

Driving Deep Semantics in Middleware and Networks: What, why and how?

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After extensive research and early successes in Semantic Web, it may be time to look into how we can drive semantics below the application layer-- into middleware and networks, and what significant benefits we can gain by doing so. Semantic Middleware and Semantics Enabled Middleware, [Semantic Management of Middleware](#), Semantic Publish Subscribe Networks/Systems, [Semantics enabled Networks](#), [Semantic Overlay Networks](#) and similar terms and phrases have been already coined. In majority of the cases, early efforts have focused on “shallow”, “little” or “emergent” semantics that use statistics, opinions/taste or folkonomies, and corpus or taxonomy based approaches.

In this talk, we paint realistic scenarios in which it makes sense to use deep semantics (that are part of mainstream Semantic Web approaches, including domain ontologies and semantic annotations and rules) at middleware and network levels. We also identify some of the related research challenges as well as review recent advances in developing increasingly sophisticated networking infrastructure (e.g., one exemplified by AON from CISCO) that provide path to implementing sophisticated deep semantic technologies in routers and other network component levels.

[With acknowledgement from collaborators in [SeNS](#) (Semantics Enabled Networking and Services), [SemGrid](#) and [METEOR-S](#) projects at [LSDIS](#) lab, including Lakshmith Ramaswamy, Doug Brewer, and Karthik Gomadam.]

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