

Quality of Service Profiles in Web Service Discovery

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Abstract

Standardization of the description and delivery of XML-based *web services* has opened up a market, larger than any before, in ‘commercial off-the-shelf’ (COTS) software components. As a result, standardization efforts are being made towards the assembly of systems from web services where the coordination is defined by *work-flow* languages. With several potential implementations for many of the tasks within such a system, the need has never been greater to aid, through automation, the *discovery* process. Furthermore when many functional equivalents exist, it becomes of great importance to discriminate between these on the basis of cost and performance.

Cardoso and Sheth proposed a useful set of Quality of Service measurements [1] and a framework to apply such considerations within web service discovery [2] [3]. Unfortunately the ‘fitness’ metric defined in [2] contains mathematical flaws, which have been propagated to [3] and other publications. In particular:

- Metrics are defined, and claimed normalized, but these can take negative values (and even undefined values due to division by zero);
- Combinations of these are defined using the geometric mean (even though this doesn’t fit their informal claims) and so combined metrics can also be undefined;
- Under- and over-performance are not distinguished and are equally penalized.

In proposing corrections for these problems [4] we have found alternative solutions to the latter issue that accommodate different design strategies. We present here the resulting system as an advance in the technique.

References

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