Semantics
The semantics of a service are the shared expectations about the service. Fundamentally, we expect that all services deployed in a SOA have an intended purpose. That purpose is the linchpin by which we measure the expectations for a service and is the basis of its semantics. The purpose of a service is the highest level semantic characterization of the service.

In principle, the semantics of a service many aspects of its establishment – from the format and structure of any data communicated between the participants of a service interaction to the stateful requirements on the participants to the expected effects of successfully interacting with the service.

One of the hallmarks of a Service Oriented Architecture is the degree of documentation associated with it. The purpose of this metadata is to facilitate integration, particularly across ownership domains. By providing descriptions, the task of designing client applications that make use of a service is considerably enhanced.

In this spirit, we might also expect that the semantic aspects of a service may also be documented. Such documentation will, in principle, be layered into several levels:

- The metadata required to reliably contact the service and to establish communication with it. In Web Services, this role may be filled by descriptions using the WS-Reliability specification.
- The metadata required to reliably format data for interchange between service participants. In Web Services, this role may be filled by WSDL documents.
- The metadata required to reliably sequence operations of the service. Documents using specifications such as WSBEPL and CDL are oriented towards such requirements.
- The metadata required to adequately measure the effect of using a service and of the requirements of the participants. Often, this is the kind of description labeled as semantic, although, in reality, all the above documents represent descriptions of the semantics of the service – albeit at different levels of abstraction.
- There may also be documents that relate to any policies governing the service and to any agreements and contracts associated with the service. Such documents may range in scope from simple technical policies to legal contracts valid in international law.

If documented in metadata, a service’s semantics has many possible uses: it can be used as a basis of discovery in dynamic systems, it can assist in managing a service, validating and auditing uses of services may also be simplified by rich metadata.

However, it is not essential to the concept of SOAs that the semantics of a service be so completely described.