



703128 PS/2 Web Services

Remote Method Invocation (RMI)

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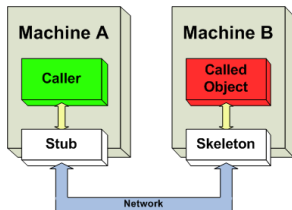
Outline

- Java RMI
 - Overview
 - Distributed Object Application
 - Designing Application Components
- Exercises
- Project Preparation

Java RMI

Overview

- Java Remote Method Invocation (Java RMI) is a Java API that performs remote method invocation¹
- Allows objects to access data and invoke methods on remote objects (objects residing in non-local memory space)



- In RMI, a stub is defined by the programmer as an interface
- Java 2 SDK, Standard Edition, v1.2 removed the need for a skeleton

¹ https://en.wikipedia.org/wiki/Java_remote_method_invocation

Java RMI (1)

Distributed object applications need to do the following²:

1. Locate remote objects

- RMI's simple naming facility, the RMI registry
- Pass and return remote object references as part of other remote invocations

2. Communicate with remote objects

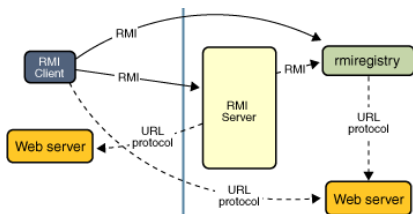
- Details handled by RMI. To the programmer, remote communication looks similar to regular Java method invocations

3. Load class definitions for objects that are passed around

- Mechanisms for loading an object's class definitions as well as for transmitting an object's data

² <http://docs.oracle.com/javase/tutorial/rmi/overview.html>

Java RMI (2)



- The server calls the registry to associate (or bind) a name with a remote object
- The client looks up the remote object by its name in the server's registry and then invokes a method on it

Java RMI (3)

Creating distributed applications:

1. Defining the remote interfaces

- specifies **the methods that can be invoked** remotely by a client
- includes the types of objects that will be used as the **parameters** and **return values** for these methods

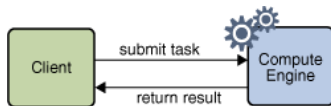
2. Implementing the remote objects

- remote objects must implement one or more remote interfaces
- the remote object class may include implementations of other interfaces and local methods
- implement any local classes are to be used for parameters or return values (if any)

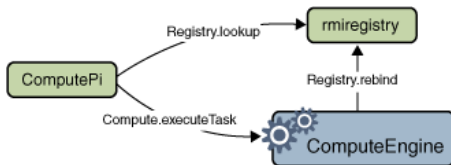
3. Implementing the clients

Java RMI (4)

Remote Interface:



Client:



Exercises

Task

Assignment:

1. Download the worksheet from the course webpage
2. Complete the exercises in the worksheet
3. Upload it to the OLAT before the next two sessions

Project Preparation

Your task until 2017-10-27:

1. Finalize your team members
2. Prepare a Project Idea Report
 - Download the project idea worksheet from the course webpage
 - Fill in the worksheet
 - Upload it to the OLAT before the next session (2017-10-27)
3. Prepare Project Idea Presentation Slides
 - Content:
 - i) Introduce your team
 - ii) Describe your idea and motivation behind it
 - iii) List and describe services you plan to be integrated
 - iv) List and describe technologies you plan to use in your project
 - Present it in the next session (2017-10-27)

Thank You