Project Descriptions

In this exercise you will have to create a Cloud marketplace service. The marketplace shall enable the management of virtual machine templates and shall be able to communicate with a Cloud environment. The market shall distinguish between virtual machines and virtual appliances. The service shall be implemented as Web Service (WSDL/SOAP) or shall follow the REST principles.

Each item shall have a meaningful description including at least the following items:

- Operating System Type
- Operating System Name
- Operating System Version
- Size
- Supported Virtualization Platforms
- Recommended #CPU and Memory

Virtual appliances have at least the following additional description:

- Application Type (e.g. WebServer, ExecutionHost,...)
- List of Installed Software
- Supported programming languages

The Marketplace Service shall implement the following functionalities:

- Upload a new virtual machine (can be dummy)
- Upload a new virtual appliance (can be dummy)
- Change the description of a virtual machine/appliance
- Download a virtual machine/appliance (can be dummy)
- Rate and comment a virtual machine template
- Search for templates with a specific parameter
  - At least two parameters have to be supported (e.g. Operating System Type, Software Name, ...)
- List virtual machine/appliance
- Start/Stop Instance

Define a suitable format for the description of a virtual machine/appliance and the exchange messages.

Your service shall provide access to at least 2 different virtual machines or virtual appliances. The service shall be able to access a Cloud environment. You can use your Cloud installation from the IaaS example/jCloud API/Amazon EC2 – be creative!

Client Side Implementation

Implement a graphical client program (Web Client or Desktop Client) allowing access to the Cloud marketplace service. The client shall enable the utilization of all provided functionalities using a nice GUI (see above description of capabilities).

Documentation and Presentation

The documentation shall include the following points:

- Software Design (Class diagram)
- Description of Virtual Machines and Virtual Appliances
- Interface description
  - Client Side: Description of Service Invocation
  - Message Patterns
- Describe your thoughts about pros/cons of WebServices versus REST. Explain your decision for one technology stack.

The presentation shall cover the following points:

- Problem statement (1-2 slides) – Used technologies, Cloud tool, …
- Implementation Details (~4 slides)
- The Interface Design (~2 slides)
- Message Patterns with example messages (~2 slides)
- Discussion, Problems, and Lessons Learned (2-3 slides)
- Live Demo

Implementation

Find a team of 3 persons.

Implement the Cloud market service as WSDL service or REST service

Implement a WPF or Web client enabling access to your services

Assessment

Implementation: 11 Points

Documentation: 5 Points

- Software Design (Class diagram) (2 Points)
- Description of Virtual Machines and Virtual Appliances (1 Point)
- Interface description (2 Points)

Presentations: 4 Points

Deadline: 9.1.2014