Stateless 4v6 motivation
and
An operator's view of stateless solutions

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Document Rationale of
the motivation draft
<draft-ietf-softwire-stateless-4v6-motivation>

Avoid as much as possible biased analysis

Motivations are sketched from an operator standpoint, with a focus on the fol
lowing dimensions

Network Architecture & Planning

Network Operations & Maintenance

Network & Service Evolution

CAPEX Optimization opportunities

ToC of the motivation draft

Technical and Operational benefit
Network Dimensioning
No Intra-domain constraint
Logging
No additional control protocol
Preserve current practice
Planned maintenance
Reliability and robustness
Multi-vendor redundancy
Simple qualification
Implicit Host Identification for internal services
Organizational Impact

Discussions
Dependency between IPv4 and IPv6 Address
IPv4 Port utilization Efficiency
IPv4 Port randomization

Address allocation consideration in terms of intra/inter domain

There are several cases:

1. One operational domain for both IPv4 and IPv6
   Operated by one policy

   must have consistent addressing policy among IPv4 and IPv6 for stateless 4v6

2. Each IPv4 and IPv6 is operated by individual domain
   individual NOC for IPv4 and IPv6, or

   individual AS for IPv4 and IPv6

   might have different addressing policy among IPv4/IPv6 for stateless 4v6

Stateless 4v6 'agnostic' IPv6 prefix allocation is happened in IPv6 operation!
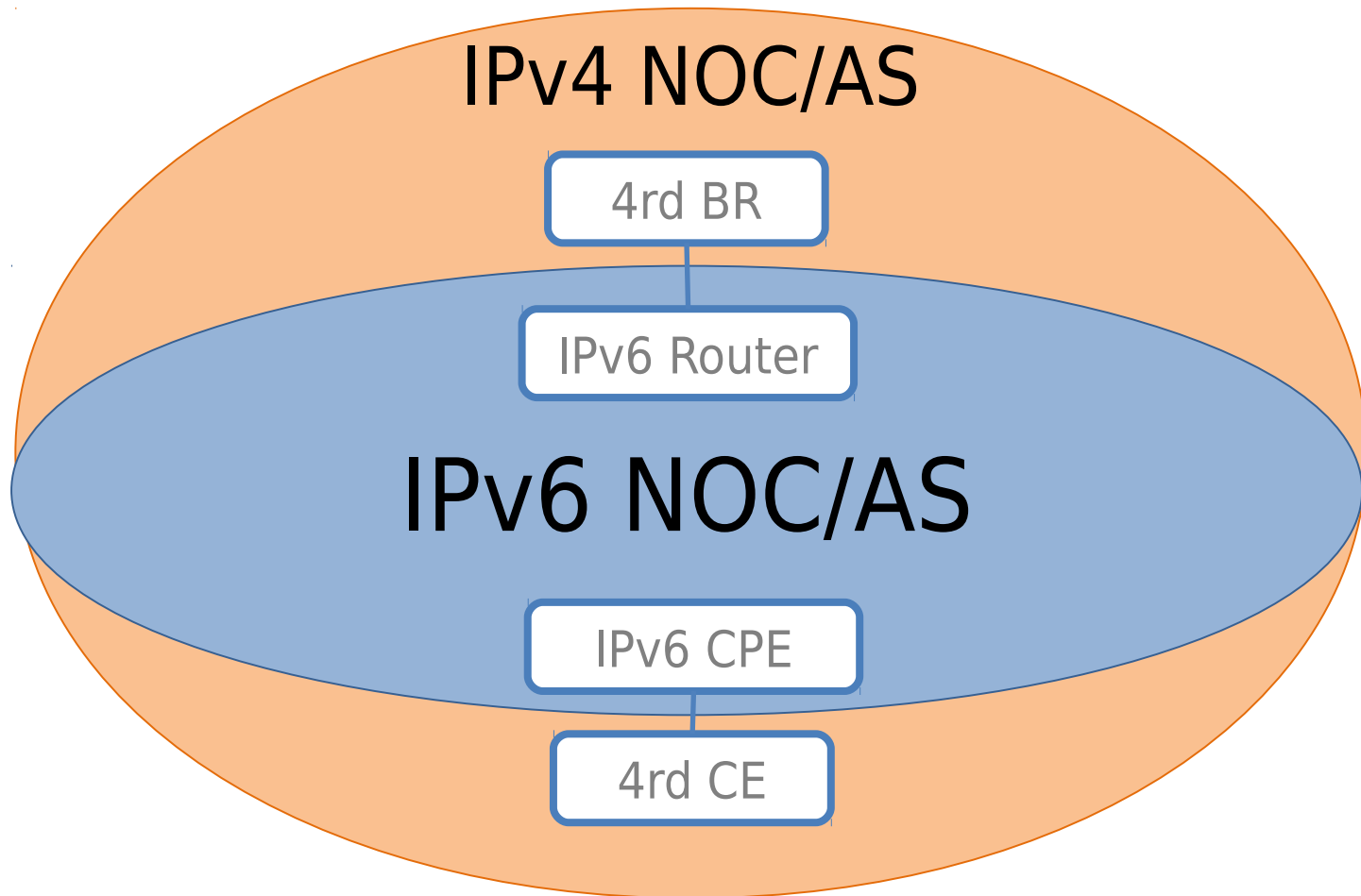
Conclusion

Stateless 4v6 agnostic IPv6 prefix allocation would be happened

At least, standardized 4v6 address mapping solution must be avoid to assign well-known-IPv4 address and ports to customers w/o stateless 4v6 aware IPv 6 prefix allocation
    e.g,

- 0.0.0.0/8, 127.0.0.0/8, 224.0.0.0/3, etc.,

- 0 ~ 1023 or 4096 of TCP/UDP ports

The solution should support a scenario of which an IPv6 CPE sub-delegates a prefix to it's a connected 4v6 CE