Software Design

Cloud Provisioning
Software Requirements and Analysis

Deliverable/Role	Team Leader	Minute Taker	Time Keeper
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Purpose of the Project

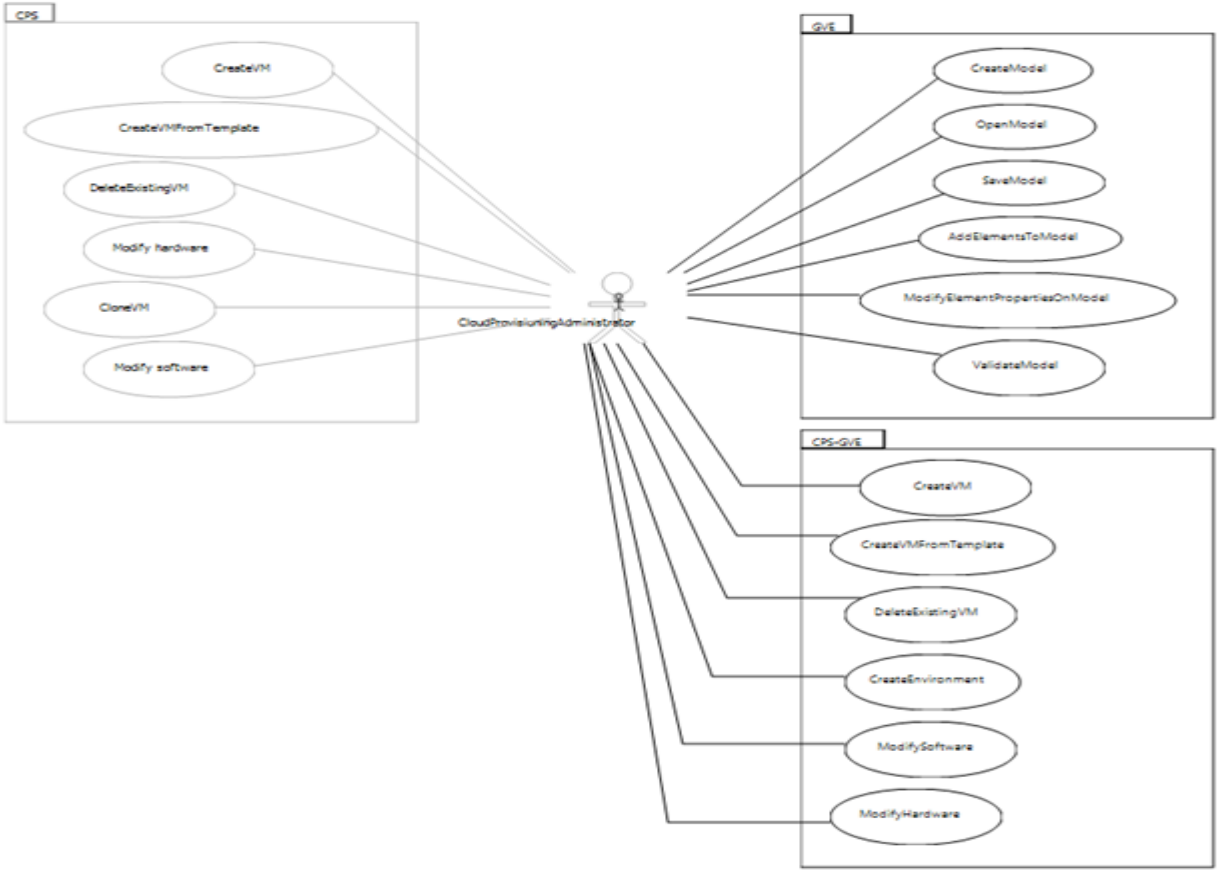
- Simplify the process of provisioning resources in the cloud by exploiting the expressive powers of models.

- Our Solution:
  - Doesn't require users to have an intimate knowledge of the domain details
  - Domain experts can easily provision resources in the cloud by simply creating a model that represents the configuration they would like to have in the cloud.
  - With one click this model will be interpreted, executed and deployed onto the cloud provider of choice.

Project Schedule

Task Name	Duration	Start	Finish	Pred
Cloud Provisioning System	**58 days**	**Fri 1/24/14**	**Tue 4/15/14**	
Deliverable 1	**18 days**	**Fri 1/24/14**	**Tue 2/18/14**	
System Requirements	**11 days**	**Fri 1/24/14**	**Fri 2/7/14**	
System Analysis	**6 days**	**Mon 2/10/14**	**Mon 2/17/14**	
Presentation	1 day	Tue 2/18/14	Tue 2/18/14	12
Deliverable 2	**20 days**	**Wed 2/19/14**	**Tue 3/18/14**	**2**
Software Architecture	**6 days**	**Wed 2/19/14**	**Wed 2/26/14**	
Object Design	**13 days**	**Thu 2/27/14**	**Mon 3/17/14**	
Presentation	1 day	Tue 3/18/14	Tue 3/18/14	23
Deliverable 3	**20 days**	**Wed 3/19/14**	**Tue 4/15/14**	**14**
Validation	**5 days**	**Wed 3/19/14**	**Tue 3/25/14**	
Implementation	14 days	Wed 3/26/14	Mon 4/14/14	30
Presentation	1 day	Tue 4/15/14	Tue 4/15/14	31

Use Case Diagram



System Requirements

Use case ID: T1-CPS-CreateVM

Details:

Actor: Cloud provisioning administrator

Pre-conditions:

1. The system has to be open.

Description:

1. Use case begins when the user select the “New VM” button.
2. The user selects the “Create User-Defined VM” option
3. The system prompts the user to enter the name of the VM.
4. The user click ‘OK” button
5. The system display all the properties that need to be set. (Hardware {CPU, RAM, Storage & Network} and Software {OS, Apps}).
6. The user confirms the configuration.
7. The system confirms the creation of the VM.

Post-conditions:

1. A new VM is created.

Decision Support

Frequency: On average 5 request by day is made by the user

Critically: High , allows the user to create a VM

Risk: High

Constraints

1. *Usability*
   a. Not enough knowledge of a Cloud Provisioning System.
   b. On average an user should take 2 minutes to create the new VM.
2. *Reliability:*
   a. 5% failures for every twenty four hours of operation is acceptable.
3. *Performance:*
   a. Request should be saved within 5 secs.
4. *Supportability:*
   a. The application will need to supported across all main platforms (PC, Mac, etc).

System Requirements

Create VM (Scenario: Create Small Windows VM)

Actors: Kurt, Cloud provisioning administrator

Pre-conditions: Kurt has opened the system.

Description:

1. The use case begins when Kurt selects the “New VM” button.
2. Kurt chooses to create a User-defined VM.
3. The system prompts Kurt to enter the name of the new VM.
4. Kurt enters “KurtVM001” and clicks OK.
5. The system list all the Hardware properties (CPU, RAM, Storage and Network) with their values.
6. Kurt chooses a 32-bit CPU, 1GB of storage, a medium level of network performance and 3.75 GB of RAM.
7. Kurt chooses Windows 7 as a OS and no applications are added.
8. Kurt save the configuration.
9. System prompts Kurt that KurtVM001 has been created.

Post-conditions:

1. KurtVM001 is created.

Create VM (Scenario: Create Large Windows VM)

Actors: Sean, Cloud provisioning administrator

Pre-conditions: Sean has opened the system

Description:

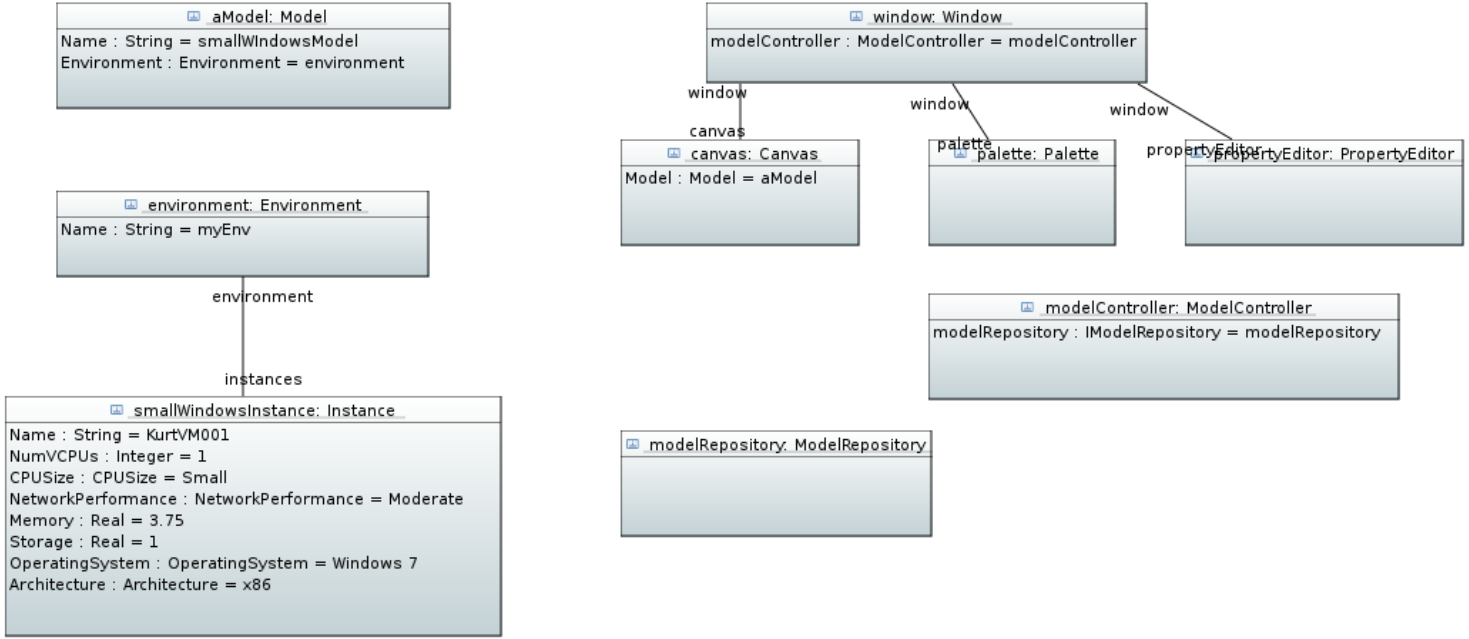
1. The use case begins when Sean selects the “New VM” button.
2. Sean chooses to create a User-defined VM.
3. The system prompts Sean to enter the Name of the new VM.
4. Sean enters “SQLWINVM01” and clicks OK.
5. The system list all the Hardware & Software properties that Sean can choose from.
6. Sean chooses 2 64-bit CPU, 32GB of storage, a medium level of network performance, 7.5 GB of RAM, Windows 7 as a OS and Microsoft SQL Server 2008.
7. Sean saves the configuration.
8. System alerts Sean that SQLWINVM01 has been created.
9. System alerts Sean that Microsoft SQL Server 2008 has been installed

Post-conditions:

1. The SQLWINVM01 is created.

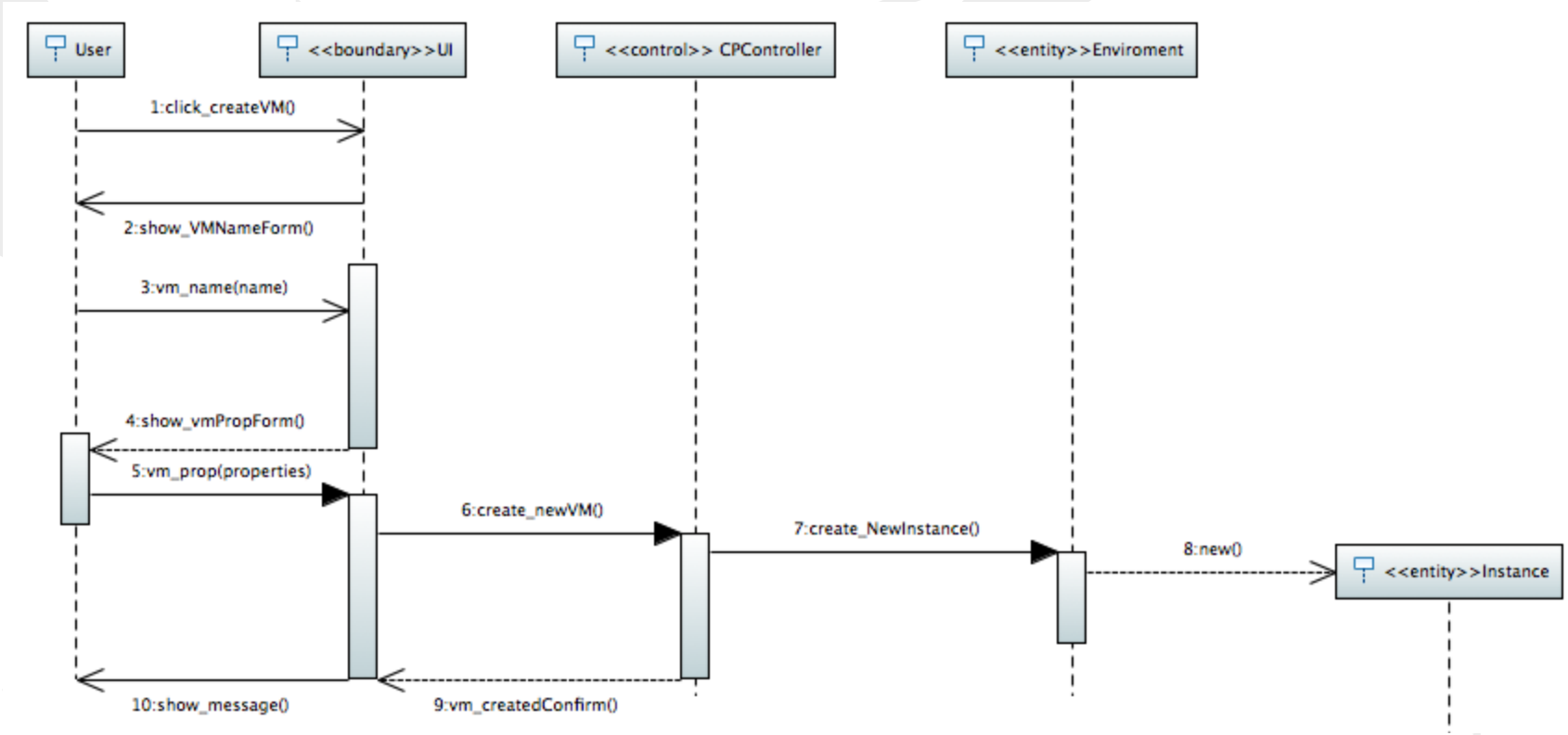
Object Diagram

Create VM (Scenario: Create Small Windows VM) Object Diagram



Sequence Diagram

Create VM



System Requirements

Use case ID: T1-CPS-CreateVMFromTemplate
Details:

Actor: Cloud provisioning administrator
Pre-conditions:
Description:

1. Use case begins when the user clicks the “Create VM from Template” button
2. The system responds by generating a list of all the templates available.
3. User clicks on any of the templates listed.
4. User accepts the selection.
5. The system responds by showing all the properties associated to the template selected by the user.
6. The user confirms the selection

Post-conditions:

1. A new VM is added to the model with all the specifications listed in the properties of the template chosen.

Decision Support

Frequency: On average 5 request by day is made by the user
Critically: High.
Risk: High.

Constraints

1. *Usability:*
   a. Not enough knowledge of a Cloud Provisioning System.
   b. On average an user should take 3 minutes to create the new VM based on the template.
2. *Reliability:*
   a. 5% failures for every twenty four hours of operation is acceptable.
   b. Performance:
   c. Request should be sent and saved within 5 secs.
3. *Supportability:*
   a. The application will need to supported across all main platforms (PC, Mac, etc).

System Requirements

Create VM from Template (Scenario:Create VM From Linux-64-2-32.7.5-H Template)

Actors: Jean, Cloud provisioning administrator

Pre-conditions:

Description:

1. The use case begins when Jean clicks the “New VM” button.
2. Jean chooses to create the VM from a template.
3. The system prompts Jean to set the Name for the new VM.
4. Jean sets JeanVM123 as the Name
5. The system lists all the templates available.
6. Jean chooses the Linux-64-2-32.7.5-H template
7. The system prompts Jean to confirm the selection of the template.
8. The system creates the VM with the name jeanVM123 and the properties related to the template.

Post-conditions:

1. jeanVM123 is created is created and properly stored.

Create VM (Scenario:Create VM From Windows-64-8-68.8-H Template)

Actors: Susan, Cloud provisioning administrator

Pre-conditions:

Description:

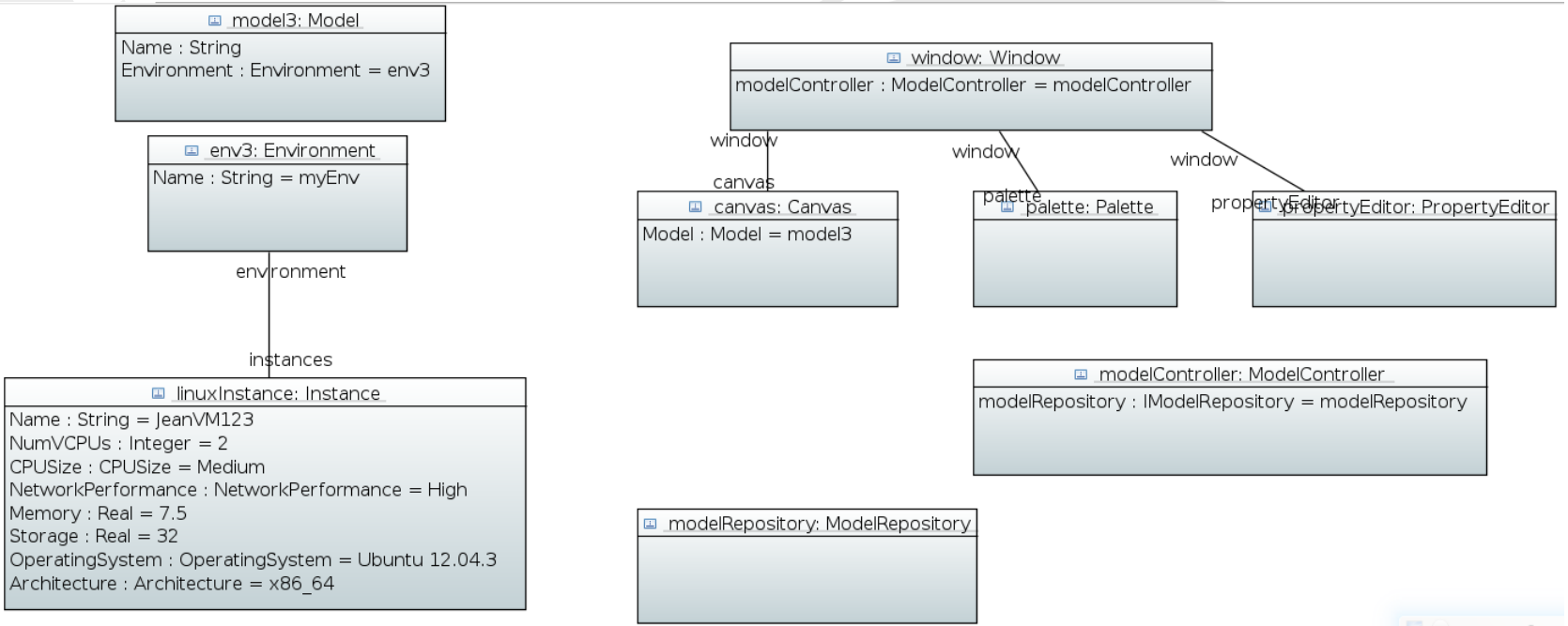
1. The use case begins when Susan clicks the “New VM” button
2. Jean chooses to create the VM from a template.
3. The system prompts Susan to set the Name for the new VM.
4. Susan sets LabVM001 as the Name
5. The system lists all the templates available.
6. Susan chooses the Windows-64-8-68.8-H template
7. The system prompts Susan to confirm the selection of the template.
8. The system creates the VM with the Name “LabVM001” and the properties related to the template.

Post-conditions:

“LabVM001” is created and properly stored.

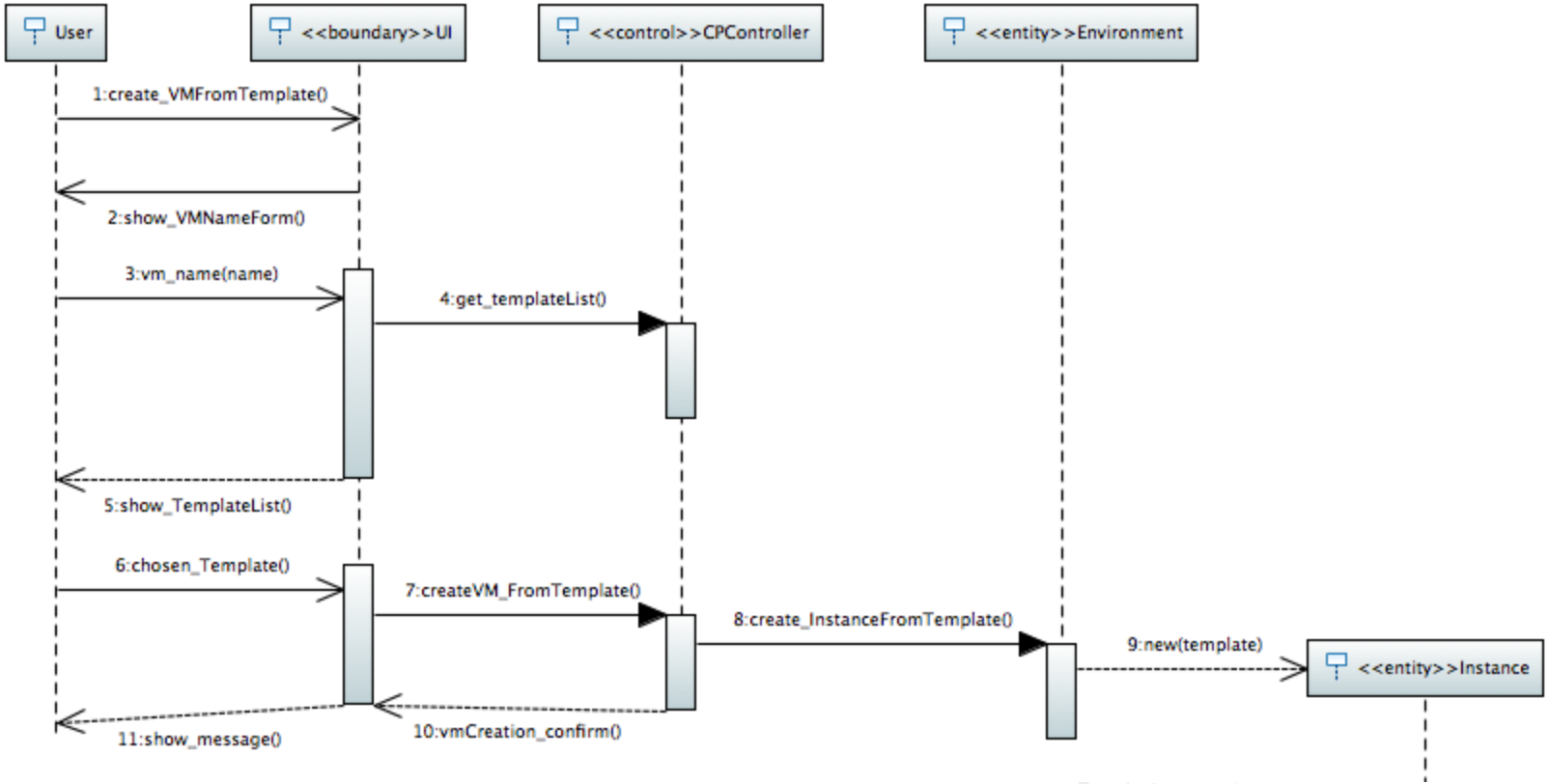
Object Diagram

Create VM from Template (Scenario:Create VM From Linux-64-2-32.7.5-H Template) Object Diagram



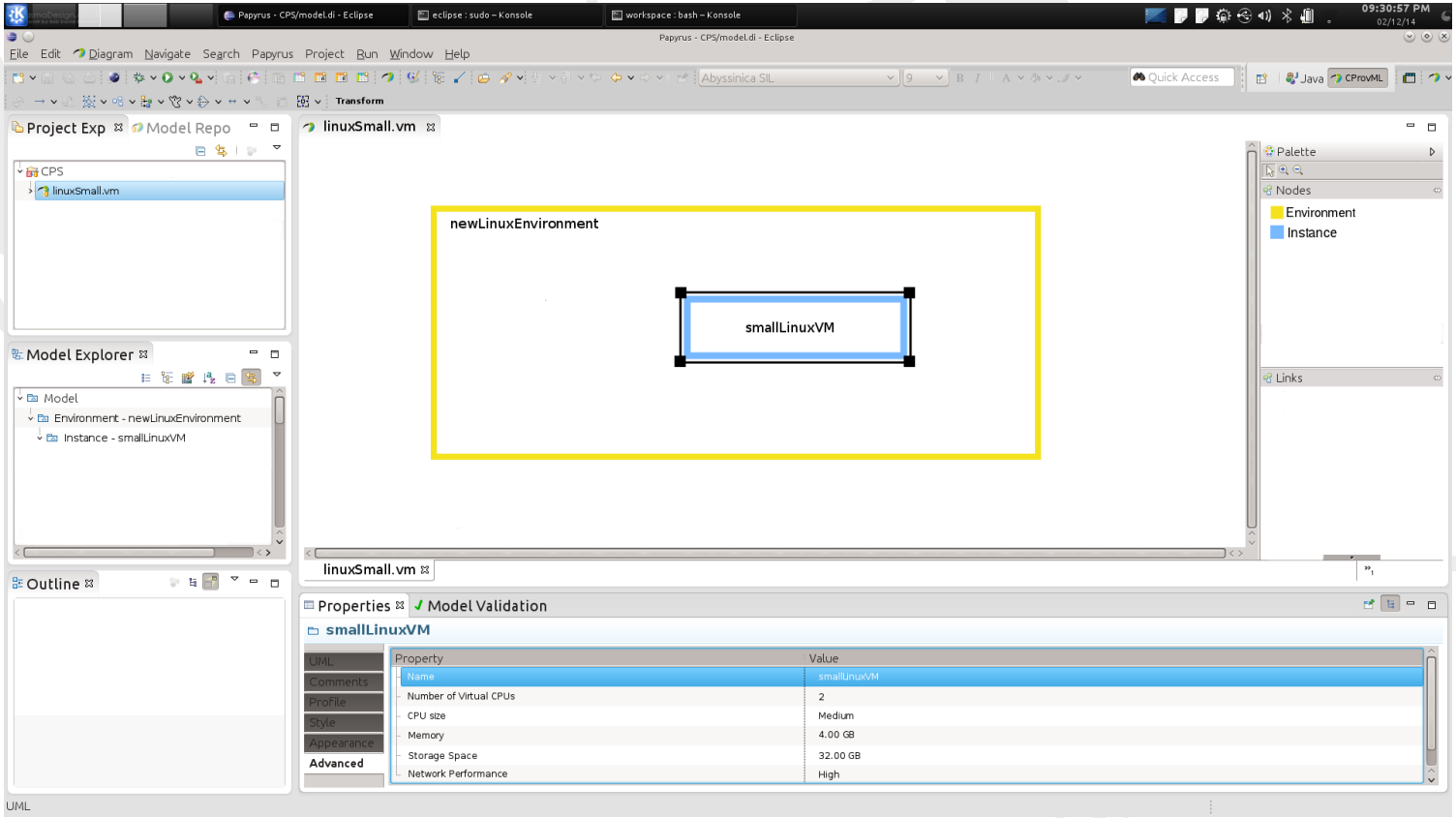
Sequence Diagram

Create VM from Template



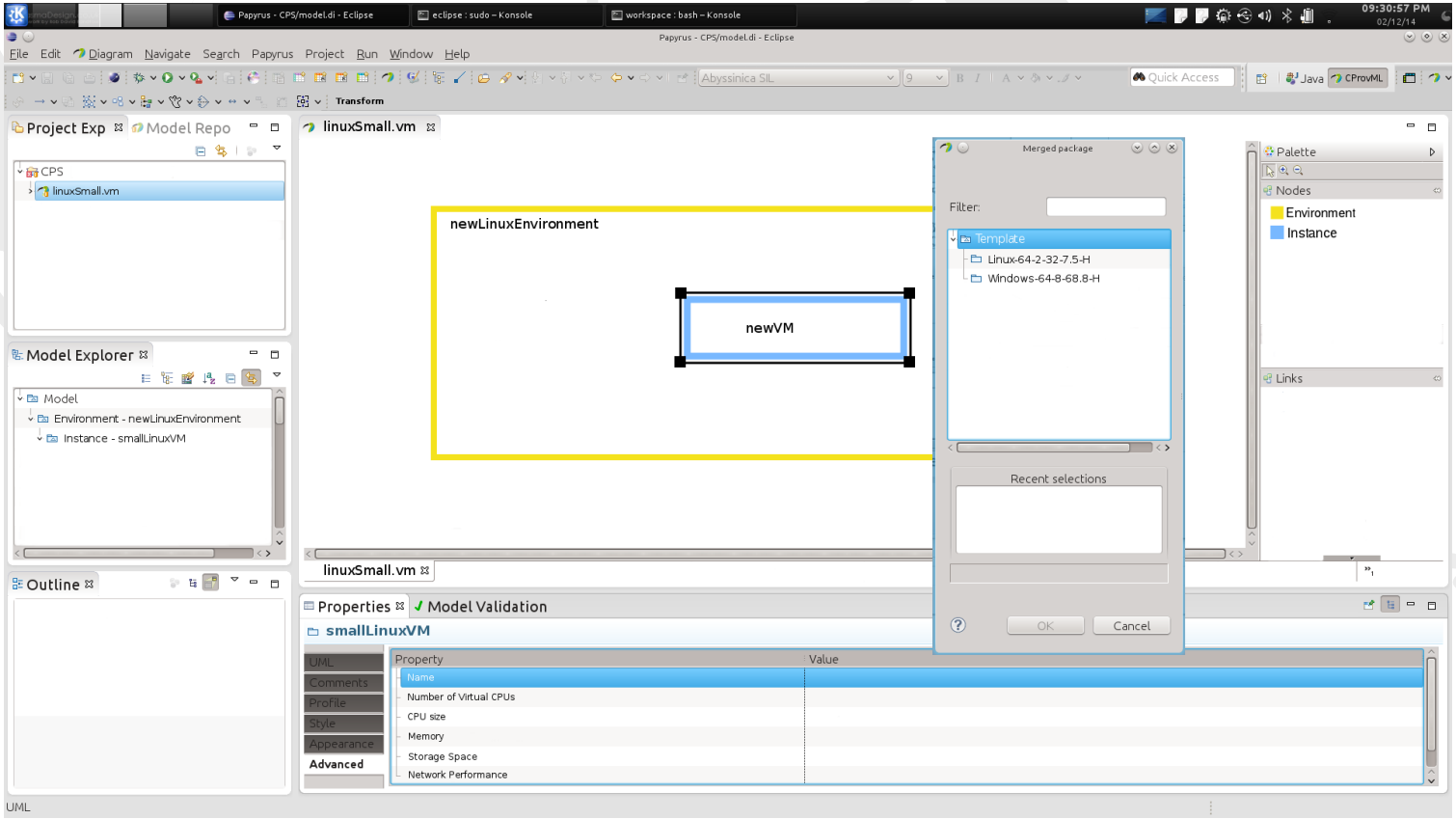
User Interface

Create VM



User Interface

Create VM from Template



Questions?