Guidelines for
Autonomic Service Agents
draft-carpenter-anima-asa-guidelines-01

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Topics

- **Purpose of draft & Contents**
- Logical Structure of an ASA
- Interaction with the Autonomic Infrastructure (ANI)
- Design of GRASP Objectives
- Security
- **Discussion, next steps**

Purpose

- This document is intended to guide ASA writers in the general design of their code.

  - We expect ASAs to be written by a wide variety of programmers, specialised in the autonomic function concerned.

  - They are not expected to be GRASP experts. An API description will not be enough.

Overview of contents

- Logical Structure of an ASA
- Interaction with the Autonomic Infrastructure (ANI)
- Design of GRASP Objectives
- Life Cycle [TBD]
- Coordination [TBD]
- Security Considerations

Logical Structure of an ASA

- Multi-threaded (preferred)
  - or Event Loop structure
- Initialization
  - Create data structures such as Objectives
  - Register ASA and its Objectives with GRASP
  - Acquire Intent or relevant parameters
  - Launch self-monitoring thread
  - Enter main loop

ASA Main Loop

- Main loop depends on the specific function, but may launch:
  - a background thread to flood an objective
  - thread(s) to handle incoming synchronization or negotiation requests
  - thread(s) to send synchronization or negotiation requests
  - thread to manage subsidiary non-autonomic devices

Interaction with the ANI

- Interaction with GRASP via its API
- Interaction with the ACP (should normally be hidden by GRASP)
  - or alternative security mechanisms (also normally via GRASP)
- Interaction with Intent mechanism (future work)

Design of GRASP Objectives

- General rules are in GRASP specification.

- Important: GRASP does not provide transactional integrity. Locks and atomicity are the job of the ASA.

- The 'value' of an Objective is only limited by CBOR; virtually any data structure is possible. Formats such as JSON or YANG over CBOR are fine if the ASA understands them.

Security Considerations

- GRASP messages are secured by the ACP (or an alternative such as TLS).

- Any non-GRASP communications SHOULD use the ACP if possible and MUST be secured.

- Authorization of ASAs is for future study

Discussion + next steps

- Comments? Questions?
- <u>Additional authors needed</u> for Life Cycle and Coordination
- Should the WG take up this topic?