

Coordinated offering of federated resources: requirements, models and activities (early results)

Resource Allocation Task Force

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- NGIs
 - Czech Rep., France, IberGrid, Italy, Poland, Serbia
- RC
 - NDGF
- VOs
 - BIOMED, WeNMR, COMPCHEM

resource-allocation at mailman.egi.eu

http://wiki.egi.eu/wiki/Resource_Allocation_Task_Force

- Collect information about existing NGI activities and best practices
 - Some NGIs already are experimenting resource offering as a service nationally, processes applicable at a national scope can be extended to the EGI level
- Collect requirements
- Define allocation models and related processes
- Organize a testbed with the involvement of RPs and VOs

- Actors and requirements
 - Customer
 - Resource Provider
- Processes and roles
 - EGI.eu
 - NGIs
 - Resource Centres
- Resource allocation models
- Focus on EGI, modeling EGI role in the process
- Conclusions

- Customers types:
 - International and national VOs
 - New and existing VOs
- Use-cases/scenarios
 - International collaborations or EU projects
 - Computation campaigns / data-challenges
 - Opportunistic usage with minimal requirements
 - Temporary allocation for new VOs



All being **specific allocations** for **limited time** with or without scientific review.

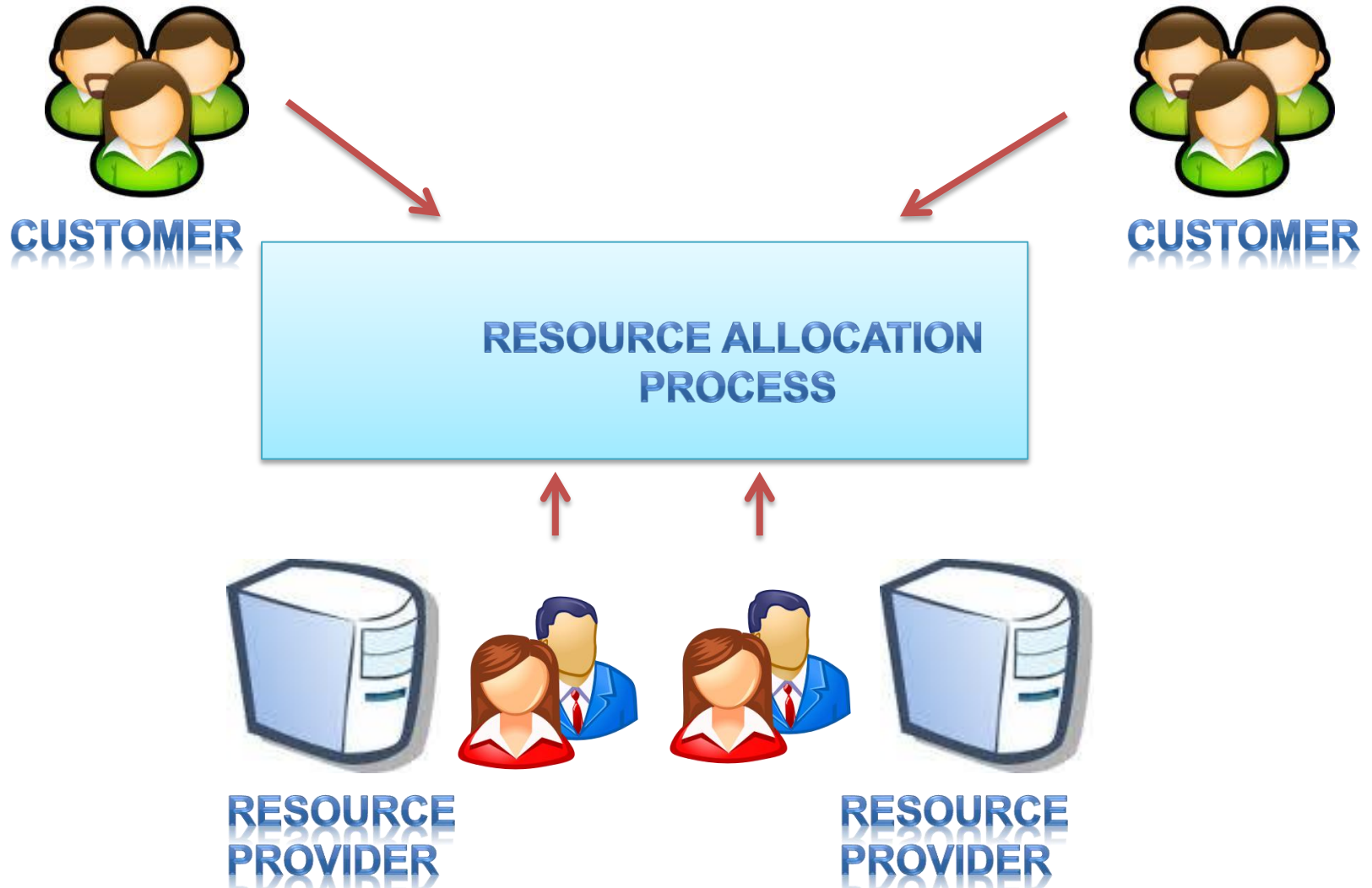
- **Single broker** contact point shall be provided
- Support **multiple levels of services** in one resource demand
 - users should be provided with the flexibility of requiring a minimum guaranteed amount of resources complemented by an additional amount of resources to be allocated elastically (for example opportunistically).
 - Even opportunistic usage of resources shall be subject of an SLA in order to ensure minimal level of support
- Simple and standardized **SLA** shall be provided
 - Minimum set of obligatory fields
 - All the rest should be kept as option
- An **external supervisor** (e.g. EGI.eu and/or the NGI) should be responsible of:
 - Enforcing SLAs and OLAs
 - Reporting on usage of the federated resource pool (rather than the VO itself)
- **Efficient usage** and **acknowledgement** of usage are two requirements for extension of established grants

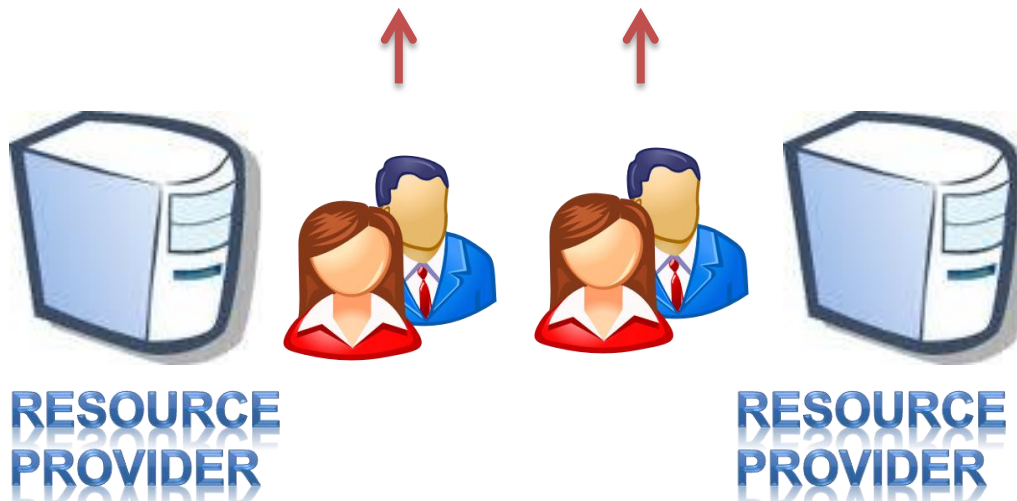
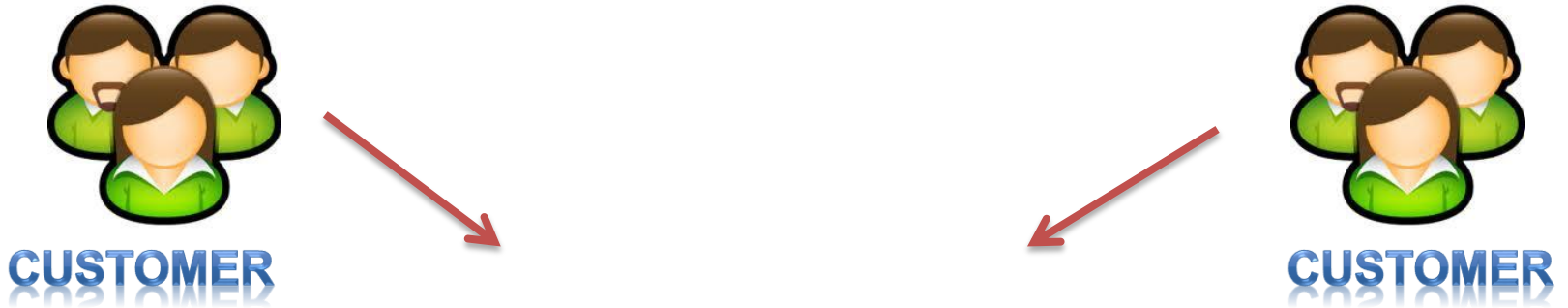
- Resource Provider types:
 - NGIs that
 - Directly own resources *or*
 - Can decide on resource allocation policies of a fraction of Resource Centres (RCs) resources *or*
 - Coordinates resource allocation process among their RCs and represent RCs when interacting with VOs
 - Resource Centres
 - If the NGI is **not** providing coordination of resource allocation nationally



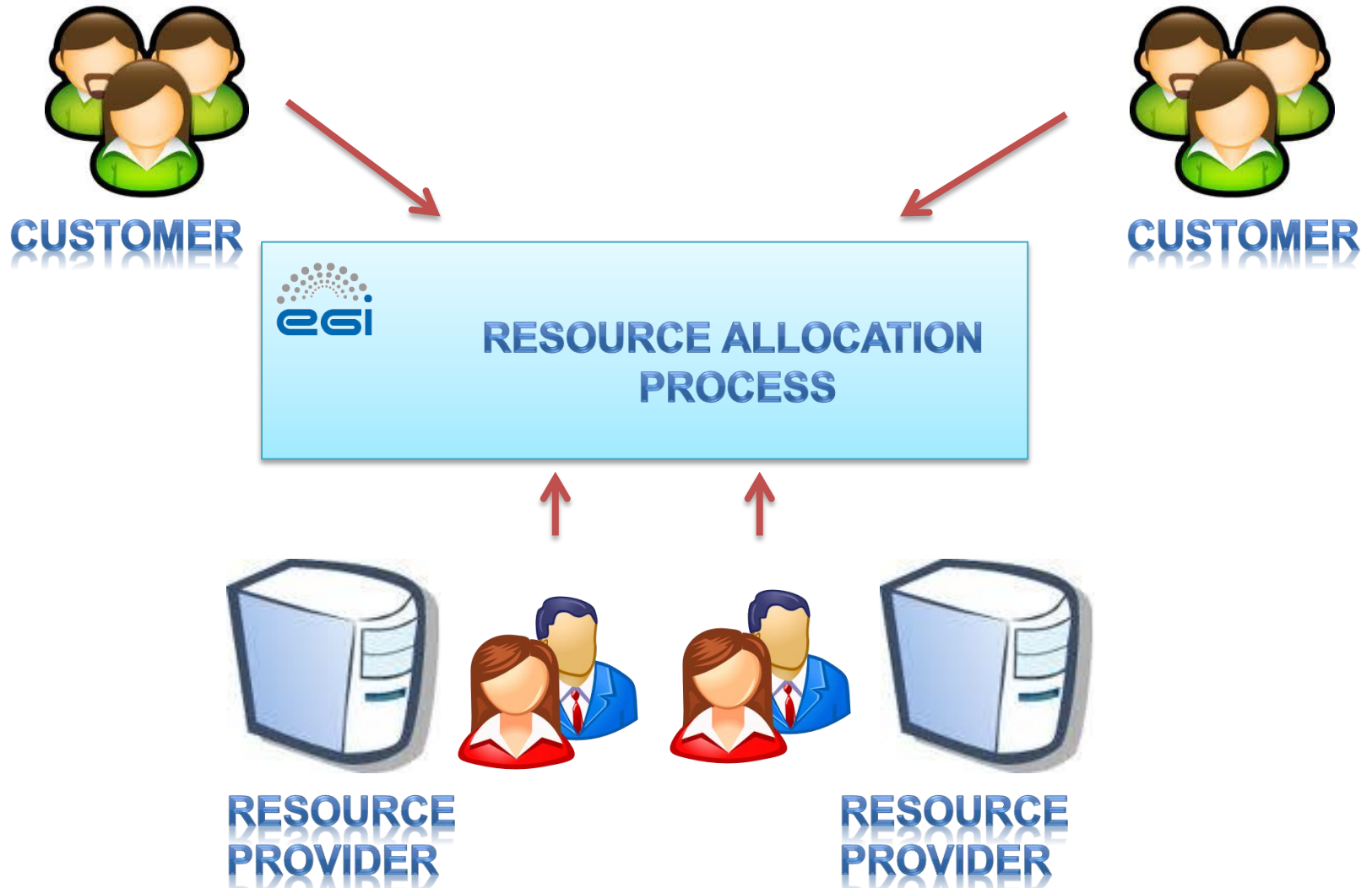
- **Elastic** resource provisioning
 - **Static** minimum resource pool + **on-demand** offering
- Support of different levels of Quality of Service (from **guaranteed** to **opportunistic**)
- Advertise availability of **free resources**
- External entity (e.g. EGI.eu) responsible of ensuring the **enforcement** of agreements
- **Lightweight agreement negotiation**
 - Option to delegate signing rights under specific condition to EGI.eu or the NGI
- RCs **directly interact** with a VO representative when needed
 - A technical review of requests is needed to complement the initial scientific peer review (where applicable) and decide which RCs can meet the technical requirements.
- Resources allocated must be (efficiently) used by VOs
 - otherwise the agreement can be terminated
- **Acknowledgement** of usage in scientific publication, press releases applies to NGIs and RCs as well
- It is desirable that the same tools offered to support **international** users can also be used to support **national** user communities.

General process





General process

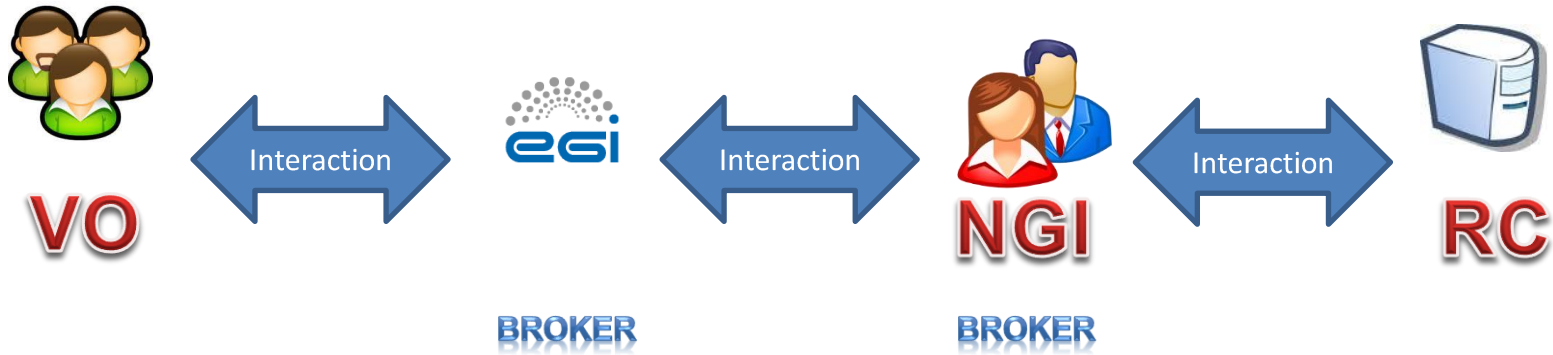
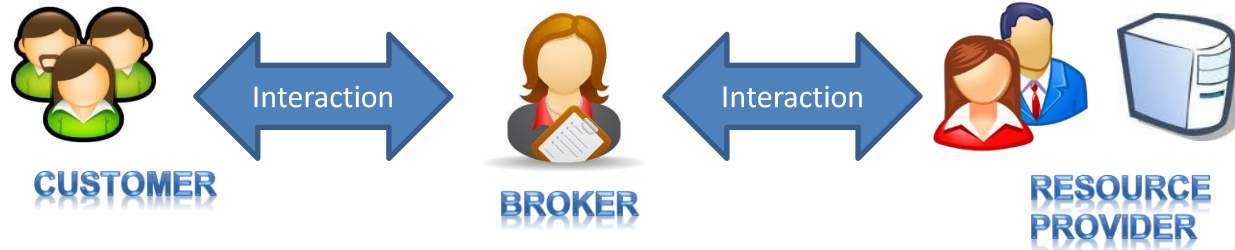


- **Objective:** understand actor roles and activities in the **process**. These will translate (but not directly) into steps in the final procedures.
- **Focus on EGI.eu**
 - NGI can freely adopt complementary resource allocation models at a national level
- **Agreements types:**
 - **Service Level Agreement (SLA):** agreement involving the Customer
 - **Operational Level Agreement (OLA):** agreement supporting an SLA usually between two of the following: EGI, NGI, and Resource Center
- **The two following model presented are *abstract***
 - practical models might be between them
 - practical models might be different for each use-case/scenario

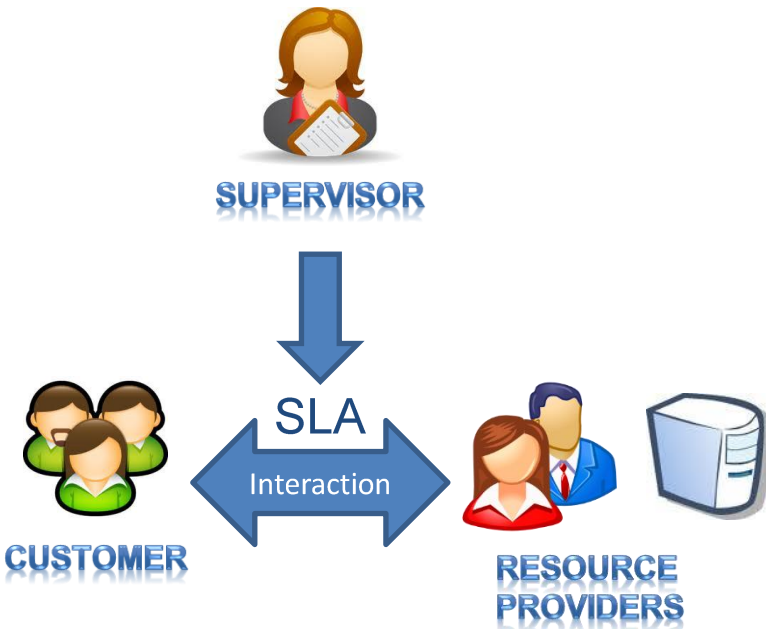


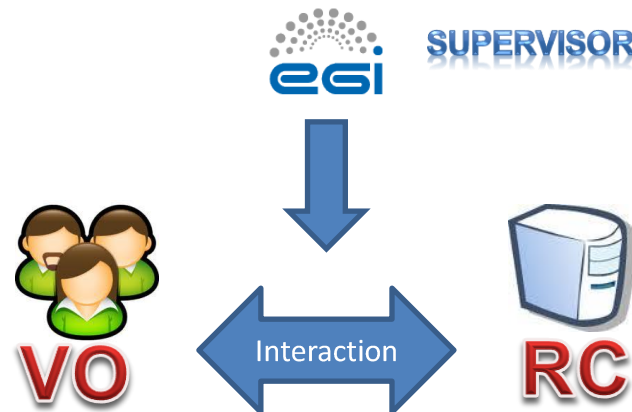
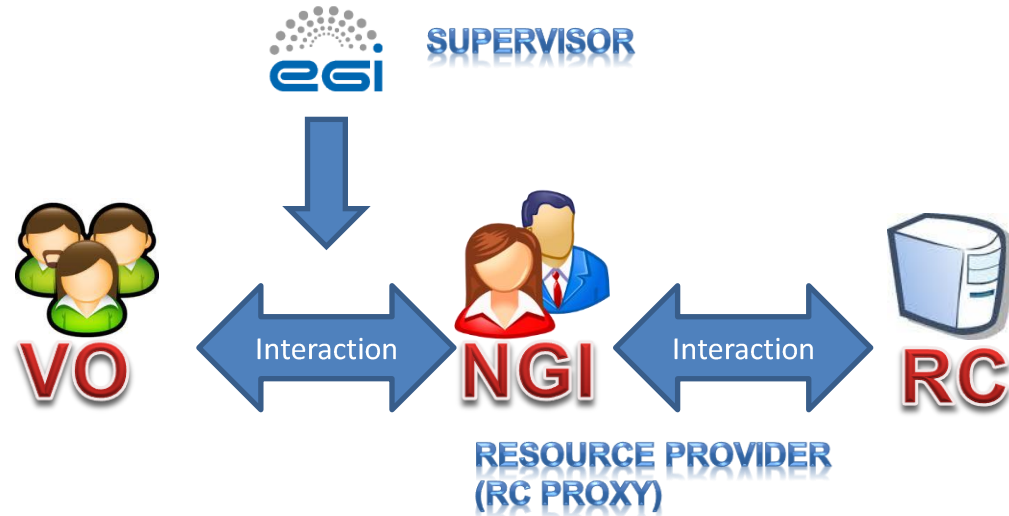
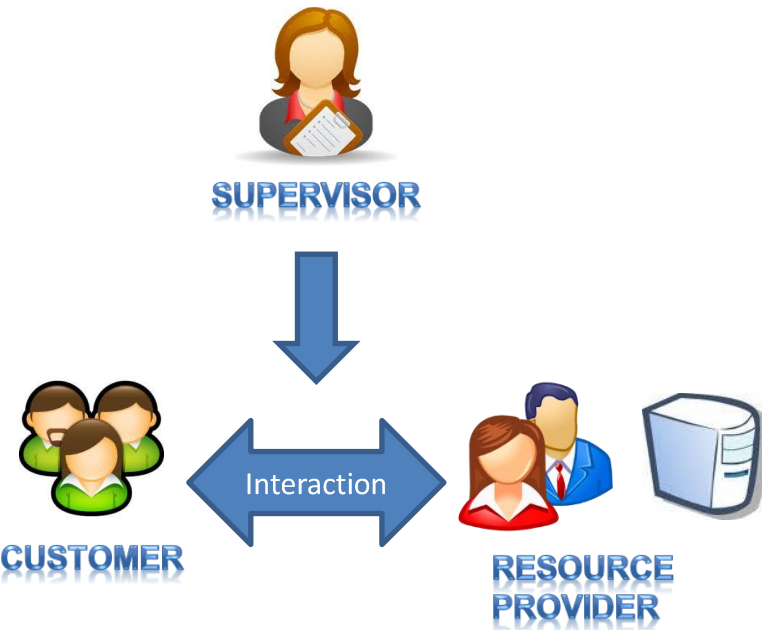
- Broker role:
 - Shall collect and manage Customers requests
 - Shall collect and manage RP offerings
 - general offerings for free resources
 - specific offerings for the SLA
 - May compose RPs offerings to satisfy Customer requests
 - May negotiate SLAs and OLAs

Model A (Broker) – Examples



- Supervisor role
 - Shall have access to SLAs signed on the market
 - Shall provides monitoring and reporting of usage and service quality against SLAs
 - May acts as
 - regulator on the market
 - mediator in case of conflicts





- The “Broker model” offers centralized supervision of agreements and a single point of contact to users; Broker may add value to the offerings;
- The “Open market model” require smaller EGI effort and offers minimal progress in value to the customers
- Lightweight agreement negotiation
 - The federated pool can rely on a set of pre-defined OLAs between EGI.eu and the resource providers (NGIs, RCs)
 - General OLAs could specify limits and conditions for central allocation or require confirmation in each case
 - SLAs between customer and EGI.eu is signed (accepted) only when specific dedicated OLAs underpinning the SLA are in place
- Resources allocation processes could be generalized to request any service, such as application porting, etc.

- More requirements?
- Most suitable model?
- Roles of EGI.eu and NGIs in resource provider selection
 - Policies are often RC-specific and require technical liaison with RCs
- How to attract resources to the federated pool?