



Creating Virtual Worlds With COVISE

Lecture 6: Collaborative Applications

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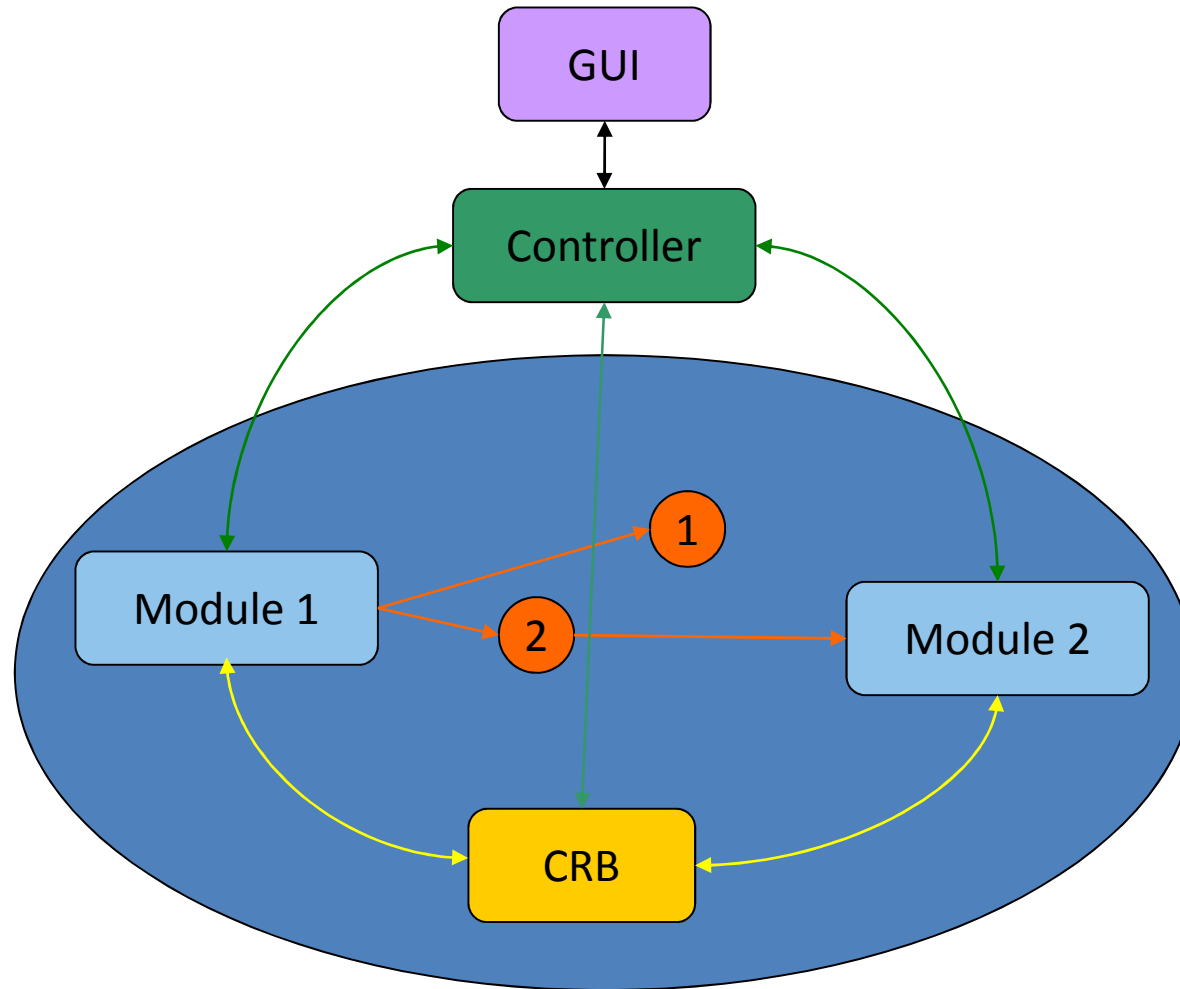
Course Overview

- Lecture 1: COVISE Overview
- Lecture 2: Map Editor and Modules
- Lecture 3: OpenCOVER and Plugins
- Lecture 4: OpenSceneGraph
- Lecture 5: User Interaction
- **Lecture 6: Collaborative Applications**

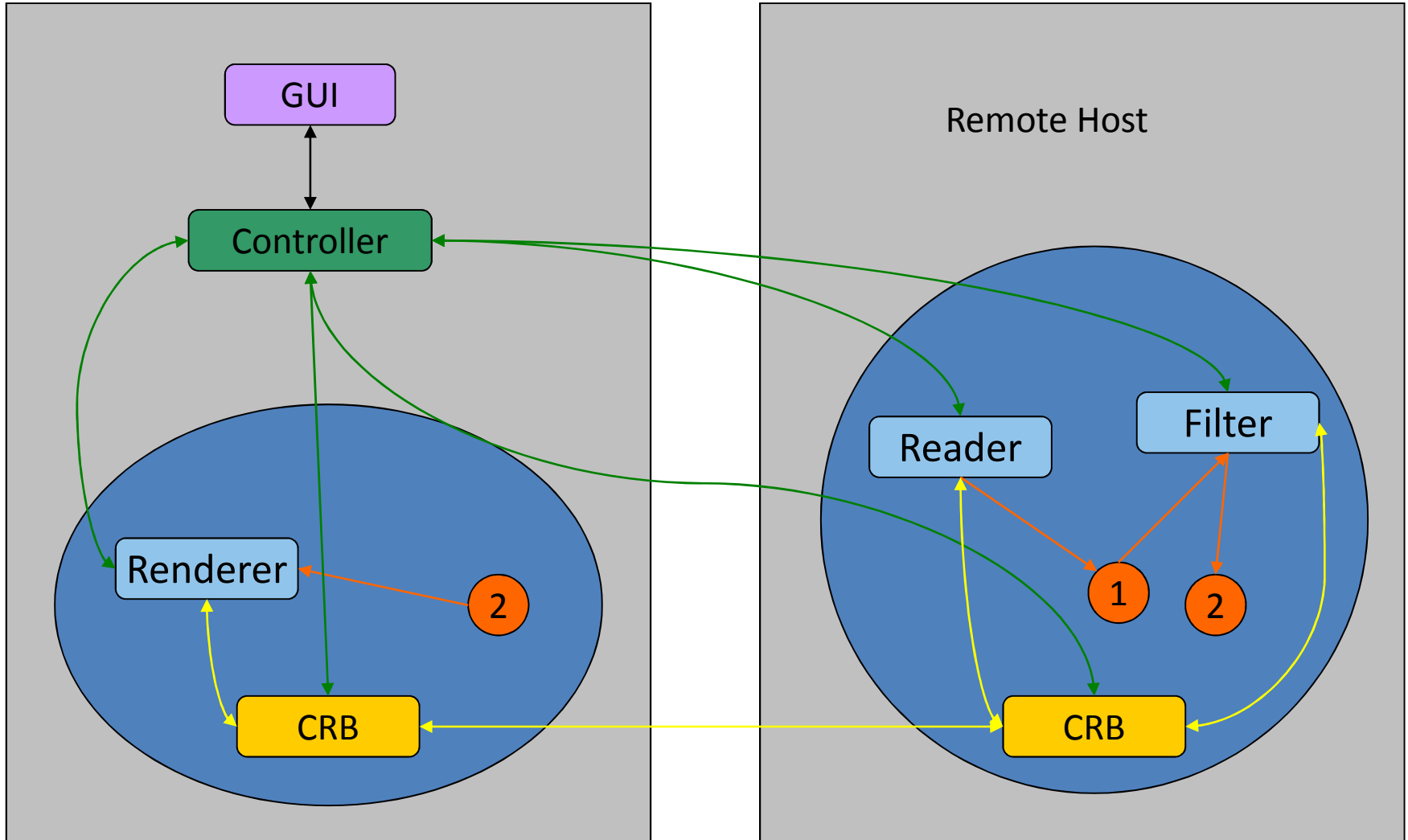
Distributed Maps

1. Use modules running on other systems
2. Advantages:
 - Usage of modules not available on local machine
 - Better utilization of CPU resources
 - Usage of more powerful machines
 - Parallelization
 - VR renderer on dedicated graphics system

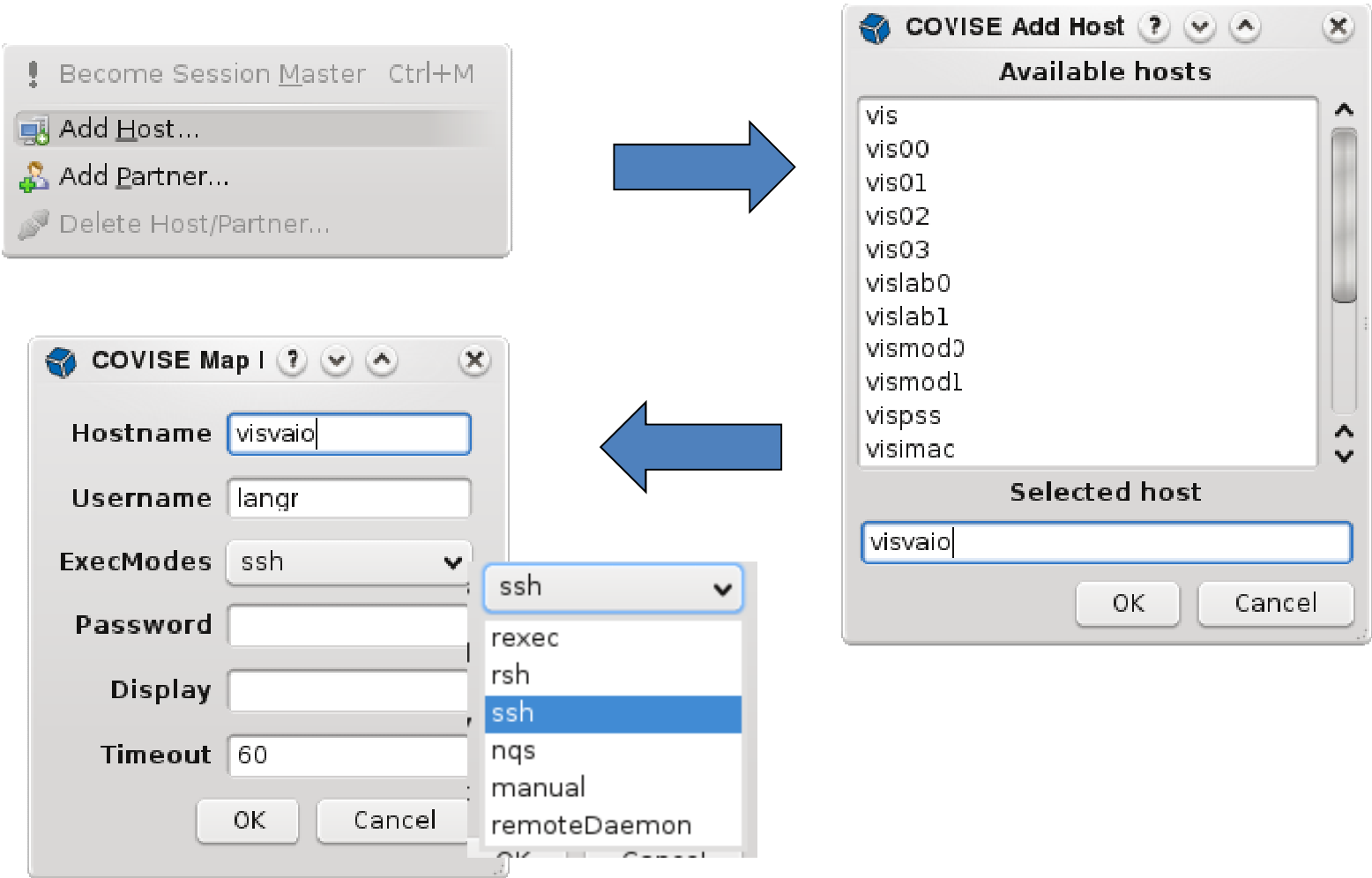
Local Session



Distributed Session



Distributed Session: Add Host

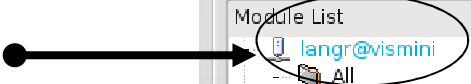


Execution Modes

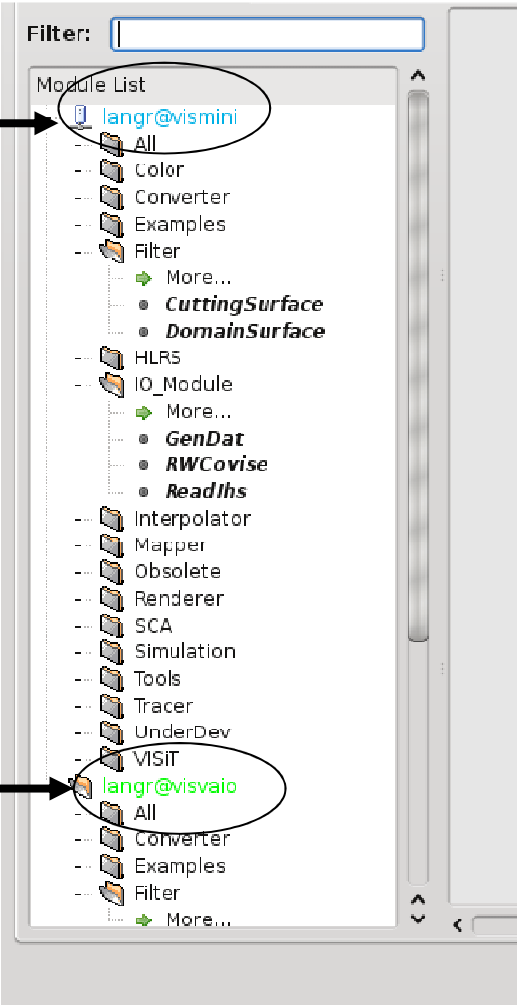
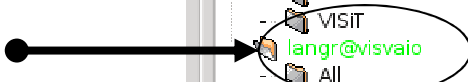
- rexec (deprecated)
 - Requires user name and password, similar to telnet
- rsh
 - Only password required
- ssh
 - Requires password
- nqs
 - NEC Queing System
- RemoteDaemon
 - Requires a running „RemoteDaemon“ on the remote host
- manual
 - CRB on remote host has to be started by hand. Required command line is displayed in the message window. Example: *crb 31005 134.95.115.197 1005*
 - Useful with fire wall issues or when no suitable account exists on remote host

Distributed Session: Add Host

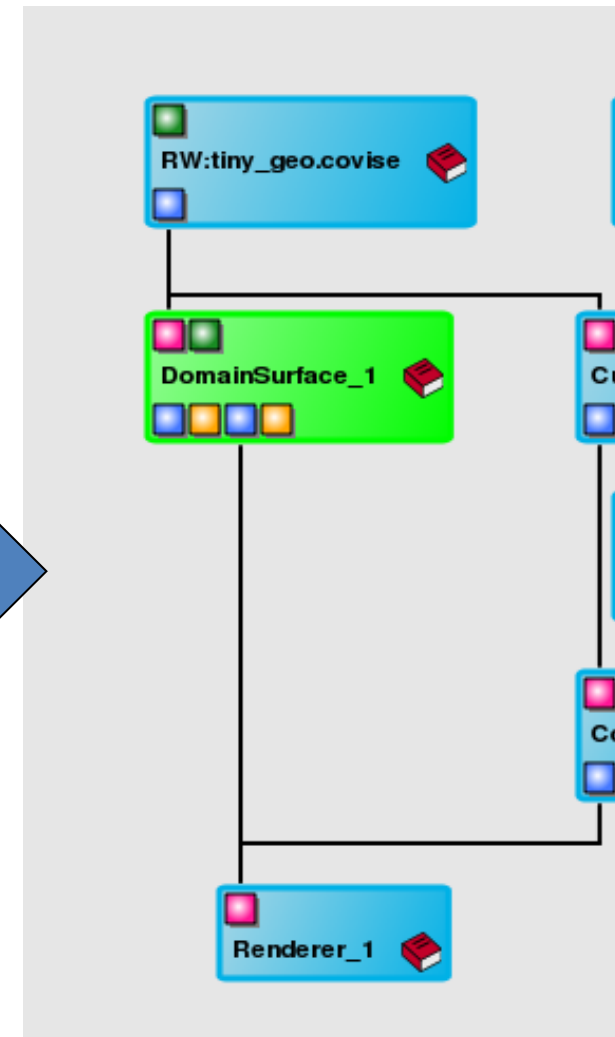
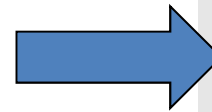
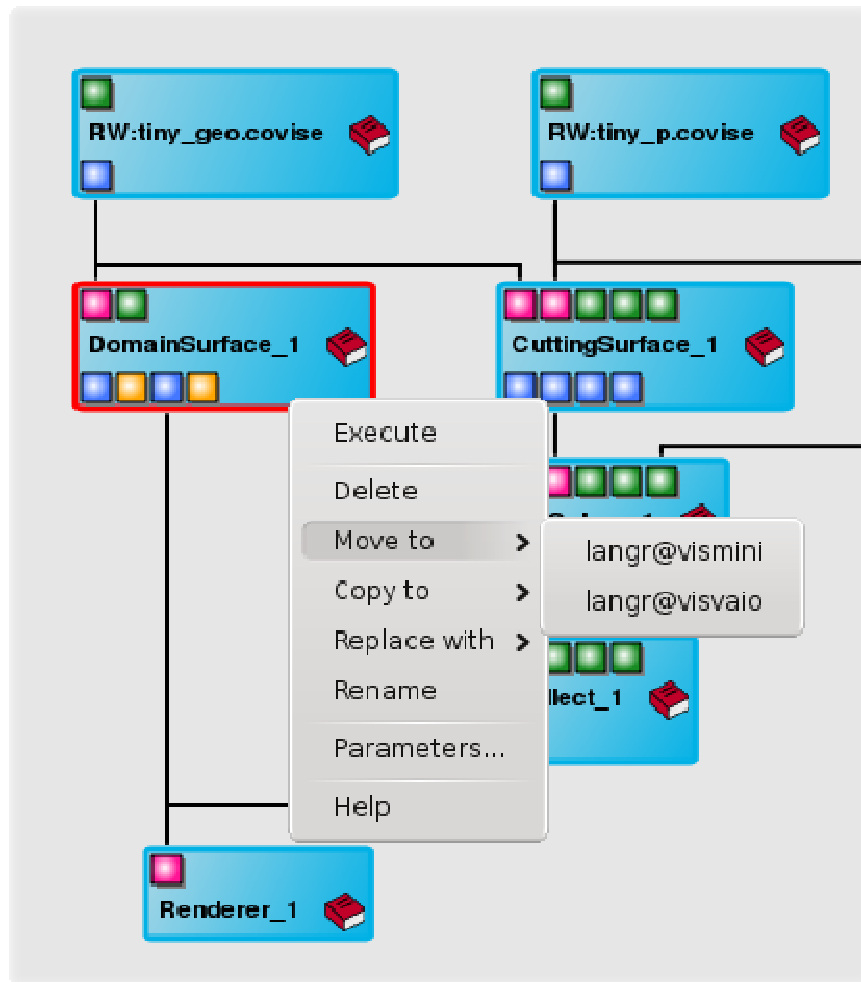
Local machine



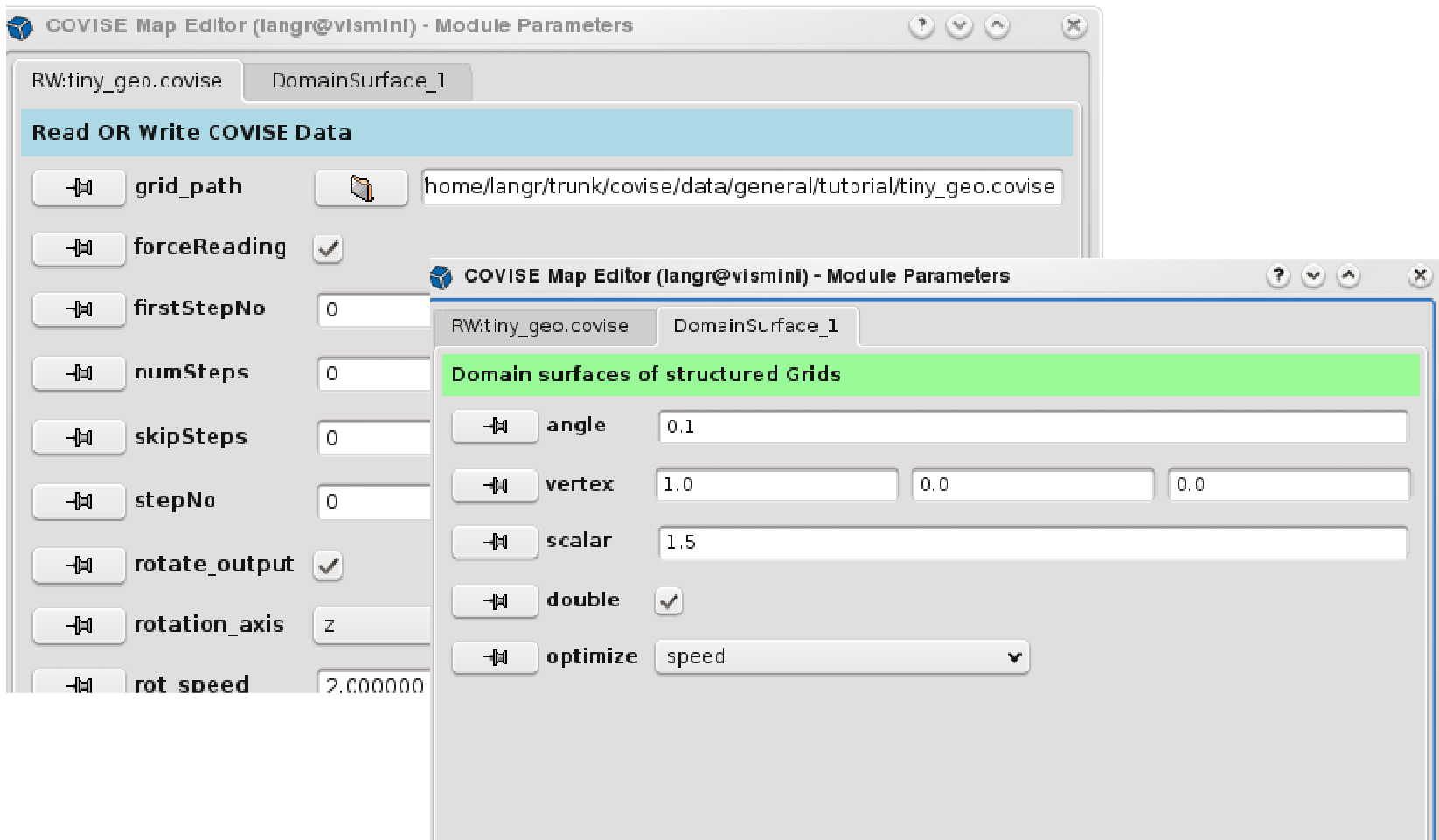
Remote host



Moving a Module To Another Host



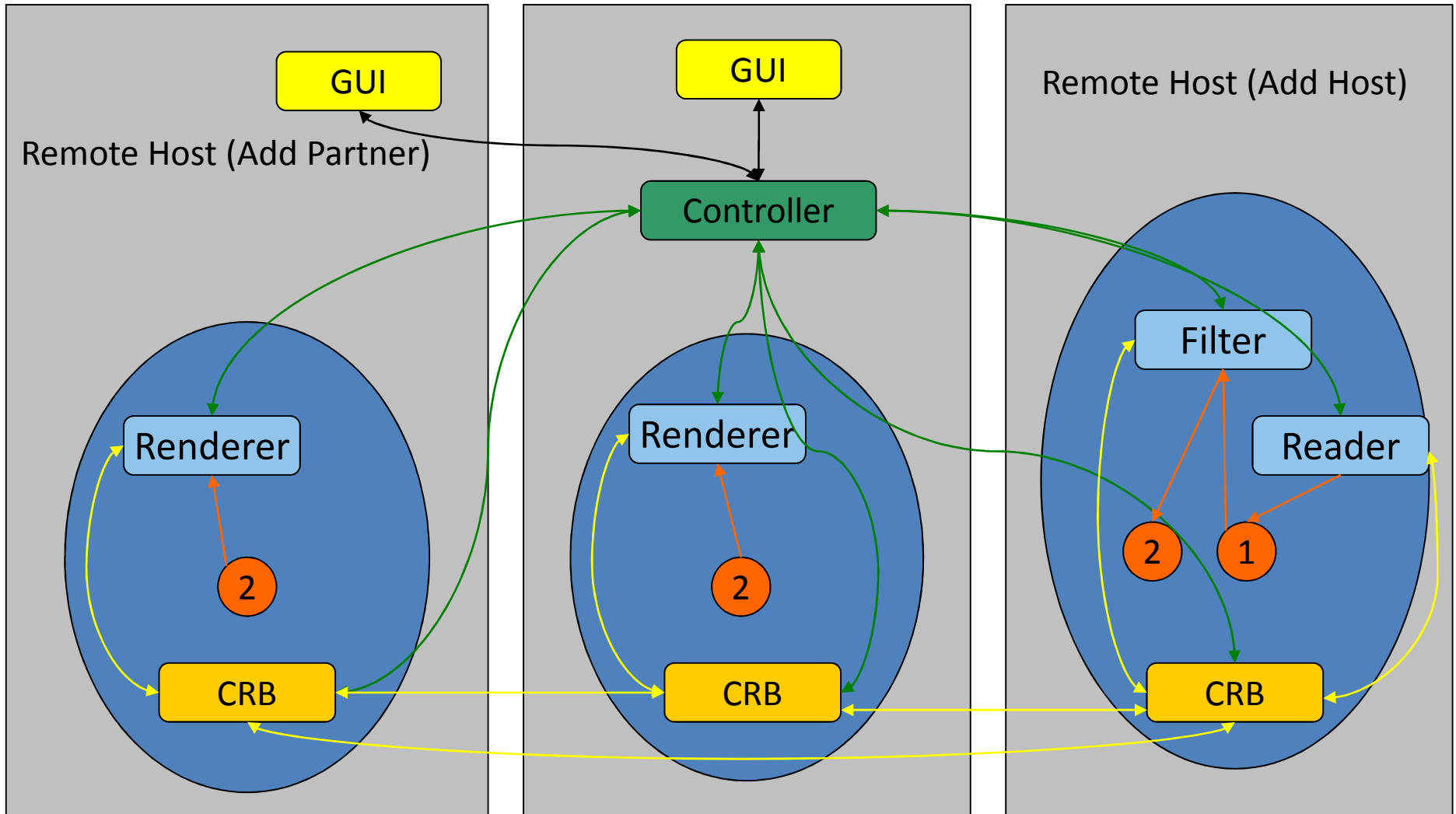
Module Parameter Window



Collaborative Session

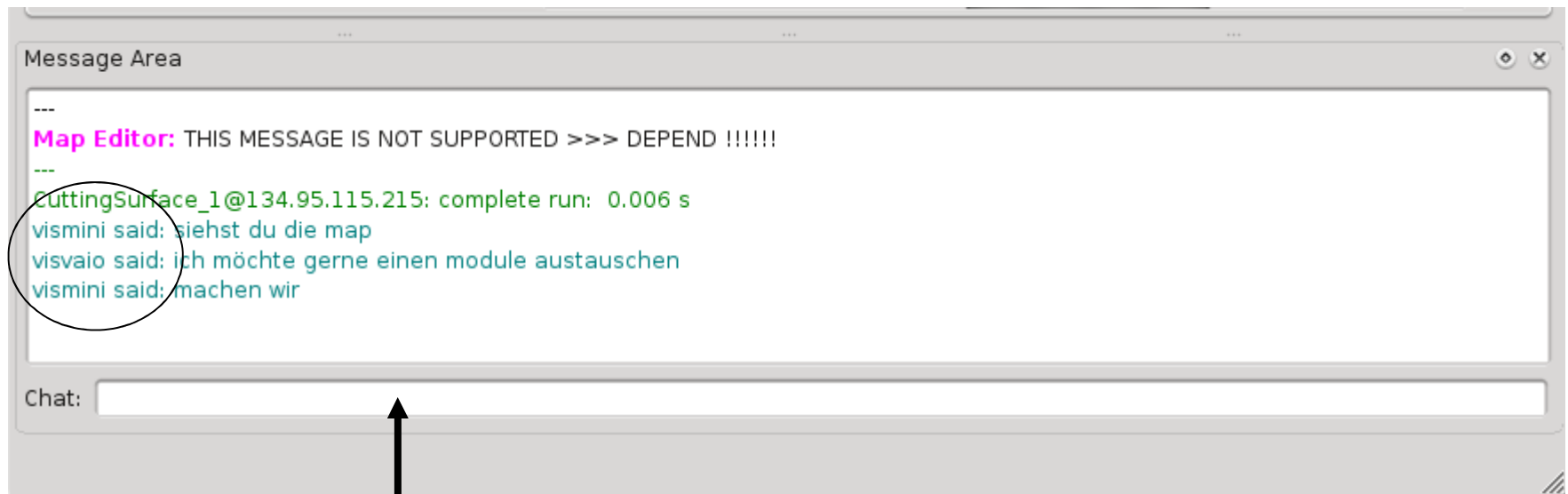
- Advantages:
 - Add modules running on different machines
 - Separate user interface for each collaborator
 - Each collaborator has their own renderer
- Automatic synchronization of parameters
- All collaborators see the same module map
- Collaborative work on module map and data files
- Chat window allows communication

Collaborative Session



Collaborative Session

Message area:



Enter text to send to collaborators here

Collaborative Work with OpenCOVER

- Avatar indicates position of collaborators
- 3D data sets kept locally at each site
- Low bandwidth requirements
- TabletUI Interface available to control CAVE
- File browser to load 3D models available with TabletUI



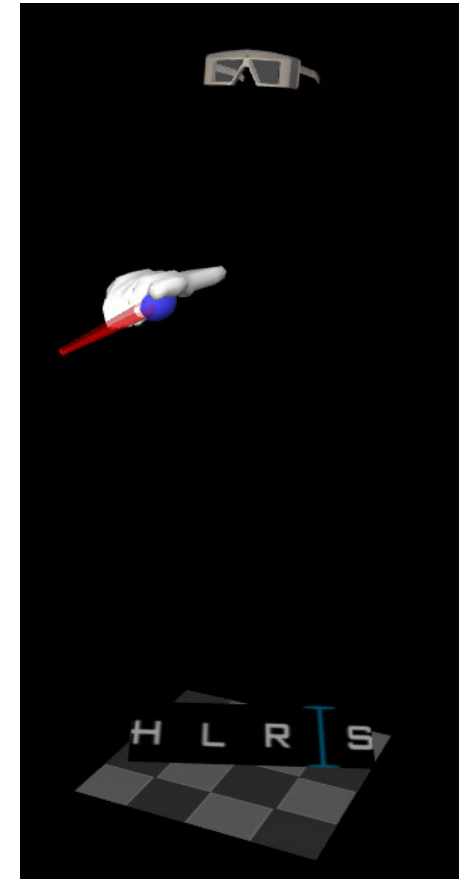
Collaboration Modes

- Loose
 - Viewpoints not synchronized
 - Avatars show positions of collaborators
- Tight
 - Viewpoints are synchronized
 - Avatars not shown
 - All collaborators can navigate independently
- Master/Slave
 - Viewpoints are synchronized
 - Only master can navigate
 - Master mode can be transferred to collaborators



The Avatar

- Sparse representation of user
- Shows exact position of collaborator's head and hand



VRB

- Supports collaborative work with OpenCOVER
- VRB = Virtual Reality Request Broker
 - Stand-alone application on same or different machine than the one renderer runs on

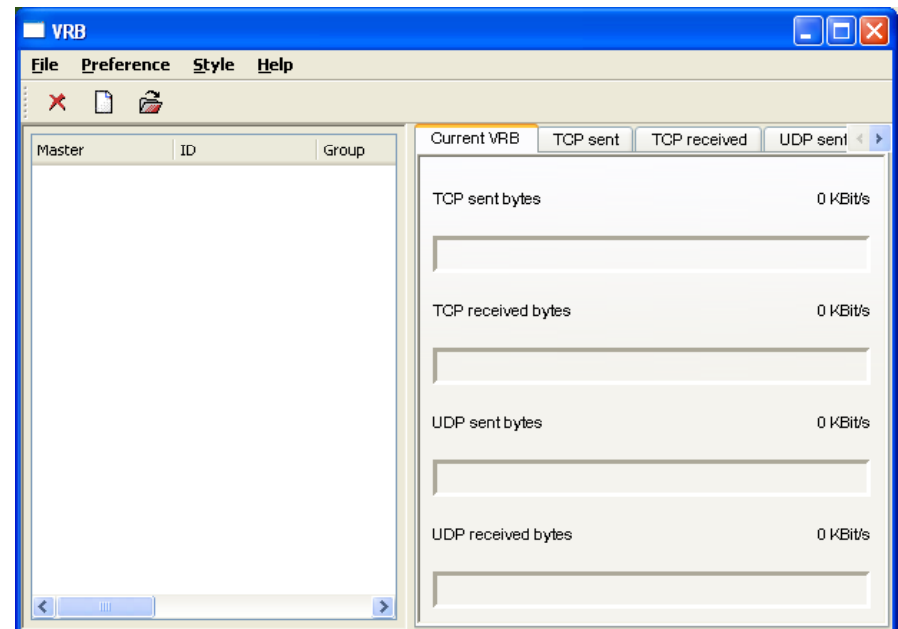
- Sample configuration:

```
<VRB>
```

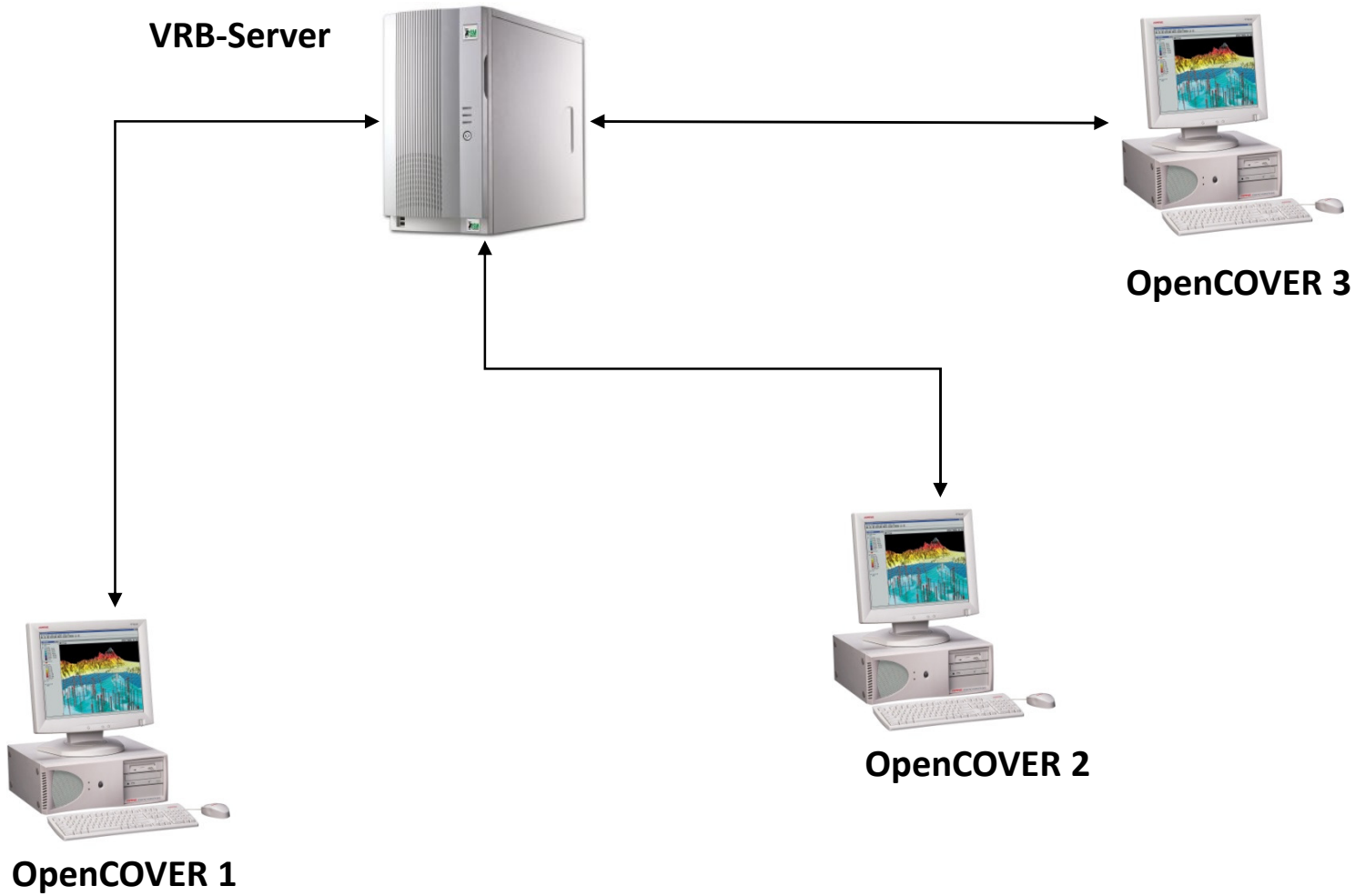
```
<Server value="141.58.8.10" />
```

```
<Server port="31200" />
```

```
</VRB>
```



VRB



More Information

- `http://vis.uni-koeln.de/covise/doc/html/tutorial/AdvancedTopics/AdvancedTopics.html`