

6/4 Translation on a Host

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What is “an IPvX network”?

- At the Montreal interim, we talked about lots of cases:
 - Network with only IPvX connectivity to Internet, even if dual-IP inside
 - Host provisioned only with IPvX address(es), even if dual stack
 - Host with only an IPvX stack
 - IPvX-only application, even if running on a dual-stack host and network
- In this presentation, we’ll specifically talk about the last case above

Scenarios

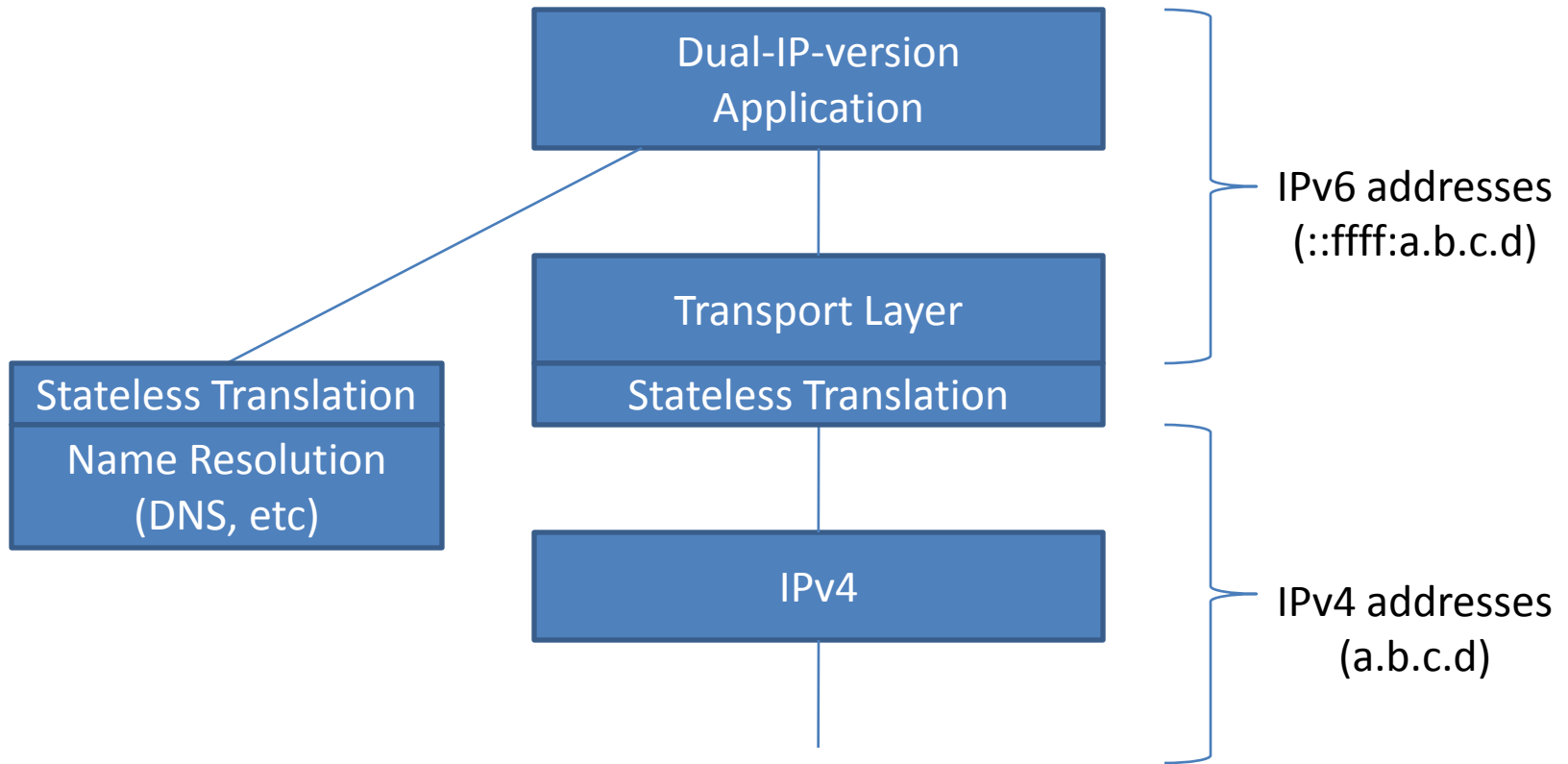
Same as usual, except “an IPvX network” is a single application:

- An IPv6 **application** to IPv4 Internet/network
- IPv4 Internet/network to an IPv6 **application**
- An IPv4 **application** to IPv6 Internet/network
- IPv6 Internet/network to an IPv4 **application**

Mechanisms Defined Today

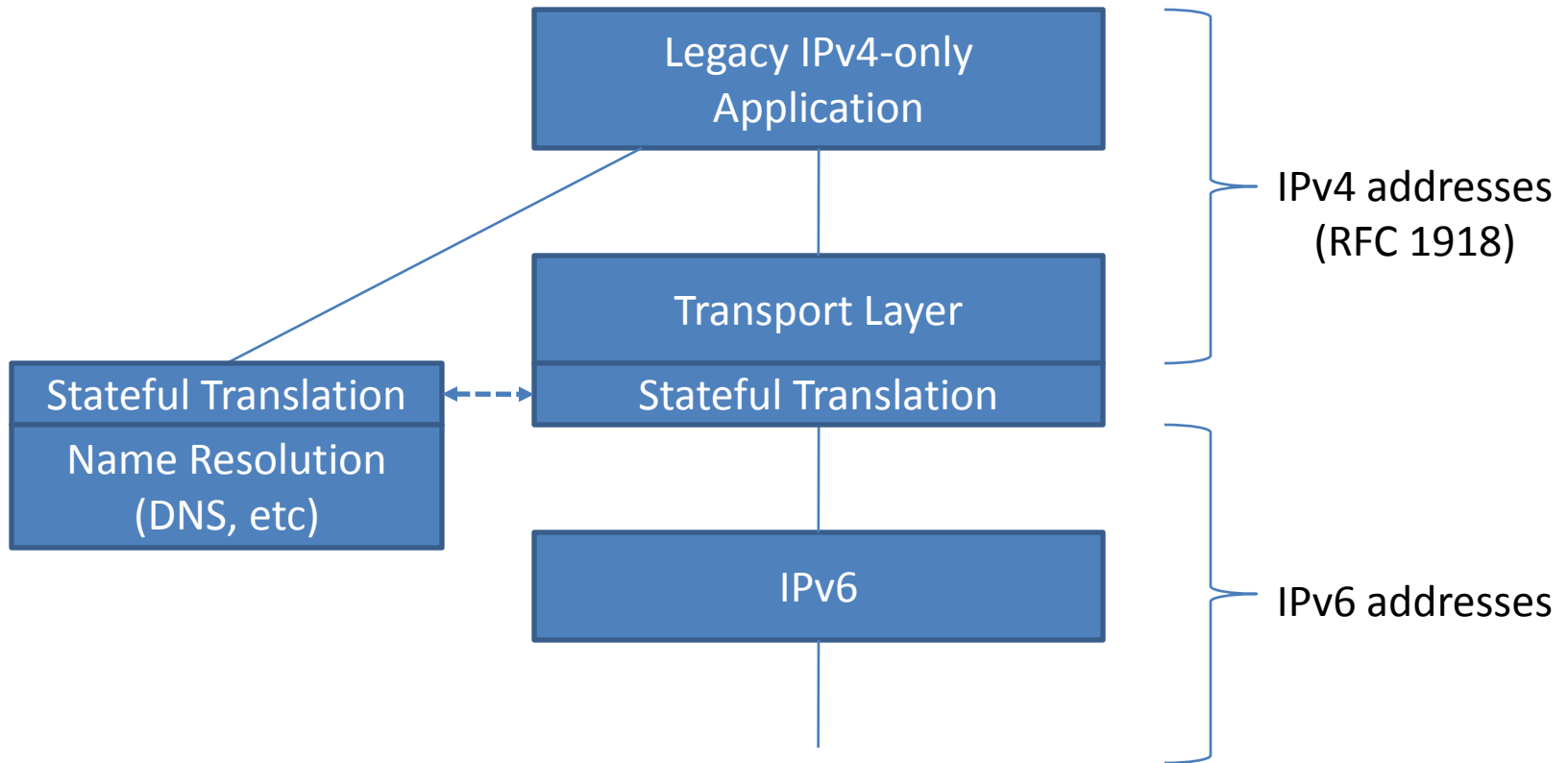
- Widely deployed:
 - RFC 3493: AF_INET6 sockets using v4-mapped addresses
- Implementations, but unknown deployment:
 - RFC 2767: Bump-In-the-Stack (BIS)
 - RFC 3338: Bump-In-the-API (BIA)

AF_INET6 sockets



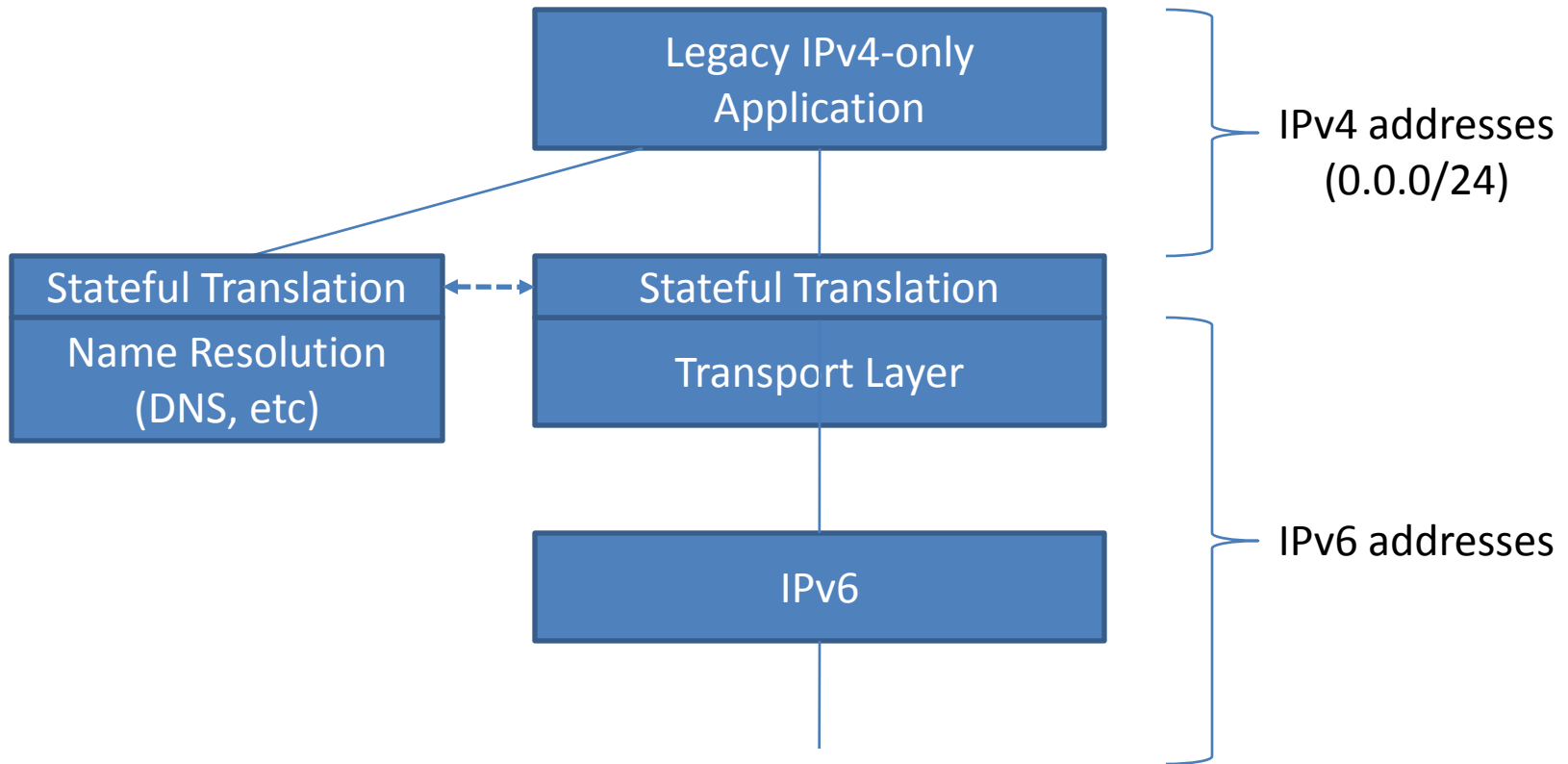
- Uses well-known IPv6 prefix (::ffff:0:0/96), LIR IPv4 prefix
- Name resolution synthesizes IPv6 addresses only if IPv4-only response

Bump-In-the-Stack



- Uses well-known IPv4 prefix (RFC 1918), LIR IPv6 prefix
- Name resolution synthesizes IPv4 address only if IPv6-only response

Bump-In-the-API



- Uses well-known IPv4 prefix (0.0.0/24), LIR IPv6 prefix
- Name resolution synthesizes IPv4 address only if IPv6-only response

Conclusions

- V4/6 translation is already common in hosts and will only become more so
- App-layer issues (e.g., referrals, etc) are independent of whether translation is in host or network
- Framework and documents on any other generic issues should encompass both host and network translation