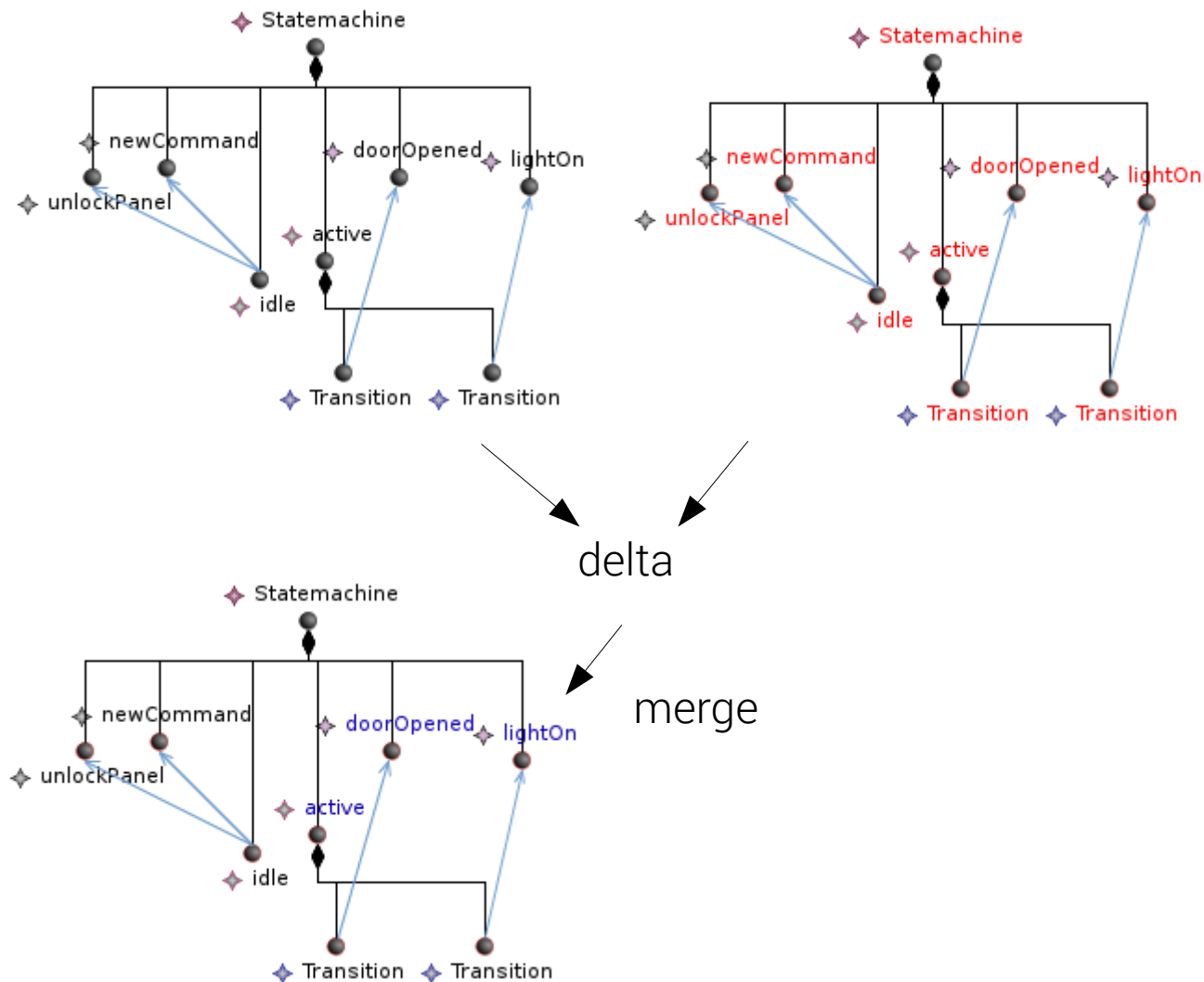
state Nooo
  doorClosed => active
  lightOn => unlockedPanel
end

state waitingForDraw
  actions {
    unlockPanel
  }
  doorOpened => newStateA
end

state unlockedPanel
end
```

```
29 state waitingForDraw
30   actions {
31     unlockPanel
32   }
33   doorOpened => newStateA
34   doorOpened => newStateA
35 end
```

Behind the Scene



Caveats : Merging

```
private void reconcile(Resource resourceInSirius,
    XtextResource resourceInEmbeddedEditor) {
    try {
        IComparisonScope scope = new DefaultComparisonScope(
            resourceInSirius, resourceInEmbeddedEditor, null);
        final Comparison comparison = EMFCompare.builder().build()
            .compare(scope);

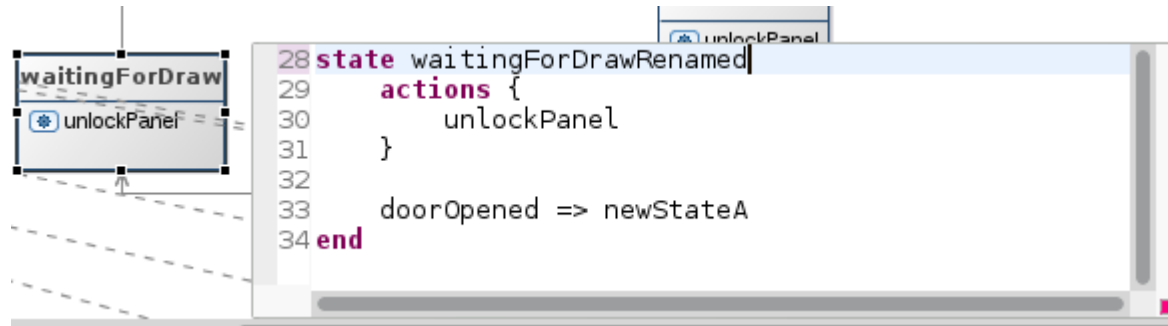
        IMerger.Registry mergerRegistry = EMFCompareRCPPlugin.getDefault()
            .getMergerRegistry();
        final IBatchMerger merger = new BatchMerger(mergerRegistry);

        final TransactionalEditingDomain editingDomain = TransactionUtil
            .getEditingDomain(originalResource);
        editingDomain.getCommandStack().execute(
            new RecordingCommand(editingDomain,
                "update resource after direct text edit") {

                @Override
                protected void doExecute() {
                    merger.copyAllRightToLeft(
                        comparison.getDifferences(),
                        new BasicMonitor());
                }
            });
    } catch (Exception e) {
        Activator.logError(e);
    }
}
```

Only as good as how the **content matching** perform
Bad matching : nodes are re-created in diagram

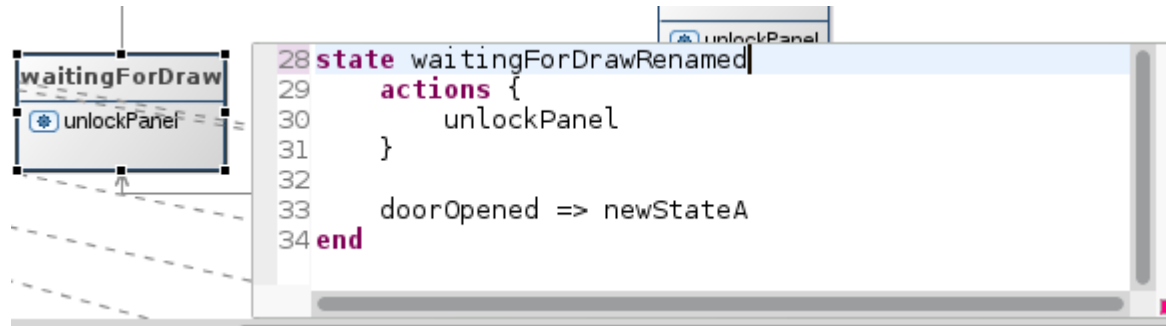
Caveats : Cross-References Consistency



Model is parseable but **not resolvable**

Either prevent it* or warn the user !

Caveats : Cross-References Consistency



Model is parseable but **not resolvable**

Either prevent it* or warn the user !

These caveats should be considered **upfront**, it either impact the user experience or your DSL itself

Takeaways



- Sirius is there and works with Xtext
- If you want to embed : think about what you expect
- Get involved : give feedback and or patches on the embedding layer

<https://github.com/ObeoNetwork/Xtext-Sirius-integration>

What Next ?



Eclipse Luna

- Sirius goes **1.0**
- Compartments (preview)
- API and Ecore model cleanup
- EcoreTools 2, UML Designer 4 are based on Sirius

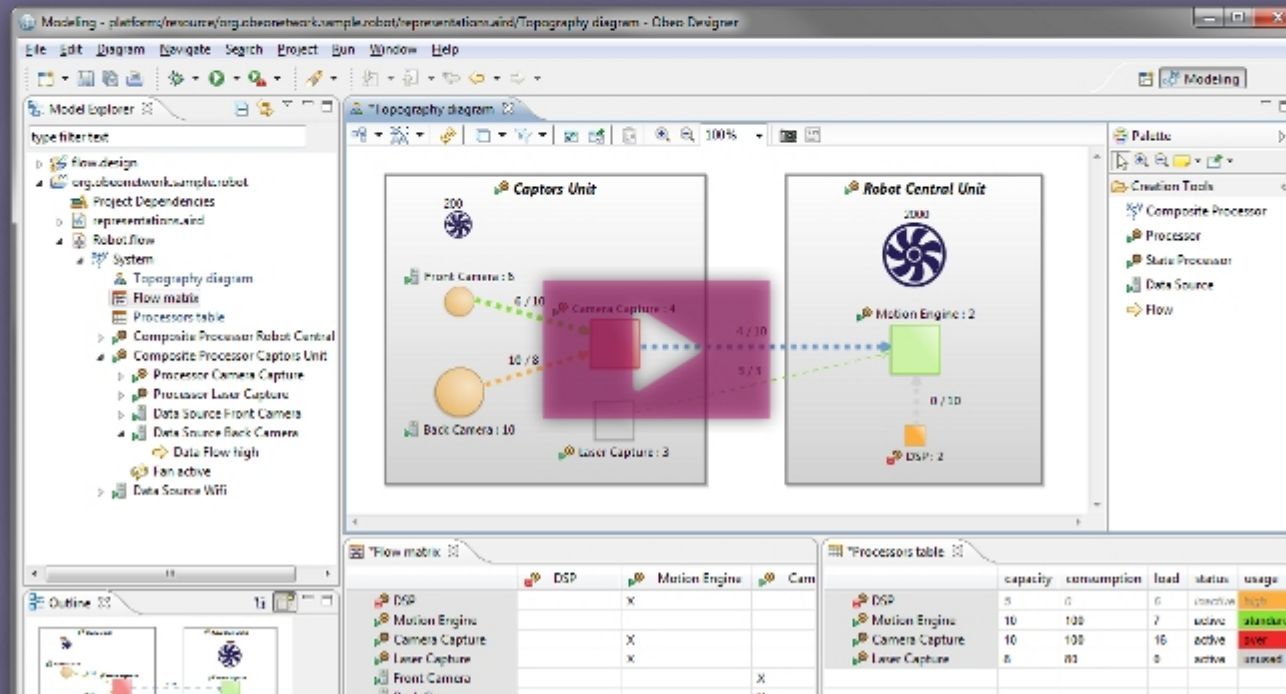
Sirius **2.0 (*)** :

- Runtime lazyness
- Compartments

() Model migrations are taken care of by Sirius*

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The easiest way to get your own modeling tool

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<http://www.eclipse.org/sirius/>