A unified resource model for NextGRID

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UDAP – An introduction

- Facilitate interactions between service provider and service consumer
- Decouple provider and consumer
- Model: Allow arbitrary resource (request) descriptions to be used with UDAP
- Architecture: Use additional component acting as intermediary

UDAP message contents (selected)

- Resource
  - Type
  - ResourceDescription
  - ResourceDescriptionDialect
  - StartTime
  - DeltaTime
- Activity
  - Type
  - ActivityDescription
  - ActivityDescriptionDialect
  - ResourceRef
- Rule
  - RuleDescription
  - RuleDescriptionDialect
  - ResourceRef

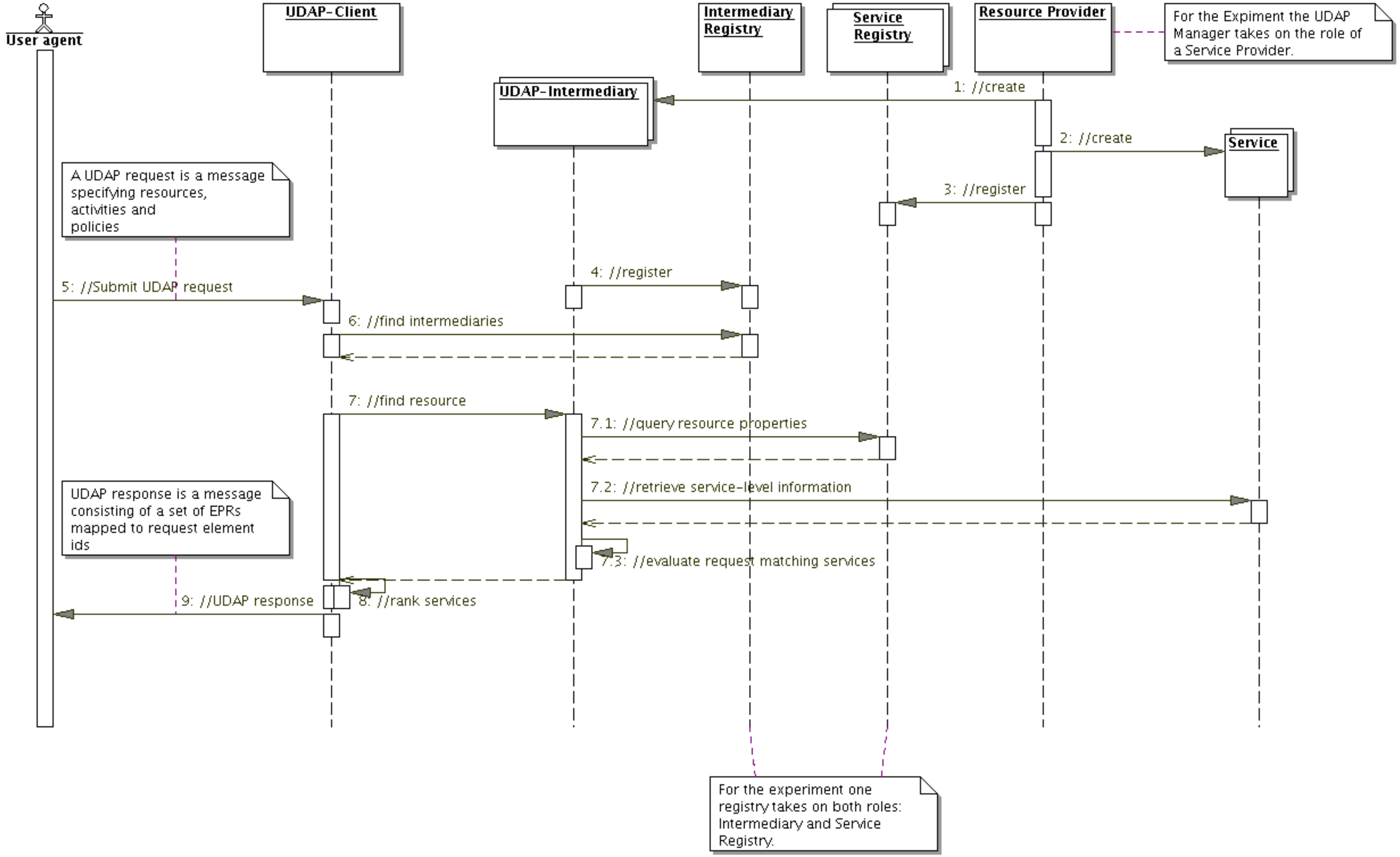
Simple example: “Run Gaussian on a Power PC”

```
<udap:UDAPRequest xmlns:udap="http://nextgrid.org/2005/06/udap>

    <udap:Resource>
        <udap:Id>1</udap:Id>
        <udap:Type>ComputeResource</udap:Type>
        <udap:ResourceDescription  Dialect="http://schemas.ggf.org/jsdl/2005/11/jsdl">
            <jsdl:Resources xmlns:jsdl="http://schemas.ggf.org/jsdl/2005/11/jsdl">
             <jsdl:CPUArchitecture>
               <jsdl:CPUArchitectureName>powerpc</jsdl:CPUArchitectureName>
             </jsdl:CPUArchitecture>
            </jsdl:Resources>
         </udap:ResourceDescription>
    </udap:Resource>

    <udap:Activity>
        <udap:Id>2</udap:Id>
        <udap:Type>Application</udap:Type>
        <udap:ActivityDescription Dialect="http://schemas.ggf.org/jsdl/2005/11/jsdl">
          <jsdl:Application xmlns:jsdl="http://schemas.ggf.org/jsdl/2005/11/jsdl">
            <jsdl:ApplicationName>Gaussian</jsdl:ApplicationName>
            <jsdl:ApplicationVersion>3.4</jsdl:ApplicationVersion>
         </jsdl:Application>
       </udap:ActivityDescription>
       <udap:RequestRef>1</udap:RequestRef>
    </udap:Activity>
</udap:UDAPRequest>
```

Service discovery use case



Interface to scheduler

- Operations needed?
  - Submit scheduling problem
  - Receive scheduling decisions
  - …
- Scheduling problem representation
  - List of capabilities of potential resources
  - SLAs
  - …
- Important: Status of the scheduling process has to be obtained

NextGRID