

Knowledge Exchange in Autonomic Networks

[draft-ciavaglia-anima-knowledge-00](#) (expired)

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Context

“Il faut savoir pour comprendre et comprendre pour agir.” --Unknown

... or in the scope of autonomic networks:

- Ability to **exchange information** among nodes to **understand context, make decisions**, and then **take appropriate actions.** *--John Strassner*

Why is it important...?

- Because discovery is not enough
 - One can only discover something that already exists.
 - Autonomic systems **learn new knowledge from their environment**, via computation and inference.
 - Their **knowledge bases grow, information is validated and invalidated.**
- Cooperation relies on / emerges from information exchange
 - A traffic forecasting AF can provide its knowledge to a resource allocation AF, enabling it to better perform.
 - This requires the capacity to **advertize capabilities, measured and produced information**, as well as ability to “**connect**” relevant AFs.

→ **Vital to share knowledge in an interoperable fashion.**

→ Information shall be “codified” by some means: dictionary, ontology, information model...

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- Provides a **unified interface** to enable an interoperable **management of information flows** among autonomic functions by insuring the use of **common mechanisms**.
- The protocol **negotiate** and automatically **adapt** to the **communication** and information **capabilities**, requirements and constraints of the participating entities.

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Discussion

- The draft provides details on a realization of such functionality (specs and prototype).
- Knowledge exchange and management is vast, and connect to other areas of investigation
 - Monitoring, measurement plane / mechanisms
 - (Machine) Learning capabilities, Analytics
 - Information management, distribution (and optimization)
 - ...
- Serve as a basis for further study and discussion
- Link with Information Distribution in Autonomic Networking [draft-liu-anima-grasp-distribution](#)