

# Source Address Validation in Intra-domain Networks Gap Analysis, Problem Statement and Requirements

**Presenter: Lancheng Qin**

March, 2026

# Summary of Comments

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## □ Scope clarification

- ◆ Concern about potential overlap with the Inter-domain SAV Problem Statement document

## □ Requirement-related comments

- ◆ Wording ambiguity: *“the new intra-domain SAV mechanism”* may imply only a single mechanism
- ◆ MUST vs SHOULD: MUSTs for improvements in Section 5.1 are too strong. SHOULD is preferred
- ◆ Additional requirement suggestions: manageable complexity
- ◆ Requirement clarity: “Security” is considered too general as the title of Section 5.5

## □ Other terminology or wording nits

# Scope Clarification

## □ Scope overlap with the Inter-domain SAV Problem Statement document<sup>[1,2]</sup>

### ◆ Discussion

- The inter-domain problem statement document clarifies that " Inter-domain SAV refers to SAV on AS-to-AS interfaces that carry external BGP (eBGP) sessions"
- However, Section 1 and Section 3.2 of this intra-domain problem statement document still involve SAV on external BGP interfaces
- Current distinction based on enforcement capability; interface-type distinction is clearer

### ◆ Suggestions from SAVNET participants

1. Focus only on SAV between non-BGP neighbors (and revise Section 1 goals)
2. Remove Section 3.2 which analyzes SAV at external BGP interface

## □ Planned updates

◆ Clarify document **focuses only on SAV at external non-BGP interfaces** (Section 1)

◆ **Remove Section 3.2**

◆ **Revise intra-domain SAV goal** per mailing list suggestions

[1] [https://mailarchive.ietf.org/arch/msg/savnet/b6GPy5-9ZTNqVtZaeVG\\_WWRPfnS/](https://mailarchive.ietf.org/arch/msg/savnet/b6GPy5-9ZTNqVtZaeVG_WWRPfnS/)

[2] <https://mailarchive.ietf.org/arch/msg/savnet/OcMrDLUFHgiBIRRYA4SMZr-kp6M/>

# Requirement-related comment #1

- “The new intra-domain SAV mechanism” may imply only a single mechanism [2]

- ◆ Suggestion from SAVNET participants

- “The new intra-domain SAV mechanism ” → “Any new intra-domain SAV mechanism”
- Similar comments were also raised for the inter-domain SAV problem statement draft

- Planned updates

- ◆ “**The** new intra-domain SAV mechanism” → “**Any** new intra-domain SAV mechanism”

[2] <https://mailarchive.ietf.org/arch/msg/savnet/OcMrDLUFHgiBIRryA4SMZr-kp6M/>

# Requirement-related comment #2

- MUSTs for improvements in Section 5.1 are too strong. SHOULD is preferred [2]

- ◆ Discussion

- Current wording does not allow for a solution that improves intra-domain SAV but does not achieve perfection<sup>[2]</sup>
- The intent here is likely to compare to the existing mechanisms<sup>[3]</sup>
- Any new solution must improve key dimensions of intra-domain SAV<sup>[4]</sup>

- Planned update #2

- ◆ Original:

- “It **MUST achieve the goals** described in Section 1, preventing spoofed traffic ... **MUST avoid blocking legitimate packets ...**”

- ◆ Revised:

- “Any new intra-domain SAV mechanism **MUST improve accuracy of existing uRPF-based mechanisms** by reducing improper blocks and improper permits, specifically:  
**MUST result in fewer improper blocks than strict uRPF**, particularly in scenarios involving asymmetric routes or hidden prefixes; and  
**MUST result in fewer improper permits than loose uRPF ...**”

[2] <https://mailarchive.ietf.org/arch/msg/savnet/OcMrDLUFHgiBIRryA4SMZr-kp6M/>

[3] <https://mailarchive.ietf.org/arch/msg/savnet/-0sELfCsi8BBWYCOGHvd15R8StA/>

[4] <https://mailarchive.ietf.org/arch/msg/savnet/rIEVV6jPb9I3VwIKkiYsSCCF3kM/>

# Requirement-related comment #3

- OPSDIR reviewer suggests adding a “Manageable Complexity” requirement [4]

- ◆ Discussion

- Any new intra-domain SAV mechanism SHOULD not add excessive complexity to network management and operation
- Section 5.2 (Automatic Updates) already captures some aspects of manageable complexity. A new manageable complexity requirement may introduce overlap between requirements

- Planned updates

- ◆ Revise Section 5.2 (Automatic Updates) to better reflect considerations of manageable complexity:

“Any new intra-domain SAV mechanism MUST be capable of automatically generating and updating SAV rules on routers, rather than relying entirely on manual updates as in ACL-based SAV. Automation helps **reduce operational complexity and maintenance overhead**, while allowing some initial configuration to improve SAV accuracy. **This ensures the mechanism is deployable in practical networks without introducing excessive management burden.**”

[4] <https://mailarchive.ietf.org/arch/msg/savnet/21Q4F3n7-o4OPUkpa7XAVF1qJa4/>

# Requirement-related comment #4

- “Security” is considered too general as the title of Section 5.5 [4]
  - ◆ Suggestion from OPSDIR reviewer
    - Use a more accurate title, e.g., “Vulnerability Prevention”
- Planned updates
  - ◆ Split content of Section 5.5 into two separate requirements:
    - **New Section 5.5 “Authentication of Information Used for SAV”** → covers content related to ensuring authentication of information used for SAV
    - **New Section 5.6 “Vulnerability Prevention”** → covers content related to preventing introducing additional security vulnerabilities

[4] <https://mailarchive.ietf.org/arch/msg/savnet/21Q4F3n7-o4OPUkpa7XAVF1qJa4/>

# Summary of Planned Updates

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## □ Document scope clarification

- ◆ Clarify document focuses only on SAV at external non-BGP interfaces (Section 1)
- ◆ Remove Section 3.2 (external BGP interfaces analysis)
- ◆ Revise intra-domain SAV goal per mailing list suggestions

## □ Revision to requirements

- ◆ Refine wording to avoid implying only a single new mechanism will be proposed
- ◆ Section 5.1 (Accurate Validation): Use MUSTs when comparing to the existing mechanisms
- ◆ Section 5.2 (Automatic Updates): Better reflect manageable complexity considerations
- ◆ Section 5.5 (Security): Split into two separate requirements: Vulnerability Prevention and Authentication of Information Used for SAV

## □ Minor / nits

- ◆ Other small terminology or wording adjustments

# Open Discussion

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- ❑ The revised draft has been uploaded to GitHub:
  - ◆ <https://github.com/SAVNET-ProblemStatement-Architecture/Intra-domain-problem-statement>
- ❑ Are the planned updates (mainly in Section 1, Section 5) appropriate?
- ❑ Any further comments or suggestions regarding the use of MUST vs SHOULD in requirements (Section 5) ?
- ❑ All participants are encouraged to review and provide feedback. If there are no objections to the revised draft, we plan to submit it to IETF as soon as possible.