

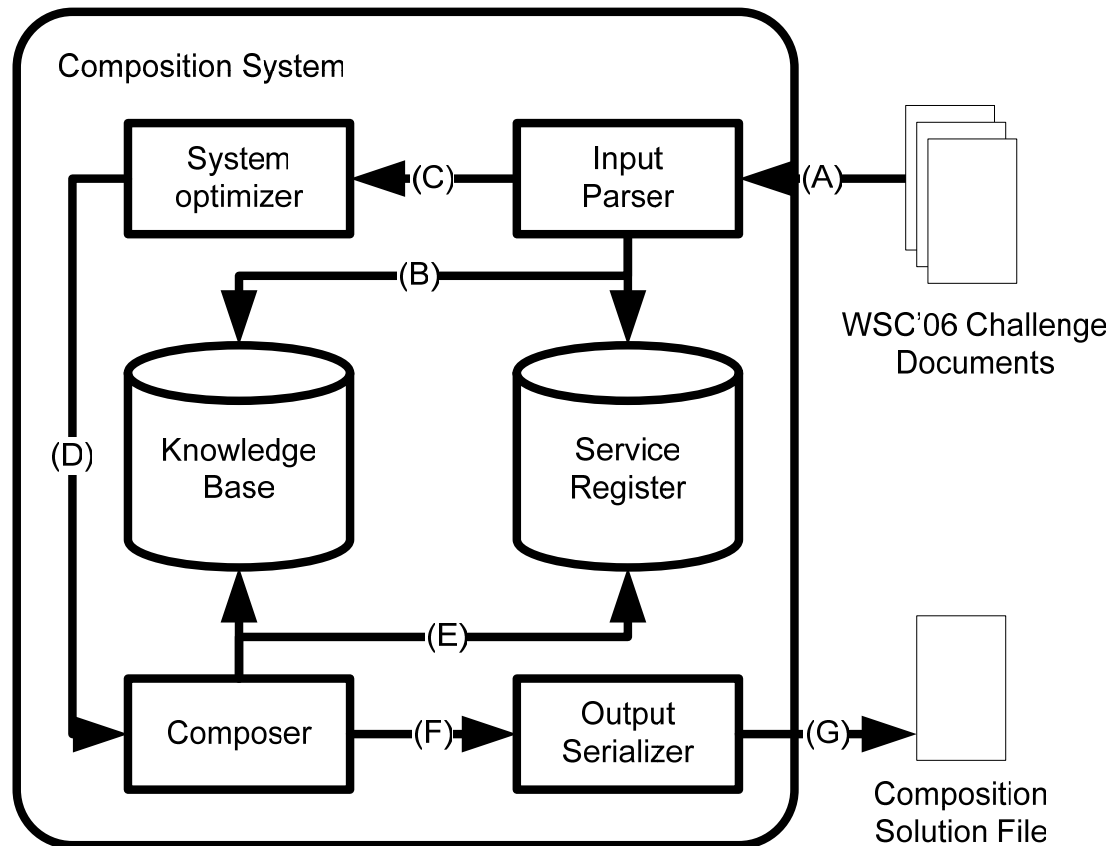


Large-Scale Service Composition in Semantic Service Discovery

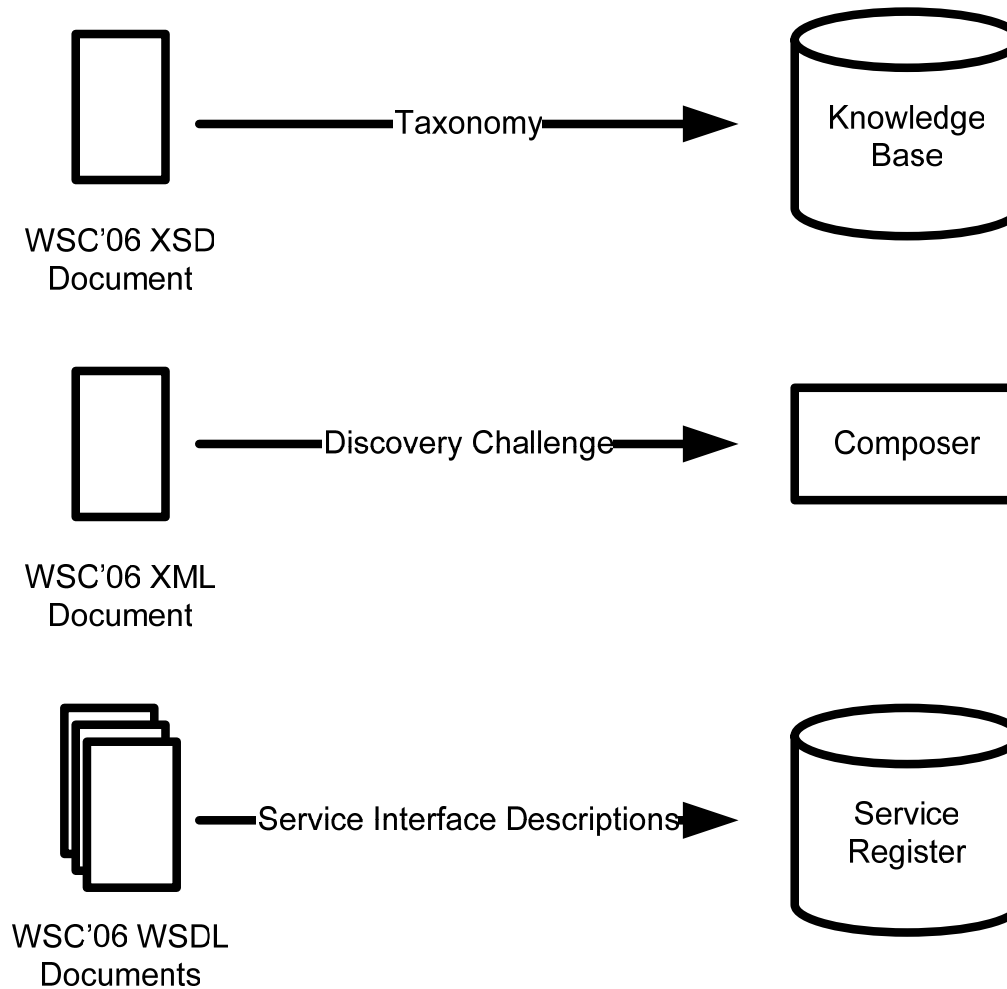




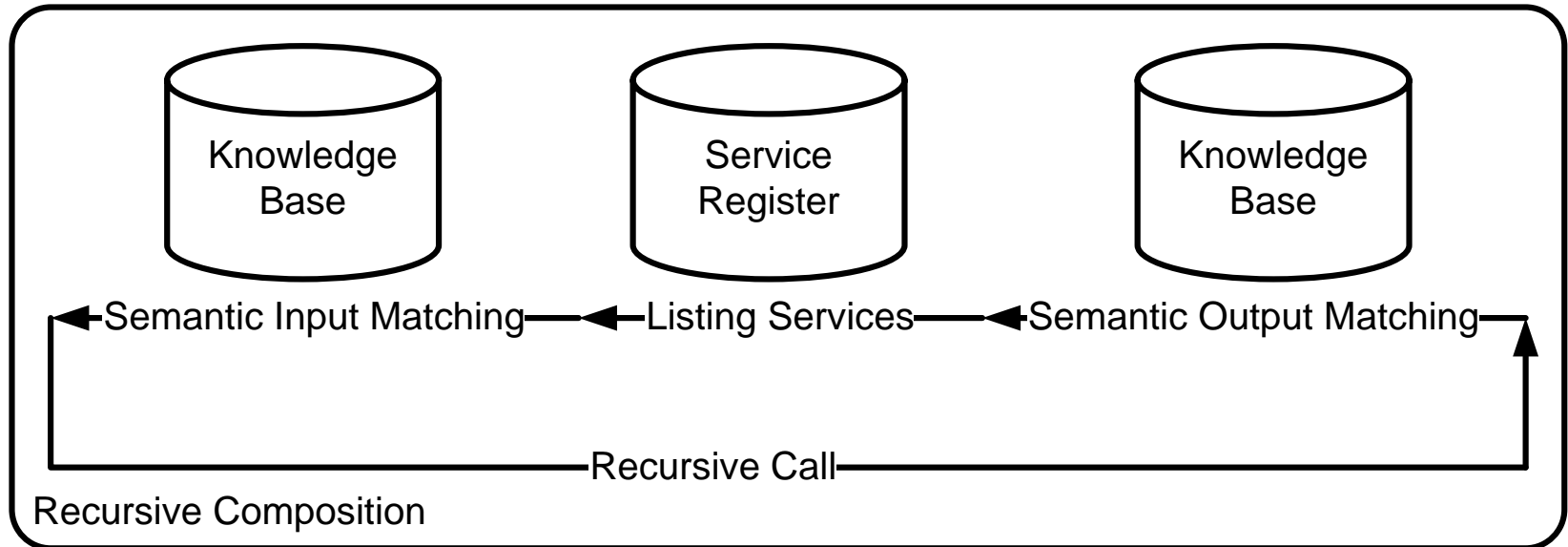
Composition System



Read-In



Semantic Service Discovery



Semantic Input Matching: Service needs Input A.

Question: Is input A or a specialisation of Input A available?

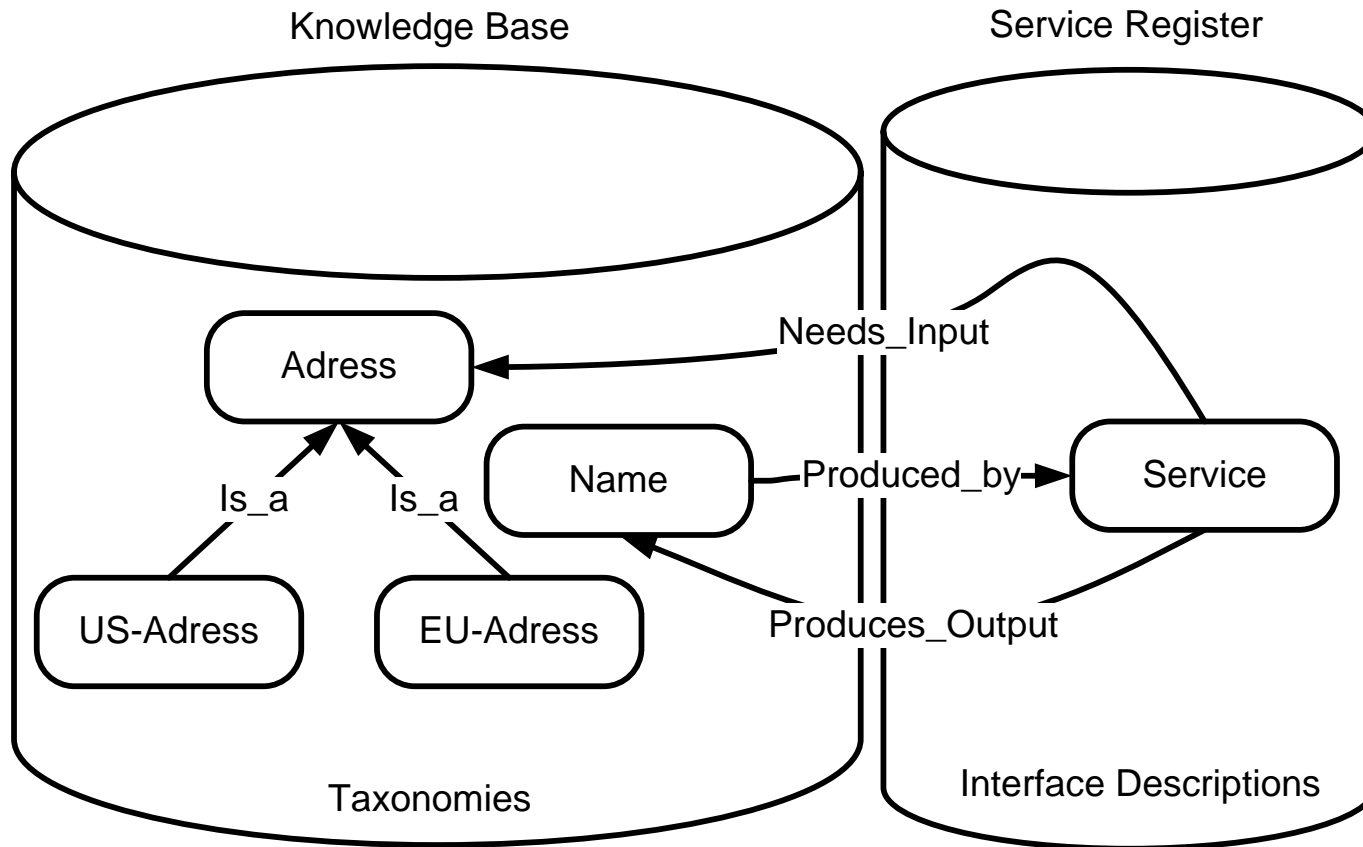
Semantic Output Matching: Service produces Output B.

Question: Is Output B the wanted Output or a specialisation of the wanted Output?

Composition Algorithm

1. Decide which services produce an unknown output.
 - i. Output matching
 - ii. Service Listing
2. Add service to composition
 - i. Update necessary inputs.
 - ii. Update produced outputs.
3. Recursive Call
 - i. Check if all necessary inputs are available.
 - ii. Check if all wanted outputs are known.

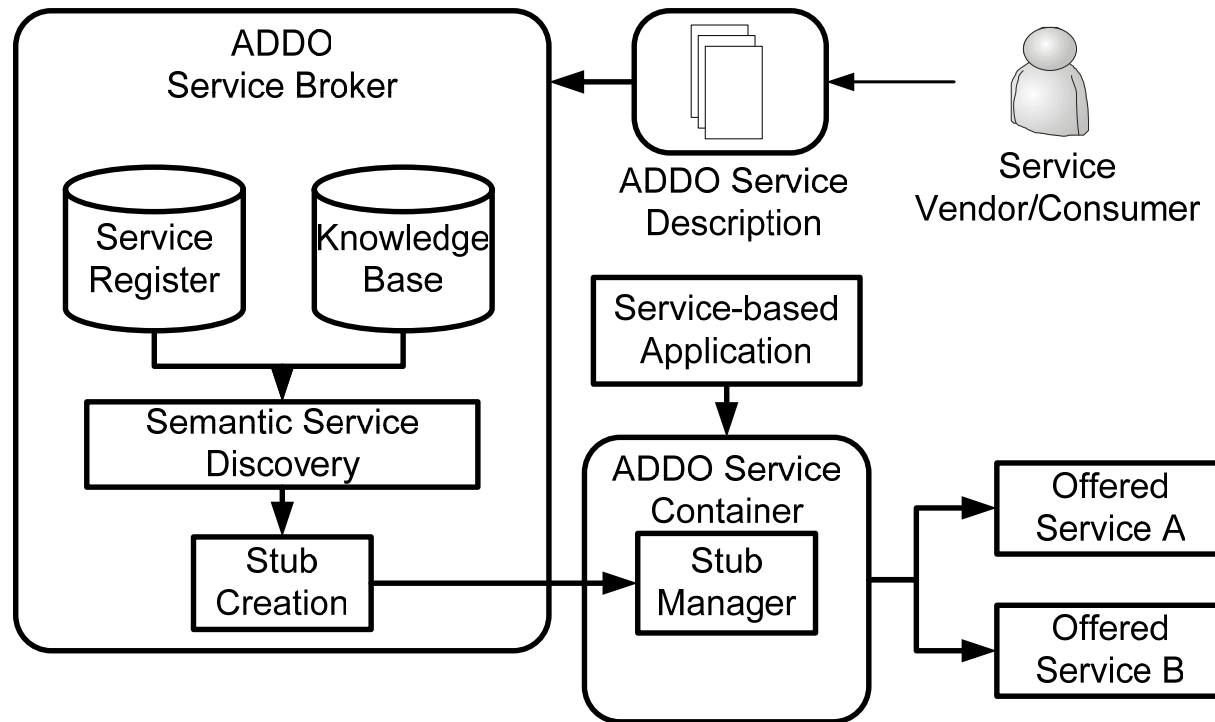
Knowledge Base and Service Register



Evaluation of the Predicate: $\text{subsumes}(A, B)$.

Framework

Automatic Service Discovery and Integration



<http://www.vs.uni-kassel.de/ADD0/>



Thank you for your attention!

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author      = {Steffen Bleul and Thomas Weise and Kurt Geihs},
title       = {Large-Scale Service Composition in Semantic Service Discovery},
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               Results Page (Access to the software is restricted.), order number
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               The work is online available at
               http://www.it-weise.de/documents/index.html\#BWG2006WSC.\
               The publication can be downloaded at
               http://www.it-weise.de/documents/files/BWG2006WSC.pdf.\
               The presentation can be downloaded at
               http://www.it-weise.de/documents/files/BWG2006WSC\_slides.pdf.\
               The software can be downloaded at
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               Contact Thomas Weise at tweise@gmx.de or http://www.it-weise.de/},
abstract     = {Self-Healing and self-optimizing service based applications are
               important steps towards the self-organizing ServiceOriented
               Architectures (SOA). Self-Organizing SOAs replace services by functional
               equivalent services in the case of faults or in respect of quality of
               service. These features depend on automatic service discovery which
               provides service alternatives. We enter the WSC'06 contest to present a
               semantic service discovery system for large sets of services. A
               recursive algorithm builds service compositions by adding services in
               each iteration. The search works backwards, since we add services that
               produce a certain output regardless of its input parameters. A valid
               service composition produces a set of queried output parameters and
               input parameters necessary for the composed services. The algorithm is
               improved by using efficient data structures in our service composition
               system.},
contents     = {* Introduction\
               * Technical Description\
                 - Semantic Service Discovery\
                 - Service Composition Algorithm\
                 - System Optimization\
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keywords     = {Web Service Composition, Web Service Discovery, Semantic Web, Semantic
               Web Service Composition, Web Service Challenge},
language     = {en},
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}

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