Overview of TAO's Implementation Repository

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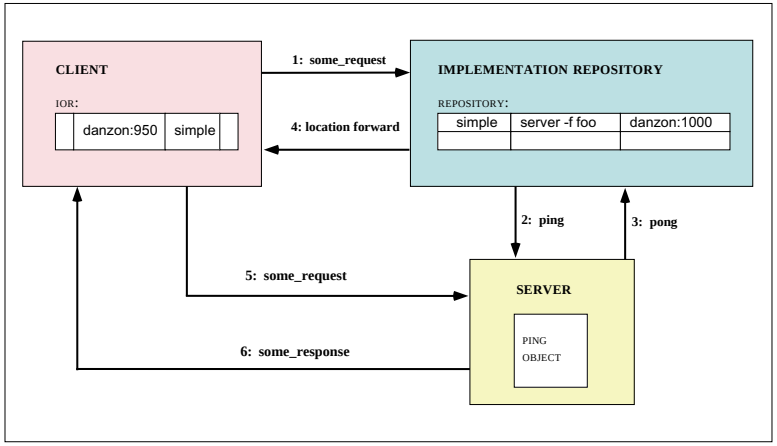
Motivation for Implementation Repository

- Repository for persistent objects
  - Persistent objects can outlive originating server processes
- Allows for transparent and on demand server activation and object migration
  - Restarts and forwards to registered servers
  - Maintains a registry of known servers and how to restart them
  - Keeps track of which servers are currently running and where

Typical Implementation Repository Use-case



Description of Implementation Repository Use-case

1. Client invokes operation via an object reference that points to the Implementation Repository
2. Implementation Repository "pings" the Server
3. Server responds, if running, else it's started by the Implementation Repository
4. Implemenation Repository returns a forwarding exception to the client, which is converted by the ORB into a LOCATION FORWARD message
5. Client invokes operation via an object reference that points to the actual Server
6. Server sends back response

Designing and Using an Implementation Repository

- Use of the Implementation Repository is optional
  - *e.g.*, may be infeasible for performance-critical situations
- Use must be transparent to clients, *e.g.*:
  - No knowlege of the Implementation Repository is needed to use it
  - Client ORB must support LOCATION FORWARD feature
- Virtual servers
  - Objects are grouped into virtual servers
  - Processes may have more than one virtual server
  - Operations are on a virtual server basis
- Can be optimized for TAO clients
  - TAO clients can cache virtual server information
  - Also will be able to talk directly with the Implementation Repository

Current Status/Future Work

- **Completed**
  - Simple Server and Client with an ImplRepo Server
  - Repository (a persistent database)
  - Restarting of the simple server
- **Coming Soon**
  - Ability to forward to any object
  - Ability to detect when a server is alive (ping object)
- *Future Work*
  - Helper application
  - Integration with POA and TAO
  - New IORs that include a virtual server name