

Intra-domain Source Address Validation (SAVNET) Architecture

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Background

- Intra-domain SAVNET architecture aims to achieve accurate SAV in an intra-domain network by an automatic way
 - ◆ Introduce the use of SAV-specific information and guide the development of future intra-domain SAV solutions
- Historical versions
 - ◆ draft-li-savnet-intra-domain-architecture-00, IETF 115 SAVNET WG
 - ◆ draft-li-savnet-intra-domain-architecture-01, IETF 116 SAVNET WG
 - ◆ draft-li-savnet-intra-domain-architecture-02, June 2023
 - ◆ draft-li-savnet-intra-domain-architecture-03, IETF 117 SAVNET WG
 - ◆ draft-li-savnet-intra-domain-architecture-04, Oct 2023
 - ◆ draft-li-savnet-intra-domain-architecture-05, IETF 118 SAVNET WG
 - ◆ draft-li-savnet-intra-domain-architecture-06, Jan 2024
 - ◆ draft-li-savnet-intra-domain-architecture-07, IETF 119 SAVNET WG
 - ◆ **draft-ietf-savnet-intra-domain-architecture-00, Apr 2024**
 - ◆ **draft-ietf-savnet-intra-domain-architecture-01, IETF 121 SAVNET WG**

Main Update

□ Add a new Section 4 to discuss where to deploy intra-domain SAVNET

- ◆ The architecture should be general to include different future SAV solutions
- ◆ The architecture should mention necessary factors that should be considered by future SAV solutions
- ◆ The architecture should guide the solution towards being effective and efficient

Table of Contents

1. Introduction	3
1.1. Requirements Language	4
2. Terminology	4
3. Overview	5
4. Where to deploy intra-domain SAV	7
5. Roles of SAVNET Routers	8
5.1. Source Entity	8
5.2. Validation Entity	8
5.3. SAV-specific Information Communication Mechanism	9
6. SAV-related Information	9
6.1. SAV-specific Information	9
6.2. Routing Information	10
7. SAV Rule Generation	10
8. Use Cases	12
8.1. Use Case 1: SAV at Host-facing or Customer-facing Routers	12
8.2. Use Case 2: SAV at AS Border Routers	13
9. Meeting the Design Requirements of Intra-domain SAVNET	15
9.1. Accurate Validation	15
9.2. Automatic Update	15
9.3. Incremental/Partial Deployment	15
9.4. Convergence	17
9.5. Security	17
10. Data-plane Considerations	18
11. Manageability Considerations	18
12. Privacy Considerations	19
13. IANA Considerations	19
14. Contributors	19
15. Acknowledgements	19
16. References	19
16.1. Normative References	19
16.2. Informative References	20
Authors' Addresses	21

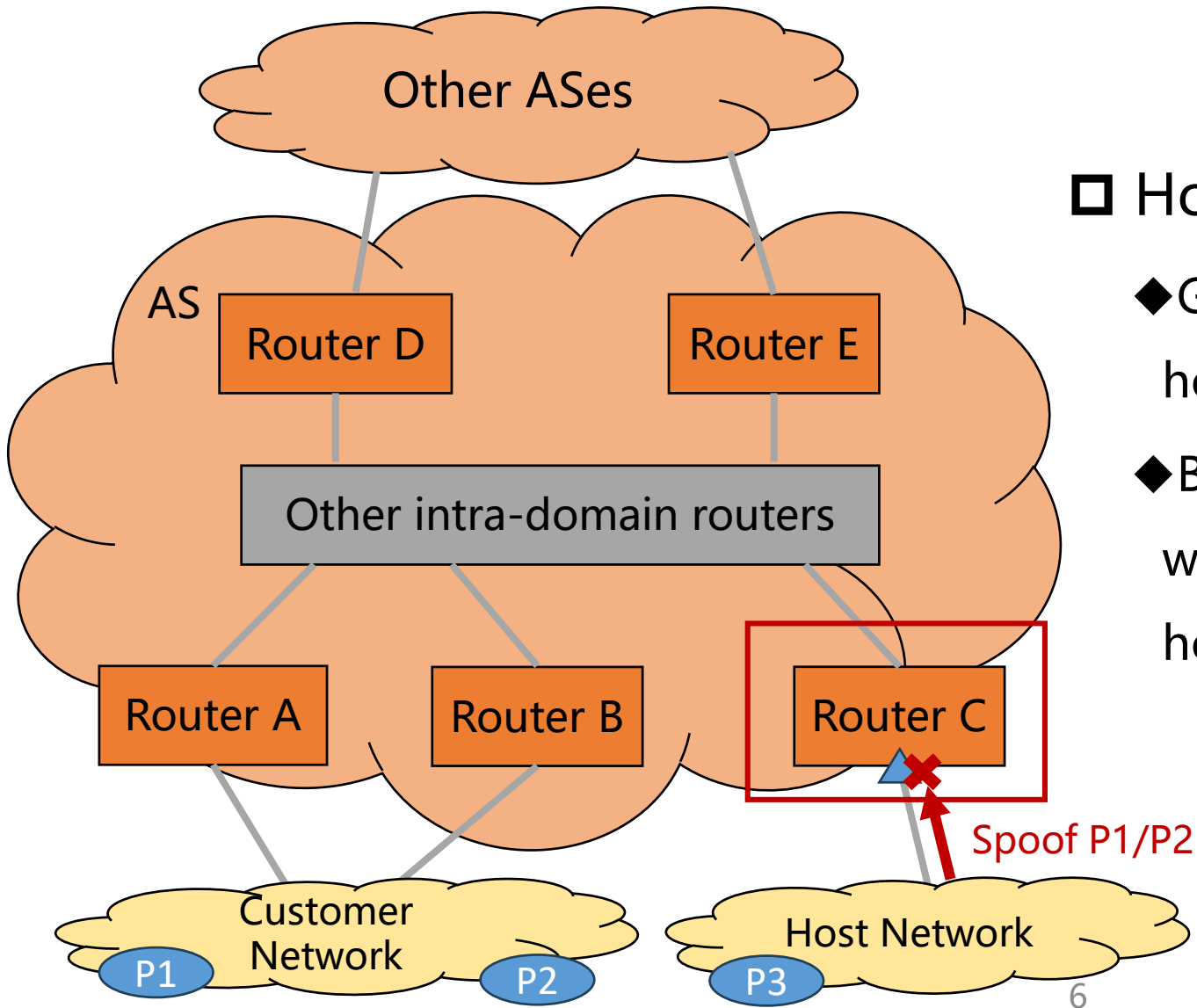
Where to Deploy Intra-domain SAVNET

- ❑ To reduce deployment overhead and redundant validation, it is **not necessary** to **deploy** intra-domain SAV **on all intra-domain routers**
- ❑ Future solutions should **specify which routers deploy intra-domain SAV**
 - ◆ **Provide incremental benefits** when those routers incrementally deploy intra-domain SAV
- ❑ To this end, this section provides some key recommendations and considerations that should be considered by future solutions

Where to Deploy Intra-domain SAVNET

- Host-facing routers, customer-facing routers, and AS border routers are vantage points to implement intra-domain SAV
 - ◆ These routers are closer to the source and thus will be more effective in identifying and discarding source-spoofed data packets
 - ◆ They can clearly determine the directionality of specific source prefixes based on network topology

Where to Deploy Intra-domain SAVNET

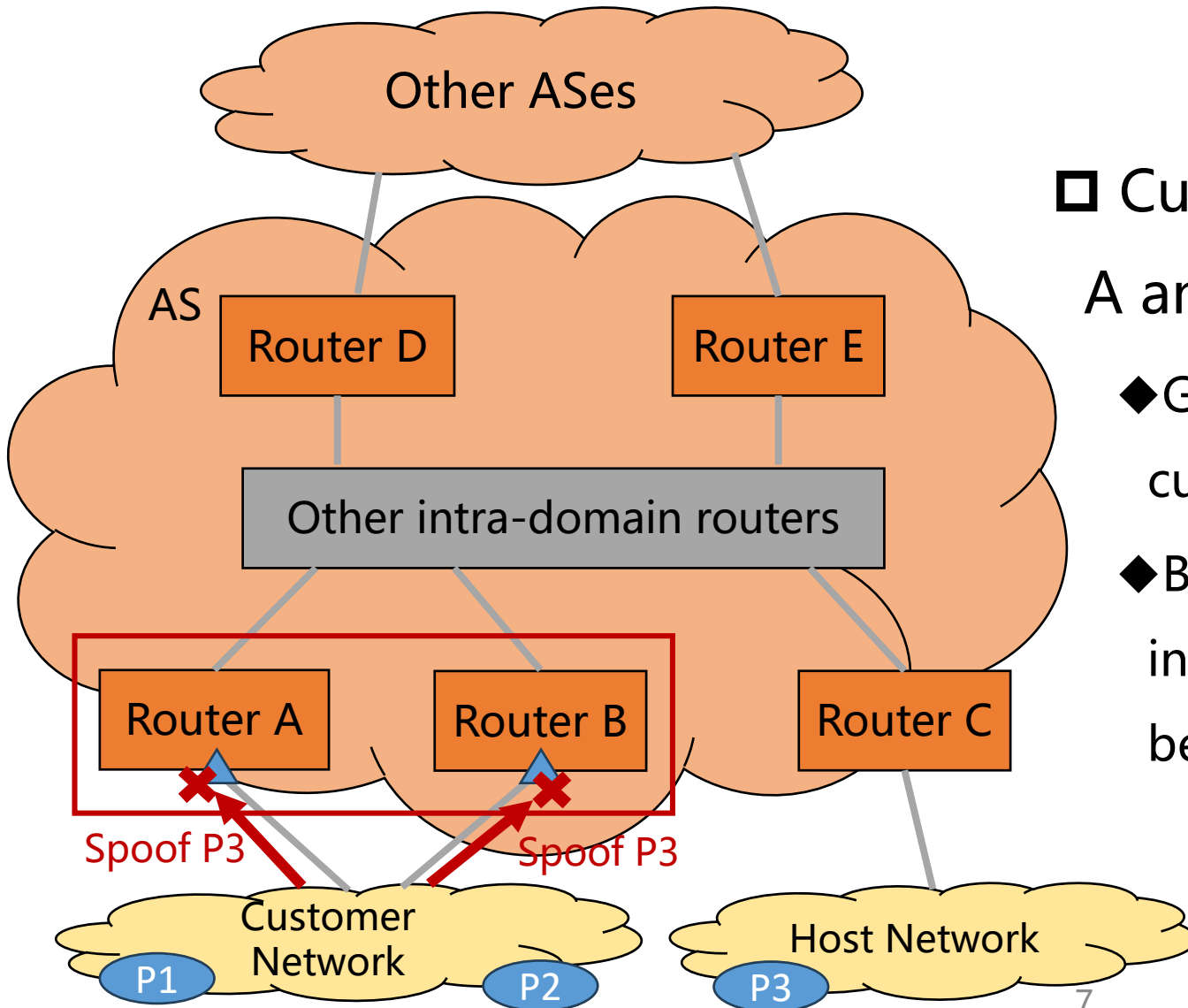


□ Host-facing router (e.g., Router C)

- ◆ Generate SAV rules on interfaces facing the host network

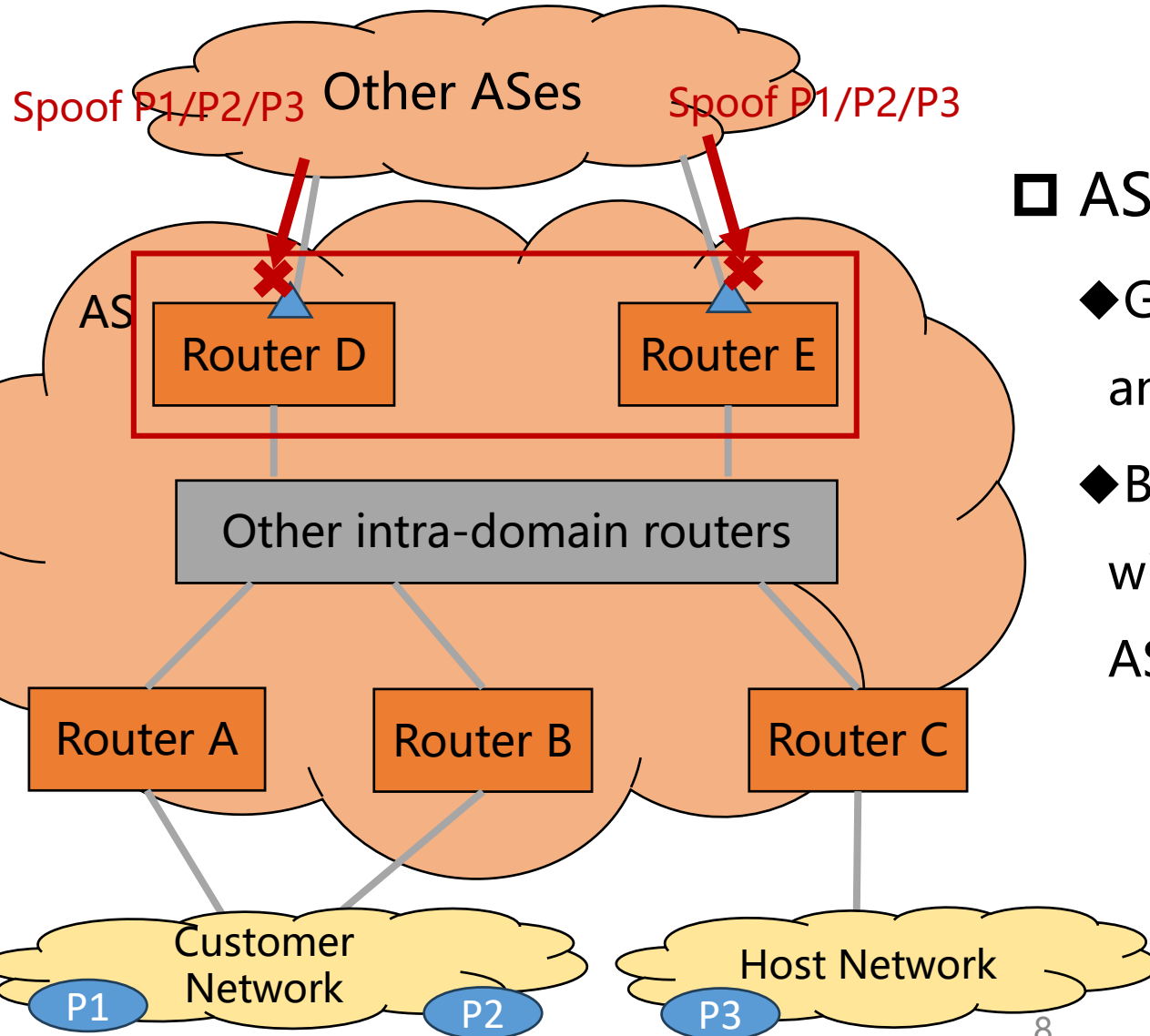
- ◆ Block data packets received at those interfaces with source addresses not belonging to the host network

Where to Deploy Intra-domain SAVNET



- ❑ Customer-facing router (e.g., Routers A and B)
 - ◆ Generate SAV rules on interfaces facing the customer network
 - ◆ Block data packets received at those interfaces with source addresses not belonging to the customer network

Where to Deploy Intra-domain SAVNET



- AS border router (e.g., Routers D and E)
 - ◆ Generate SAV rules on interfaces facing another AS
 - ◆ Block data packets received at those interfaces with source addresses belonging to the local AS

Where to Deploy Intra-domain SAVNET

- Implementing **SAV on other intra-domain routers** should be **more complicated** because many factors will affect the forwarding path from the source to this kind of routers
 - ◆ For example, Traffic Engineering (TE) or Fast Reroute (FRR) is commonly used in an intra-domain network to control the forwarding decisions of routers
- If a solution decides to implement SAV on other intra-domain routers,
 - ◆ It MUST take **all factors that will affect forwarding** into consideration to ensure the accuracy of SAV rules
 - ◆ It MUST **avoid improper block** problems and MUST have **less improper permit problems than existing uRPF-like mechanisms**

Open Discussion

- ❑ Has this architecture included future possible SAV solutions?
- ❑ Has these mentioned considerations covered the necessary factors to be considered by different SAV solutions?
- ❑ Any questions?

Thanks!