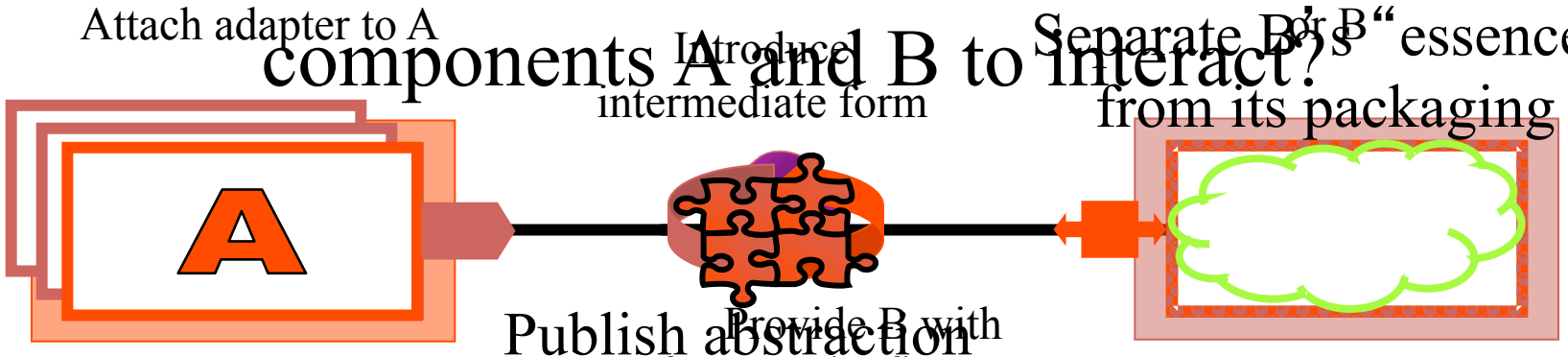
Software Connectors 2

Role and Challenge of Software Connectors

How do we enable components A and B to interact?



Publish abstraction of A's form

Change A's form to B's

What is the right answer?

How to Select Connectors

- Determine a system's interconnection and interaction needs
- Determine roles to be fulfilled by the system's connectors
  - Communication, coordination, conversion, facilitation
- For each connector
  - Determine its appropriate type(s)
  - Determine its dimensions of interest
  - Select appropriate values for each dimension
- For multi-type, i.e., composite connectors
  - Determine the atomic connector compatibilities

Example

- A system to integrate consumer generated wellness data from multiple sources:
  - Sources of consumer data − with different access protocols and data format
  - Need to integrate
  - Access should be secure

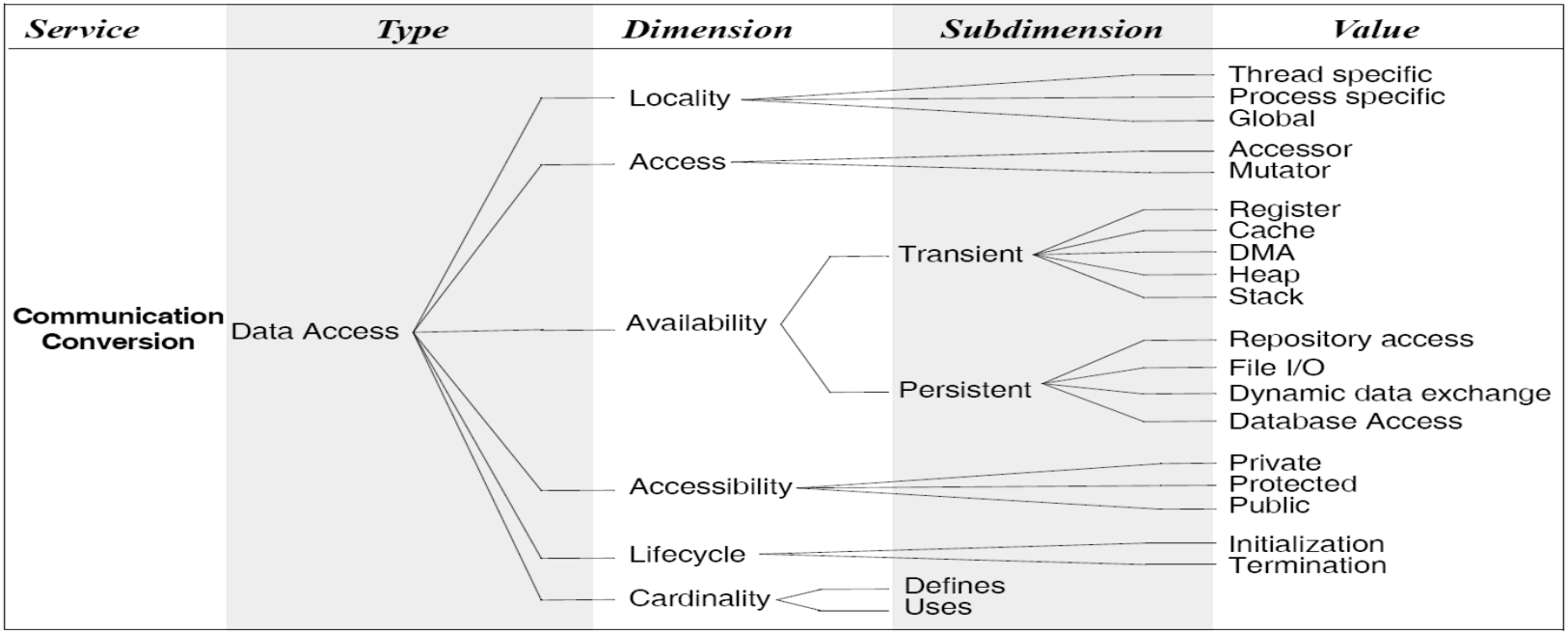
Example

- We need to convert the diverse data formats.
- We need to have a uniform access protocol.
- We need to communicate them to the integration component.
- We need to ensure privacy of the individual

Example

- We need a different types of conversion adaptors
  - One to convert to uniform protocols
  - One to convert data formats
- We need communication connectors to connect the sources to an integrator component and to connect from the integrator to users.
- We need an arbitrator component to ensure users are authenticated and authorised.
- We need to think about what values to choose for our connectors
- We need to think about what constraints the environment might place on the choice of connectors.

Data Access Connectors



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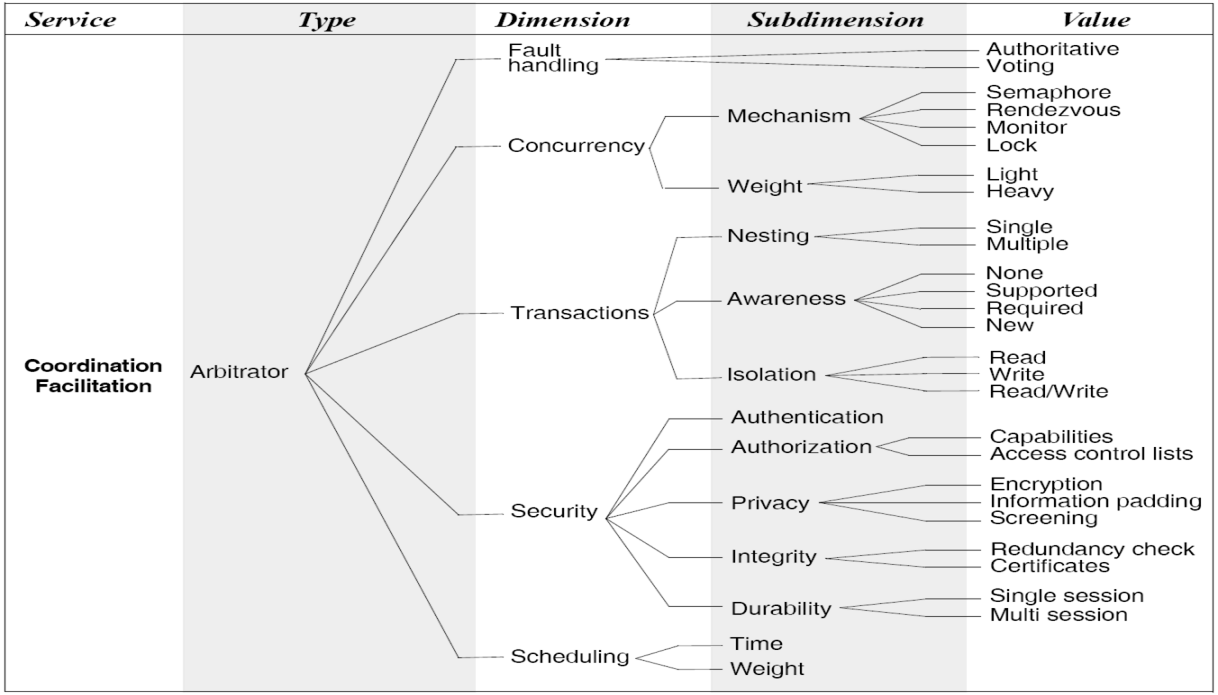
Arbitrator Connectors



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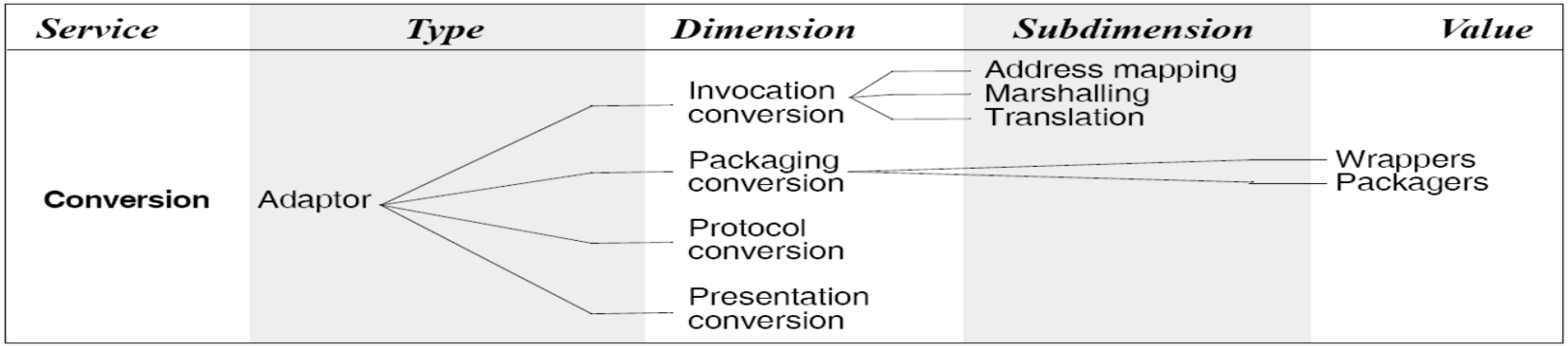
Adaptor Connectors



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Summary

- Connectors are a key element in defining a software architecture.
- There is a wide variety of connectors and there is considerable diversity in their definition.
- Often connectors are combinations of various types.
- Analysing the requirements on an interconnection helps us to decide on the characteristics of a connector.