Information Distribution over GRASP

(draft-liu-anima-grasp-distribution-01)

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Look back 00 version

• Technical requirements - Node behavior
  – Flooding behavior
    • loop avoidance
  – Selective Flooding
  – Point to Point exchange

• Technical requirements - Protocol
  – Indicate the distributed information
    • The autonomic nodes need to know which messages are to be distributed.
  – Indicate the selective flooding criteria
    • The node needs to be indicated which interfaces/addresses should be sent the distributed information.
01 version

• Technical requirements - Node behavior
  – Flooding behavior
    • loop avoidance *relevant mechanism added in GRASP-04*
  – Selective Flooding *relevant mechanism added in 01 version*
  – Point to Point exchange

• Technical requirements - Protocol
  – Indicate the distributed information
    • The autonomic nodes need to know which messages are to be distributed. *New “Flood Sync” message in GRASP-02*
  – Indicate the selective flooding criteria
    • The node needs to be indicated which interfaces/addresses should be sent the distributed information. *Added in 01 version*
Selective Flooding Mechanism

• Selective flooding criteria
  – Matching condition: which represents the criteria of the selection (e.g. "Device role=IPRAN_RSG")
  – Matching objective: the matching objective is either the node itself or the neighbors (e.g. “Neighbors”)
  – Action: the action is either continuing the distribution or terminating it (e.g. "Distribute")

• Node behavior
  – 1) The distribution initial node Includes the Selecting Criteria in the distributed information.
     • [Open Question] Include the criteria in the GRASP message or the distribution content?
  – 2) The receiving node does the matching indicated by the Selecting Flooding Criteria
     • Matching Objective="Neighbors": the node only distributes the information to the neighbors who match the Matching Condition.
     • Matching Objective="Self": if matched, the node terminates the distribution (not flooding it to any of the neighbor)
Open Issues (1/3)

• #1 Do we need selective flooding?
  – Pros
    • Avoid some unnecessary message amplification
    • Better security considerations in some scenarios
  – Cons
    • Additional complexity
  – Consideration
    • Selective flooding could be an advanced feature supported by the GRASP-Distribution-Function
    • Basic GRASP module doesn’t need to support it
Open Issues (2/3)

• #2 Lifetime management
  – For short-term content, maybe it’s good to include Lifetime?
  – For long-lived content, maybe just wait for the update?

• #3 Verification of Distributed Information
  – Information integrity verification
    • ACP only provides confidentiality
    • Digital signature of the content by the domain certificate?
  – Source authorization verification
    • Verify whether the source is privileged to distribute the content
    • Out of scope?
Open Issues (3/3)

• #4 Autonomic domain boundary
  – Michael B.: ACP has the boundary implication
  – Non-ACP mode out of scope

• #5 Arbitrary Injecting Point
  – Should every node support initial distribution or only part of them?

• #6 Confliction Handling
  – Handle it at the distribution content management level, out of scope of distribution behavior/protocol?

• #7 Verification of Distributed Information
  – Information integrity verification
    • Digital signature of the content?
  – Source authorization verification
    • Out of scope?
Comments?

Thank you!

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