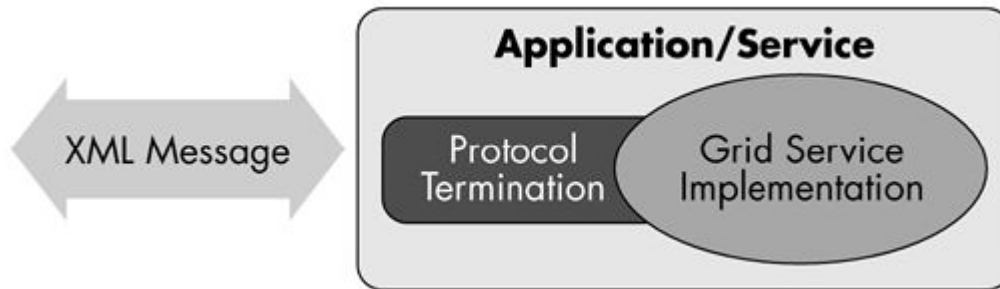


## GRID SERVICES AND SERVICE PROGRAMMING MODELS

The OGSi specification does not dictate particular service implementation architectures. There are numerous ways by which a developer can achieve this architectural environment, ranging from implementing grid services as operating system services, to the more sophisticated server-side component model as specified by J2EE or COM+. The OGSi services can be hosted in the smaller footprint pervasive devices, all the way up to the more sophisticated mainframe environments.

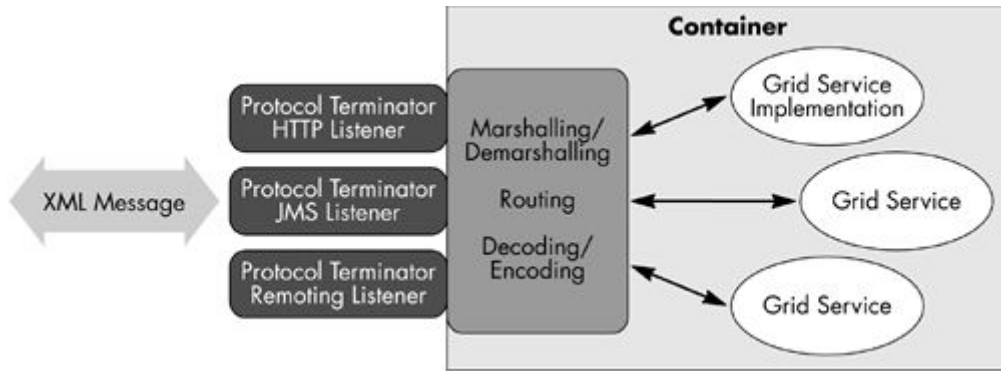
A grid services implementation can provide host service protocol termination, and service behaviors, in the same executable or operating system service environments. Figure 6.5 shows an application providing protocol termination and the grid service implementation.

Figure 6.5. A simple grid service implemented as an application.



Grid services can be implemented as components (e.g., Servlets, EJB, etc.) that can be hosted in a container, and the container along with the host environment provides the service protocol termination points and marshalling and de-marshalling of the messages. In this scenario, there may be requirements to adapt to the container behaviors and the models. For example, if a service is implementing itself as an EJB, the service lifecycle may need to be coherent with the EJB lifecycle model. Most of the grid toolkits tend to use this model for their middleware implementation. Figure 6.6 shows such a service implemented in J2EE Web containers

Figure 6.6. A container model for a service implementation



Some of the key core service implementation requirements are as follows:

- Ability to provide a well-defined service description in GWSDL/WSDL
- Adhere to the XML message formats, as defined in the service description based on the OGSF specification
- Leverage the Web service infrastructure (and standards) for achieving message-level interoperability

Source : <http://elearningatria.files.wordpress.com/2013/10/ise-viii-grid-computing-06is845-notes.pdf>