OpenInfra & Cloud Native
Days Korea

Linux Kernel Networking Stack
진입 장벽 허물기

강주희
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Speaker

강주희 (Juhee Kang, claudiajkang@gmail.com)

- 오픈 소스 파트 프런티어 개발자
- 프로젝트: Linux Kernel Networking Stack, Kubernetes i18n
- 주력 분야 : 클라우드, 네트워크, 백엔드
- 강연 활동 : 연세대, 숭실대 등 5개 대학 Git/GitHub 교육 진행

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Linux Kernel Networking Stack

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Kernel 생태계

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Kernel 기여하기

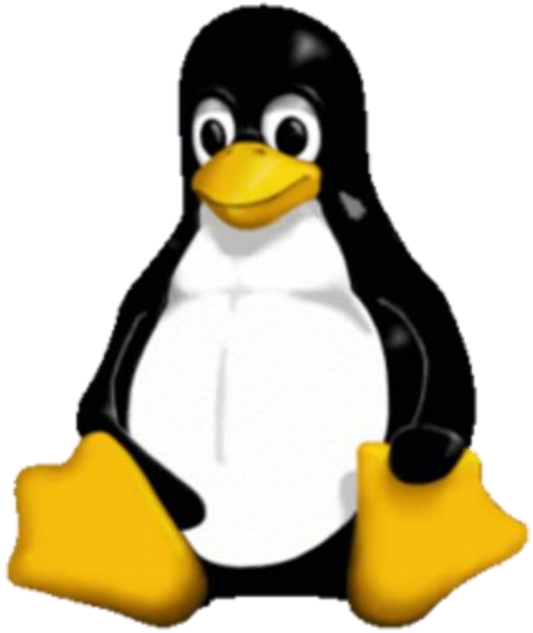
한번쯤은?

리눅스 커널 개발을 해볼까?

Linux Kernel 컨트리뷰션?

어떻게 시작하지?

다른 오픈소스처럼 컨트리뷰션 하면 될까?

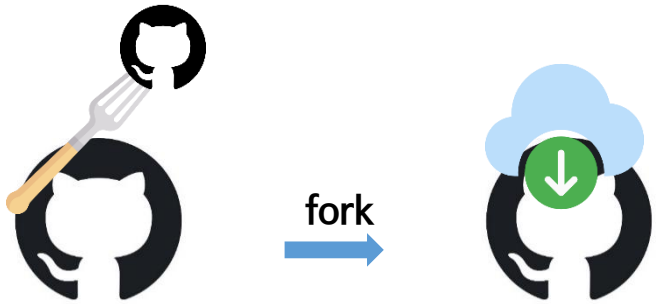


리눅스 커널도 오픈소스이니까 다른 오픈 소스처럼 github에서 하겠지?

github으로 관리되는 오픈소스에 컨트리뷰션을 한다면?

오픈소스 원본 저장소

github으로 관리되는 오픈소스에 컨트리뷰션을 한다면?



오픈소스 원본 저장소 〈나의 github id〉/fork된 저장소

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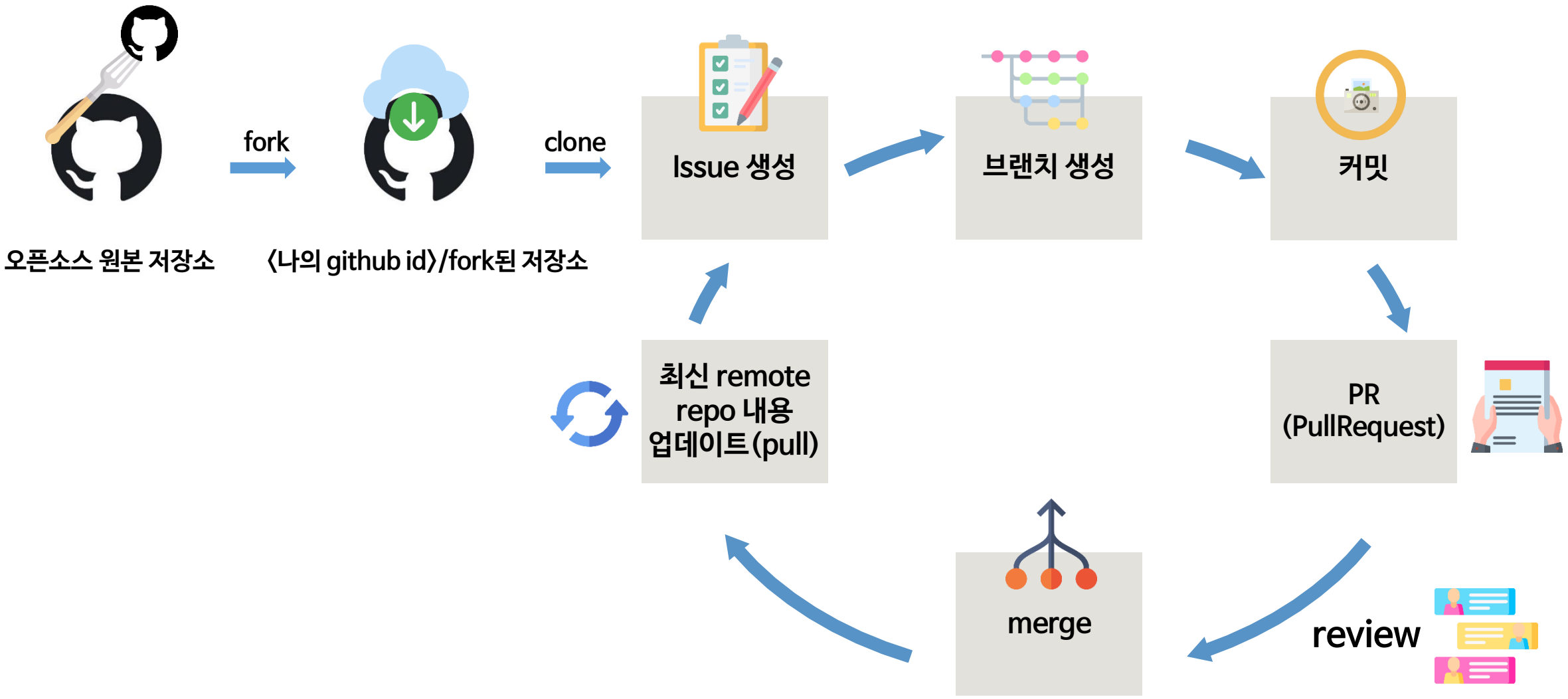
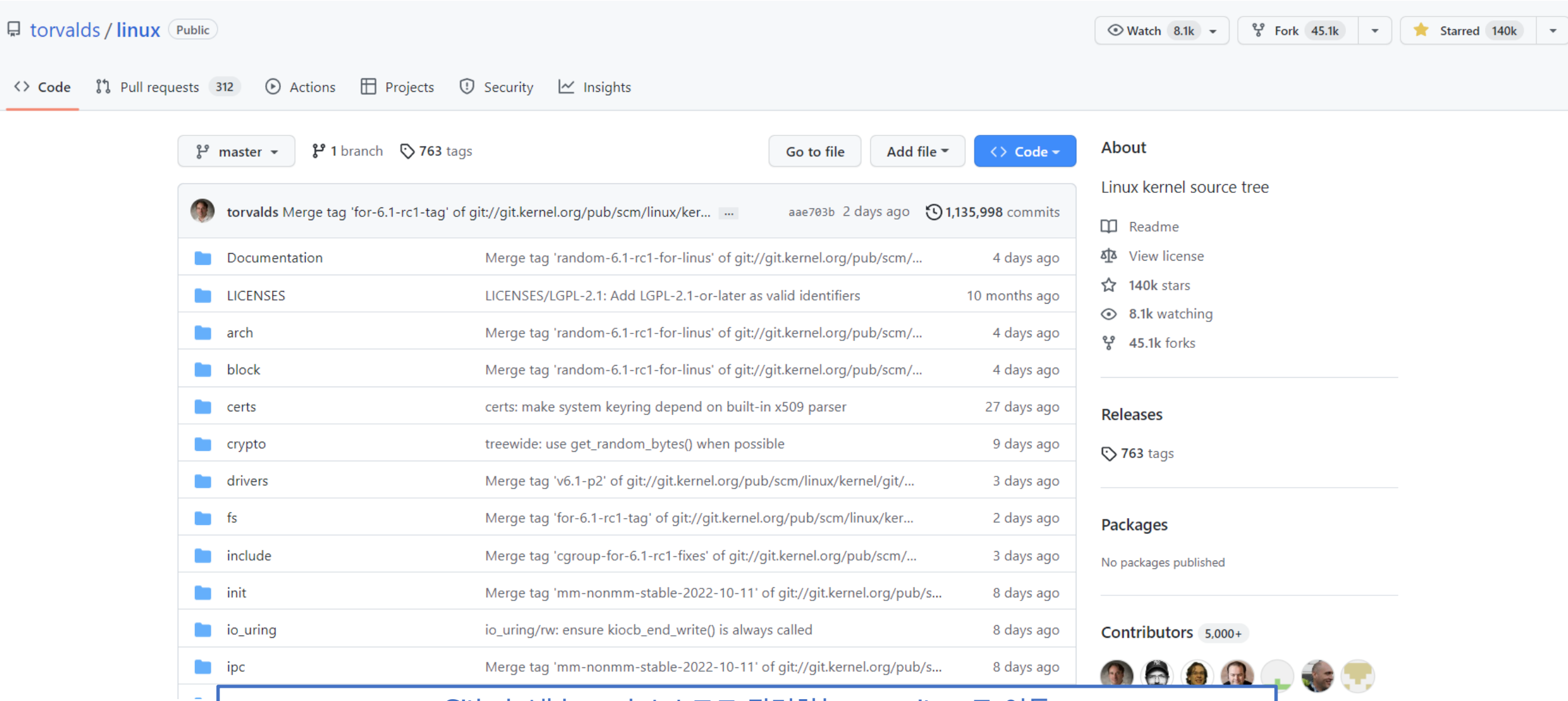
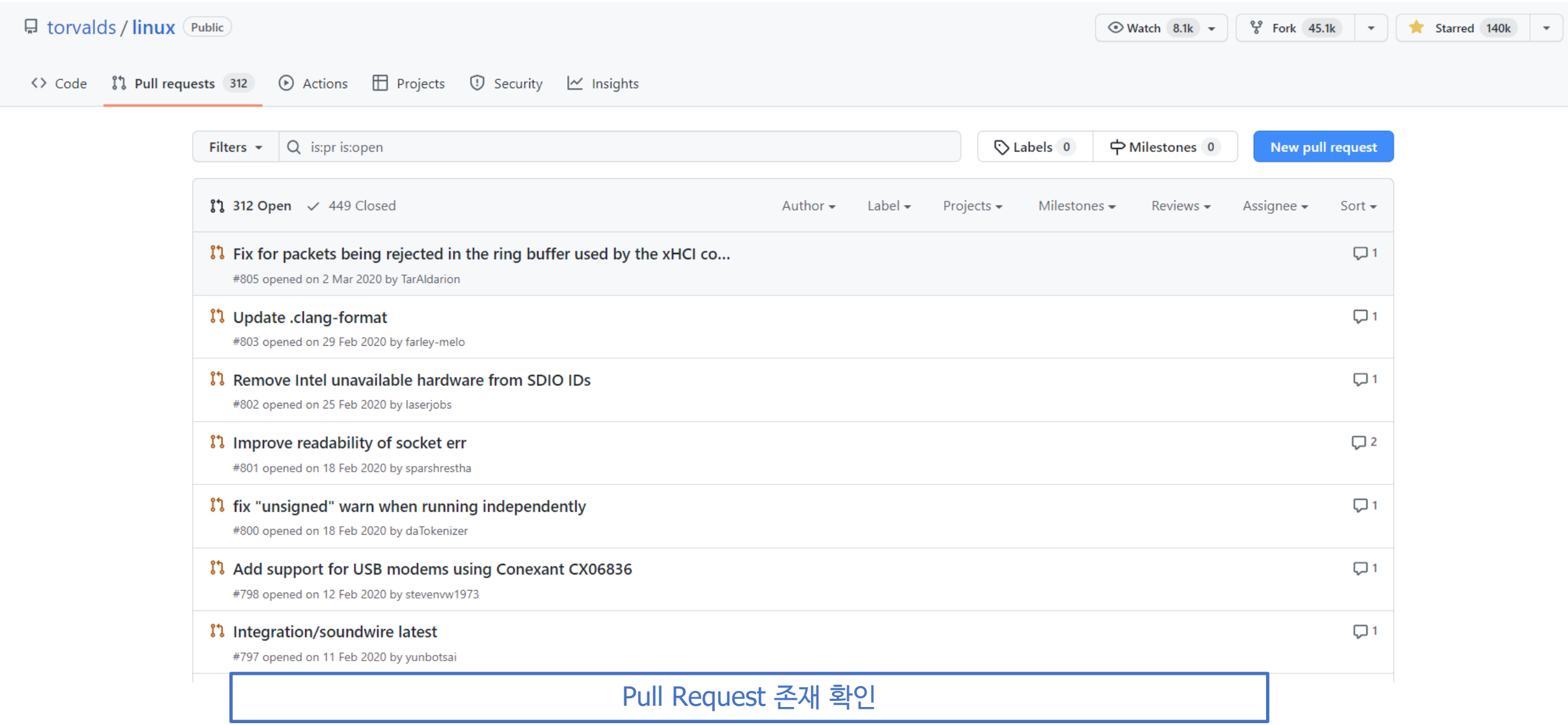


타 오픈소스처럼 github에서 컨트리뷰션 하면 될까?



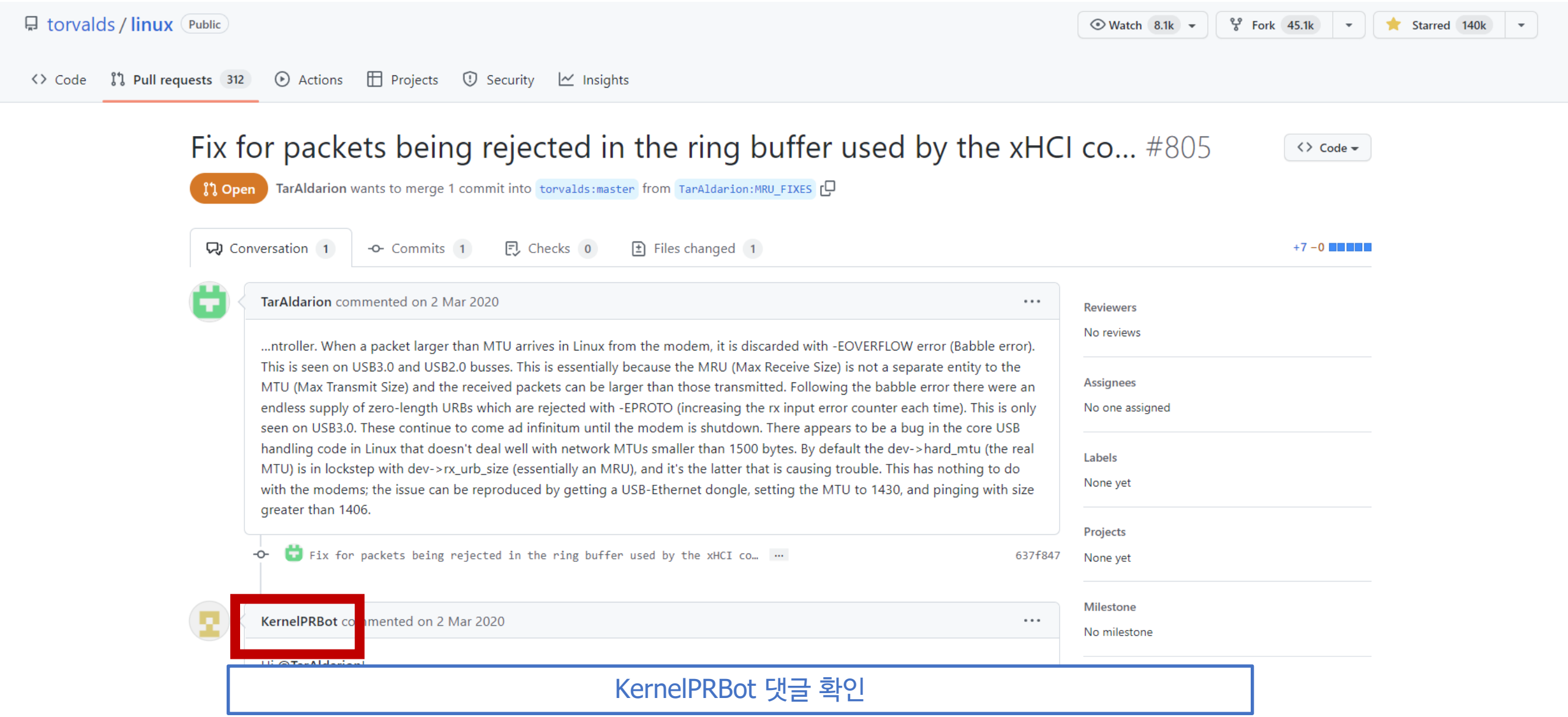
Github 내 kernel 소스코드 관리하는 repository로 이동

타 오픈소스처럼 github에서 컨트리뷰션 하면 될까?



Pull Request 존재 확인

타 오픈소스처럼 github에서 컨트리뷰션 하면 될까?



KernelPRBot 댓글 확인

타 오픈소스처럼 컨트리뷰션 하면 될까?

Open **Fix for packets being rejected in the ring buffer used by the xHCI co...** #805

TarAldarion wants to merge 1 commit into `torvalds:master` from `TarAldarion:MRU_FIXES`

KernelPRBot commented on 2 Mar 2020

Hi **@TarAldarion**!

Thanks for your contribution to the Linux kernel!

Linux kernel development happens on mailing lists, rather than on GitHub - this GitHub repository is a read-only mirror that isn't used for accepting contributions. So that your change can become part of Linux, please email it to us as a patch.

Sending patches isn't quite as simple as sending a pull request, but fortunately it is a well documented process.

Here's what to do:

- Format your contribution according to kernel requirements
- Decide who to send your contribution to
- Set up your system to send your contribution as an email
- Send your contribution and wait for feedback

How do I format my contribution?

The Linux kernel community is notoriously picky about how contributions are formatted and sent. Fortunately, they have documented their expectations.

Firstly, all contributions need to be formatted as patches. A patch is a plain text document showing the change you want to make to the code, and documenting why it is a good idea.

You can create patches with `git format-patch`.

Secondly, patches need 'commit messages', which is the human-friendly documentation explaining what the change is and why it's necessary.

need to comply with.

Milestone

No milestone

Notifications Customize

Subscribe

You're not receiving notifications from this thread.

2 participants

Github 은 read-only mirror

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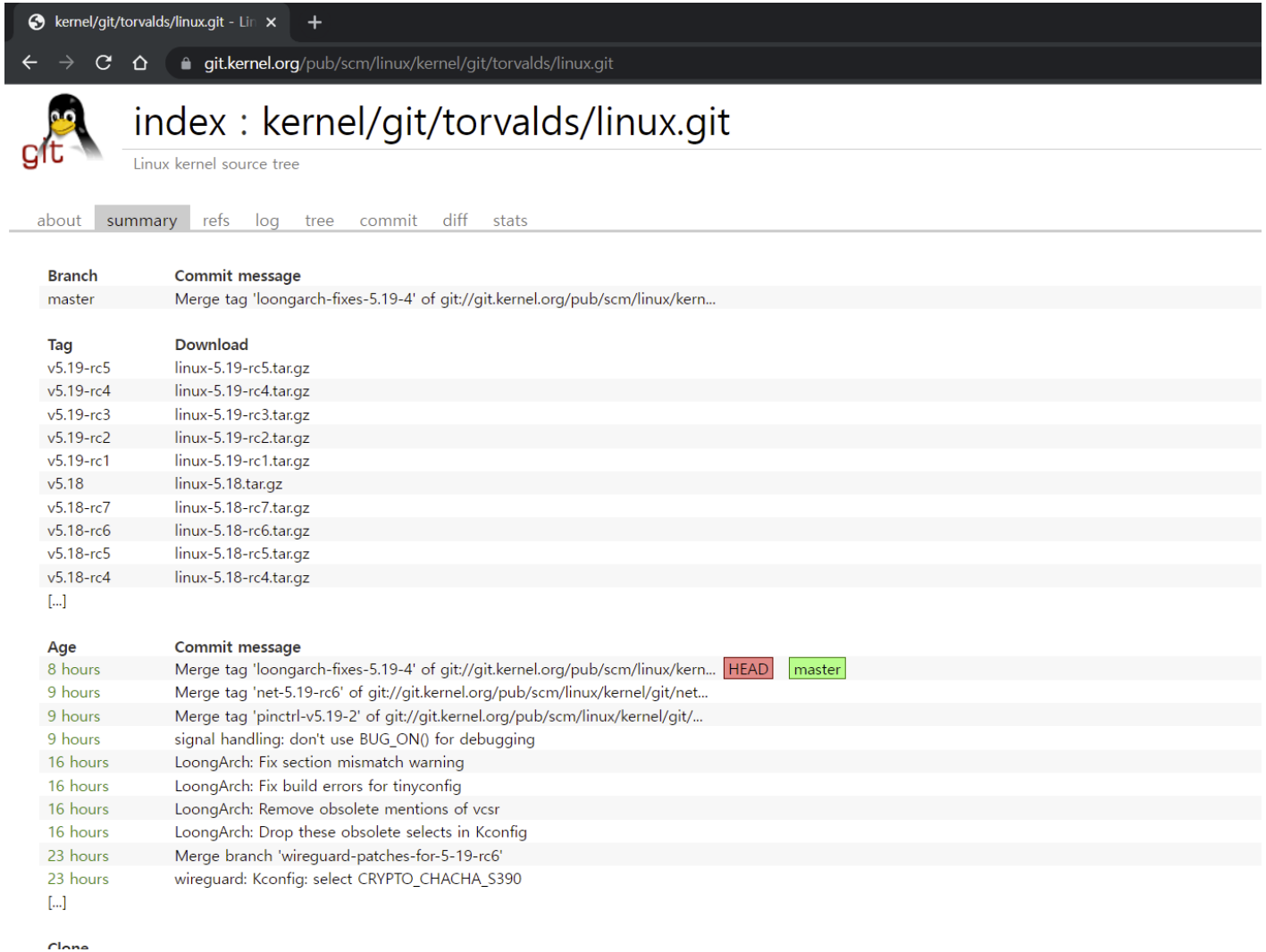
2 participants

KernelPRBot이 안내하는 Contribution 방법

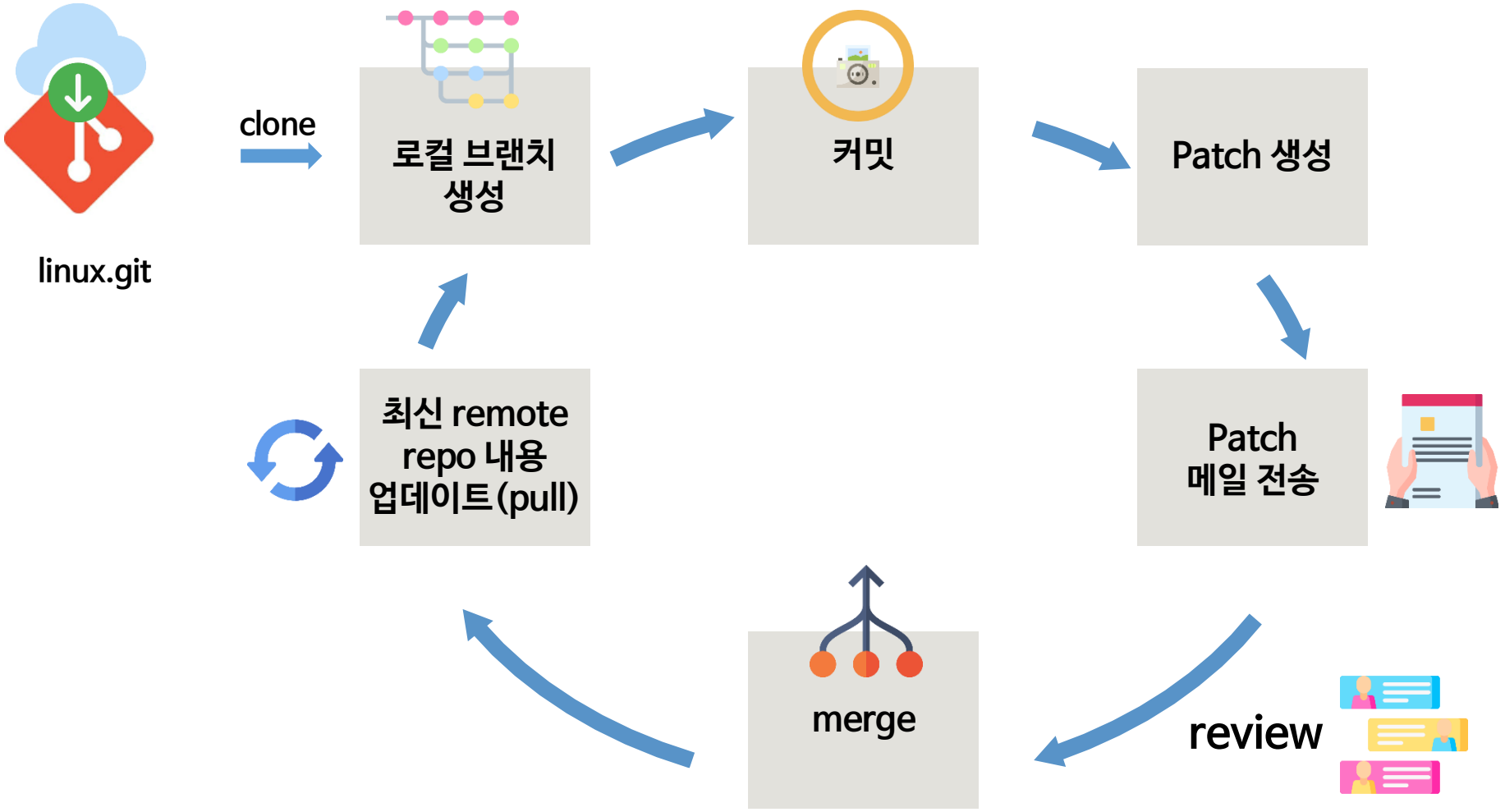
Linux Kernel 컨트리뷰션?

Linux Kernel은 GitHub을 사용하지 않는 오픈 소스 프로젝트

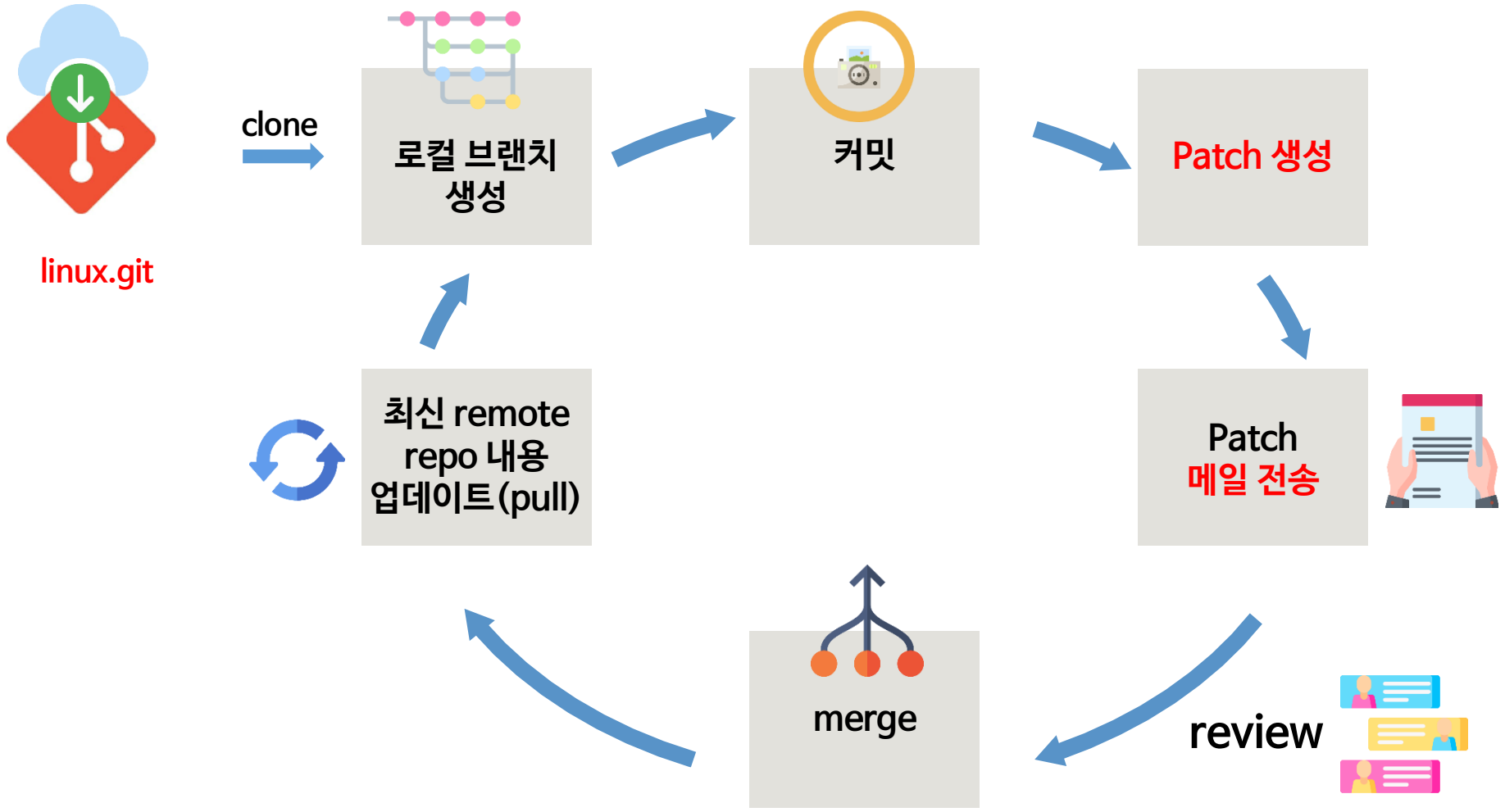
- Linux Kernel
(https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git)



Linux Kernel 컨트리뷰션 과정?



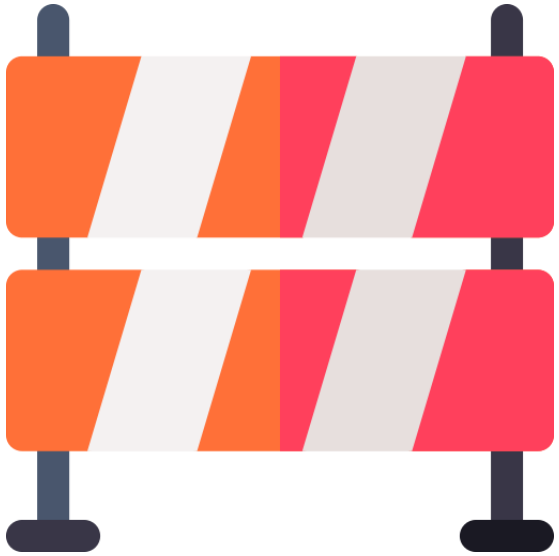
Linux Kernel 컨트리뷰션 과정?



Linux Kernel 컨트리뷰션?

소스 코드 다운 경로?

패치란 무엇인가?



메일로 커밋한다고?

빌드 환경 구성?

시작하기도 전에 마주한 무수히 많은 장벽들...

이번 세션의 목표

리눅스 커널 컨트리뷰션을 위한 장벽을 허물어 봅시다.

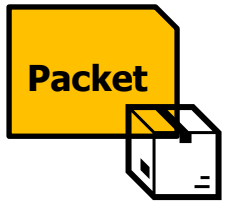
1

Linux Kernel Networking Stack

Packet Path

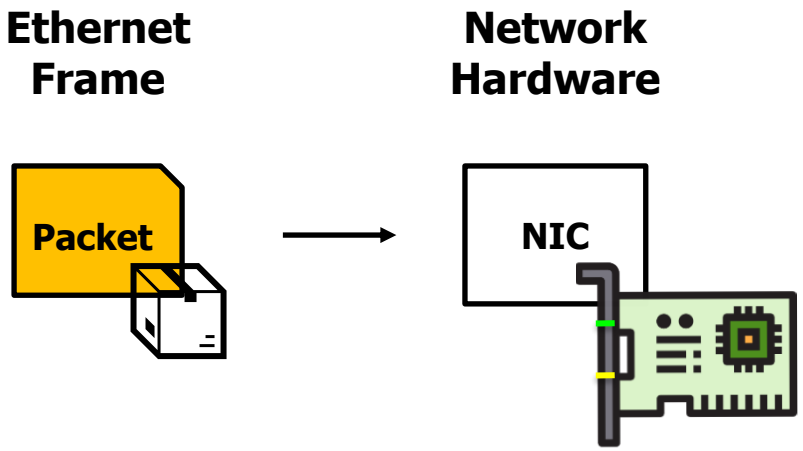
Linux Kernel Networking Stack

Ethernet Frame

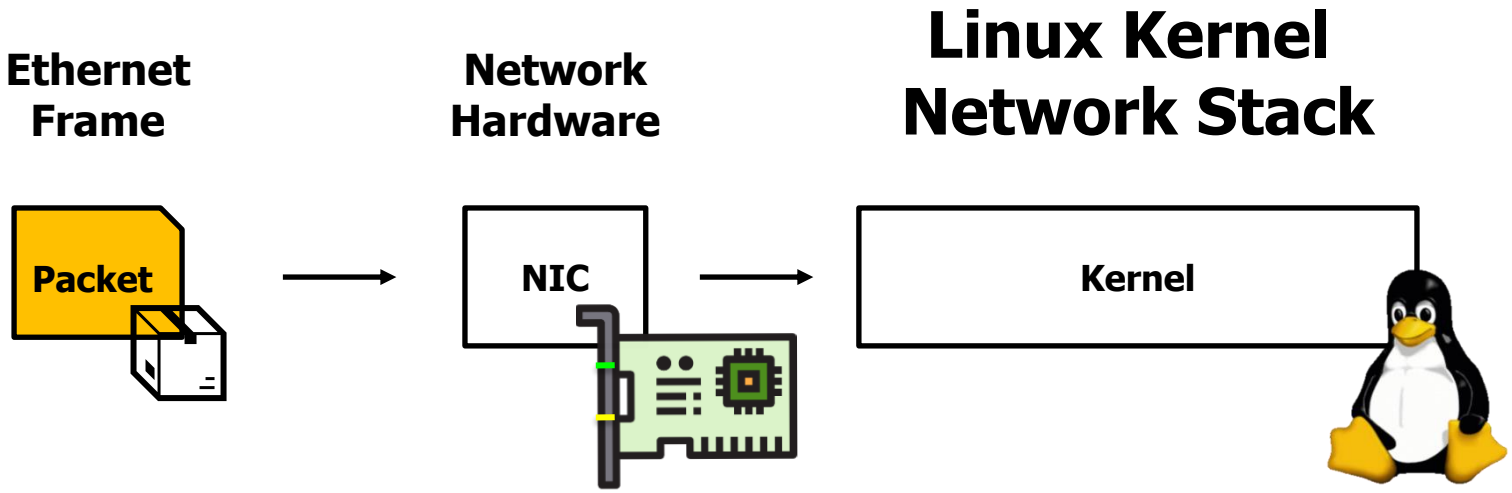


Preamble	Ethernet Frame					Inter Frame Gap
	MAC. Destination	MAC. Source	Type	PAYLOAD (IP/IPv6/ARP…)	CRC	
8 Bytes	6 Bytes	6 Bytes	2 Bytes	46-1500 Bytes	4 Bytes	12 Bytes
← 8 →	← 64 →					← 12 →

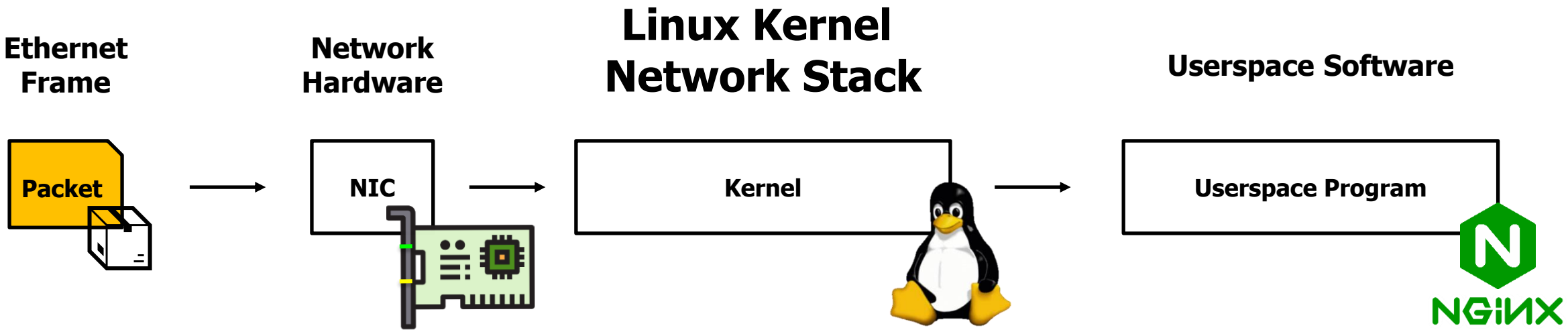
Linux Kernel Networking Stack



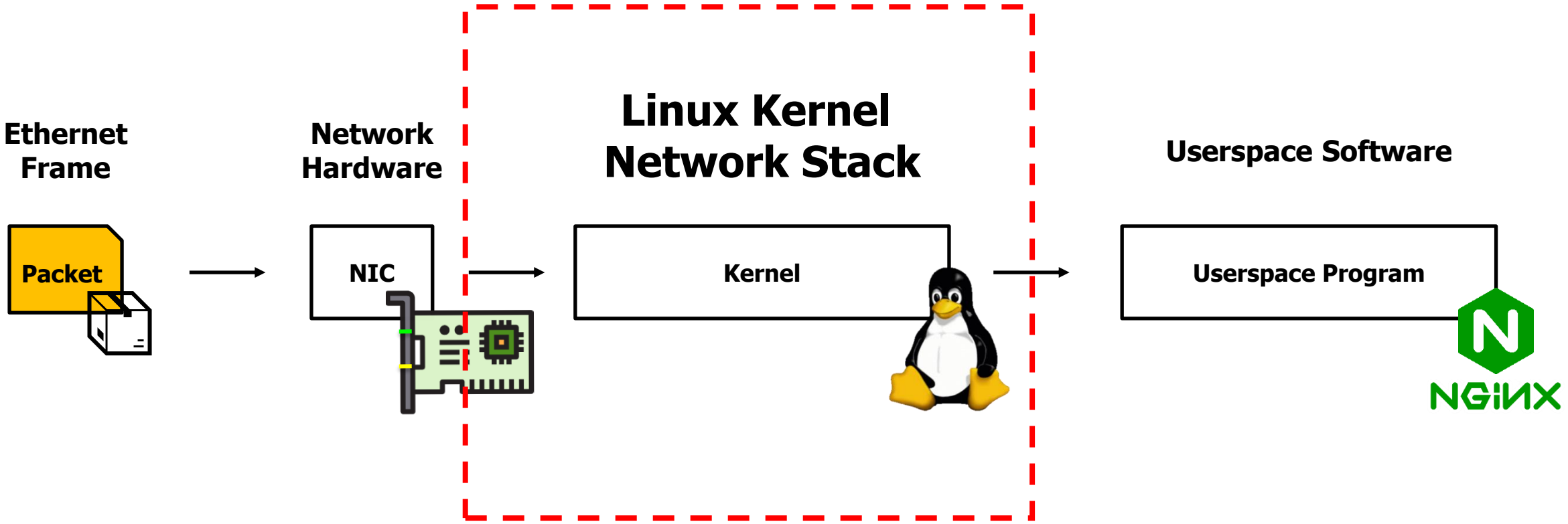
Linux Kernel Networking Stack



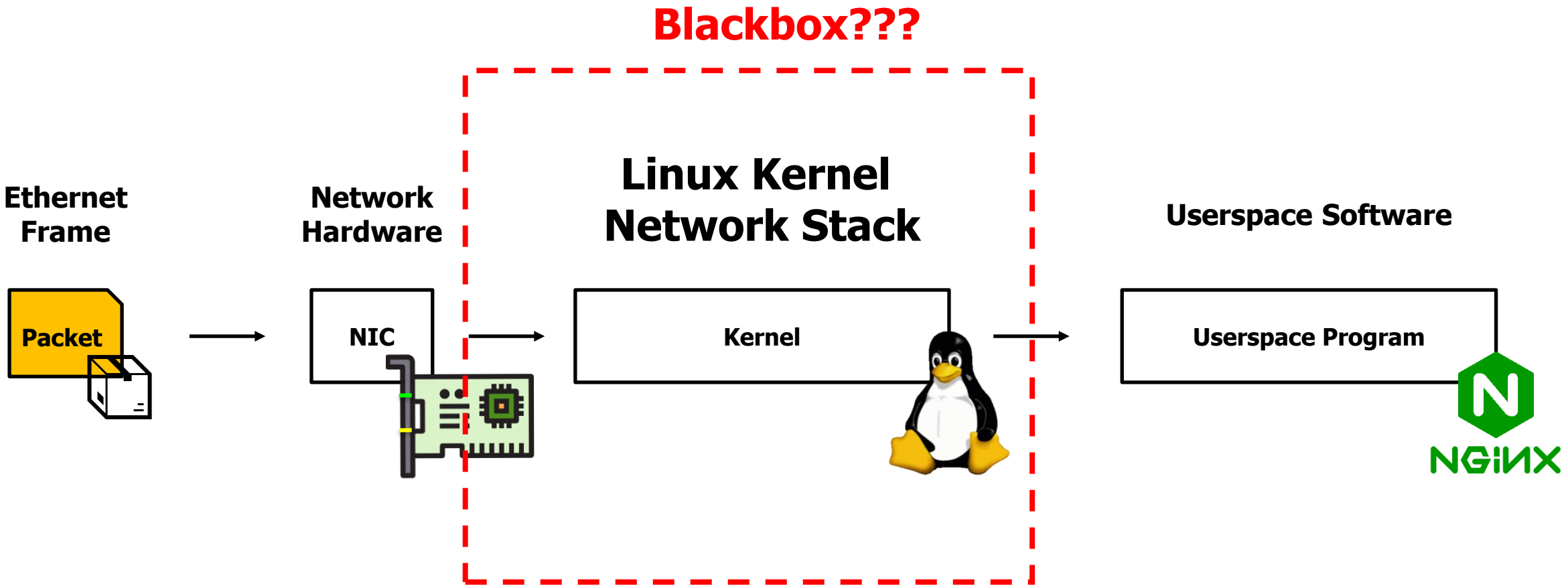
Linux Kernel Networking Stack



Linux Kernel Networking Stack



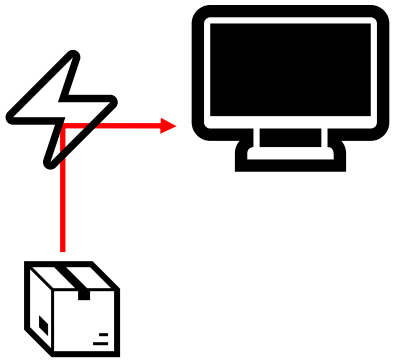
Linux Kernel Networking Stack



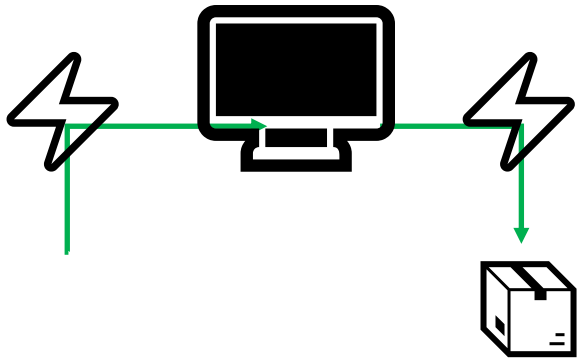
Basic Packet Rx/Tx Path

Packet Path

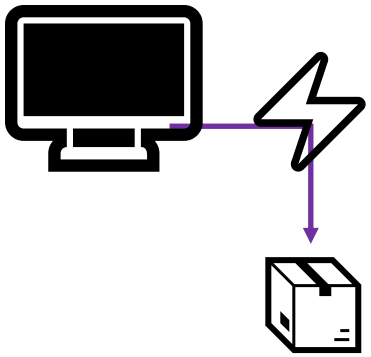
① Receiving Path



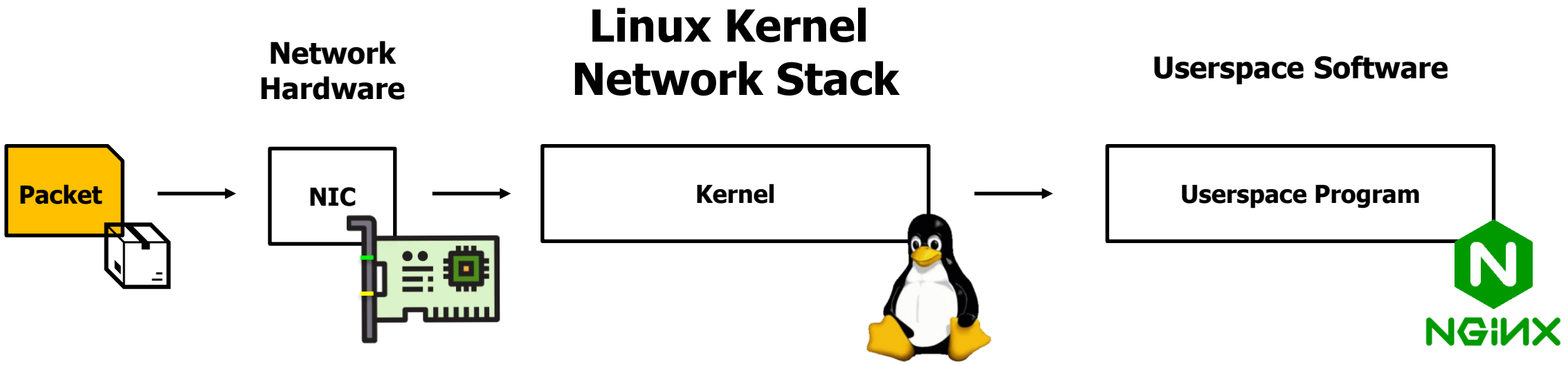
② Forwarding Path



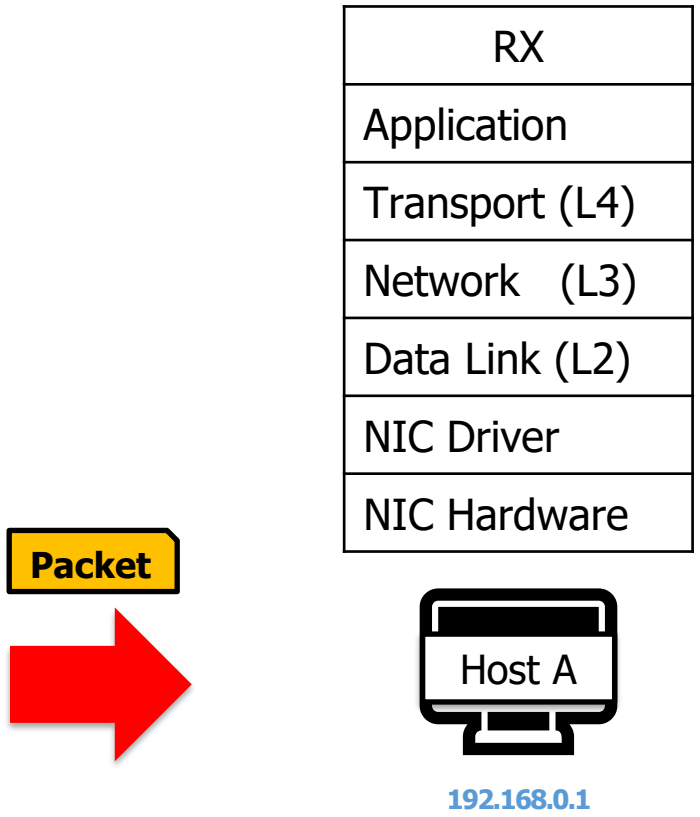
③ Sending Path



Packet Receiving Path

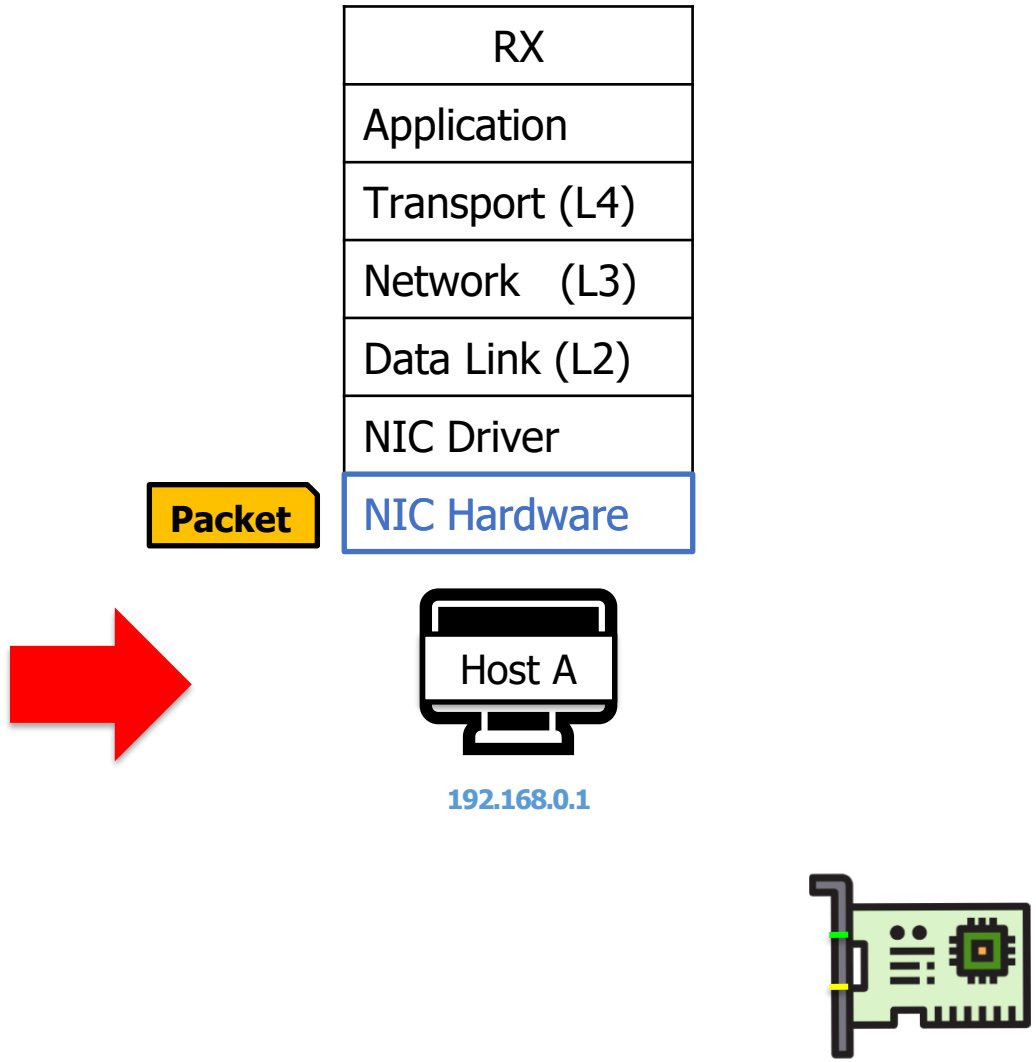


Packet Receiving Path



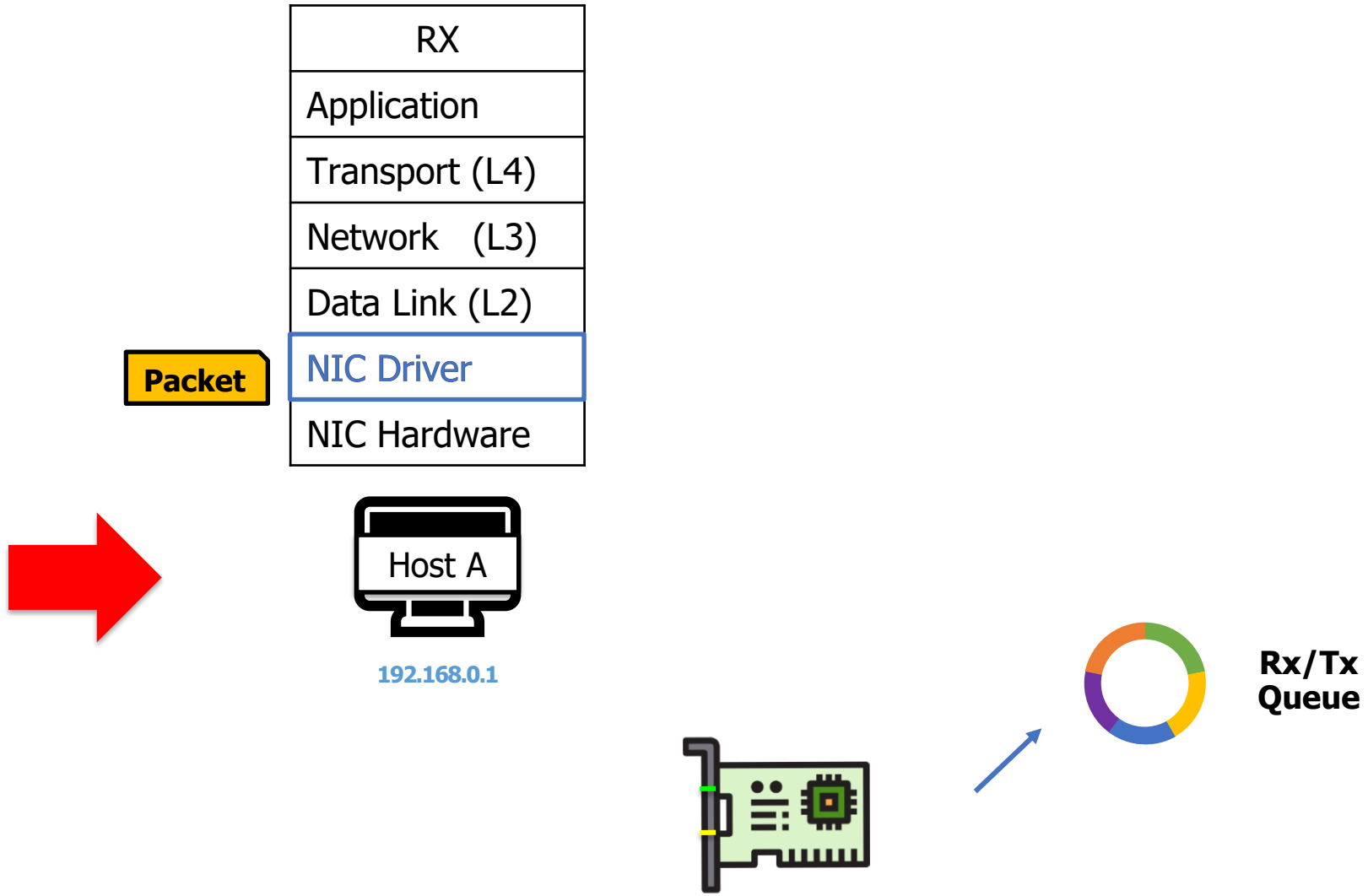
Packet Receiving Path

네트워크 인터페이스 카드 하드웨어에서 패킷를 수신하고



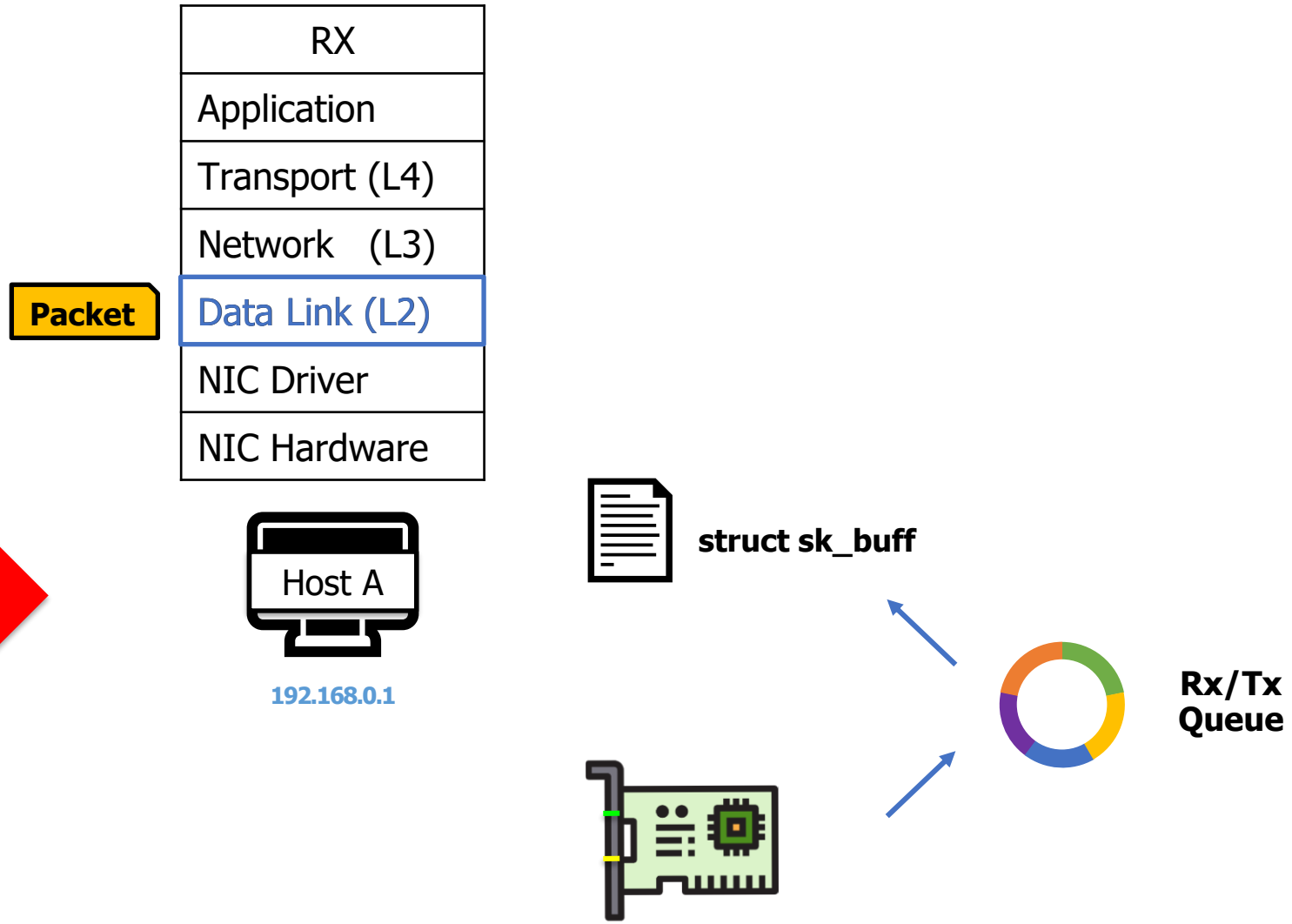
Packet Receiving Path

디바이스 드라이버단에서 NIC의 하드웨어(RX) 큐에서 패킷을 빼 내와서



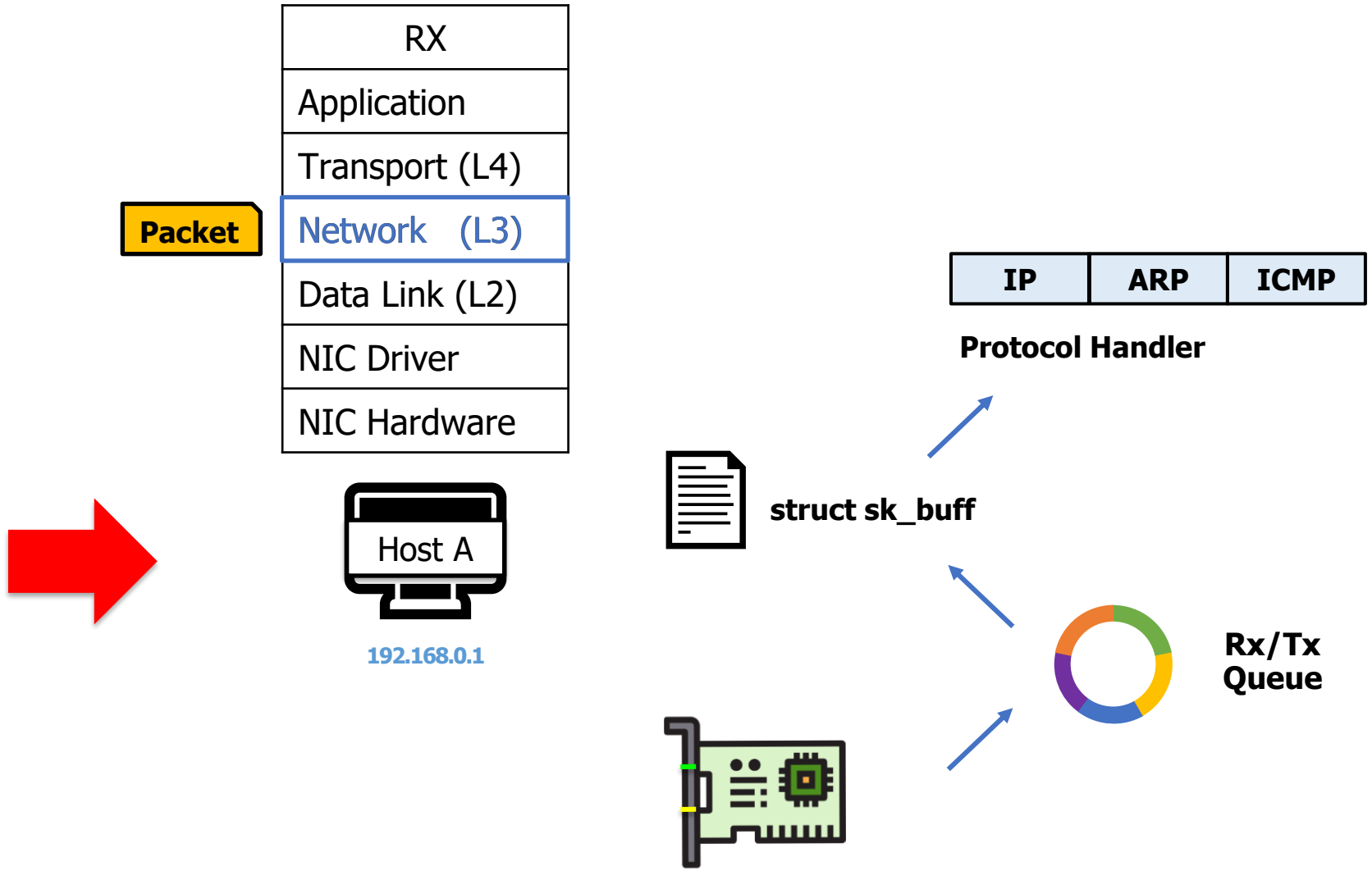
Packet Receiving Path

이를 sk_buff 구조체로 만들고



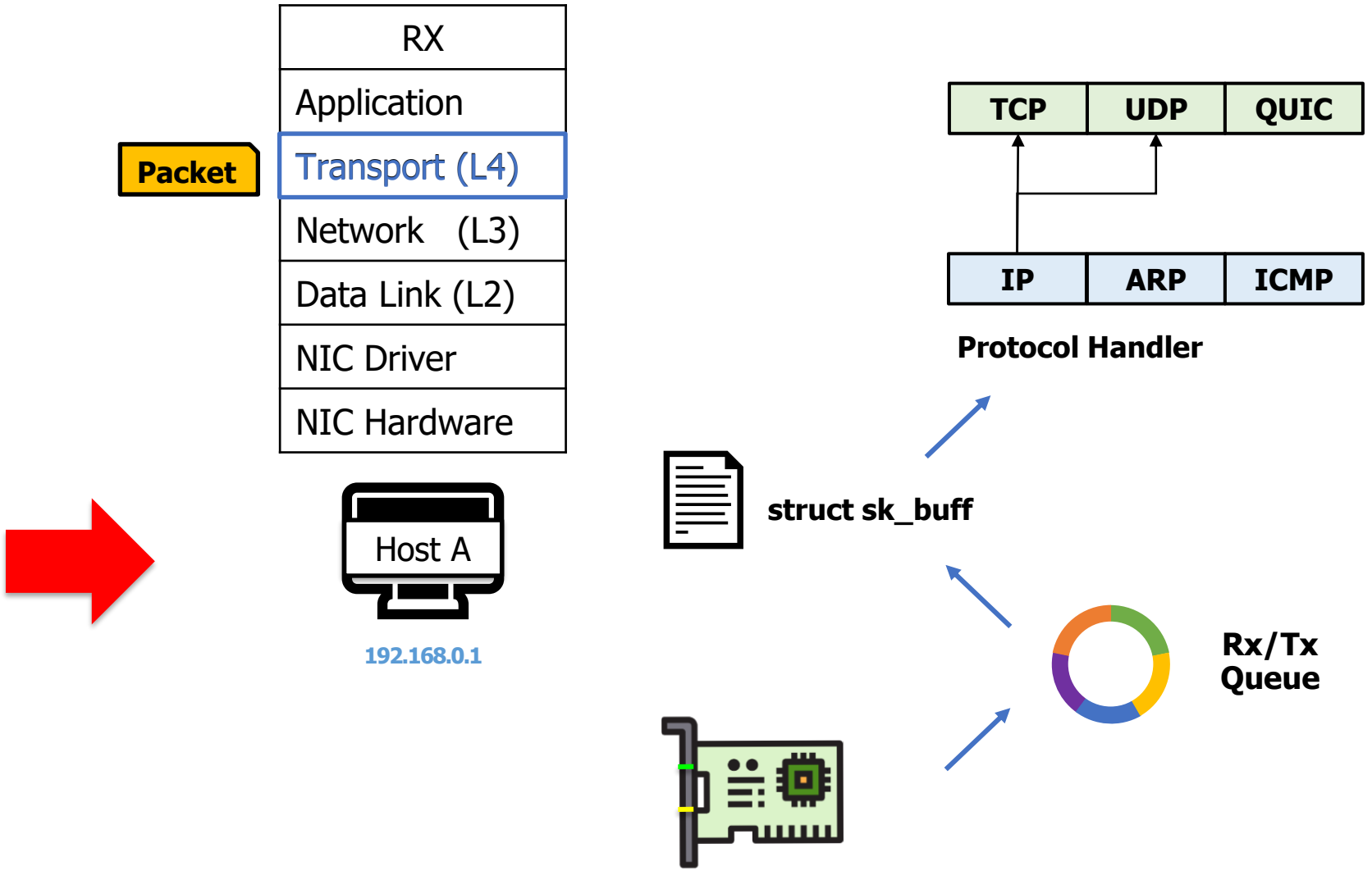
Packet Receiving Path

해당 패킷이 어떤 프로토콜인지 확인하여 해당하는 프로토콜의 핸들러 함수 호출



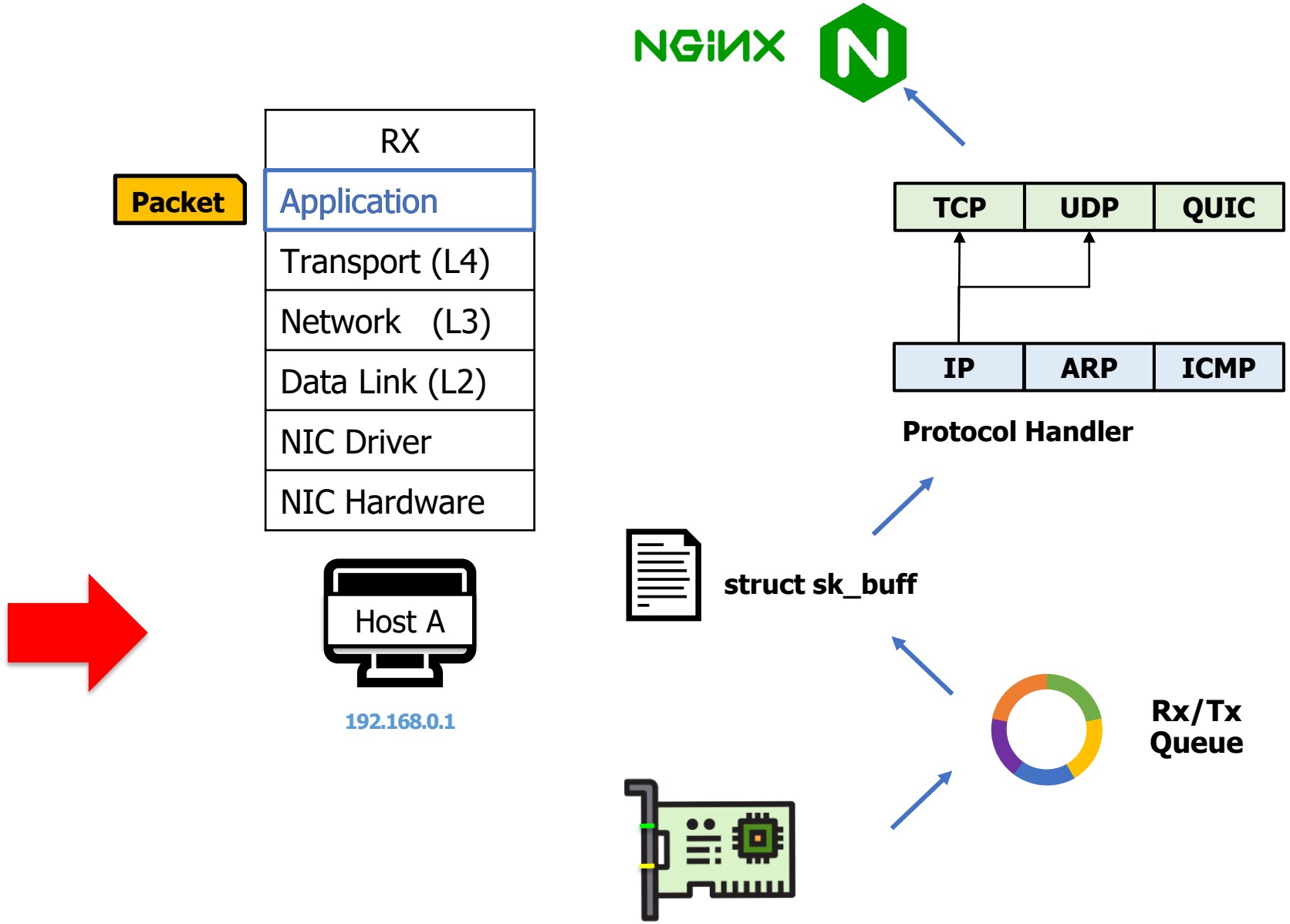
Packet Receiving Path

상위 프로토콜에 따른 적절한 함수를 호출

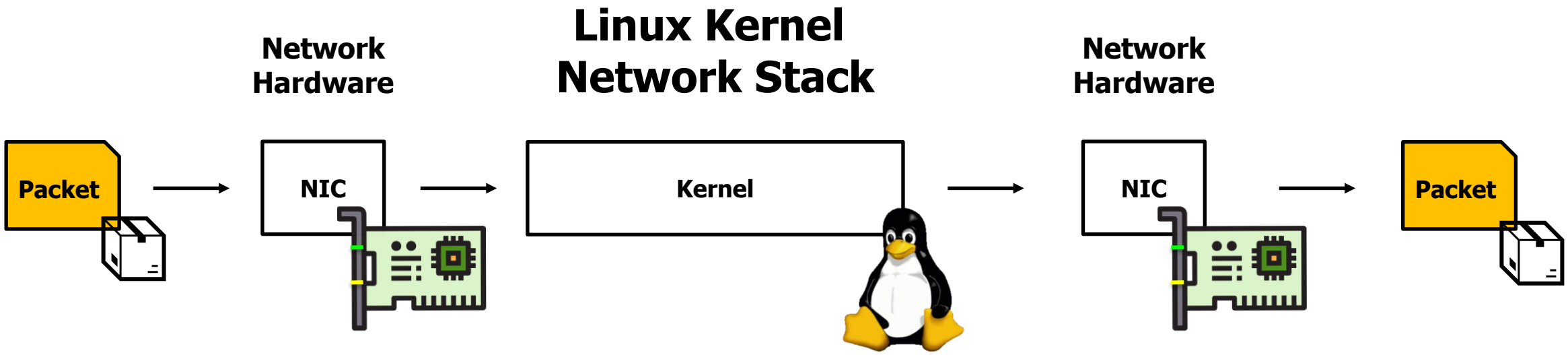


Packet Receiving Path

처리된 패킷을 사용자 어플리케이션에 넘겨줌



Packet Forwarding Path



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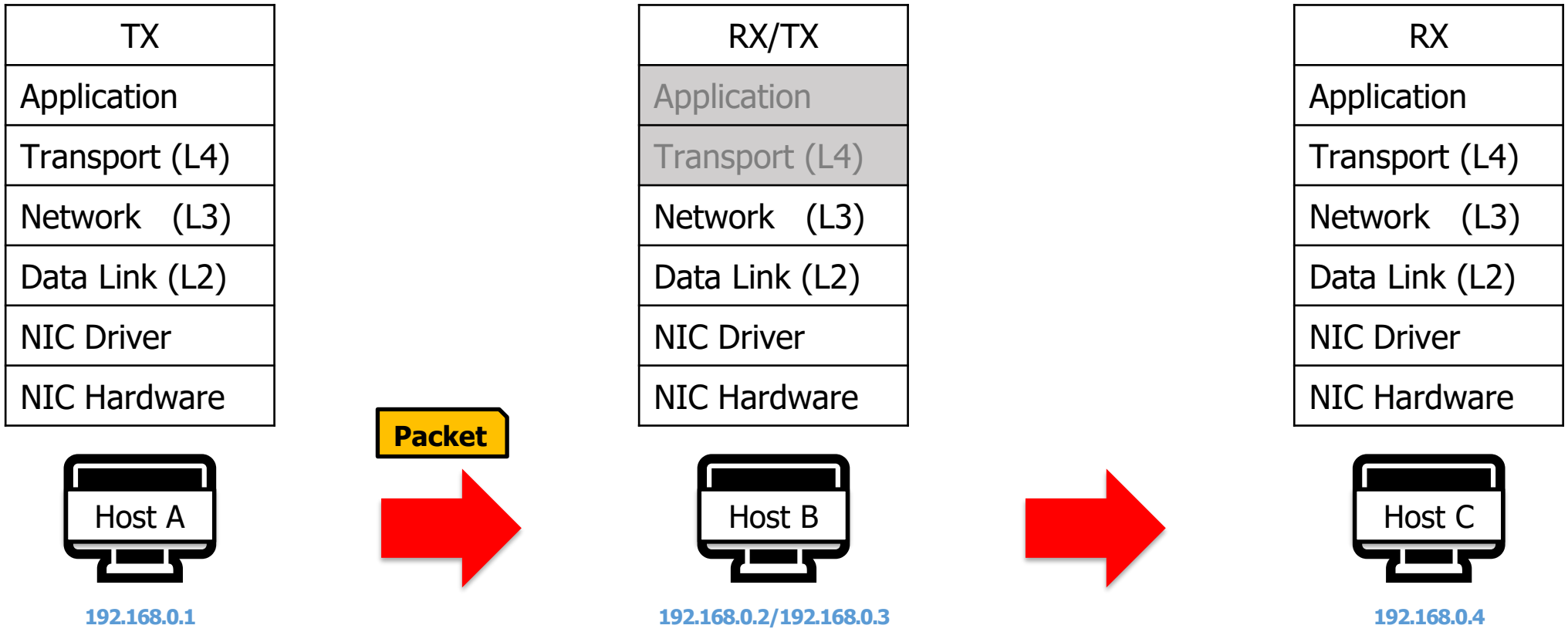

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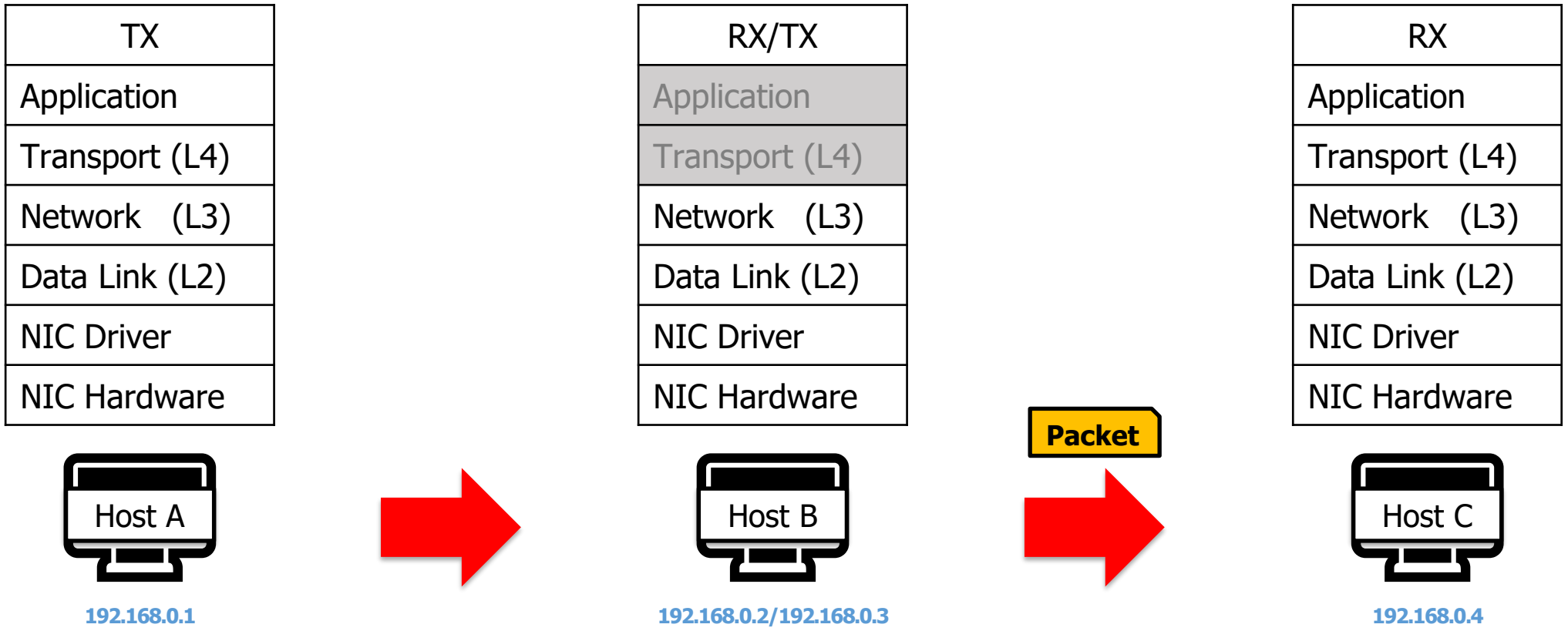

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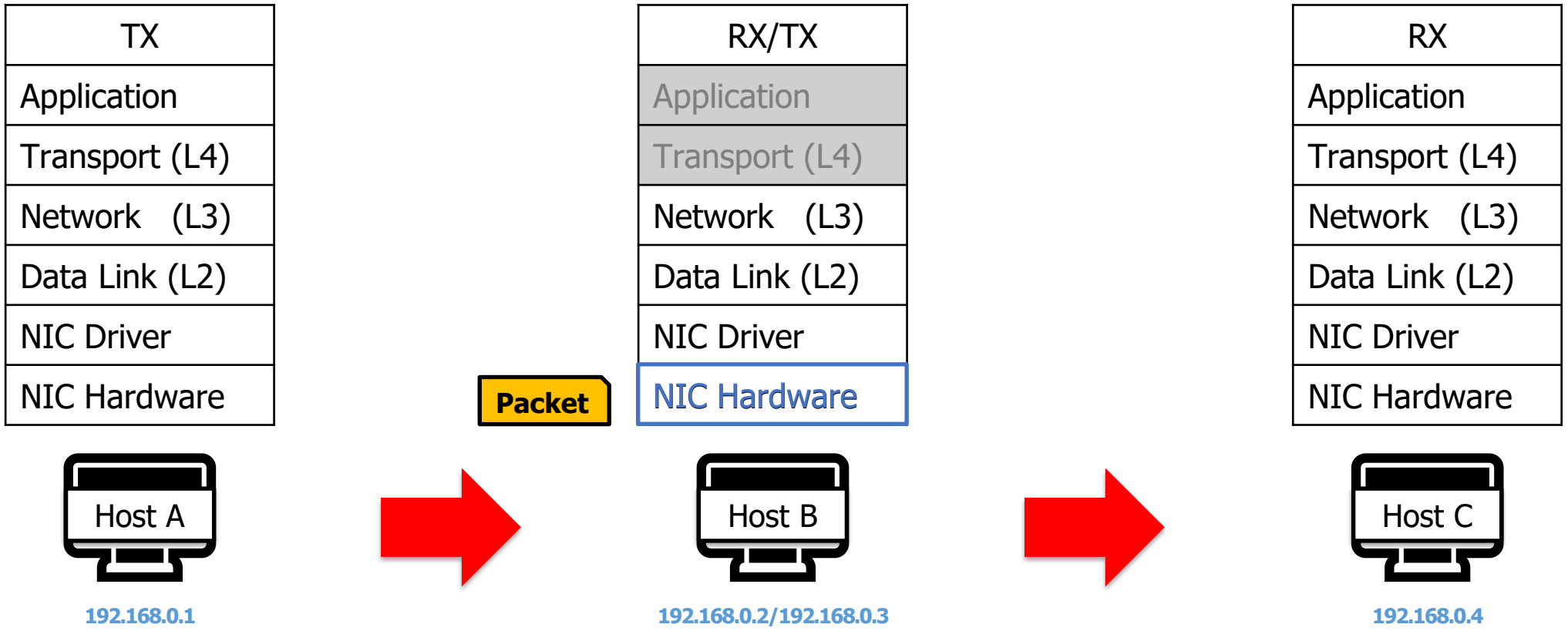

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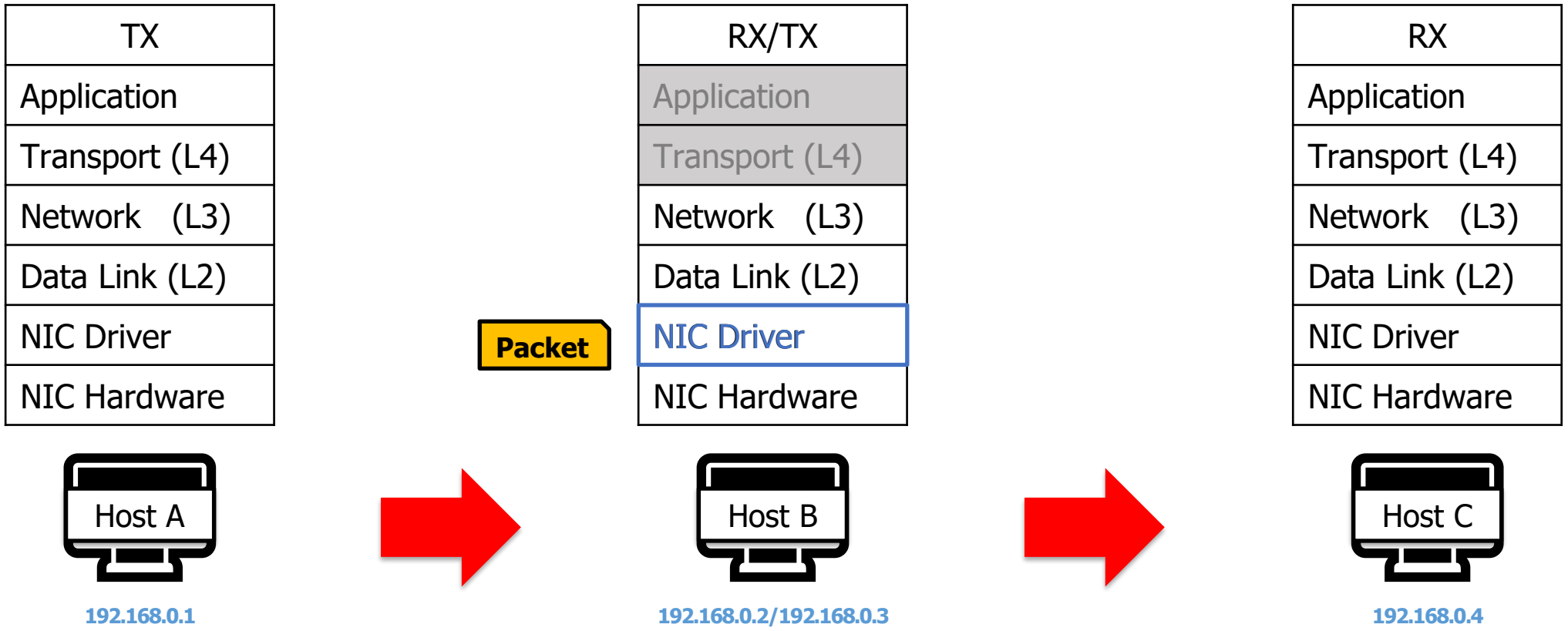

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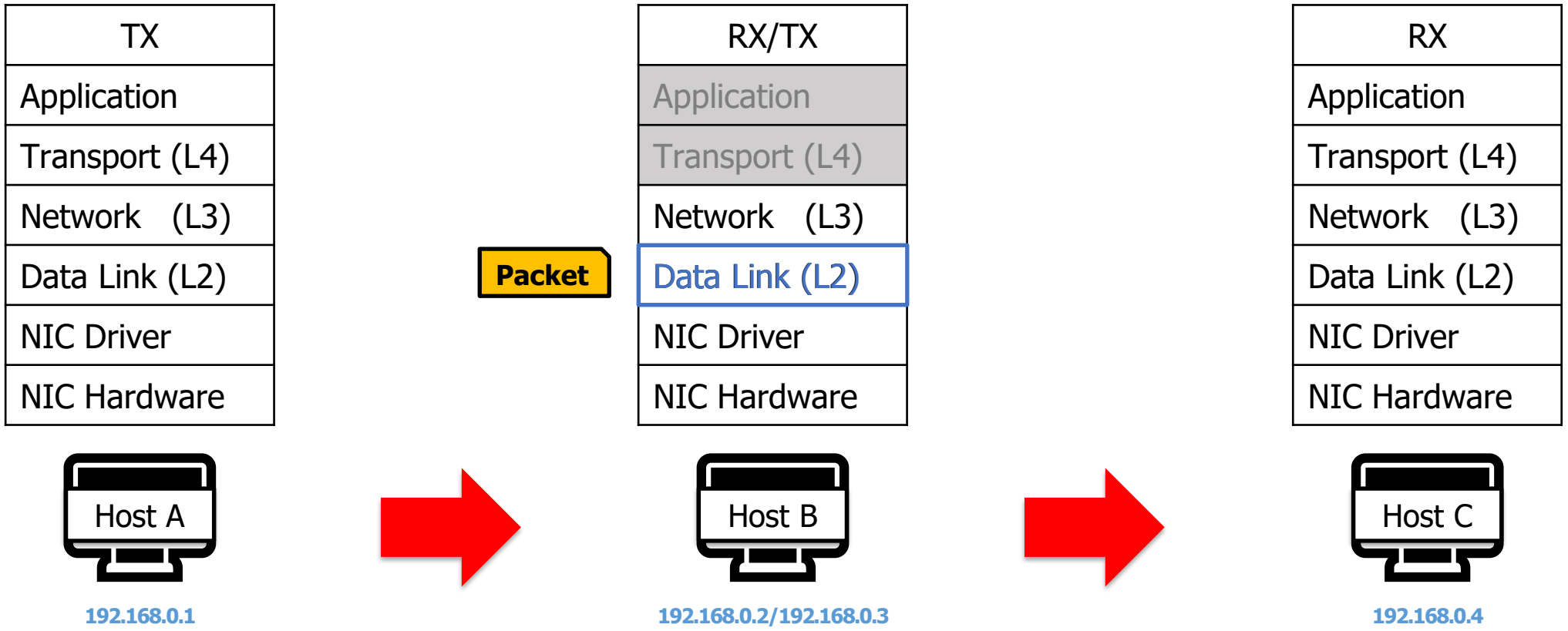

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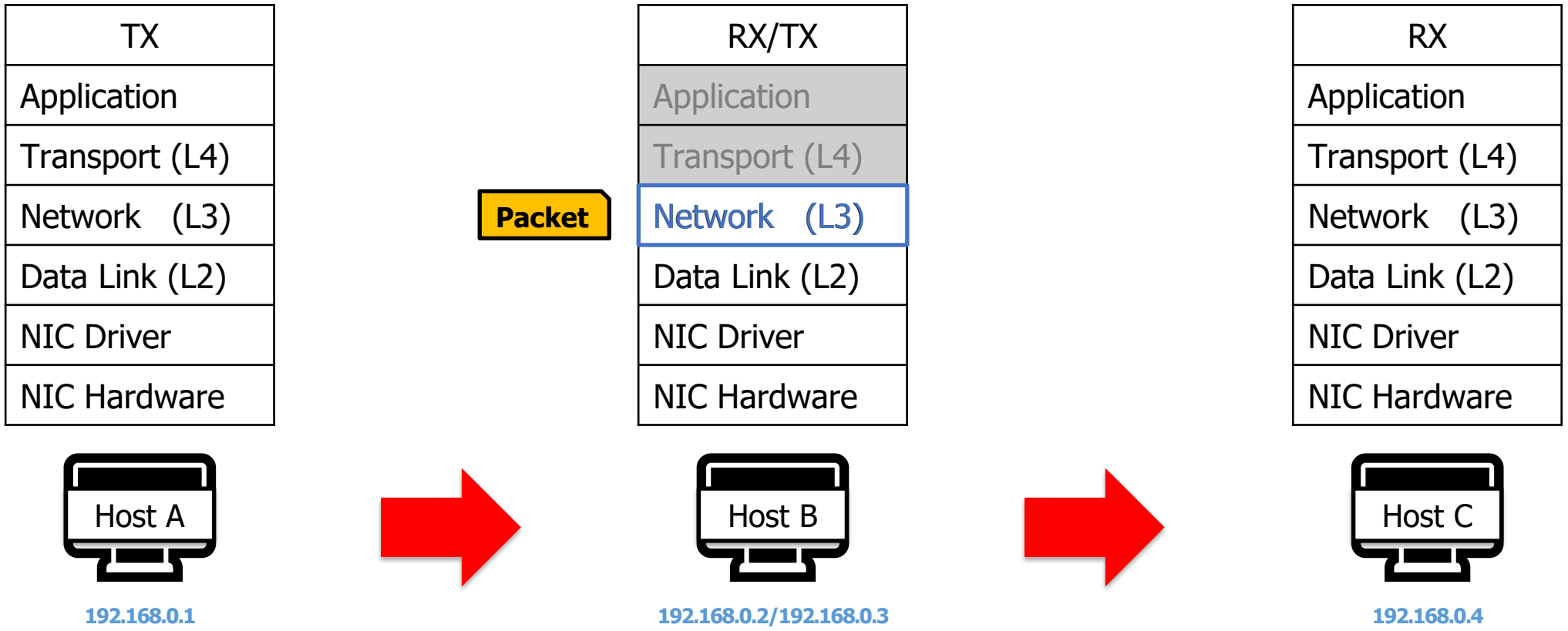
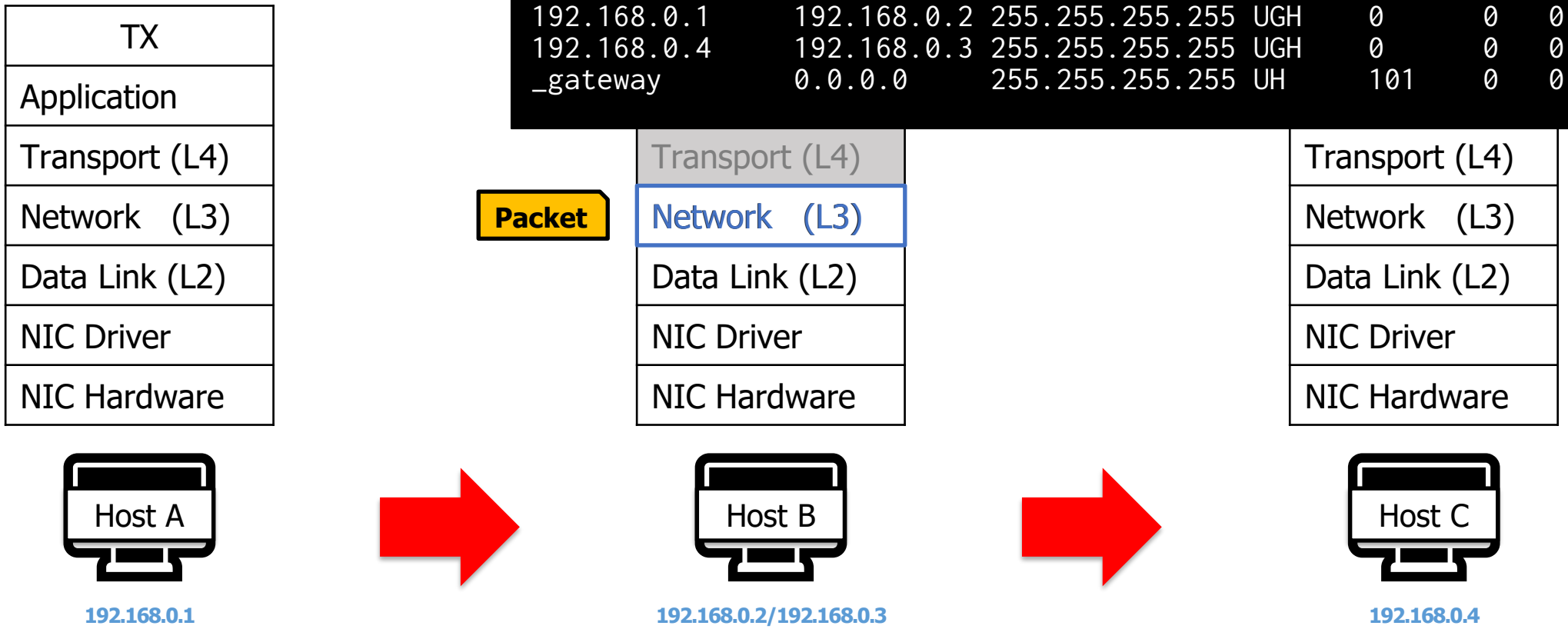


Packet Forwarding Path

```
$ route -n
Kernel IP routing table
Destination     Gateway         Genmask         Flags  Metric Ref  Use Iface
0.0.0.0         _gateway        0.0.0.0         UG     101    0      0   eth0
192.168.0.0     0.0.0.0         255.255.255.0   U      101    0      0   eth0
192.168.0.1     192.168.0.2     255.255.255.255 UGH    0      0      0   veth21
192.168.0.4     192.168.0.3     255.255.255.255 UGH    0      0      0   veth23
_gateway        0.0.0.0         255.255.255.255 UH     101    0      0   eth0
```



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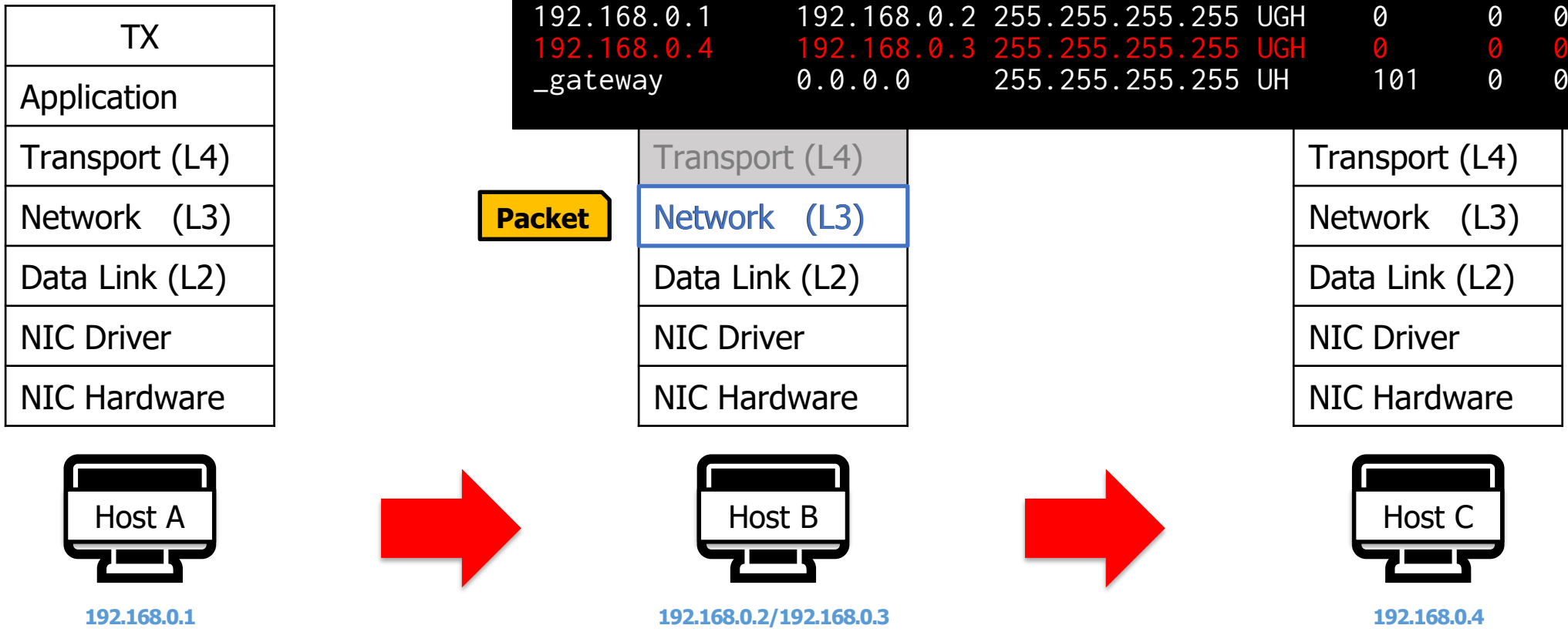
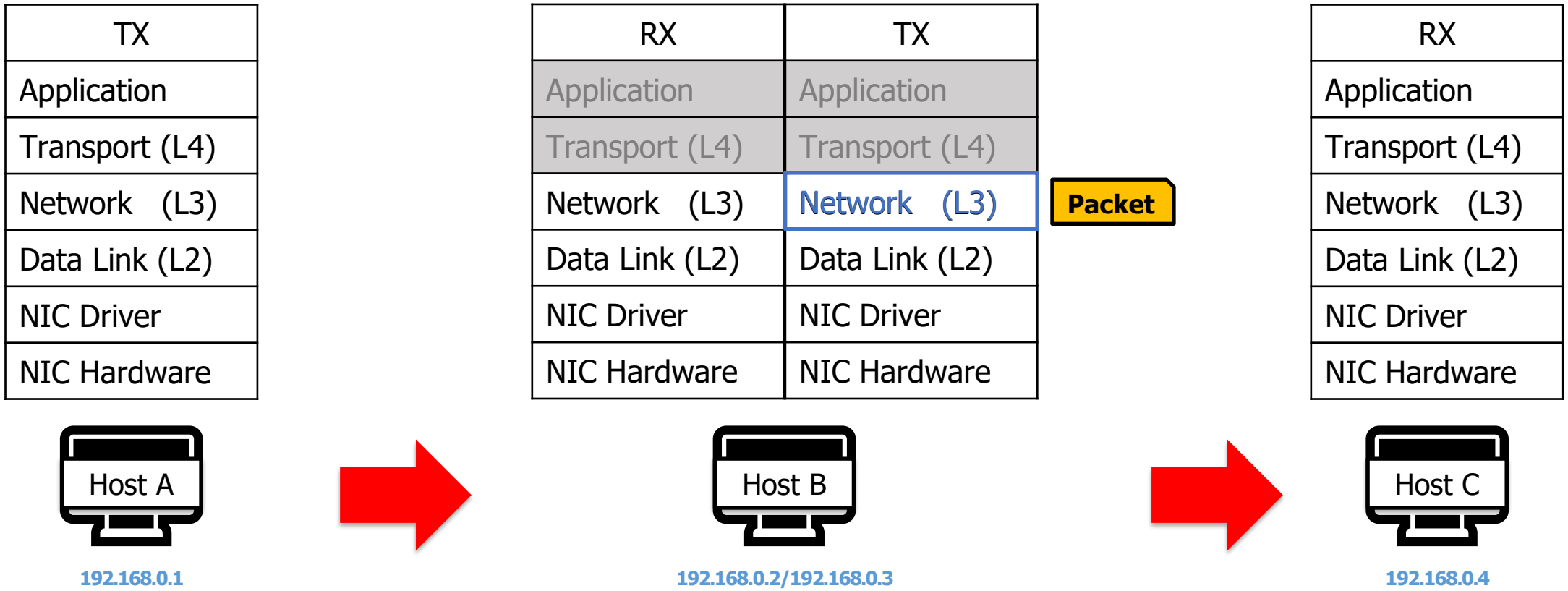
192.168.0.1     192.168.0.2     255.255.255.255 UGH    0      0      0   veth21
192.168.0.4     192.168.0.3     255.255.255.255 UGH    0      0      0   veth23
_gateway        0.0.0.0         255.255.255.255 UH     101    0      0   eth0
```



Packet Forwarding Path



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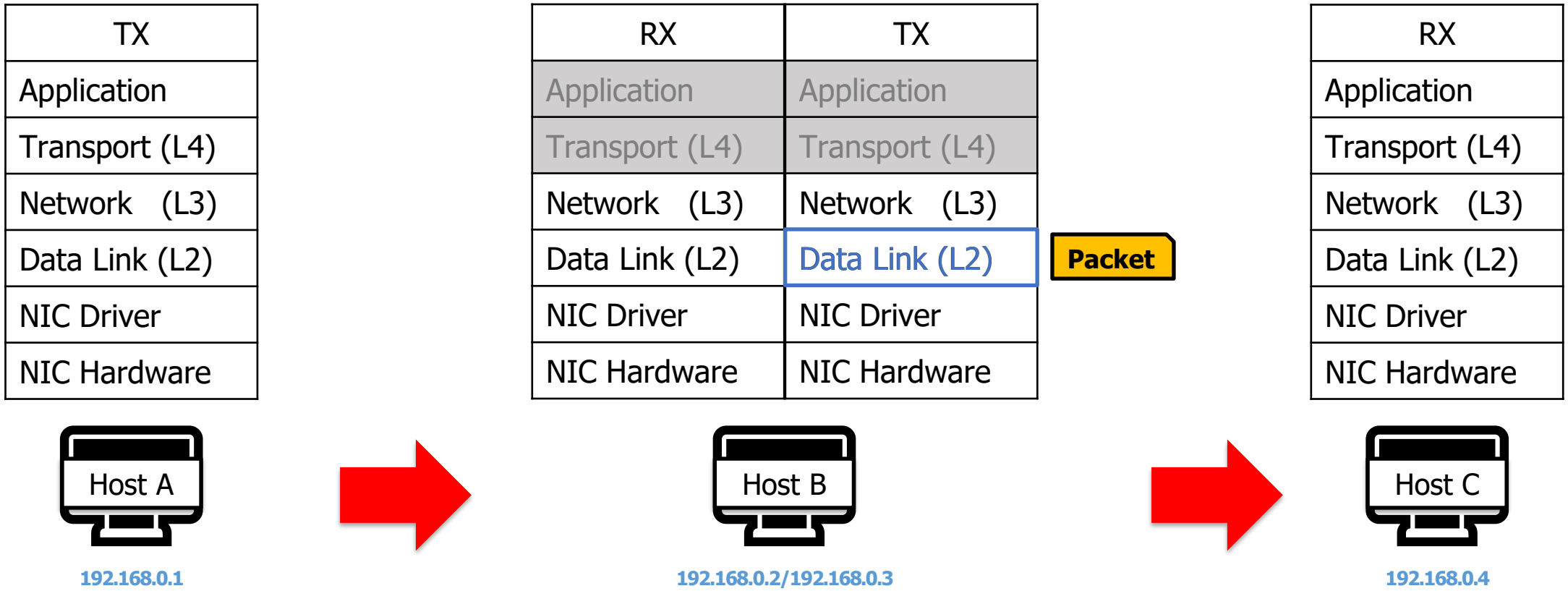

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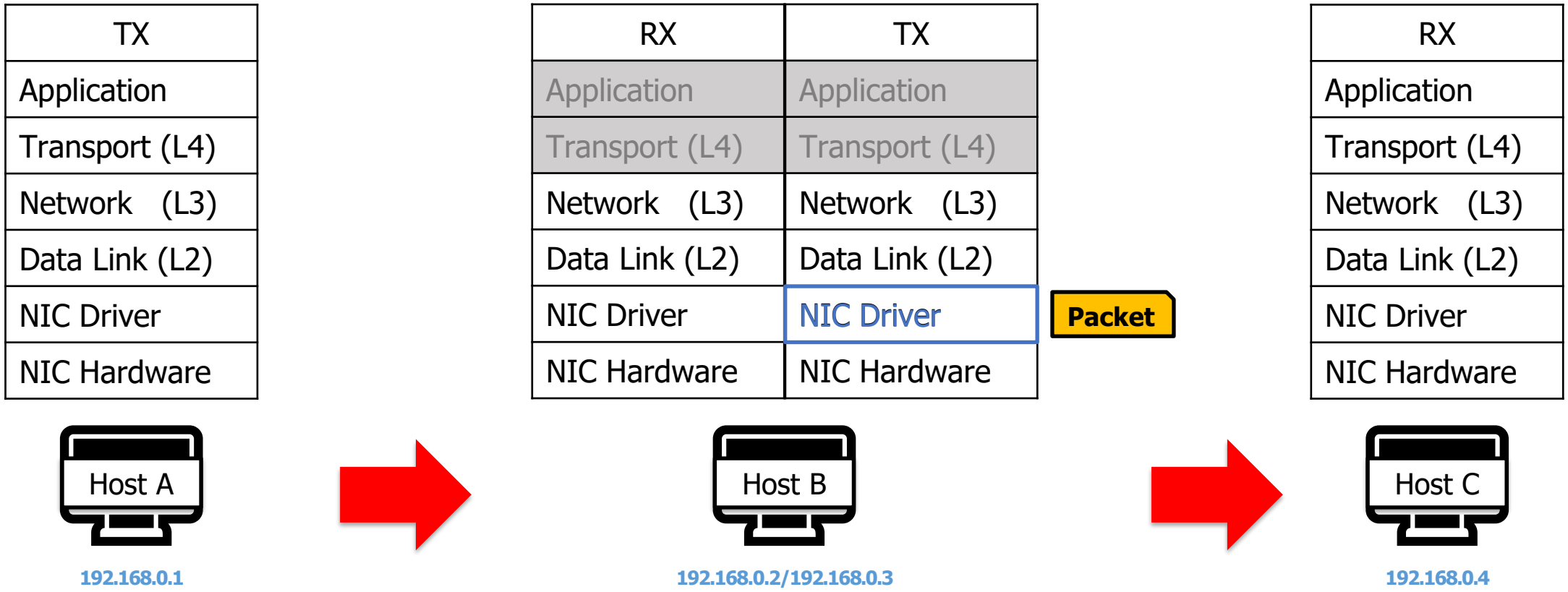

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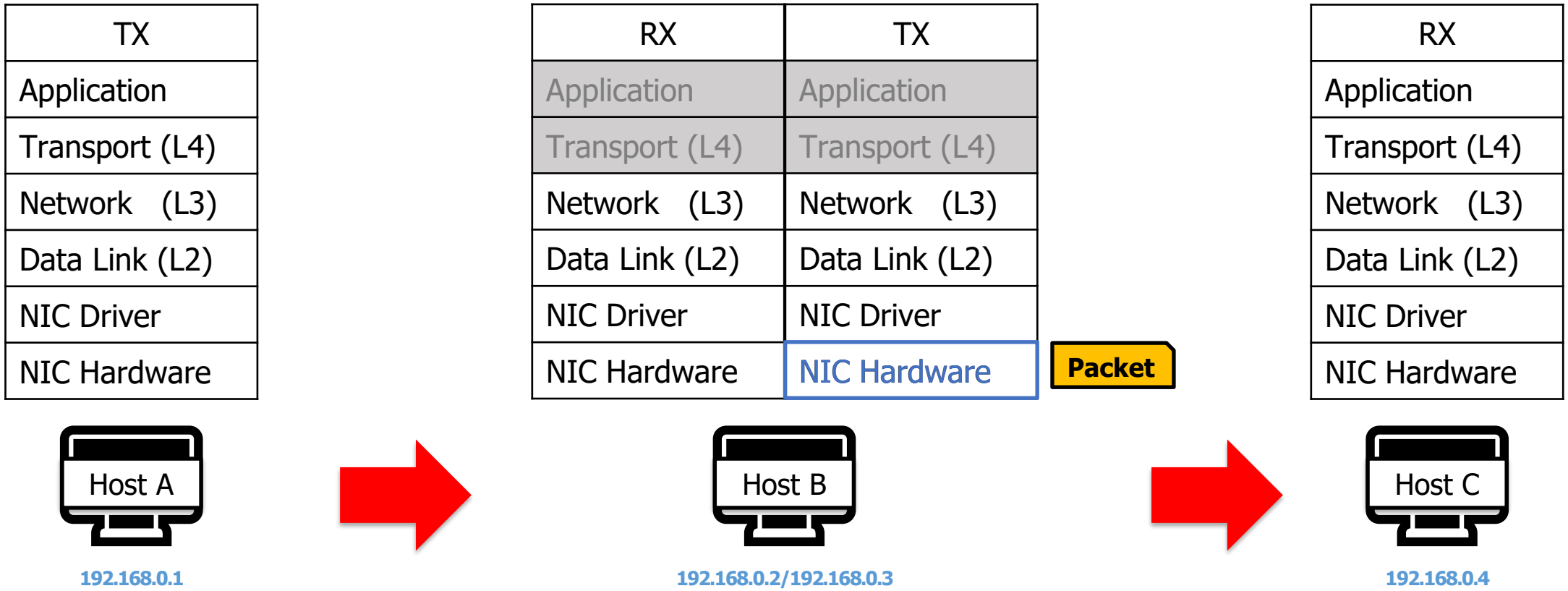

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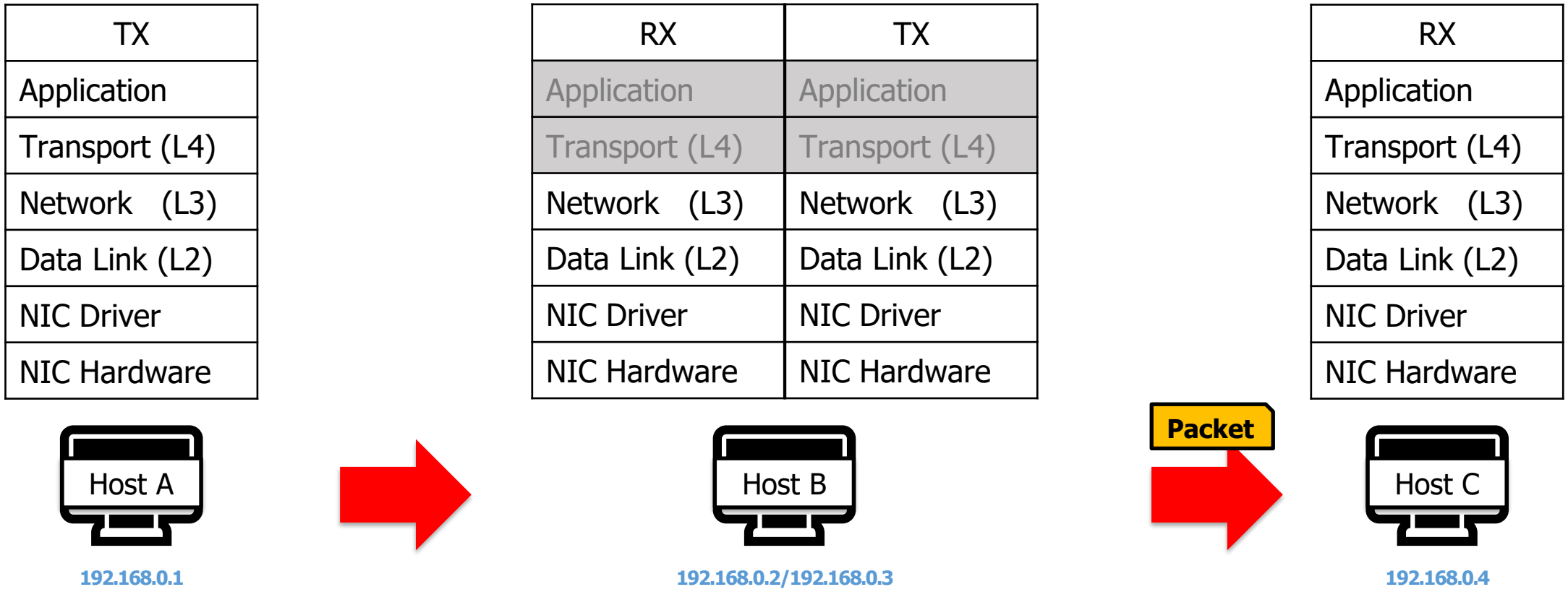

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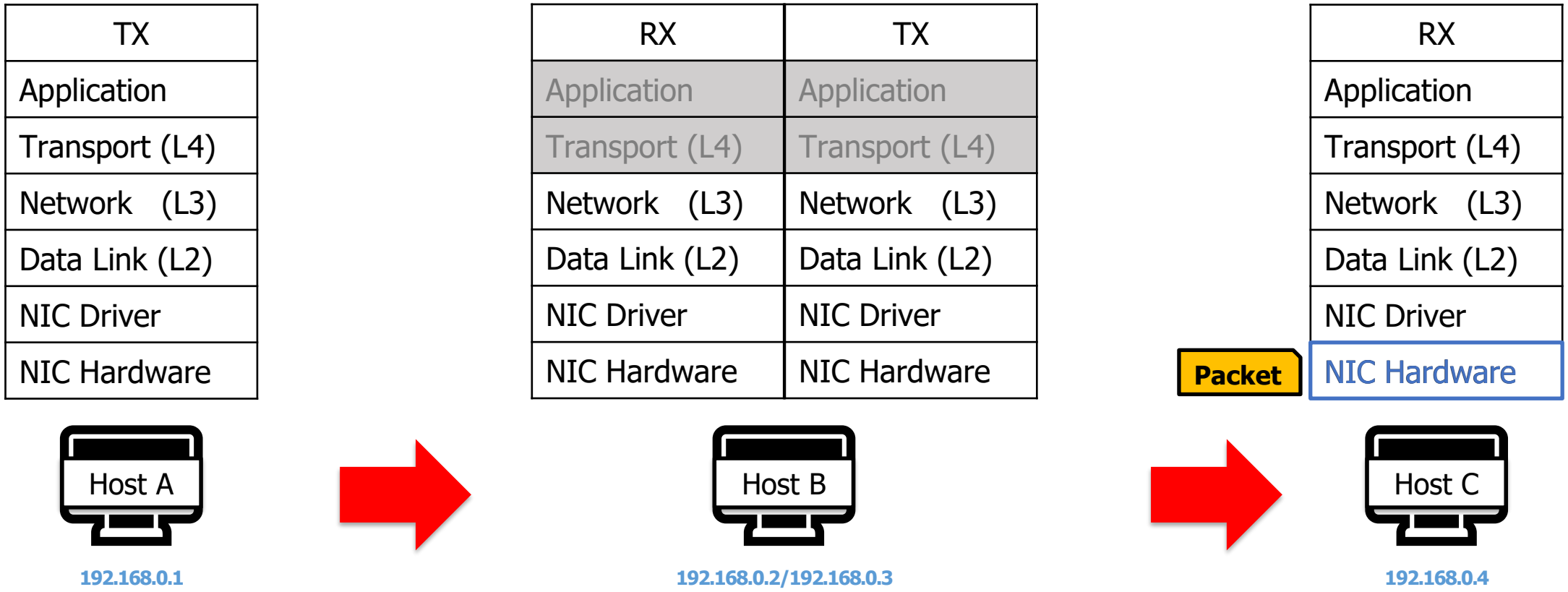

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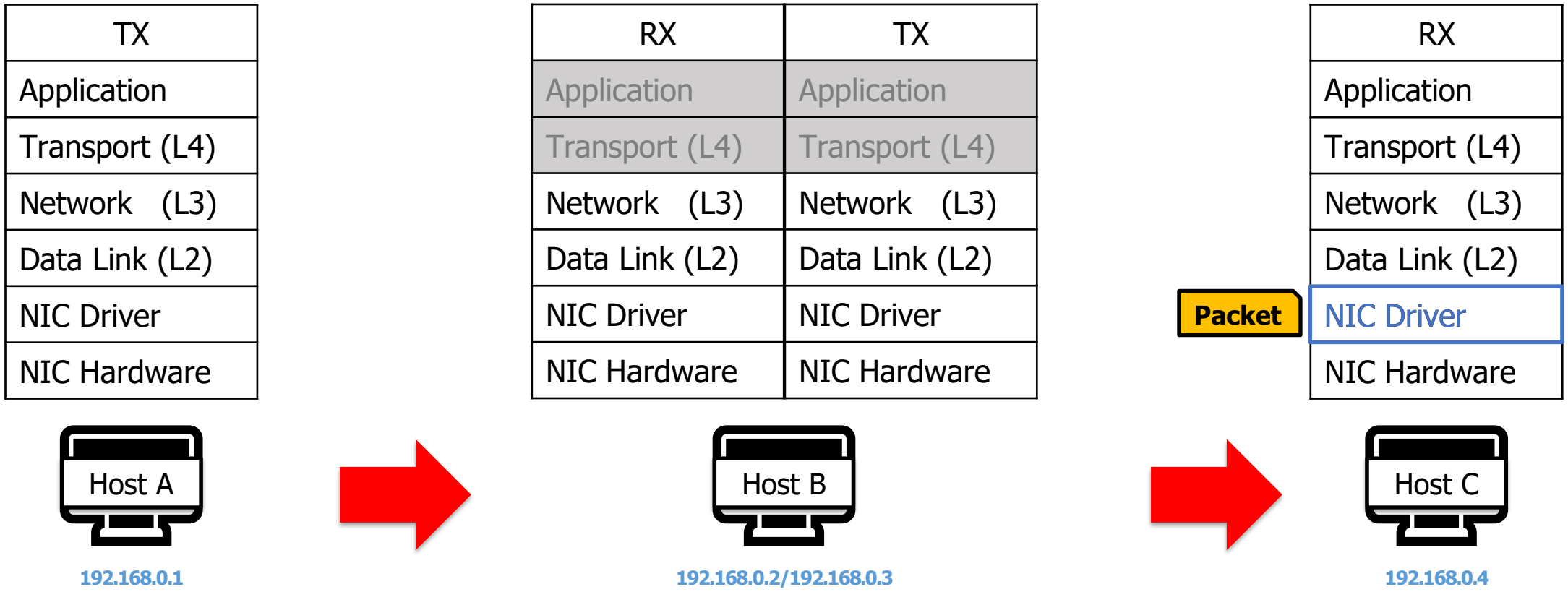

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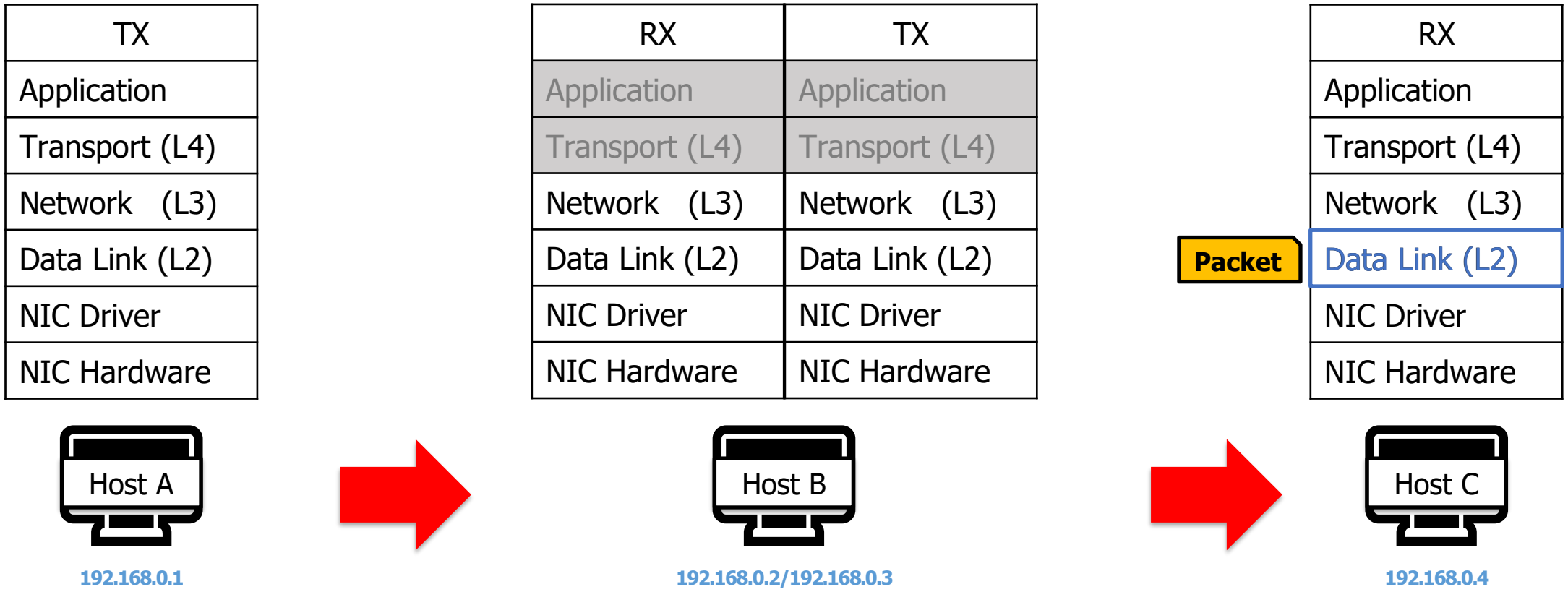

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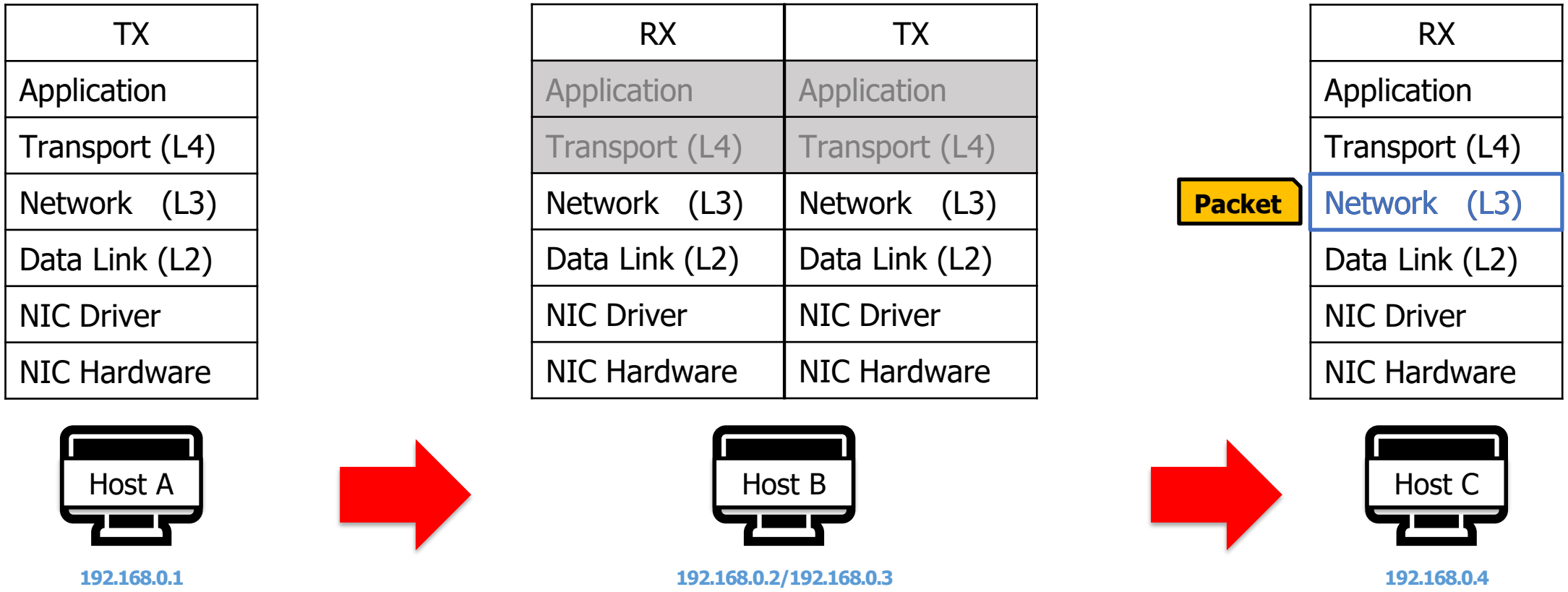

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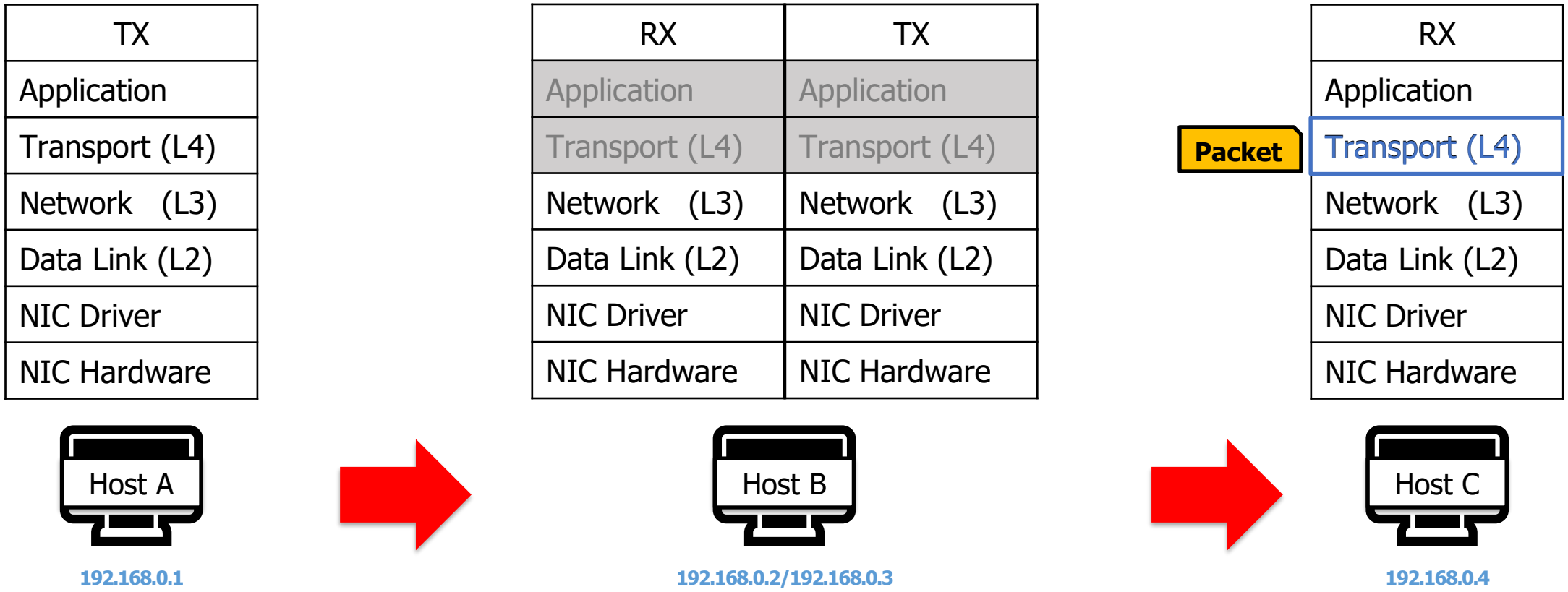

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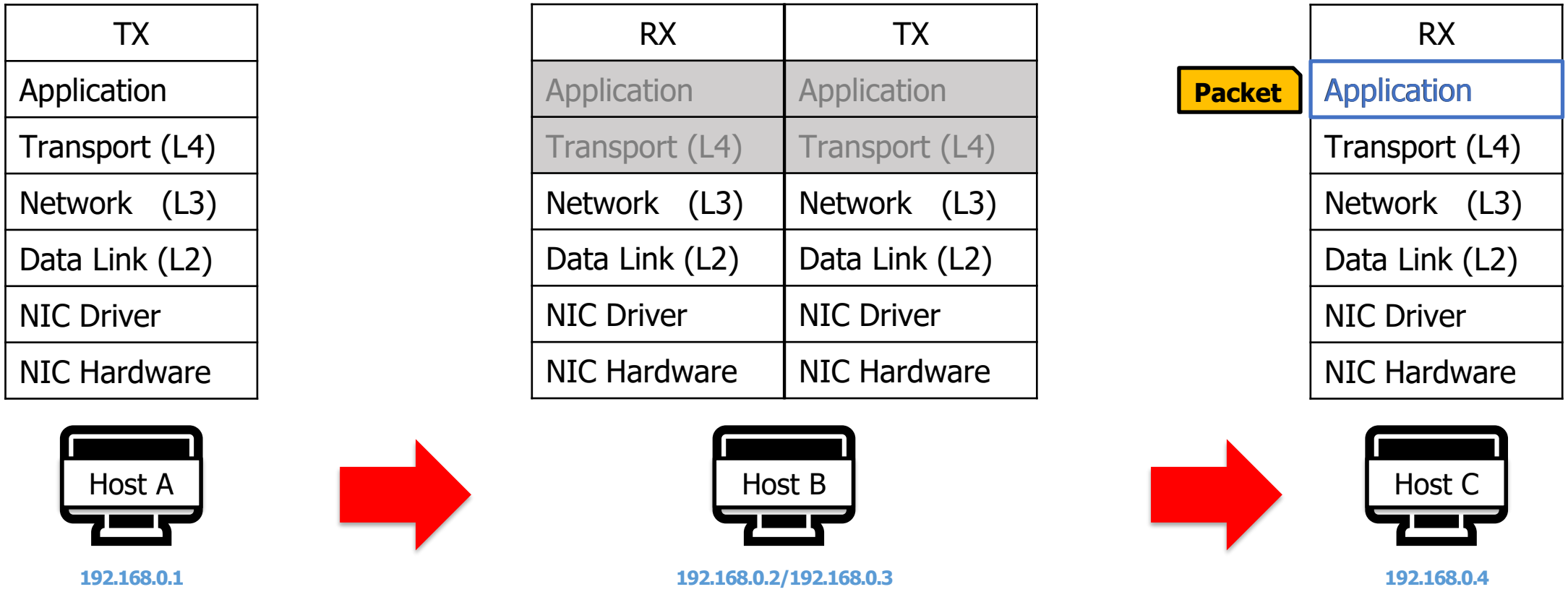
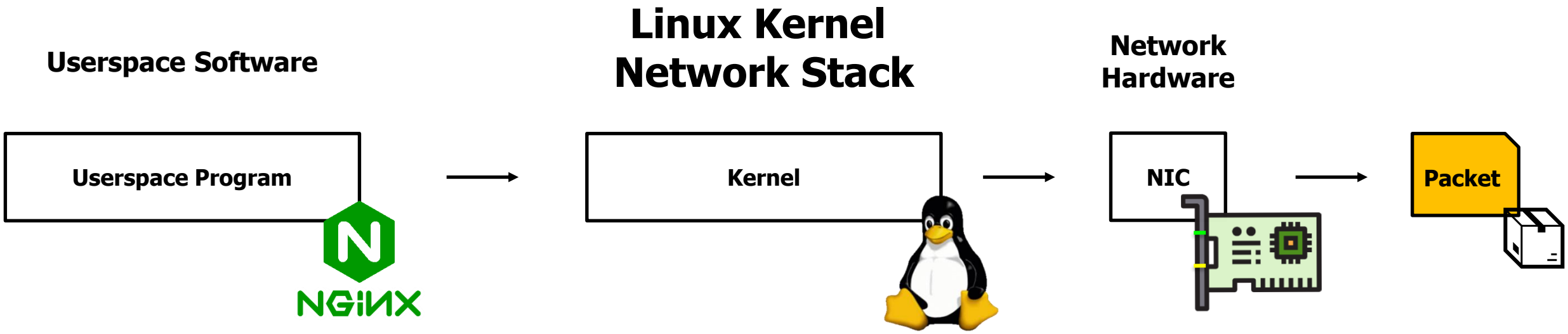


Packet Sending Path



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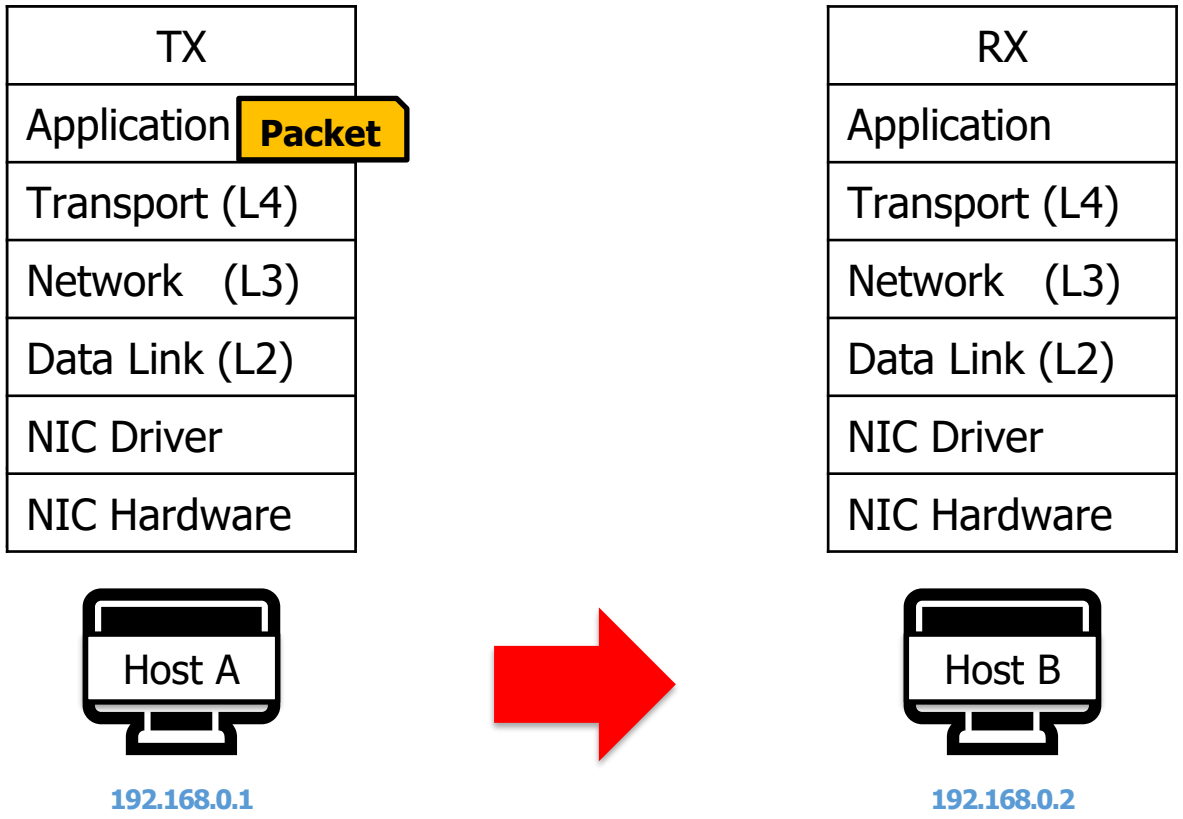

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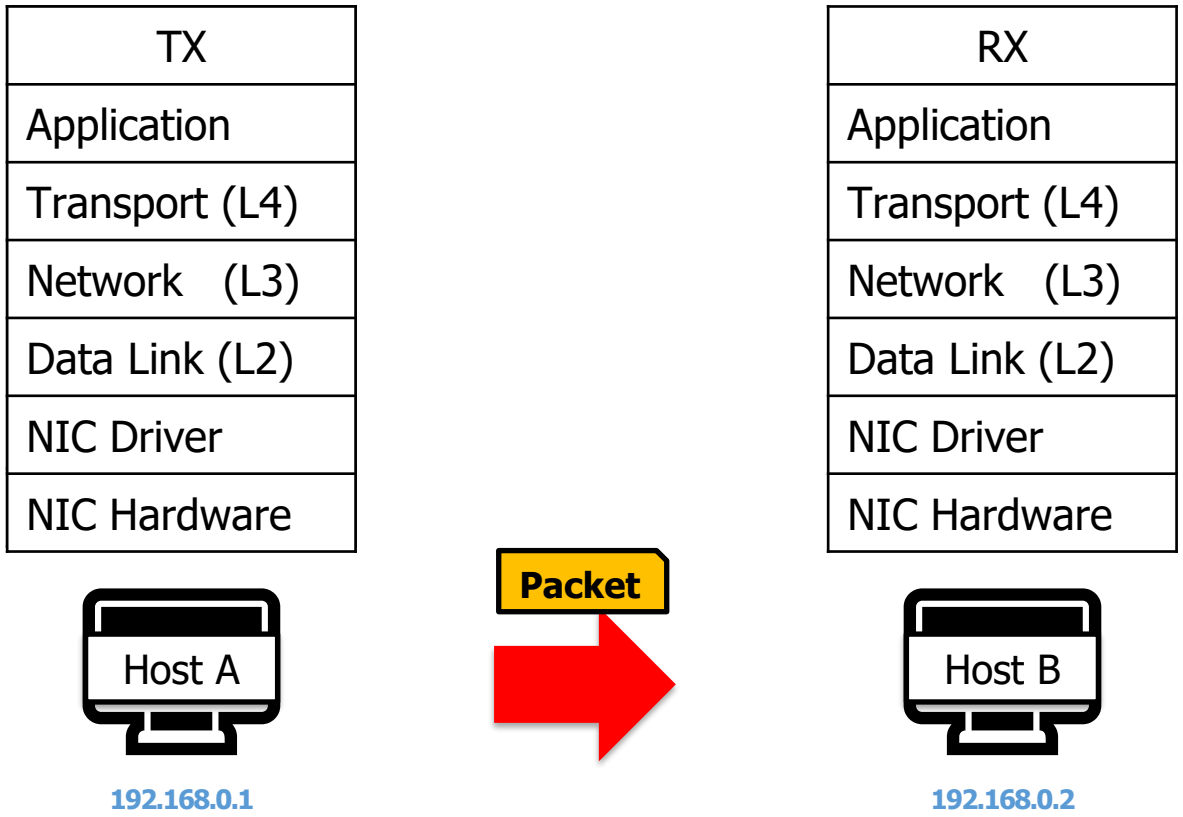

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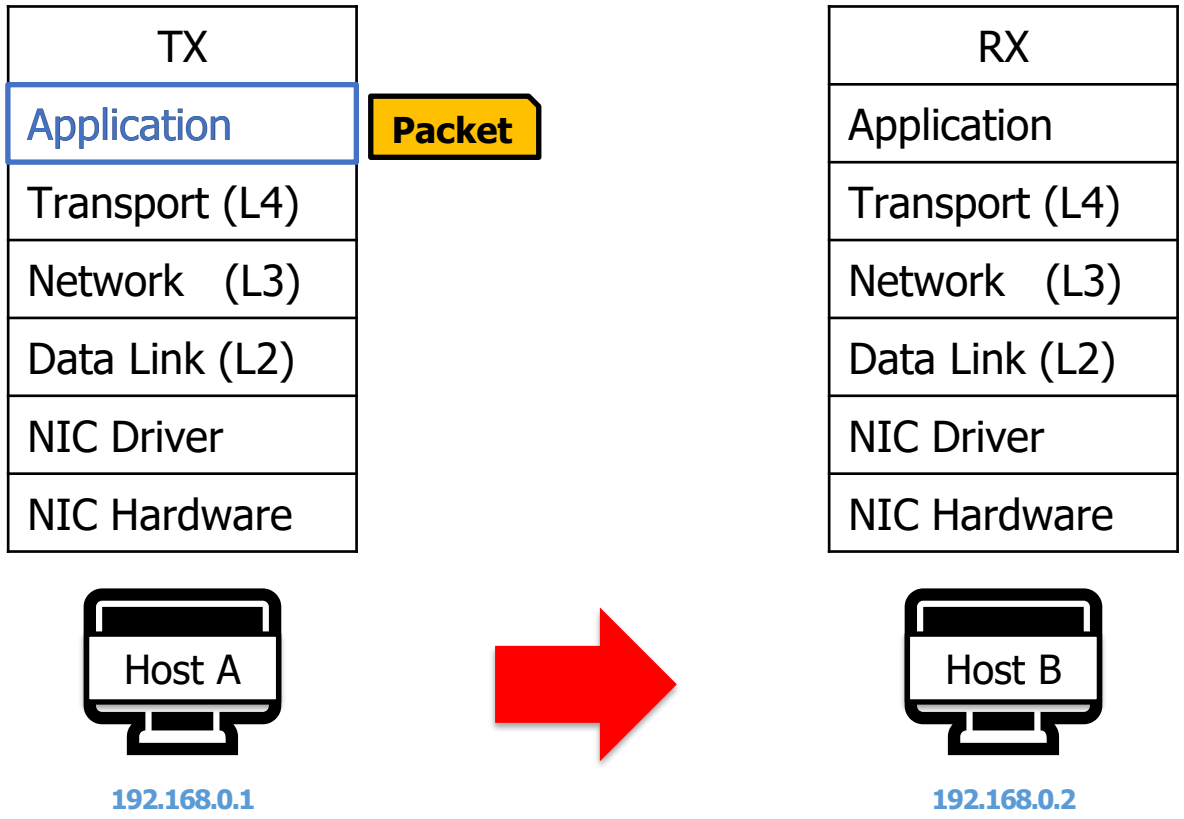

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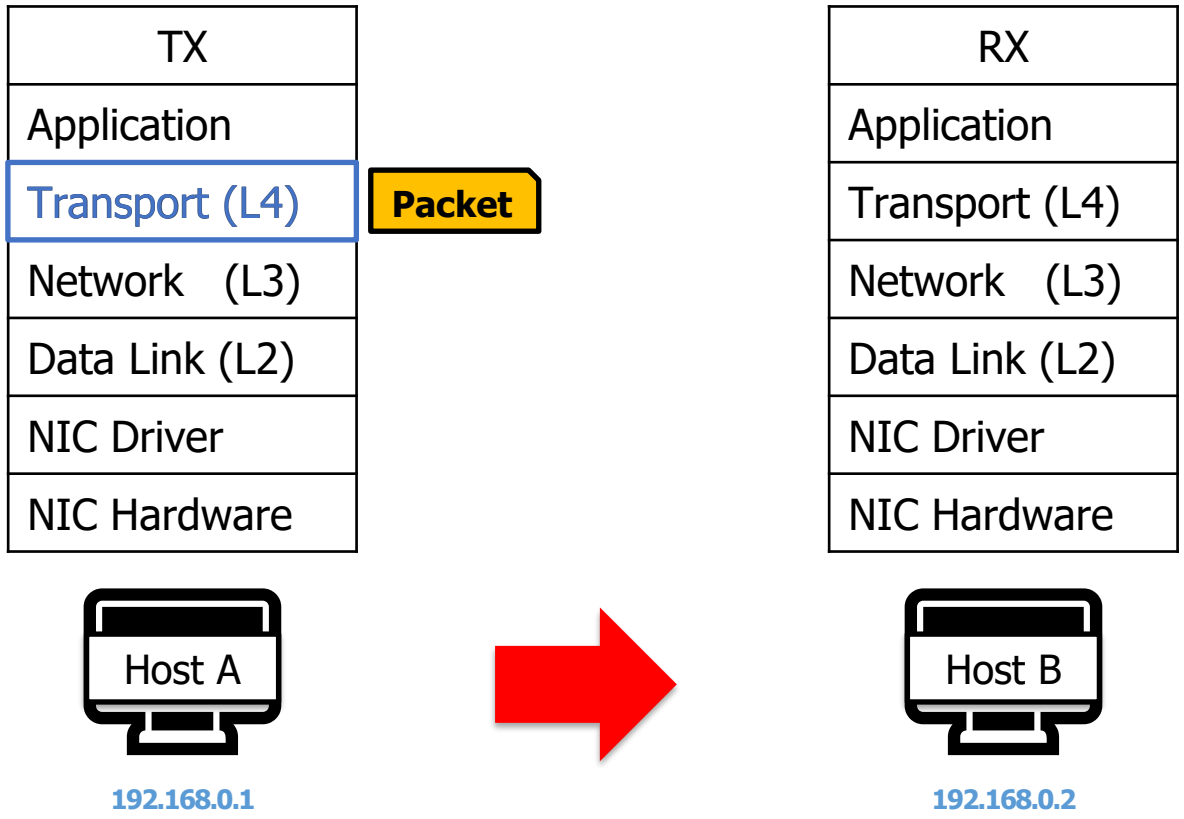
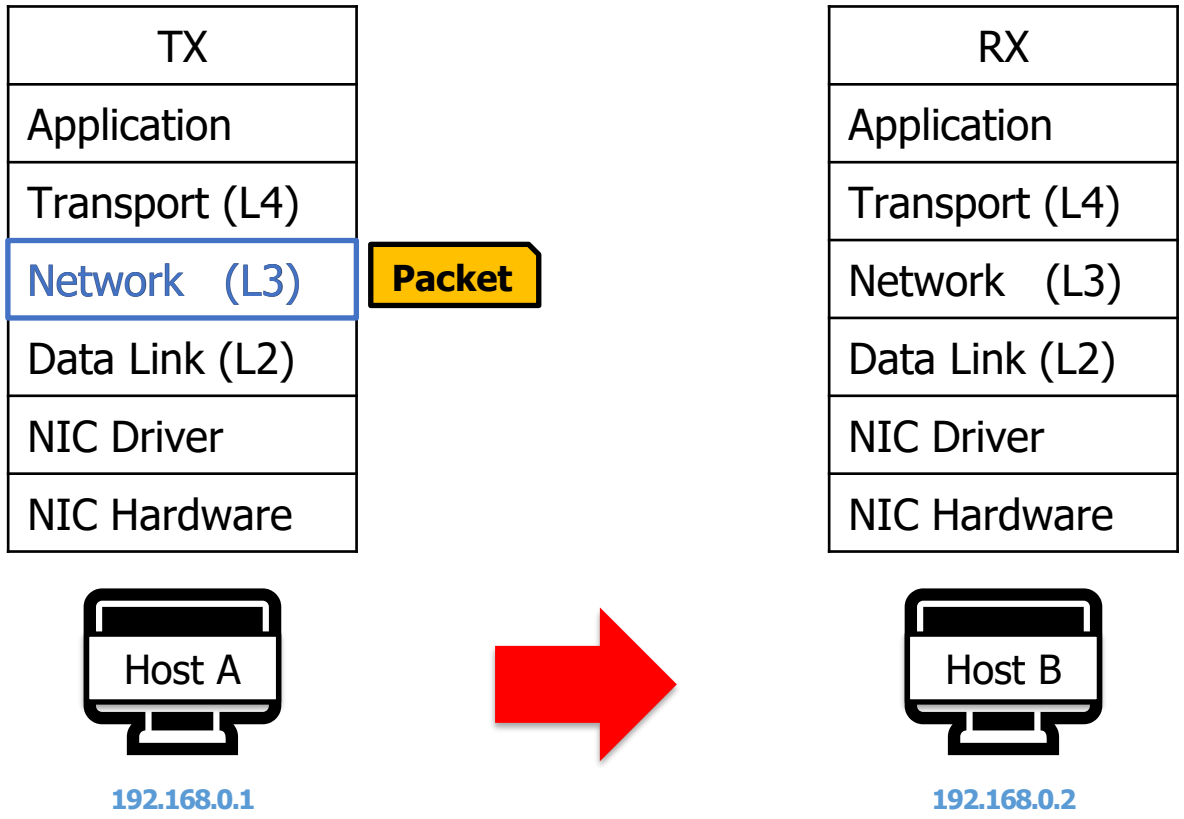
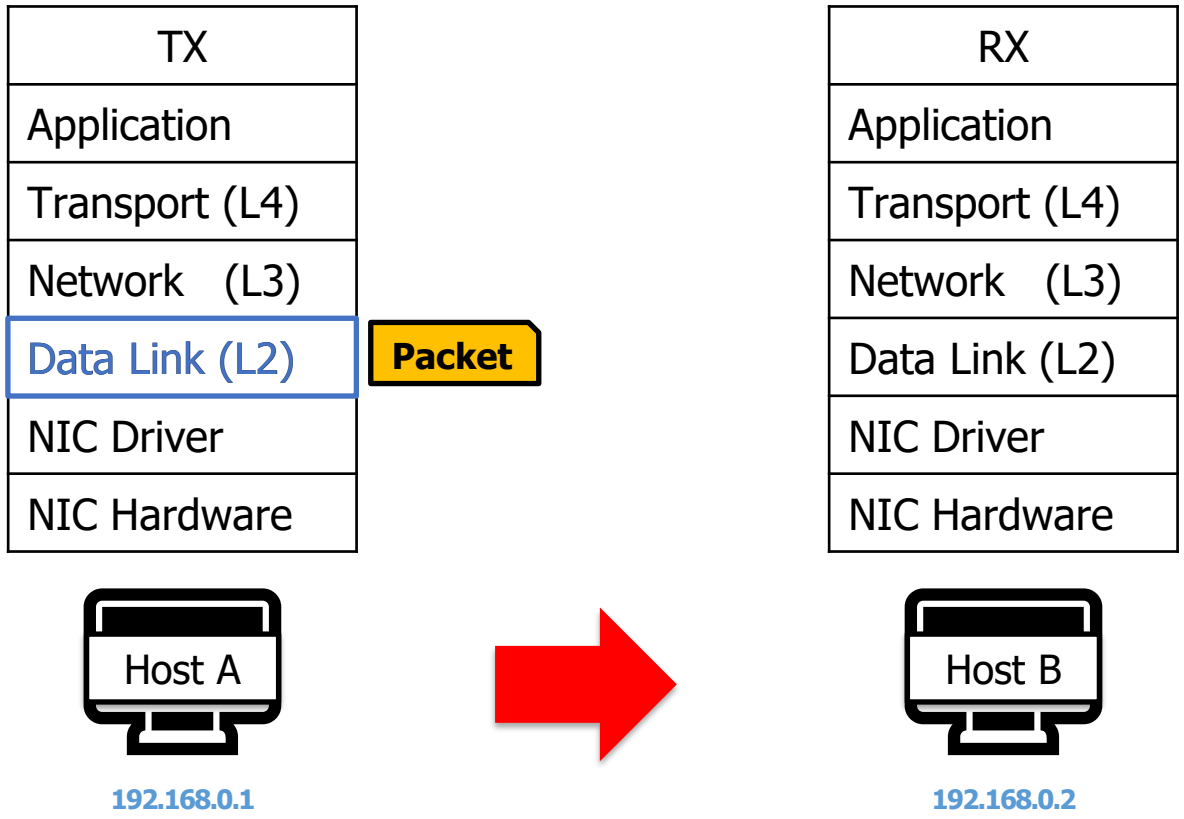


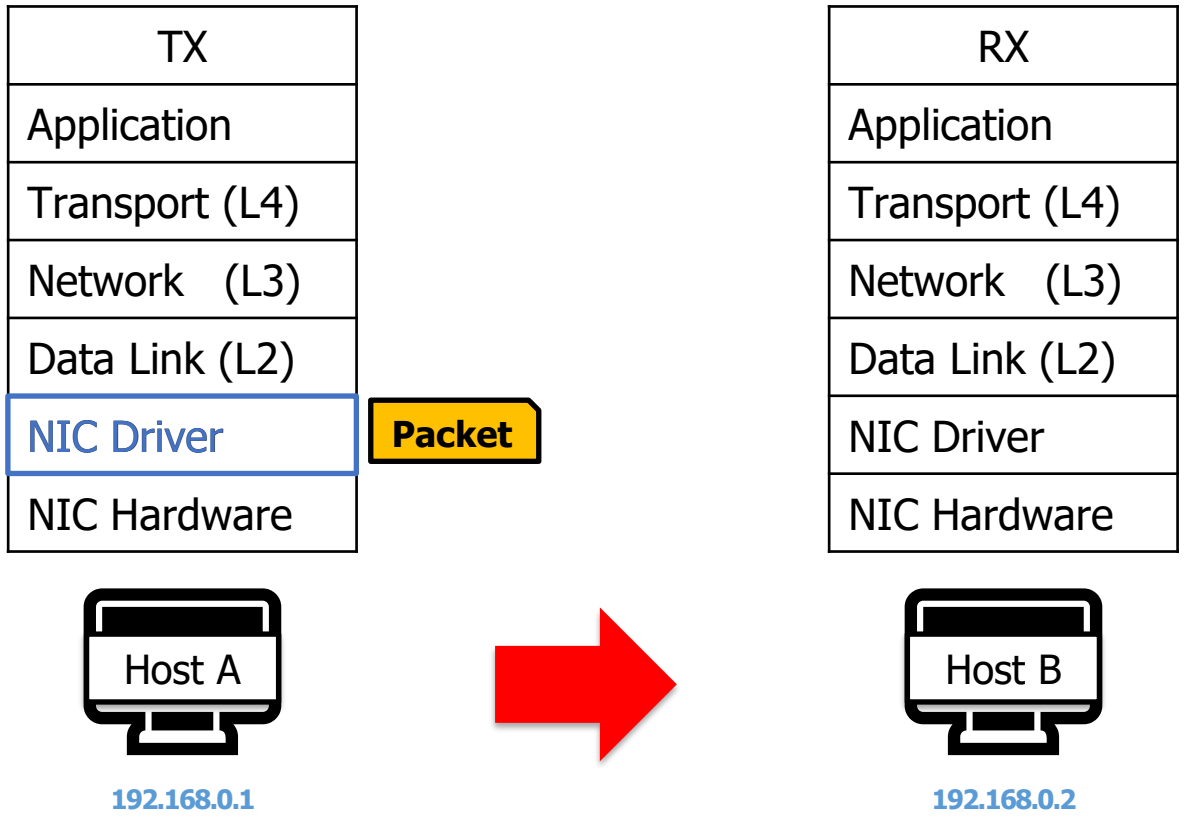
Packet Sending Path



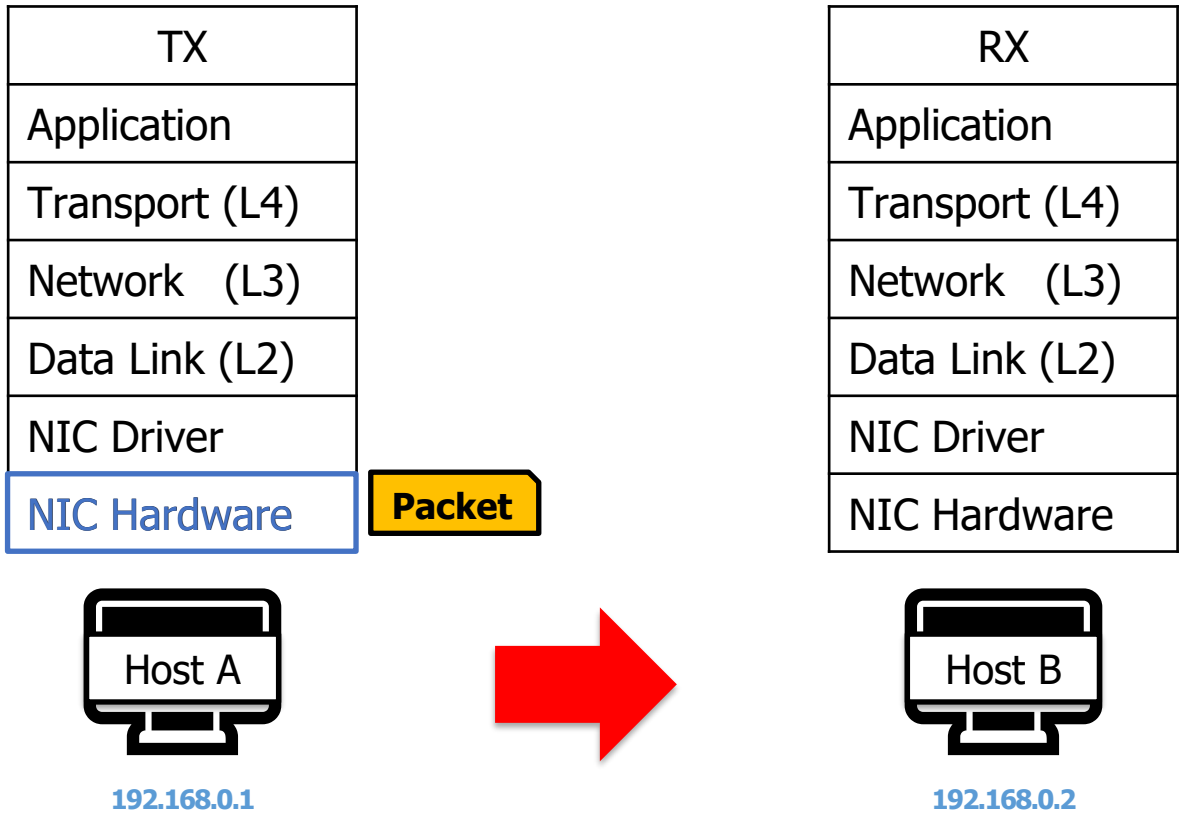
Packet Sending Path



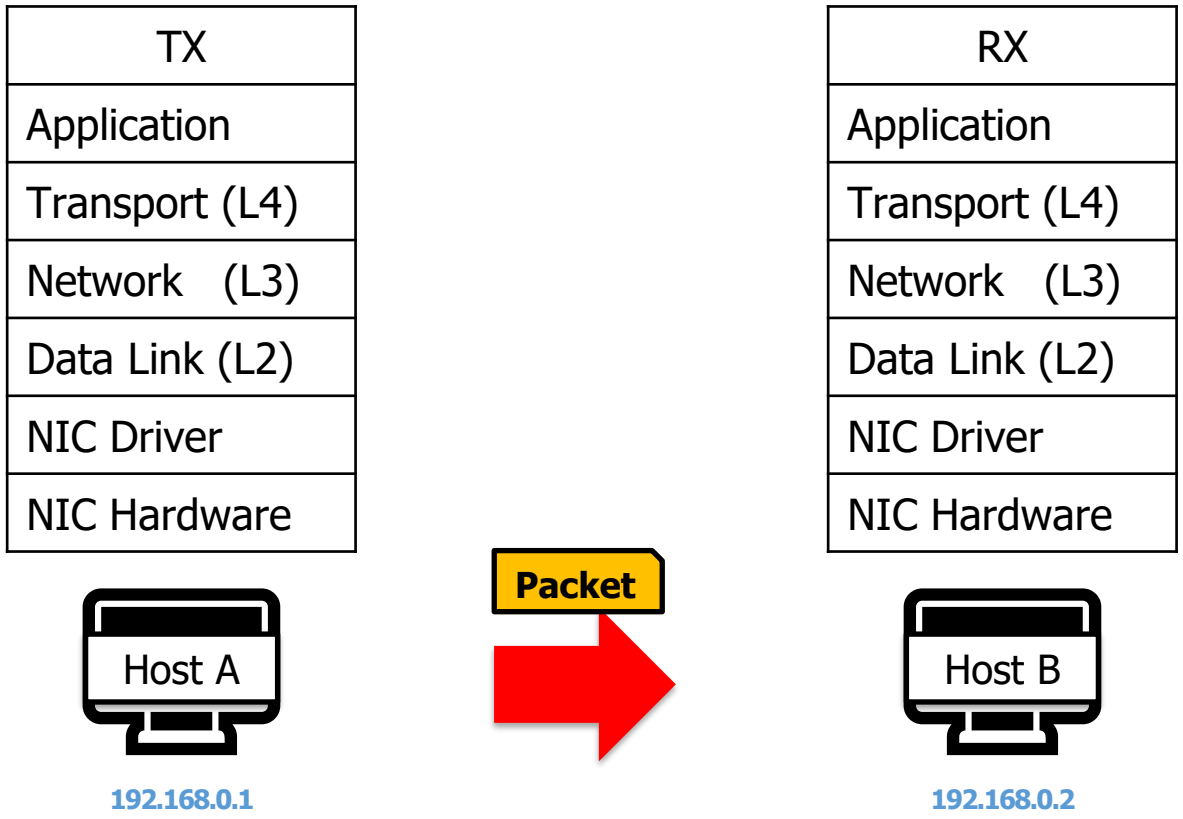
Packet Sending Path



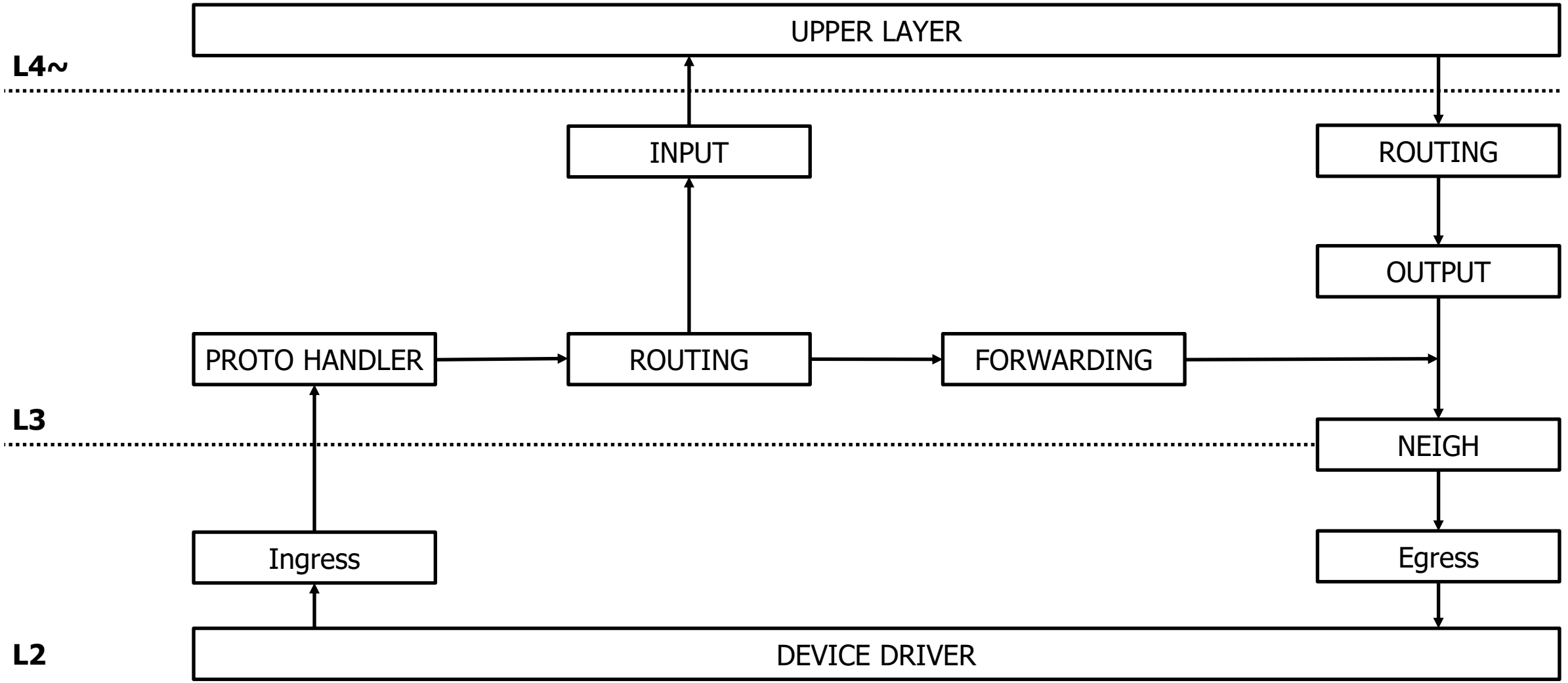
Packet Sending Path



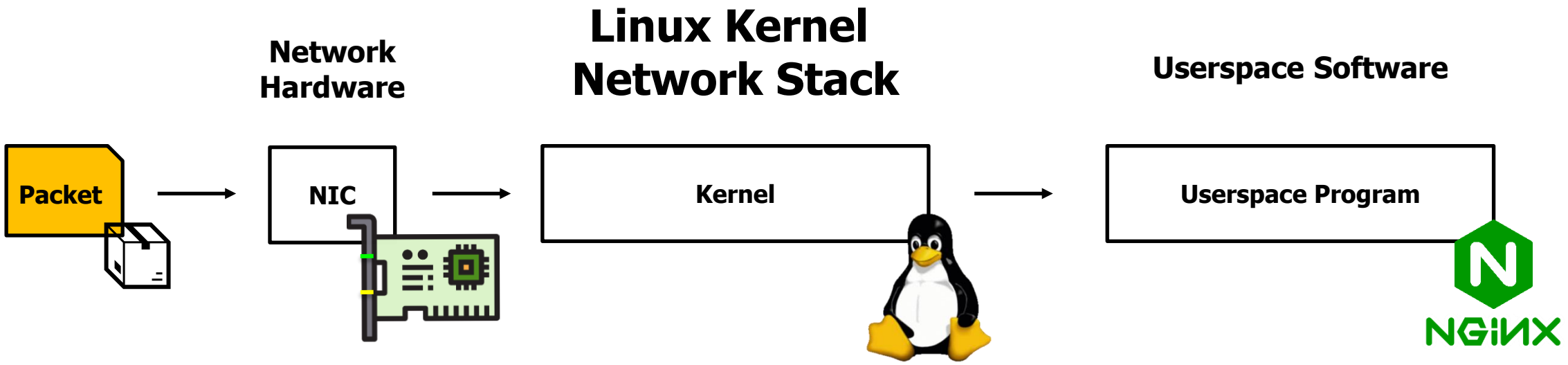
Packet Sending Path



Packet Path in Kernel

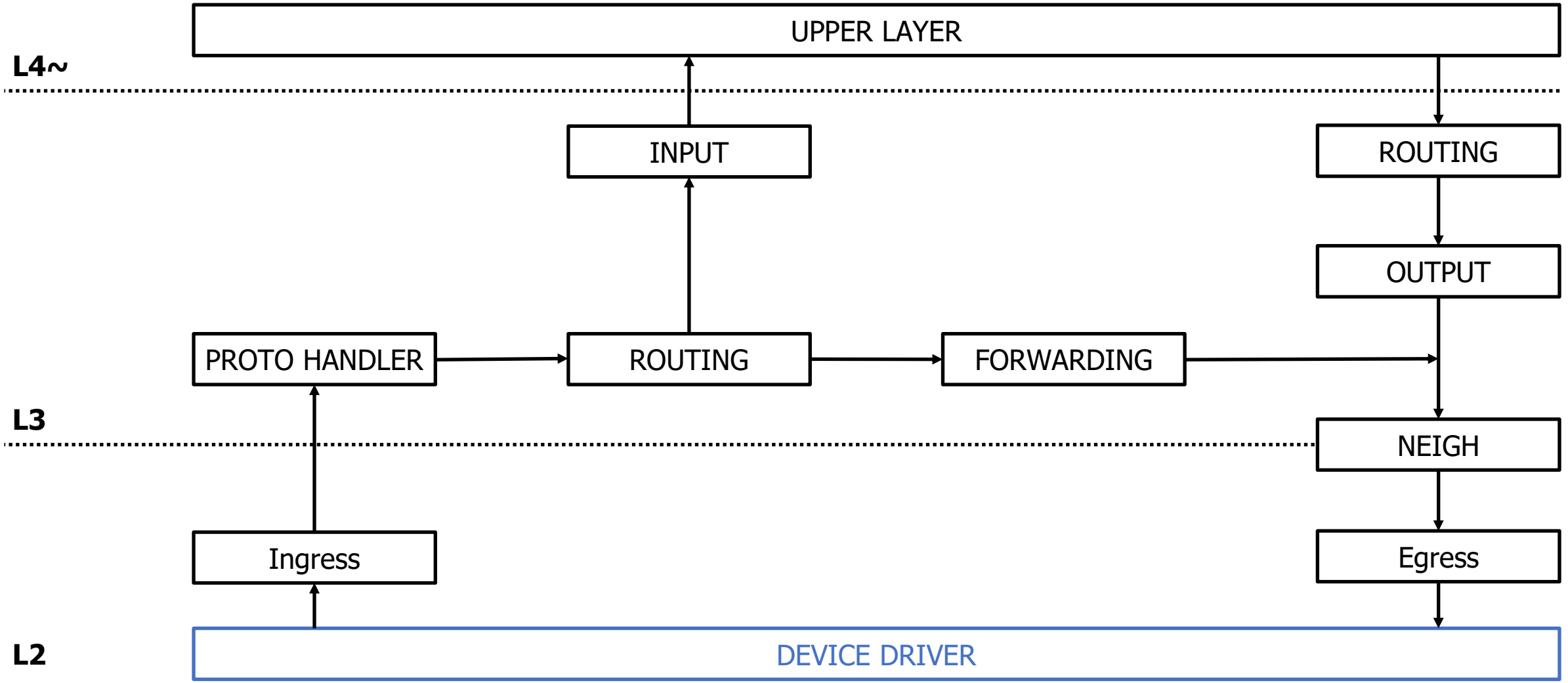


Packet Receiving Path

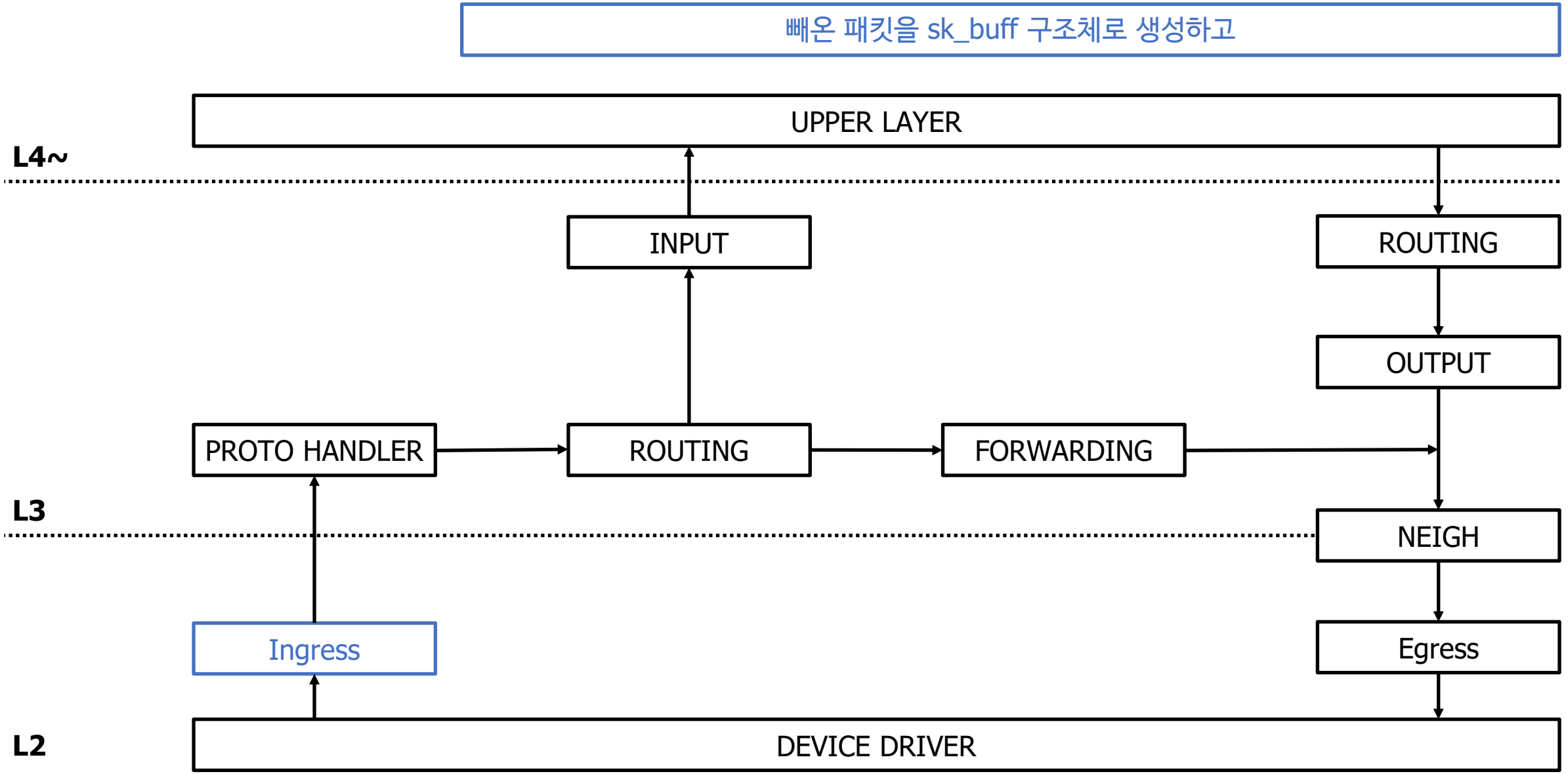


Packet Receiving Path

네트워크 인터페이스 카드 하드웨어에서 이를 수신하고
디바이스 드라이버단에서 NIC의 하드웨어(RX) 큐에서 패킷을 빼 내와서

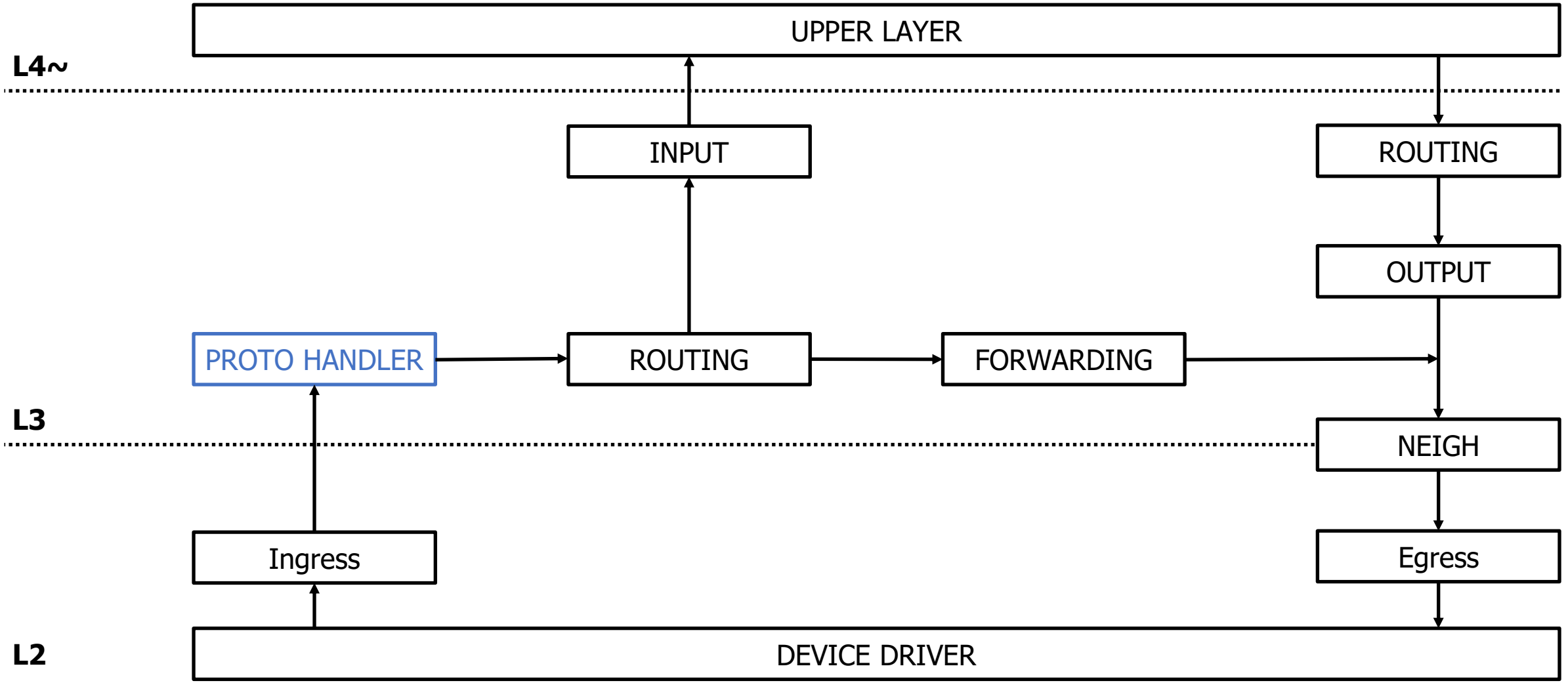


Packet Receiving Path

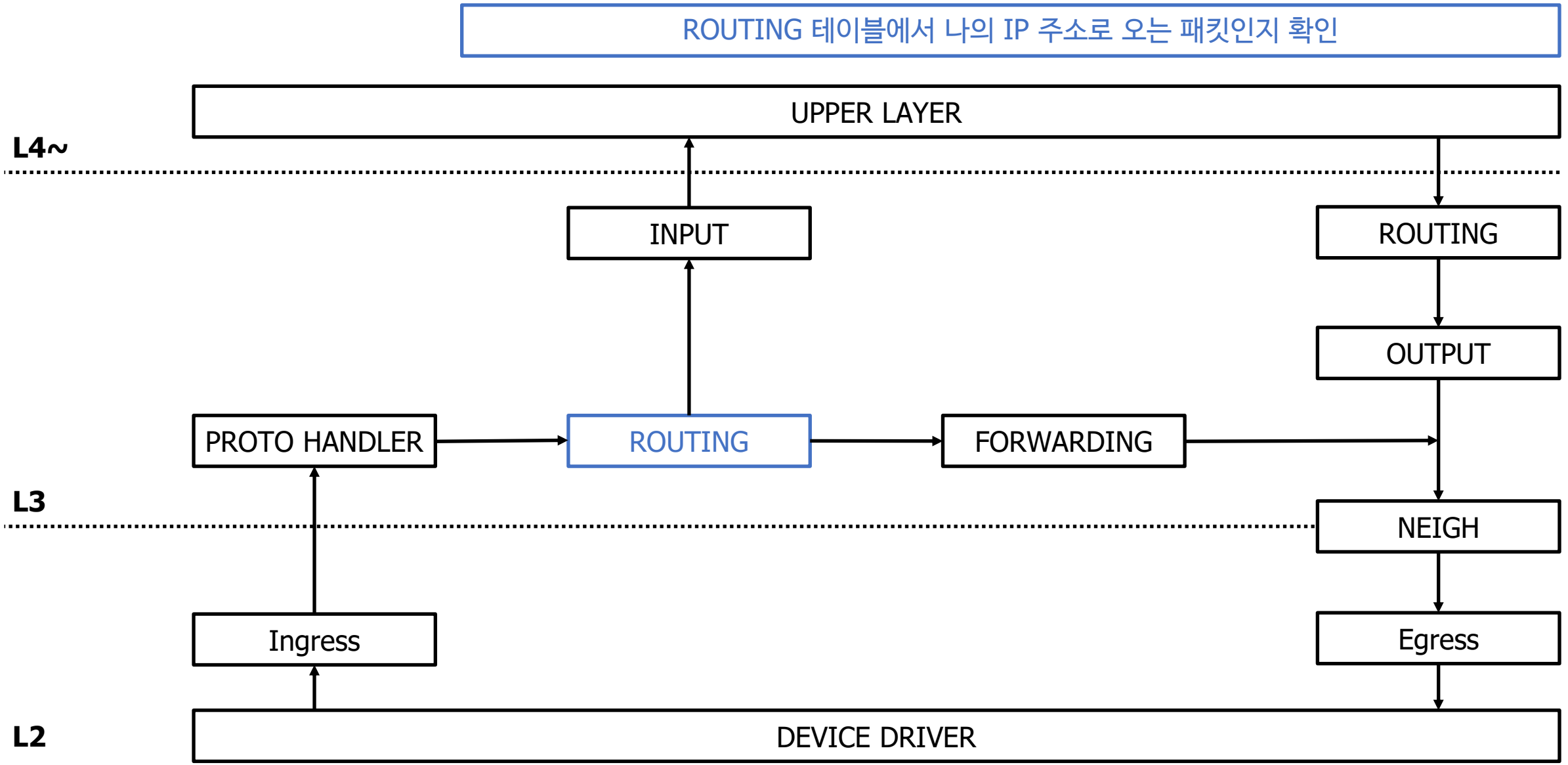


Packet Receiving Path

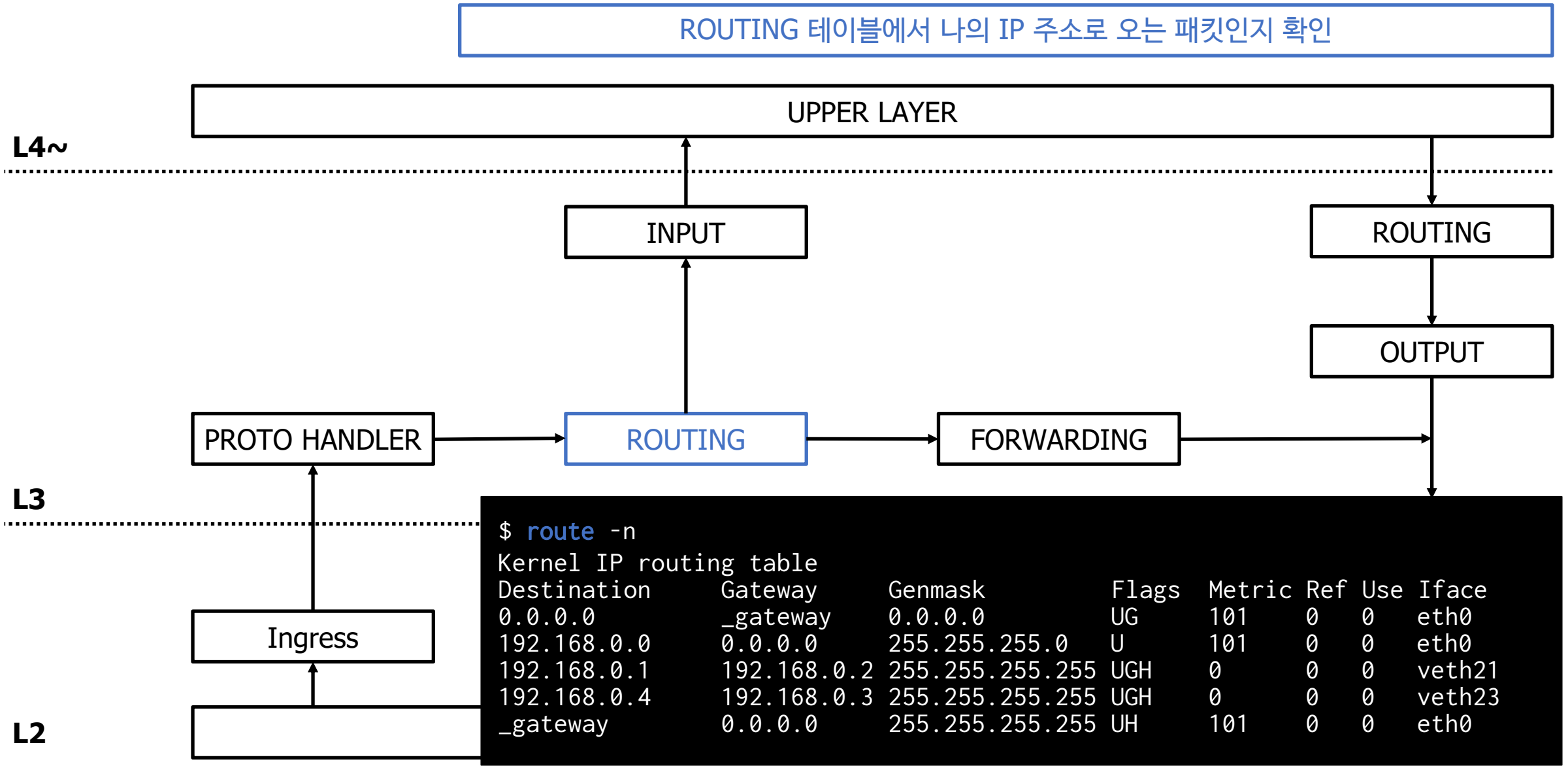
해당 패킷이 어떤 프로토콜인지를 확인하여
해당하는 핸들러 함수를 호출해 프로토콜을 확인



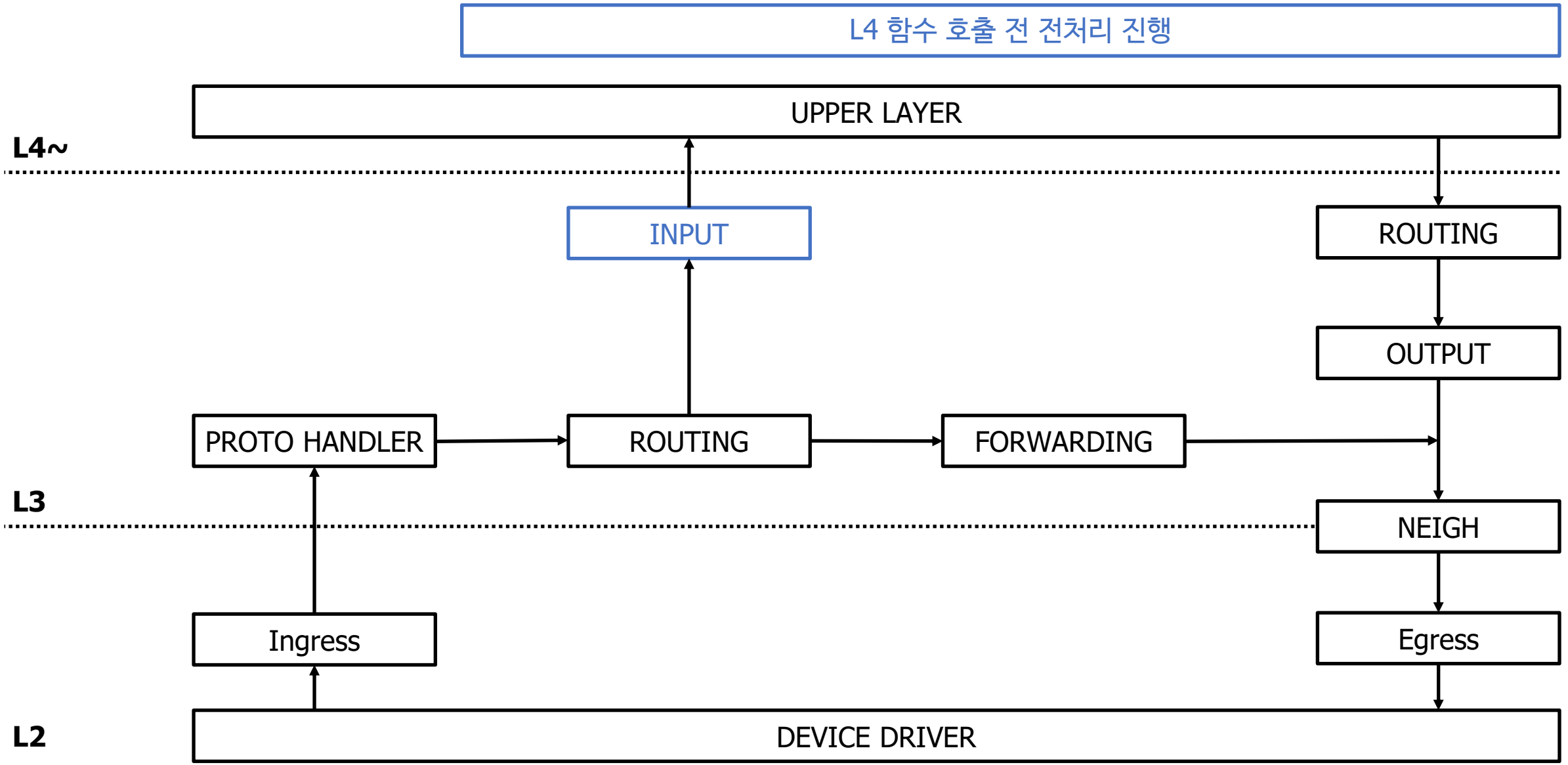
Packet Receiving Path



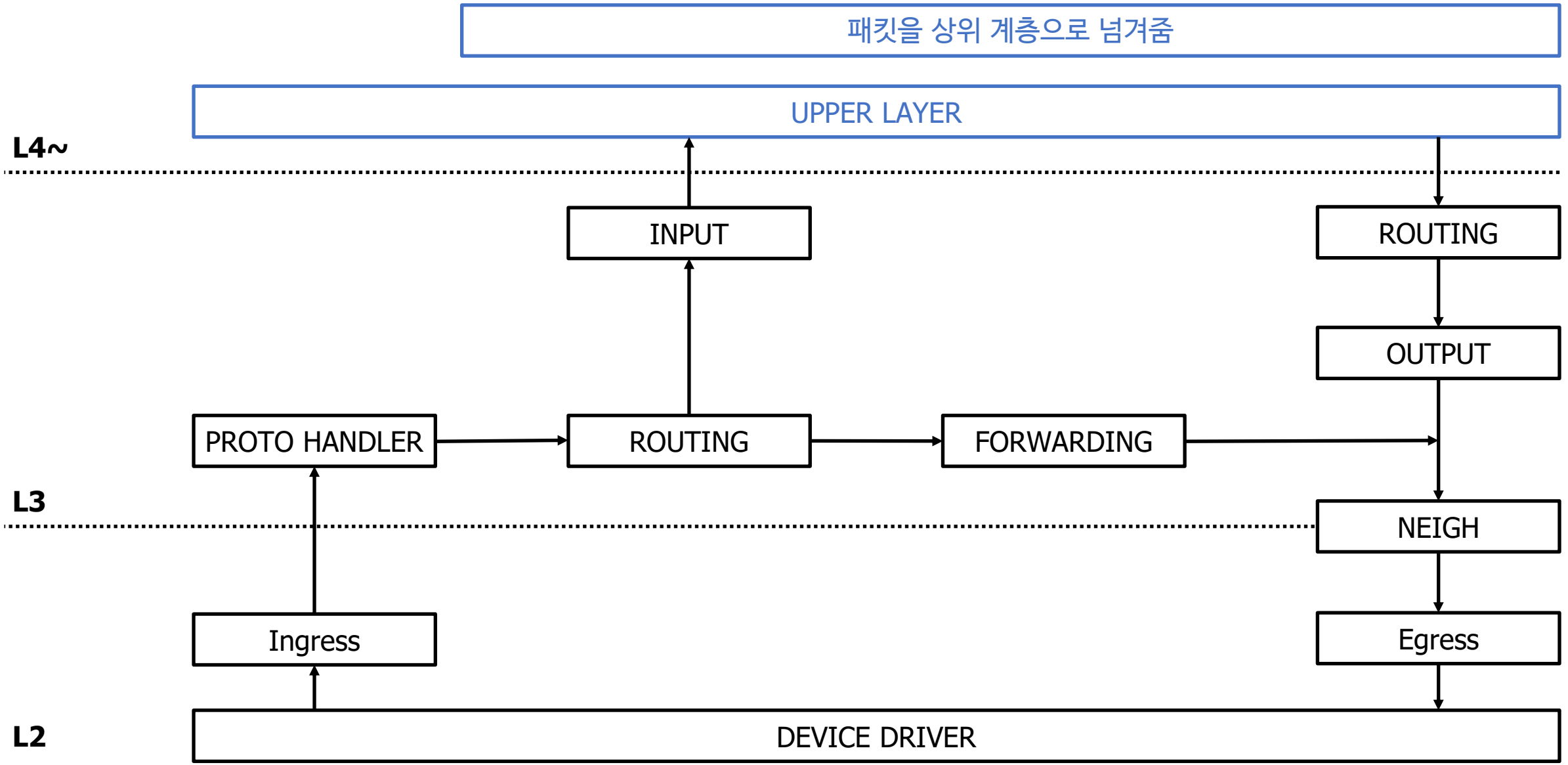
Packet Receiving Path



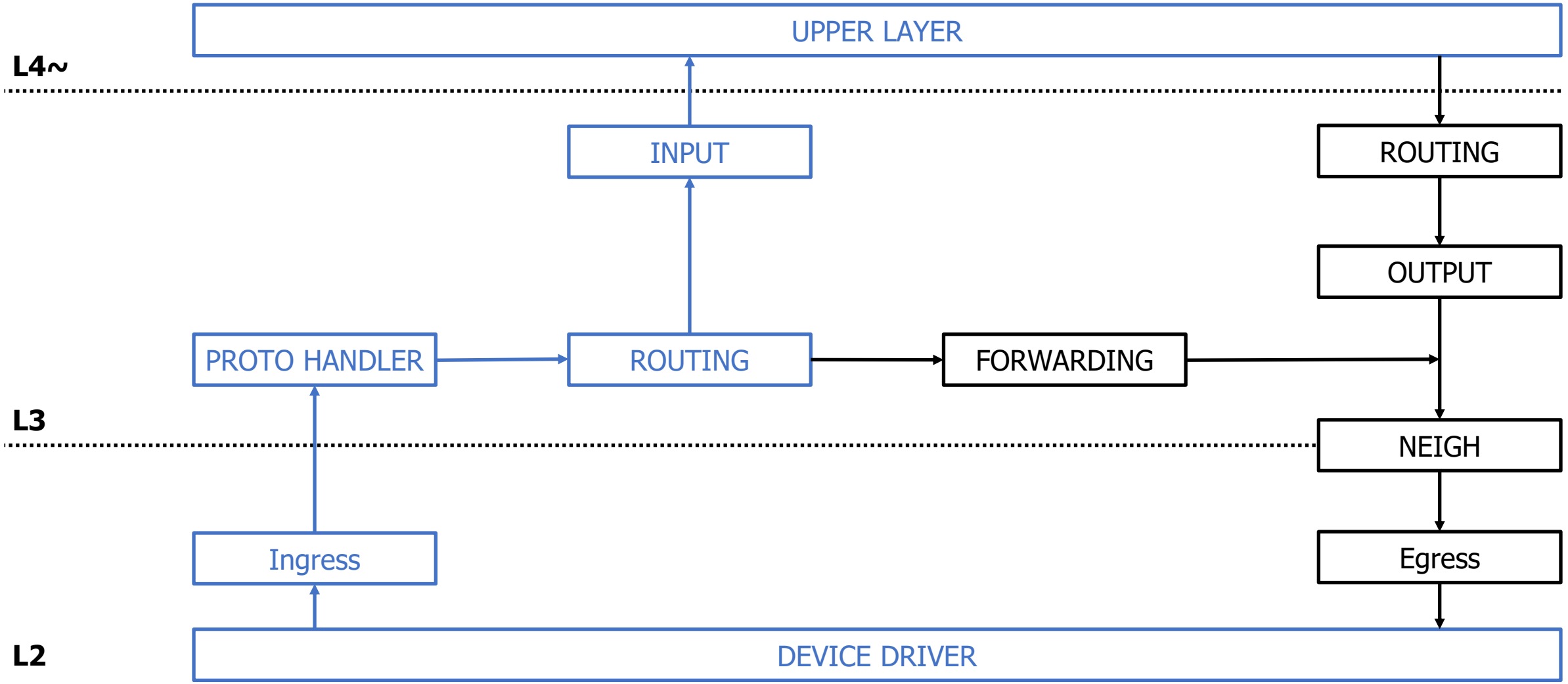
Packet Receiving Path



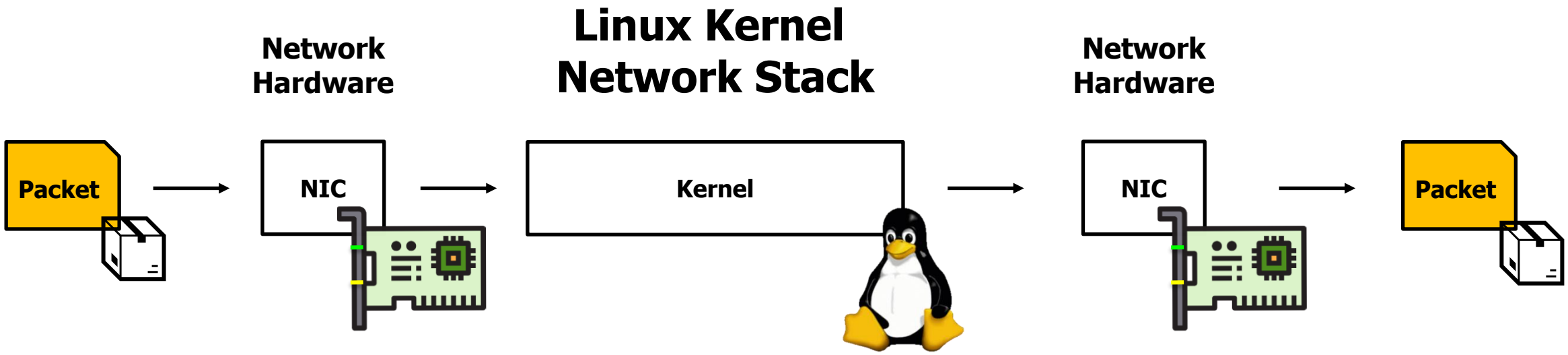
Packet Receiving Path



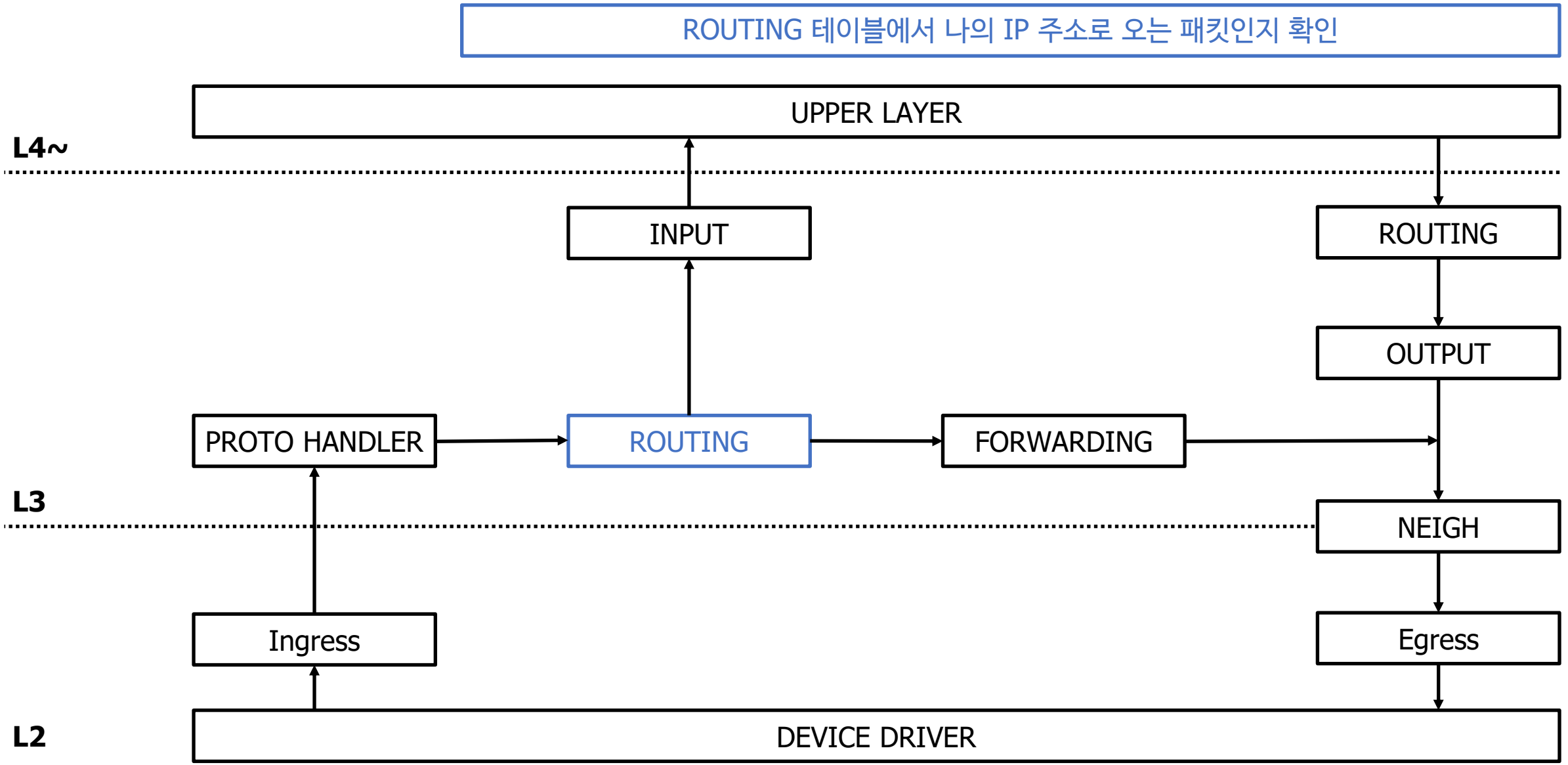
Packet Receiving Path



Packet Forwarding Path

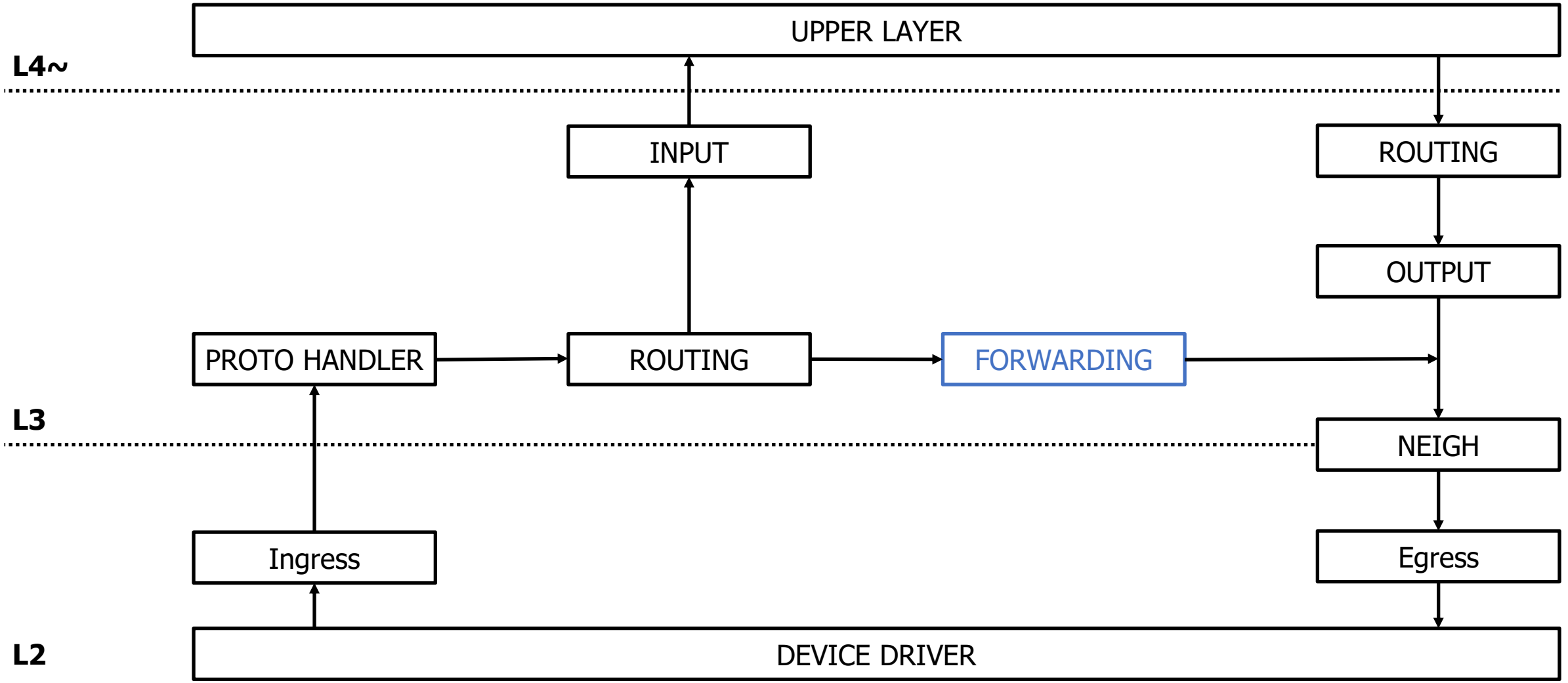


Packet Forwarding Path

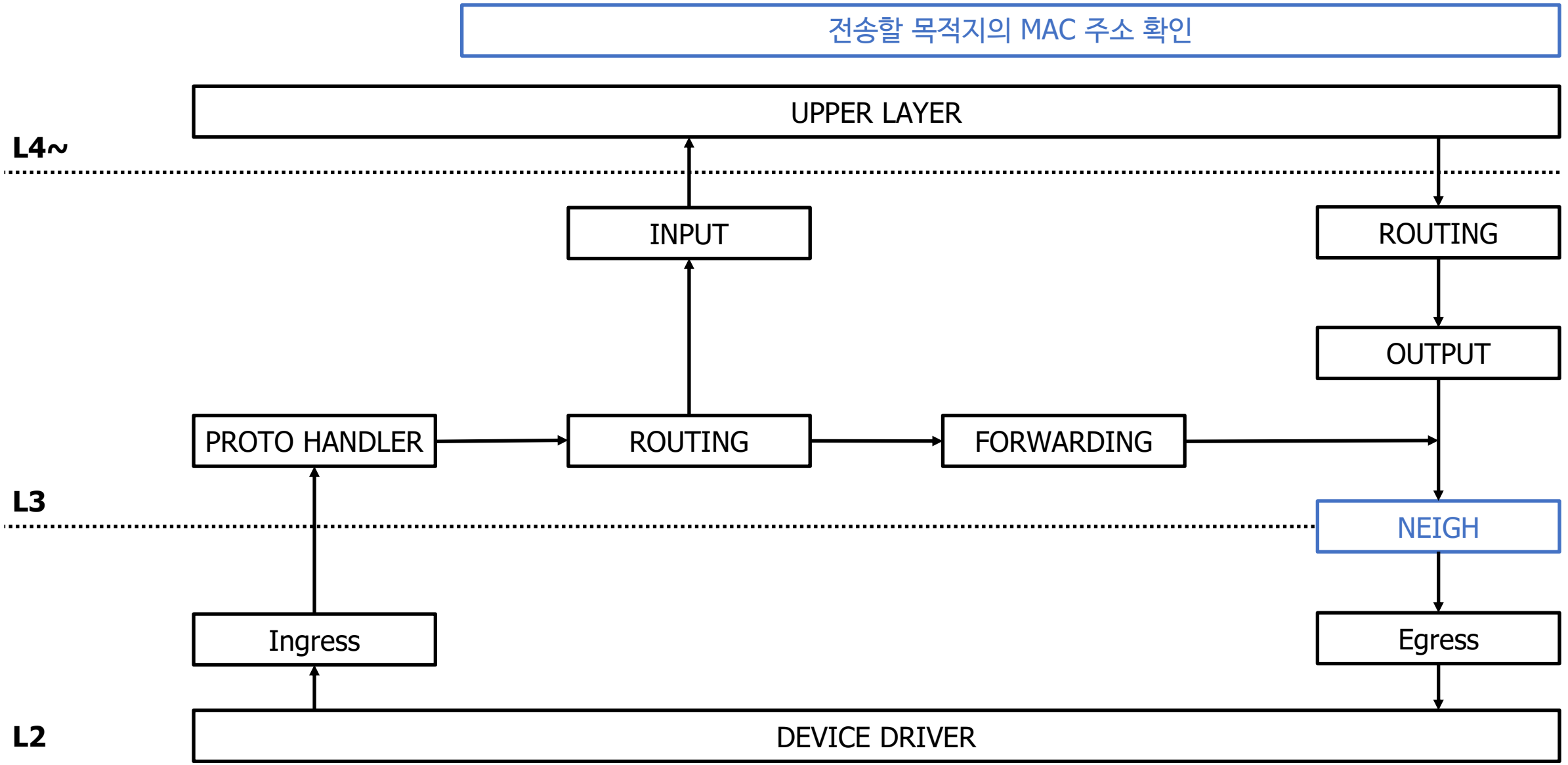


Packet Forwarding Path

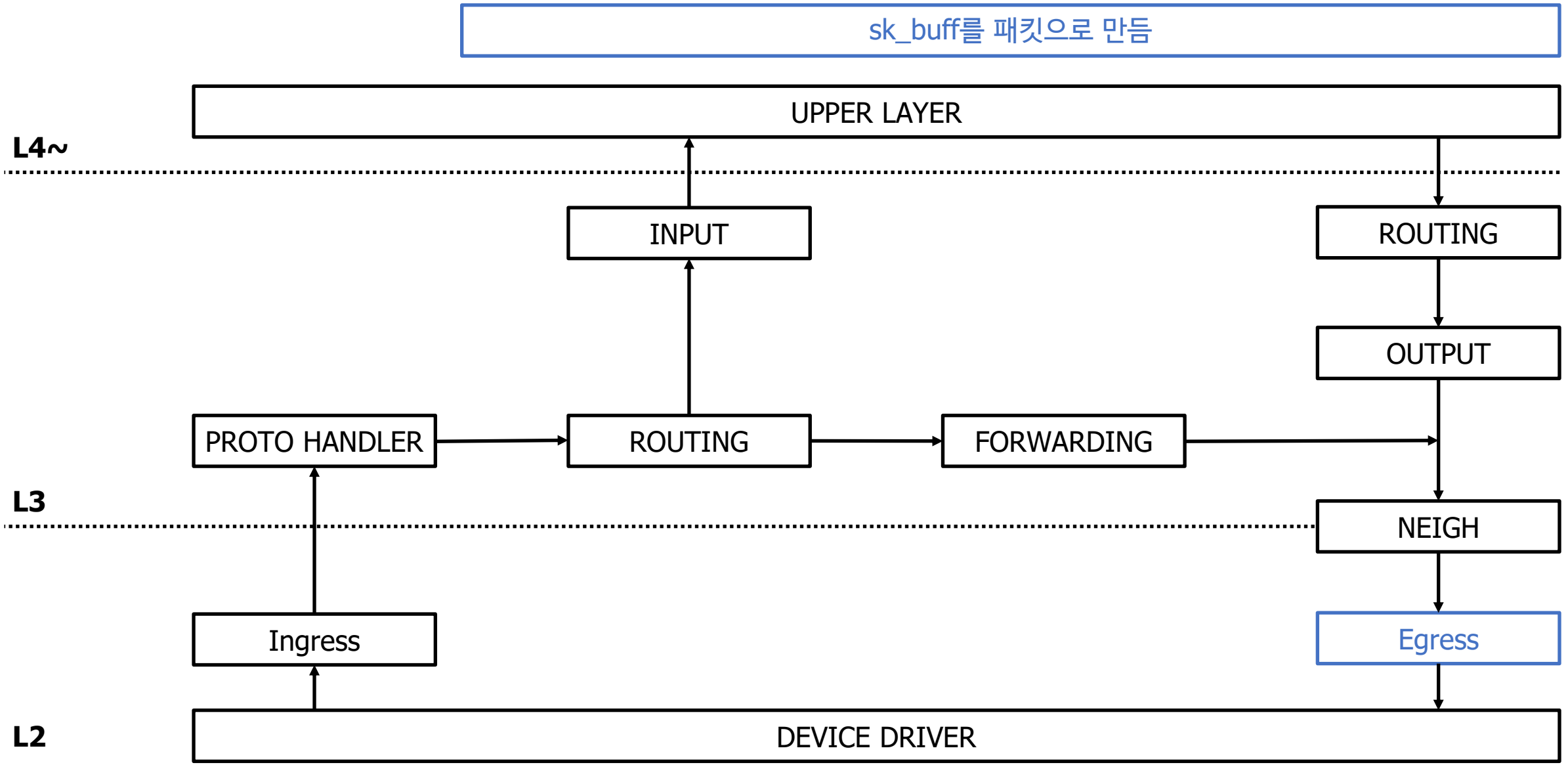
FORWARDING 인 경우 라우팅 테이블에 따른 인터페이스로 이동



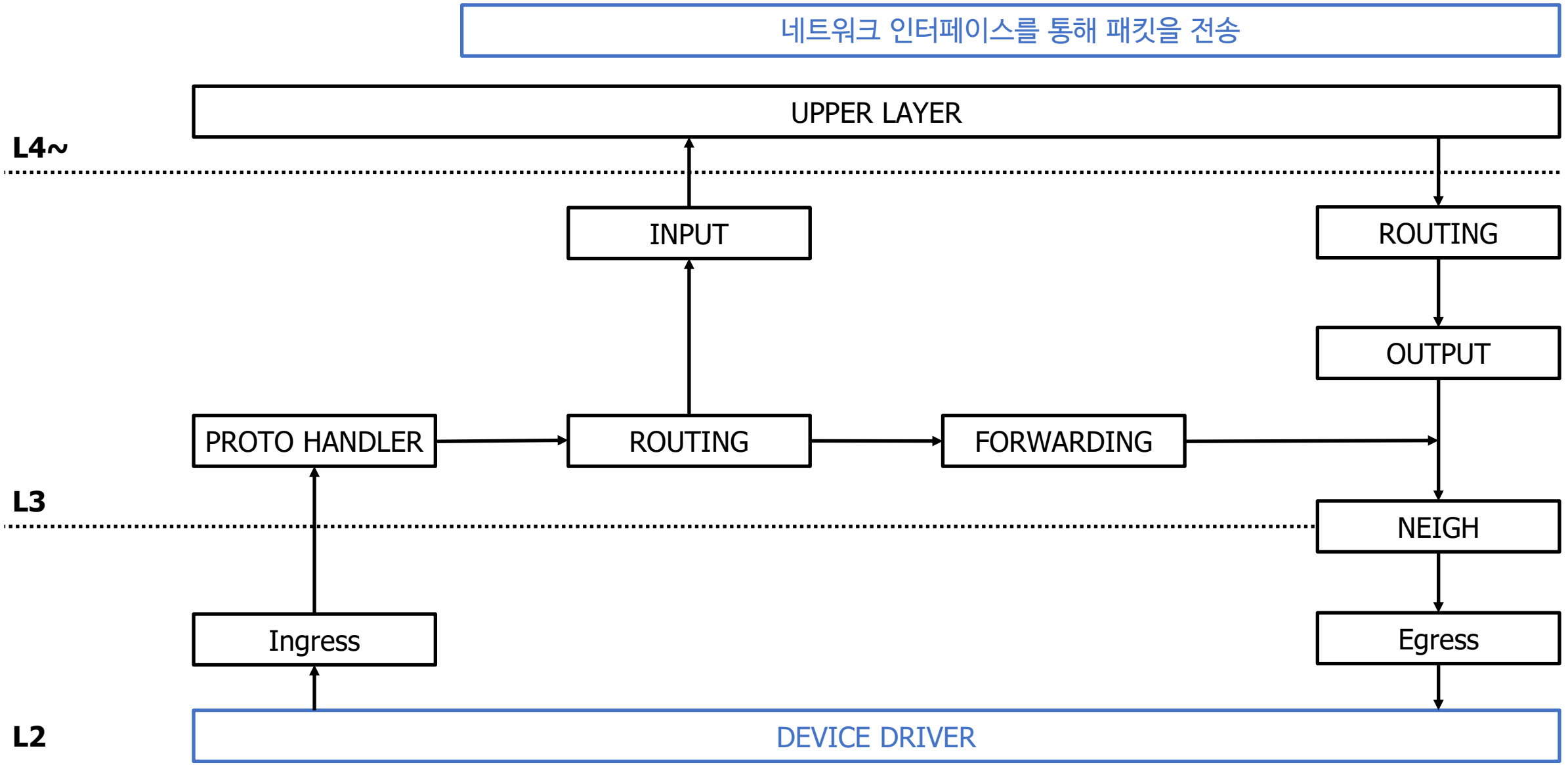
Packet Forwarding Path



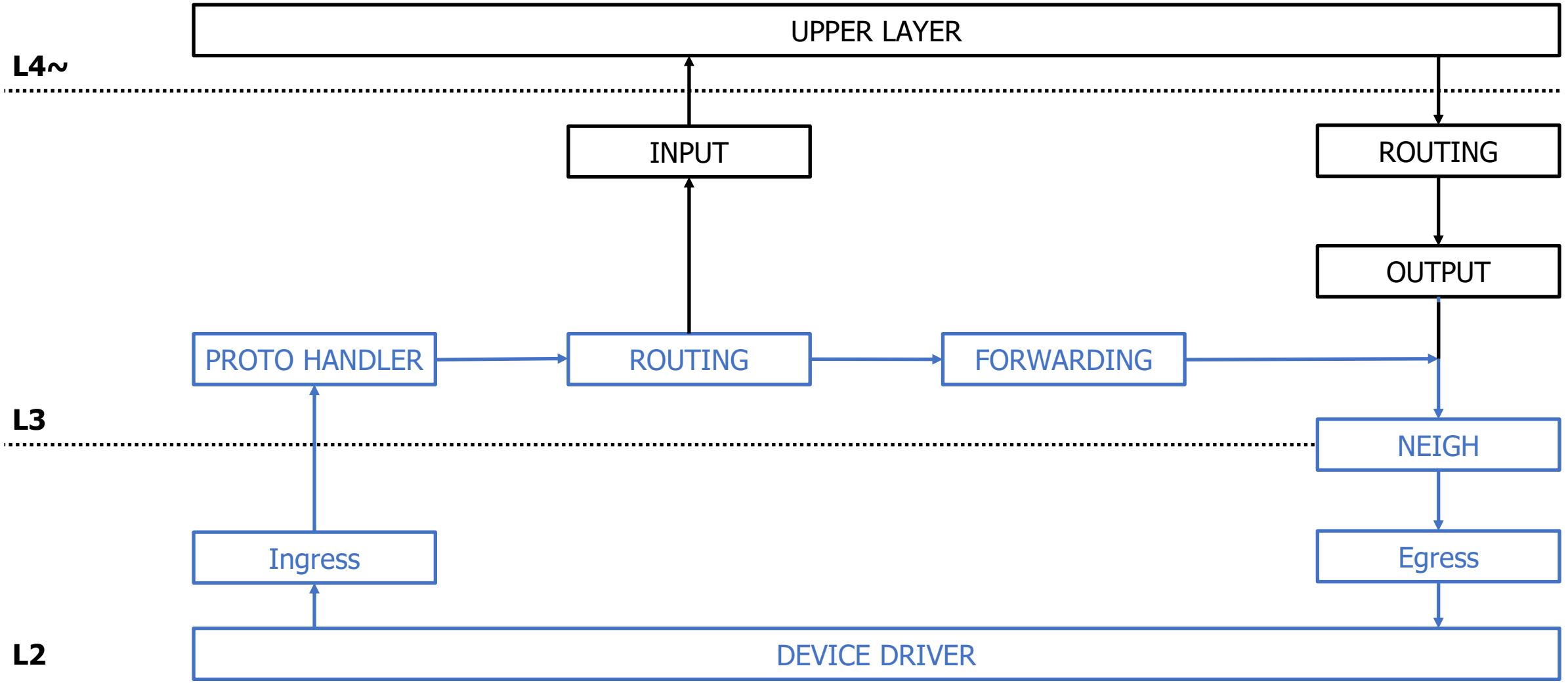
Packet Forwarding Path



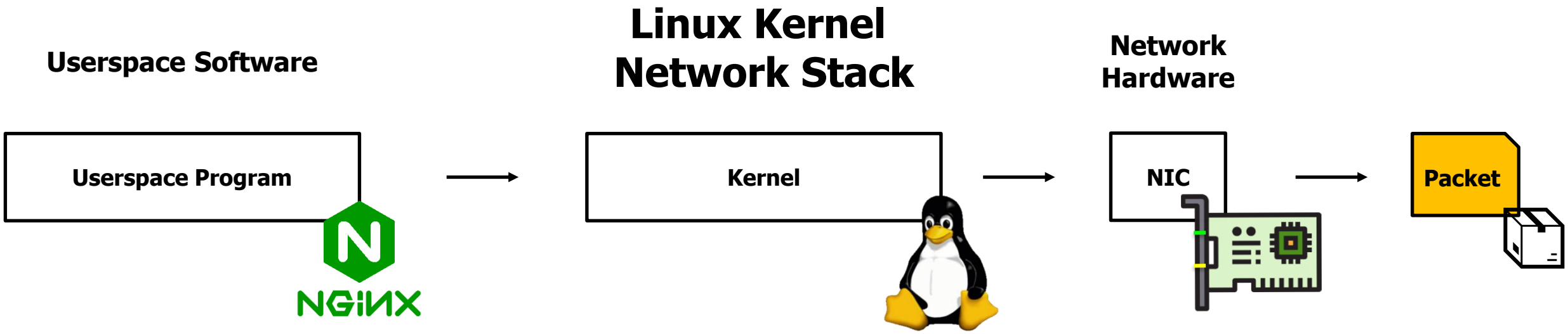
Packet Forwarding Path



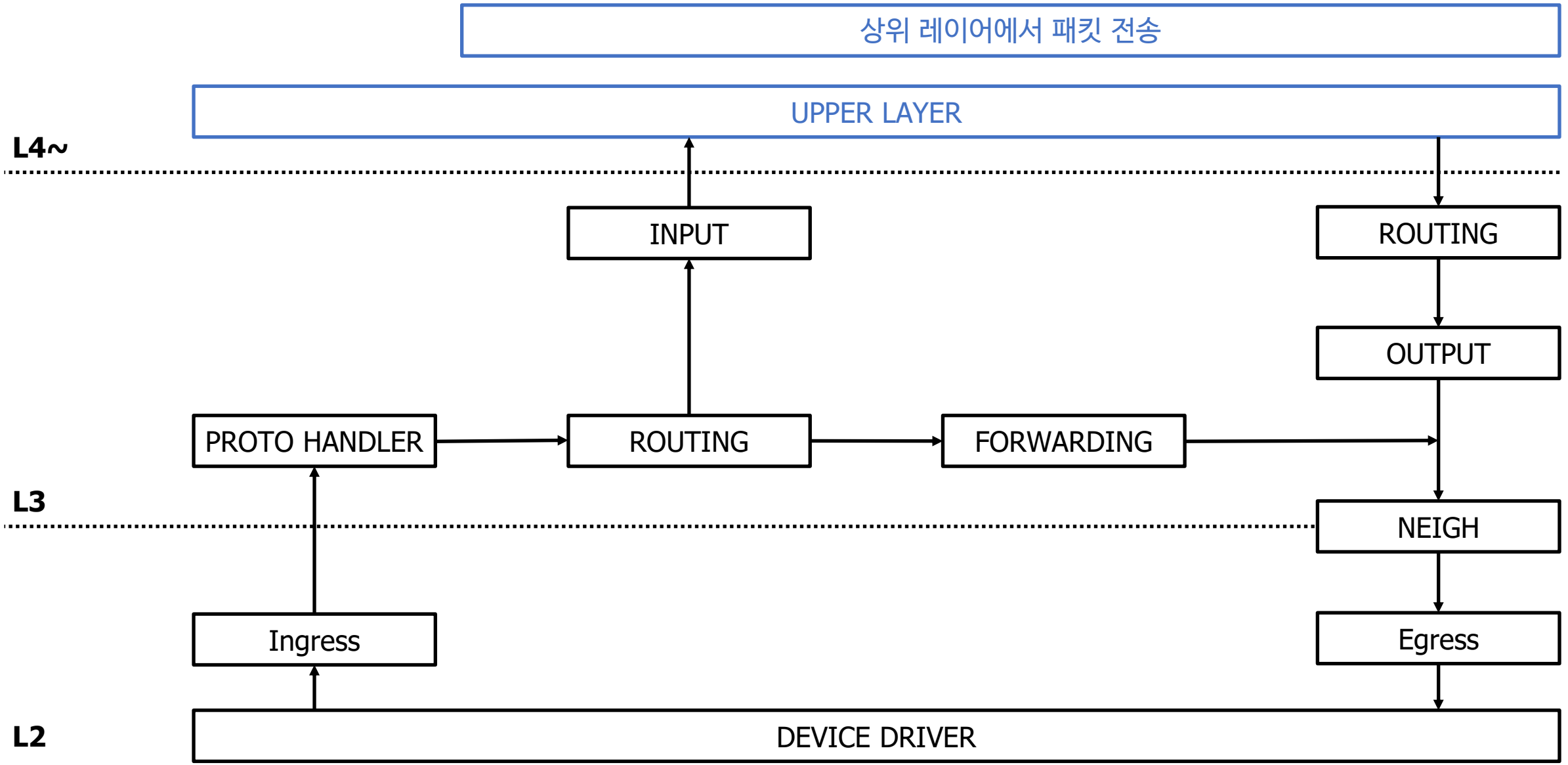
Packet Forwarding Path



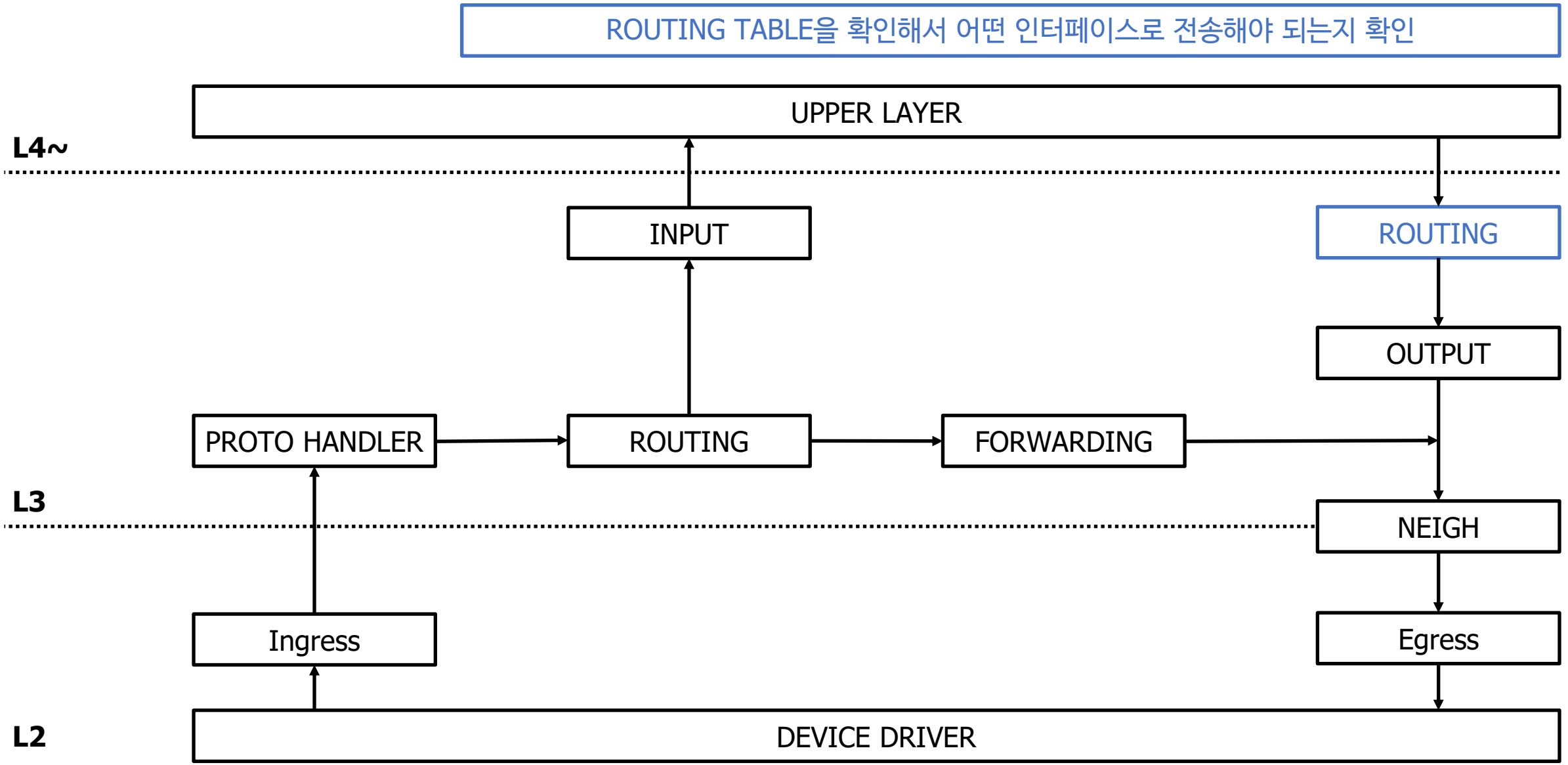
Packet Sending Path



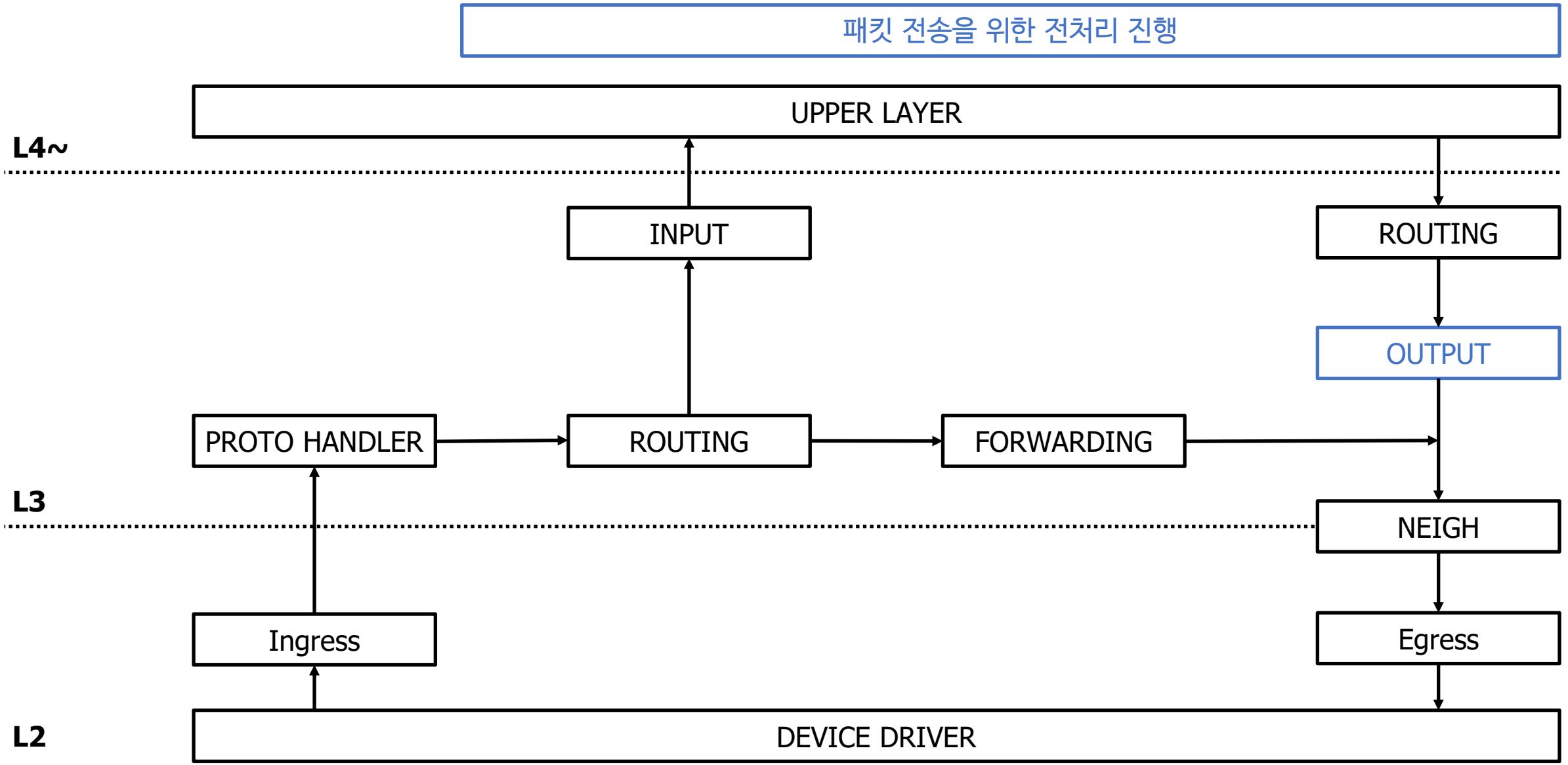
Packet Sending Path



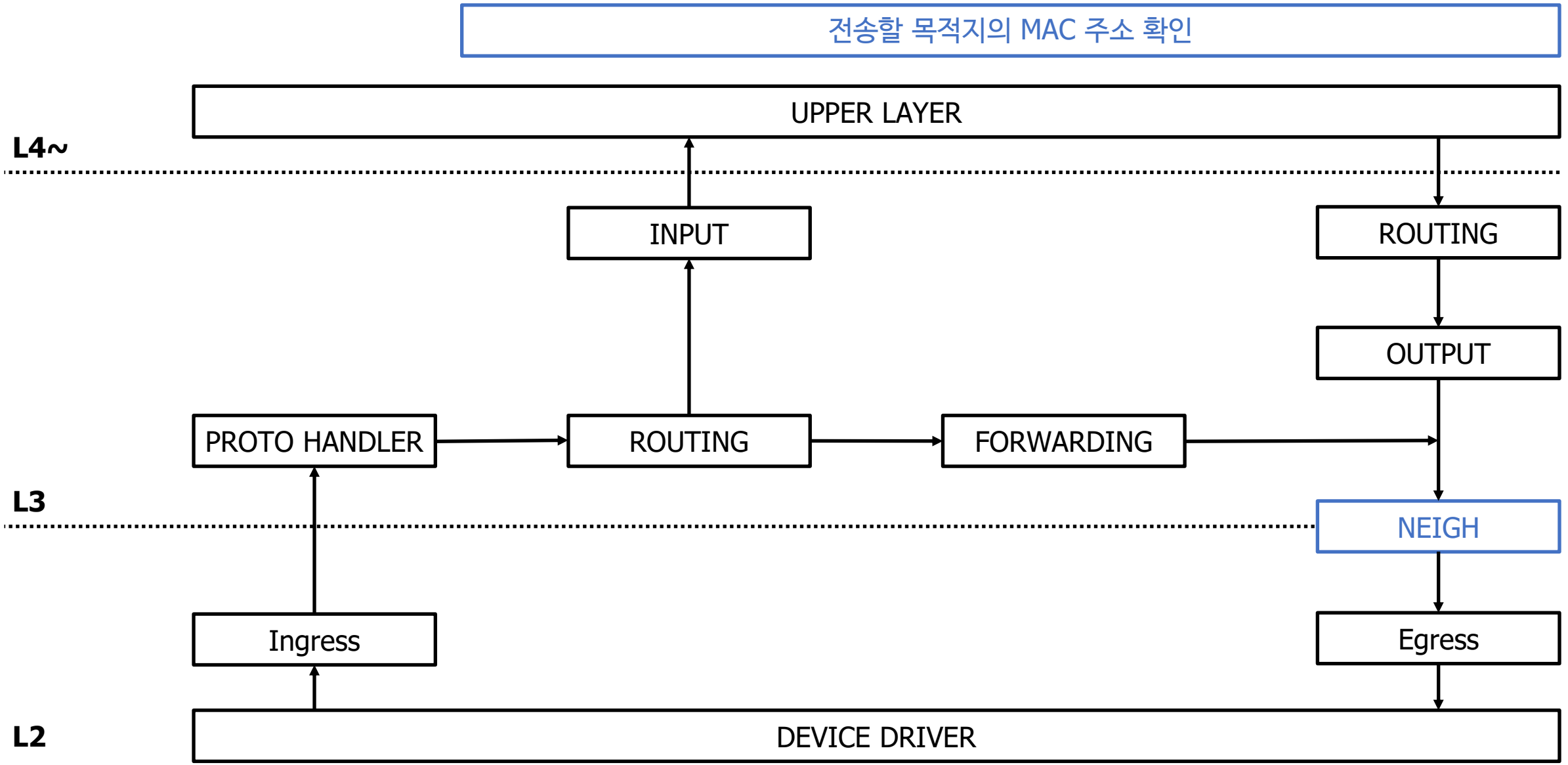
Packet Sending Path



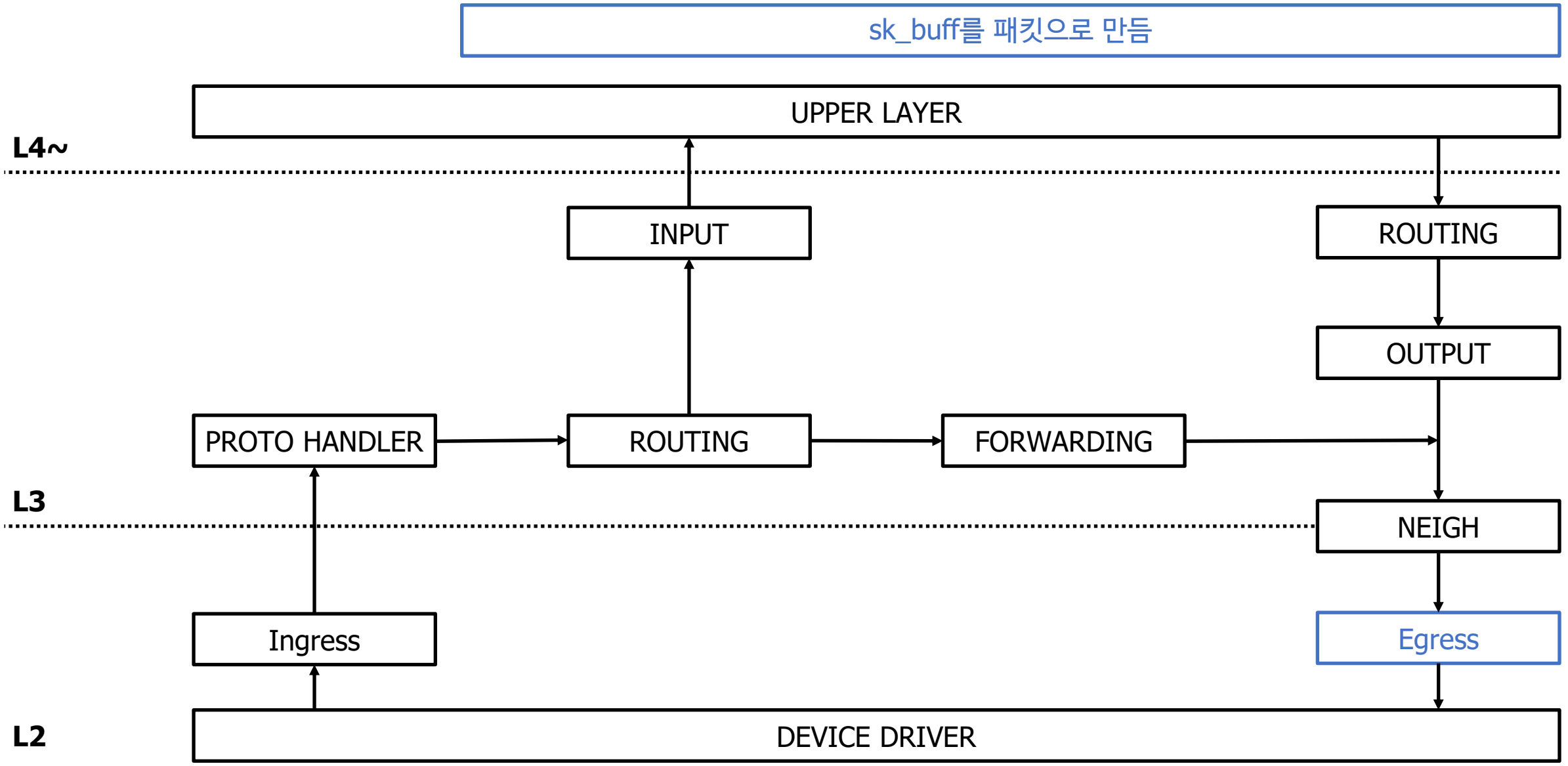
Packet Sending Path



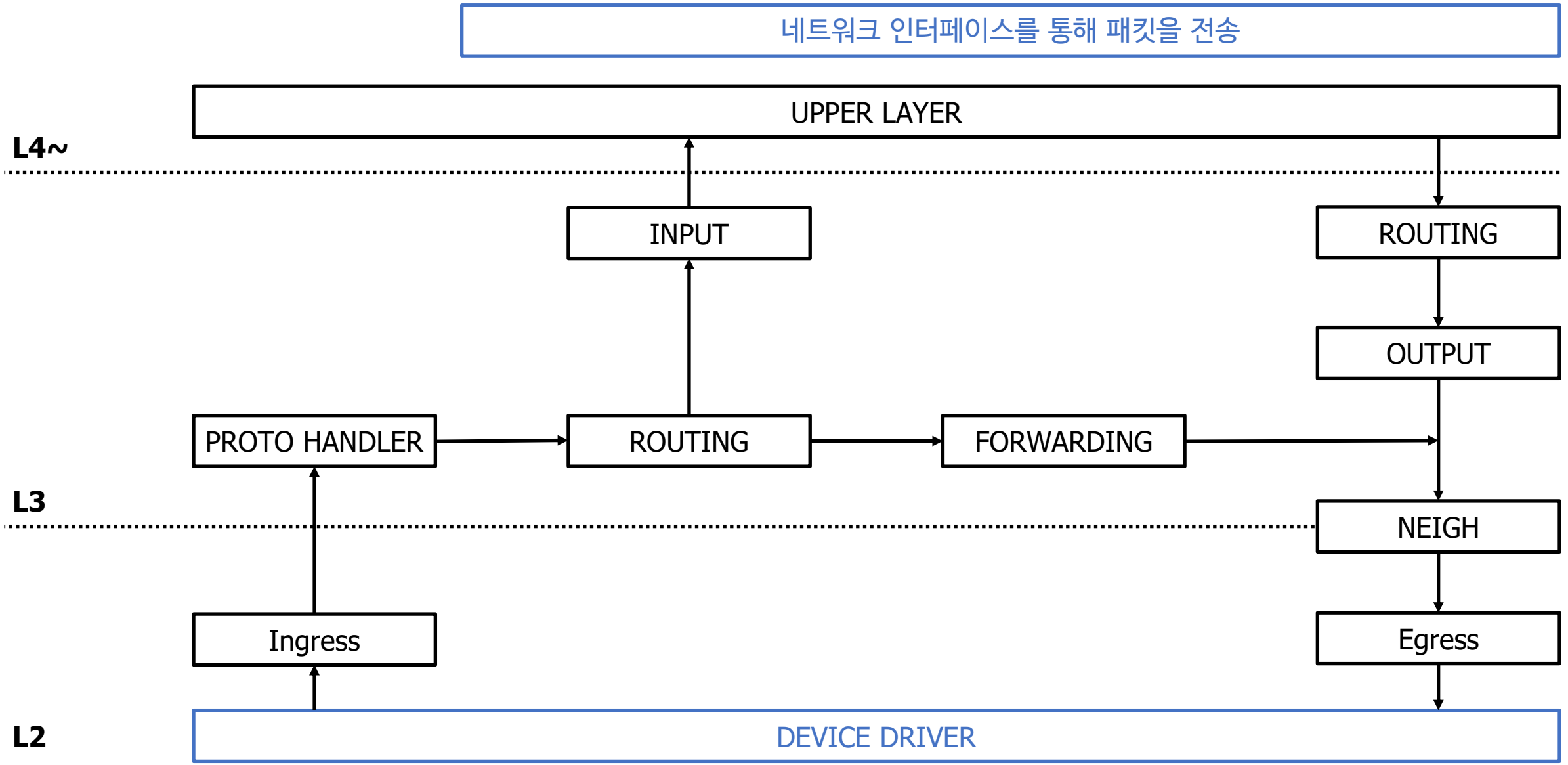
Packet Sending Path



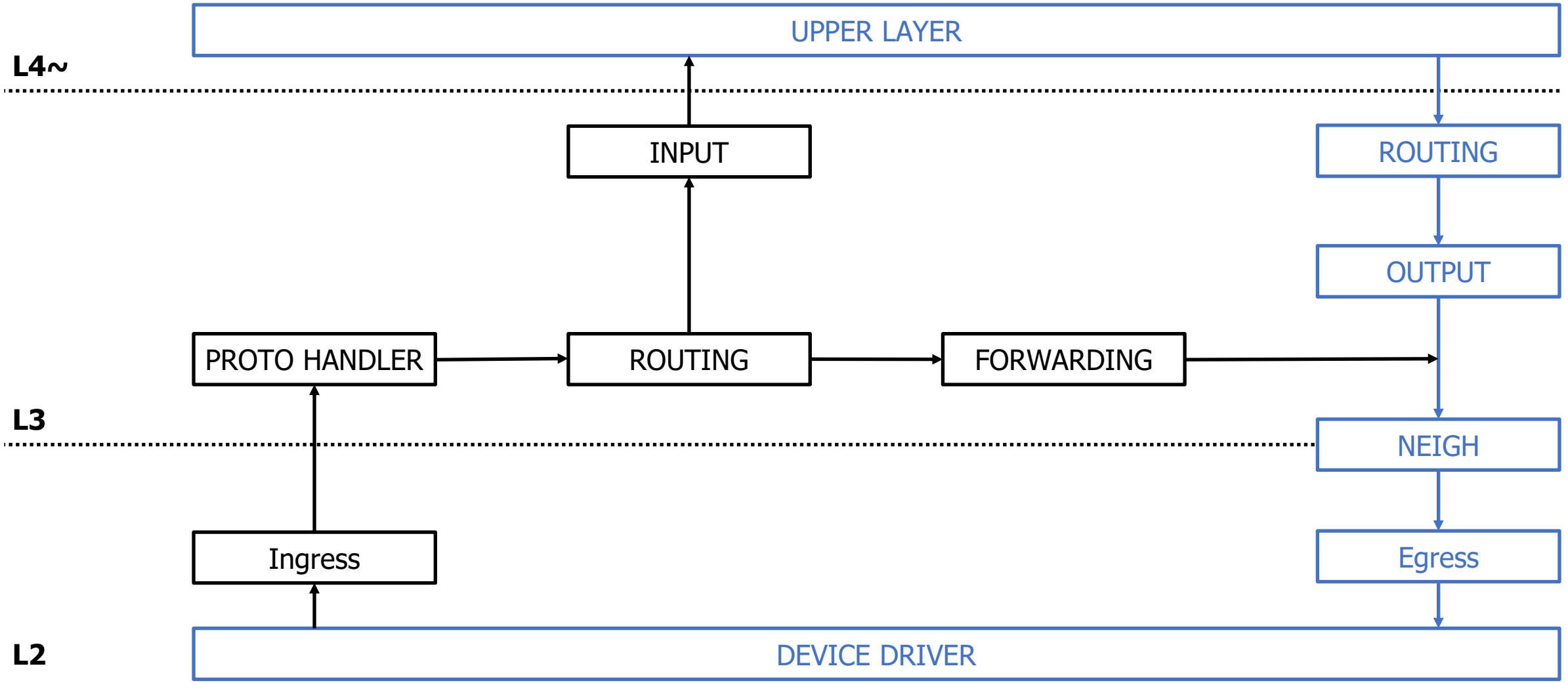
Packet Sending Path



Packet Sending Path

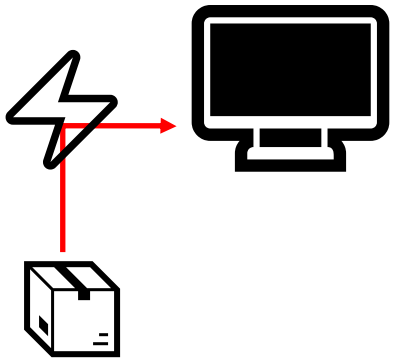


Packet Sending Path

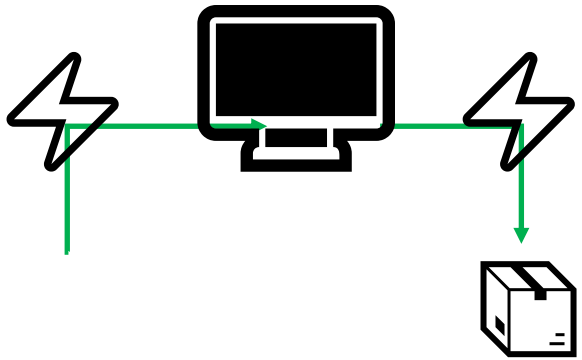


Linux Kernel Networking Stack Packet Processing

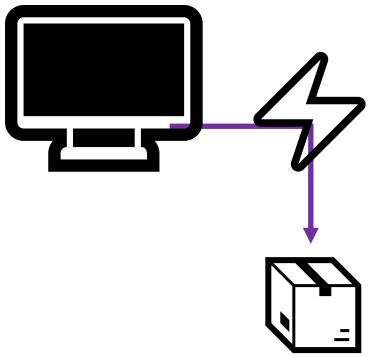
① Receiving Path



② Forwarding Path



③ Sending Path



Packet Sending

Packet Receiving

Linux Kernel Networking Stack

Packet Forwarding

NAT

Packet Sending

Routing

HSR

TCP

Packet Receiving

Linux Kernel Networking Stack

Packet Filtering

AMT

Packet Forwarding

Packet Mangling

UDP

Packet Tunneling

NAT

Packet Sending

Routing

HSR

TCP

Packet Receiving

Packet Processing

Packet Filtering

AMT

Packet Forwarding

Packet Mangling

UDP

Packet Tunneling

NAT

Packet Sending

Routing

HSR

TCP

Packet Receiving

Packet Processing

Packet Filtering

AMT

Packet Forwarding

Packet Mangling

UDP

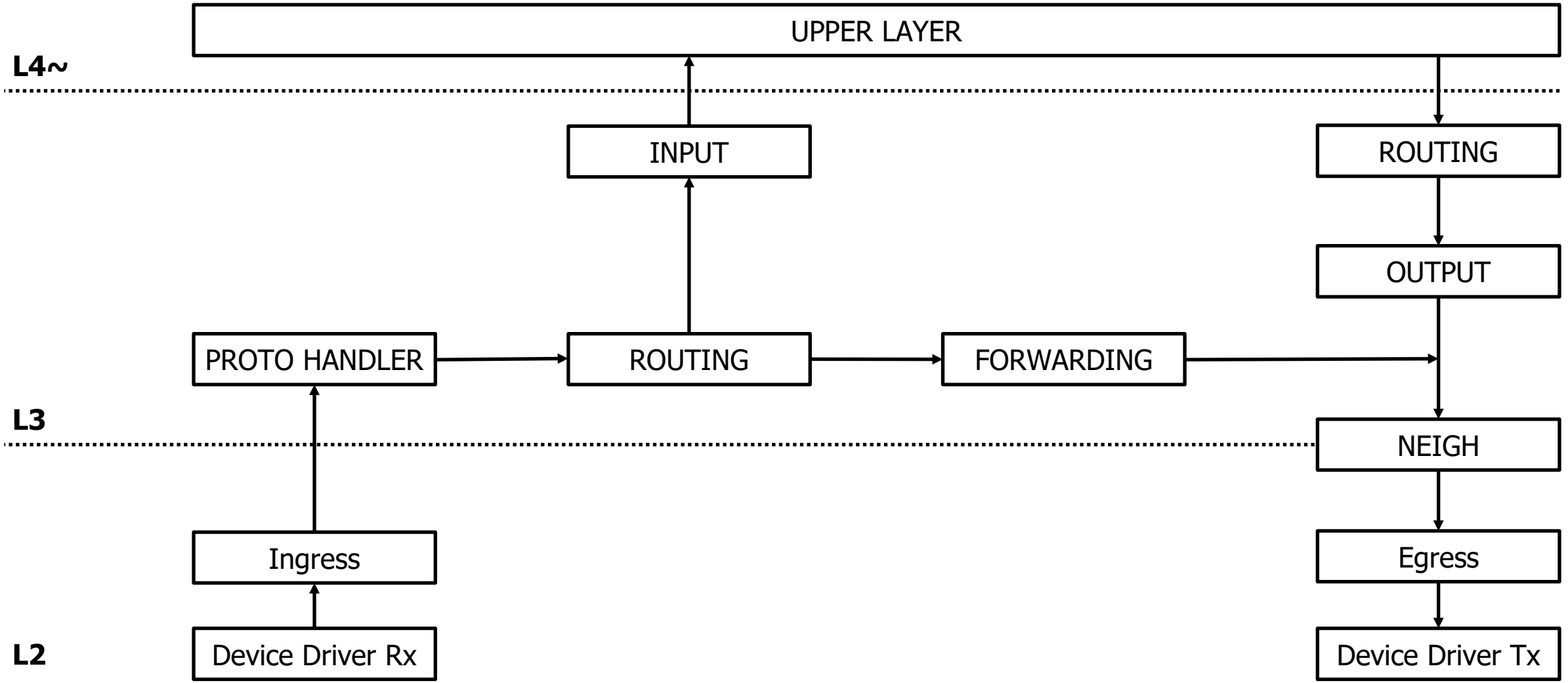
Packet Tunneling

Packet Filtering Path

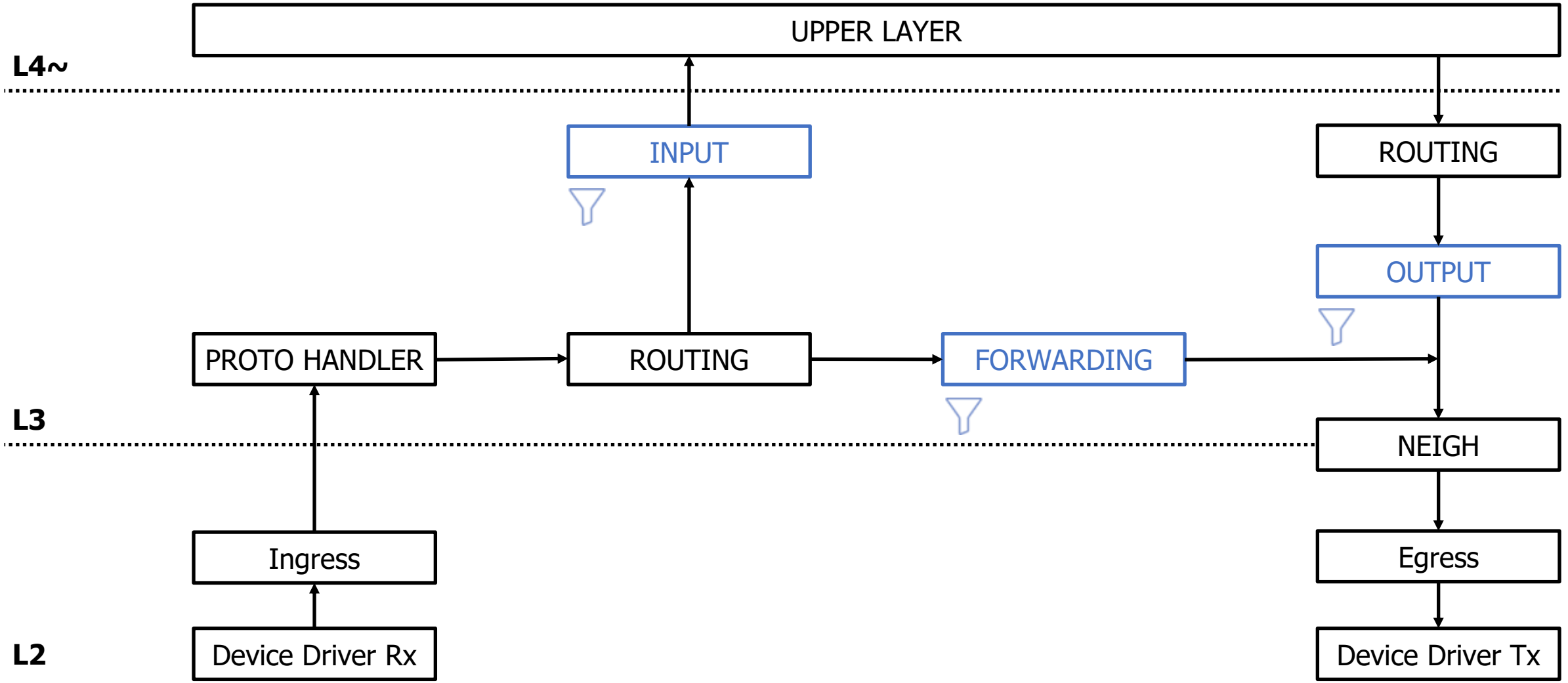
Netfilter

Linux Firewall Framework

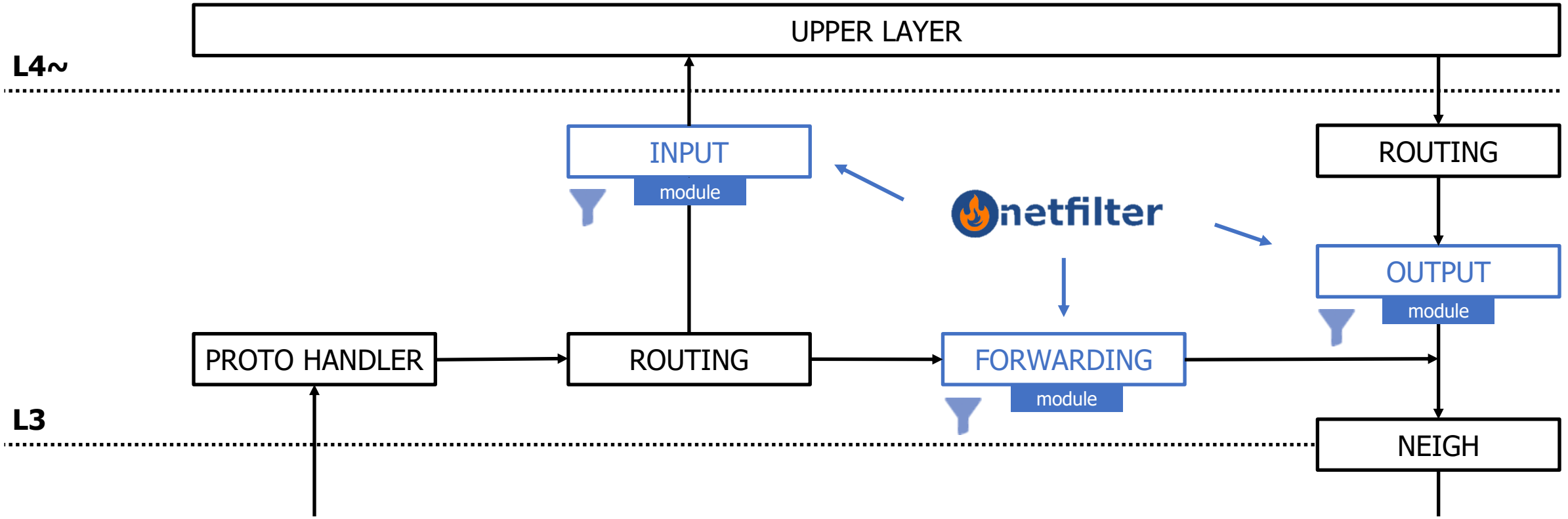
Basic Packet Rx/Tx Path



Packet Filtering Path in Kernel



Packet Filtering Path in Kernel



Netfilter Hook에 커널 모듈을 탑재해서
패킷을 필터링할 수 있음

ex) iptables, nftables

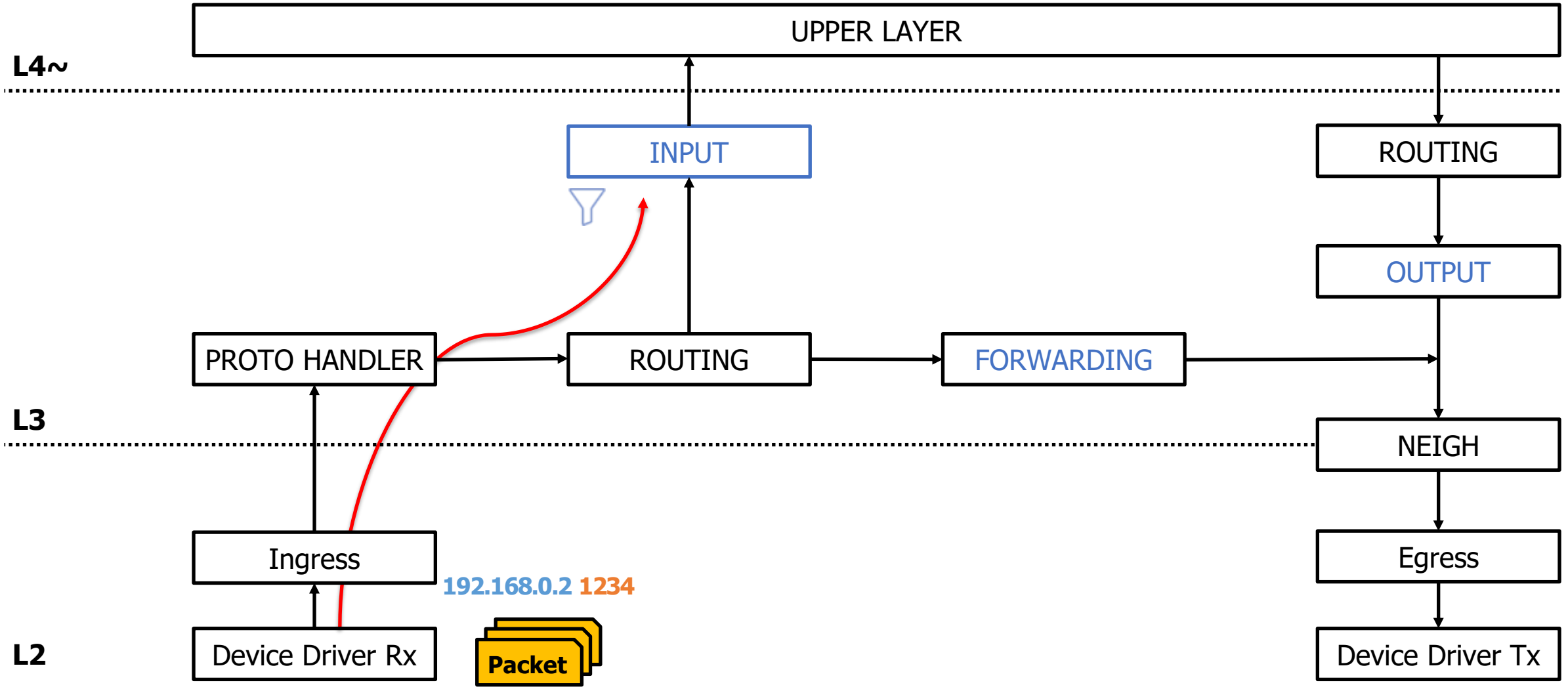
Packet Filtering Example

Netfilter (iptables) packet drop

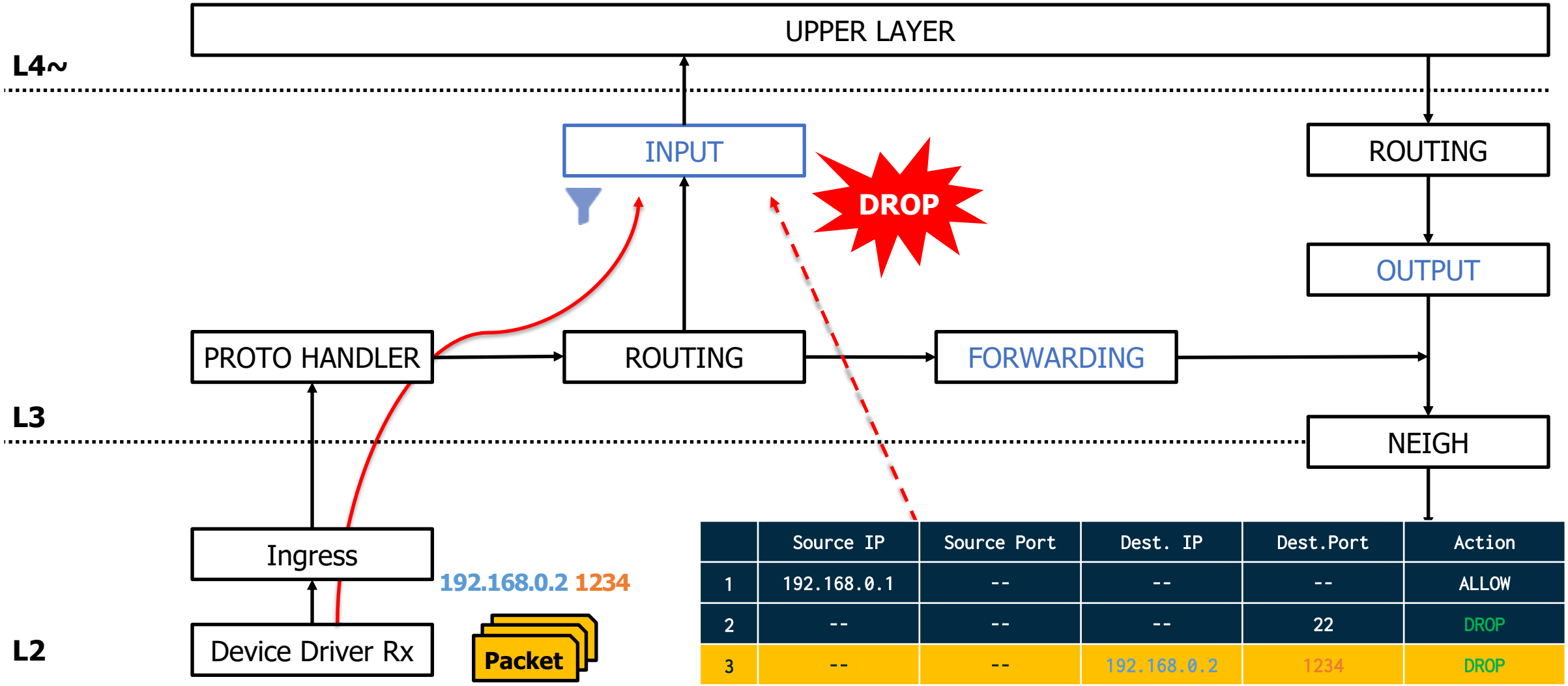
DROP UDP 192.168.0.2 1234

```
$ iptables -A INPUT -d 192.168.0.2 -p udp --dport 1234 -j DROP
```

Packet Filtering Path in Kernel



Packet Filtering Path in Kernel



	Source IP	Source Port	Dest. IP	Dest.Port	Action
1	192.168.0.1	--	--	--	ALLOW
2	--	--	--	22	DROP
3	--	--	192.168.0.2	1234	DROP

NAT

Packet Sending

Routing

HSR

TCP

Packet Receiving

Packet Processing

Packet Filtering

AMT

Packet Forwarding

Packet Mangling

UDP

Packet Tunneling

NAT

Packet Sending

Routing

HSR

TCP

Packet Receiving

Linux Kernel Networking Stack

Packet Filtering

AMT

Packet Forwarding

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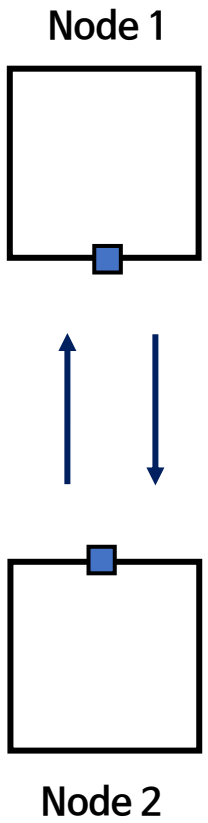
High Availability Seamless Redundancy

HSR

Ring Topology의 구성을 통해 중복된 패킷을 전송하여
데이터 손실 없이 통신이 되도록 하는 네트워크 프로토콜

Basic Network Packet Transfer

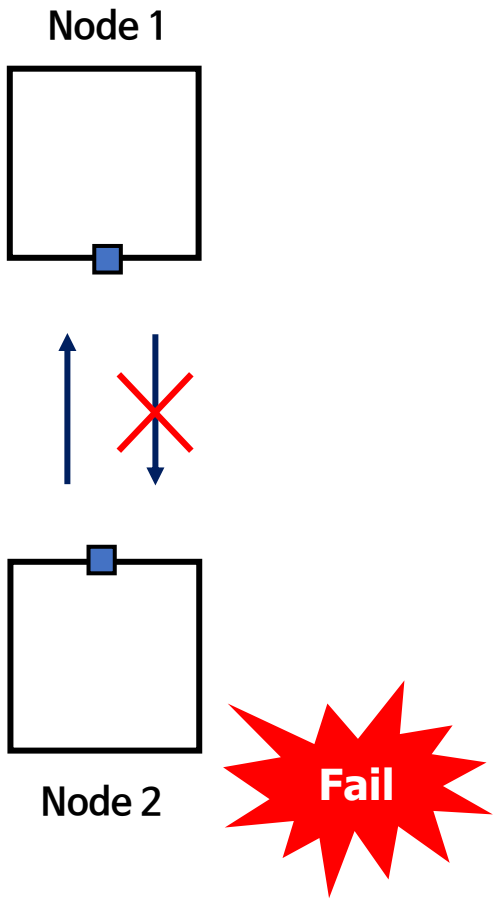


Critical Applications

- Fully Operational 24/7
- Require Zero-loss redundancy

ex) Power Plant (발전소),
Transportation (교통)

Basic Network Packet Transfer



Critical Applications

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- Require Zero-loss redundancy

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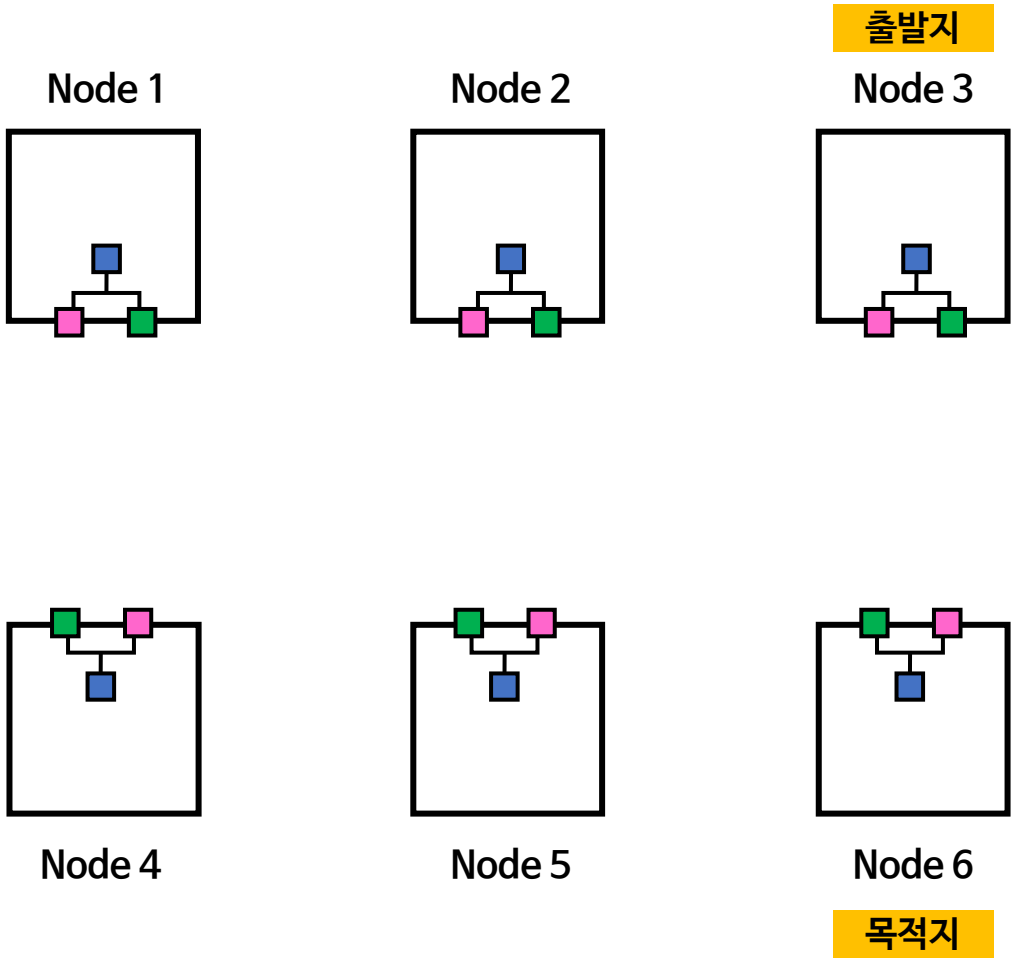
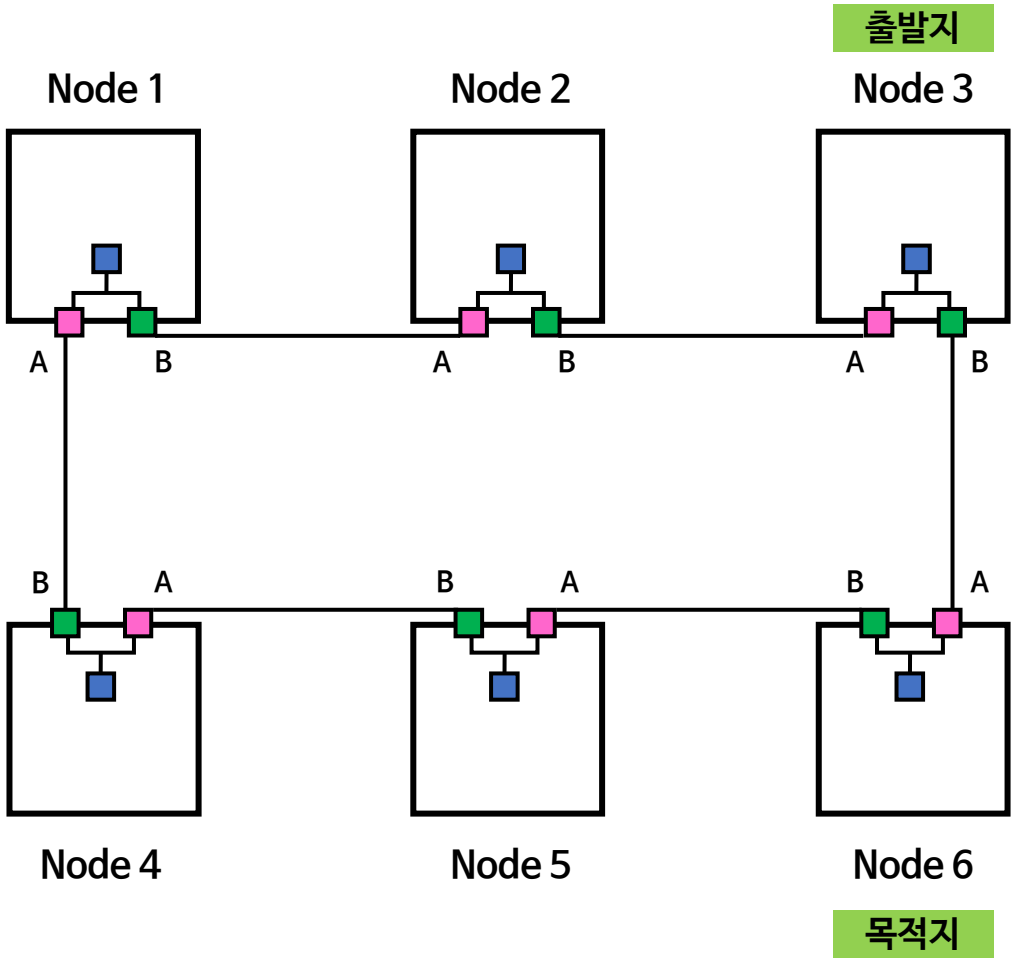
High Availability Seamless Redundancy



High Availability Seamless Redundancy



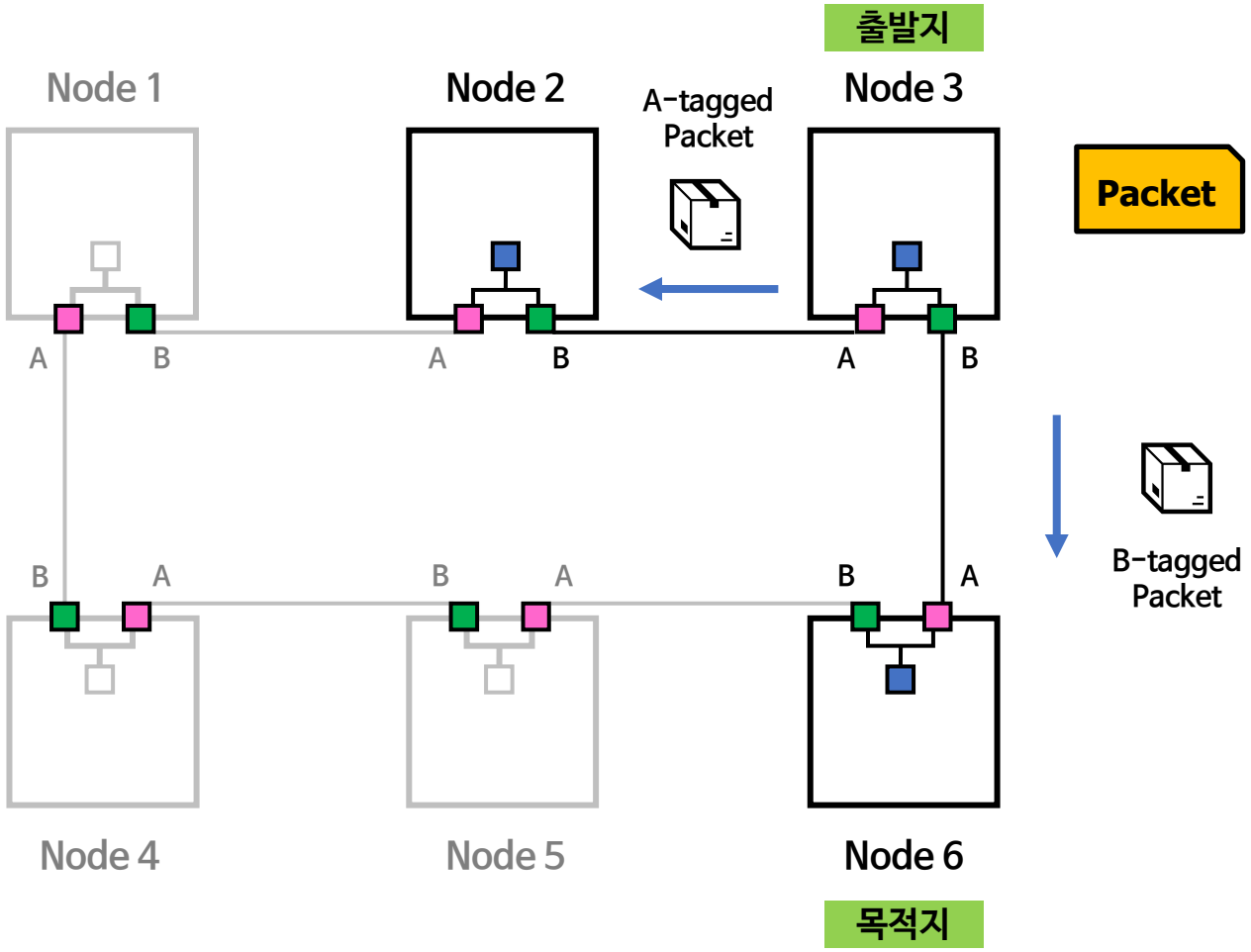
HSR Tagged

A-frame

B-frame

HSR Ring Topology

High Availability Seamless Redundancy

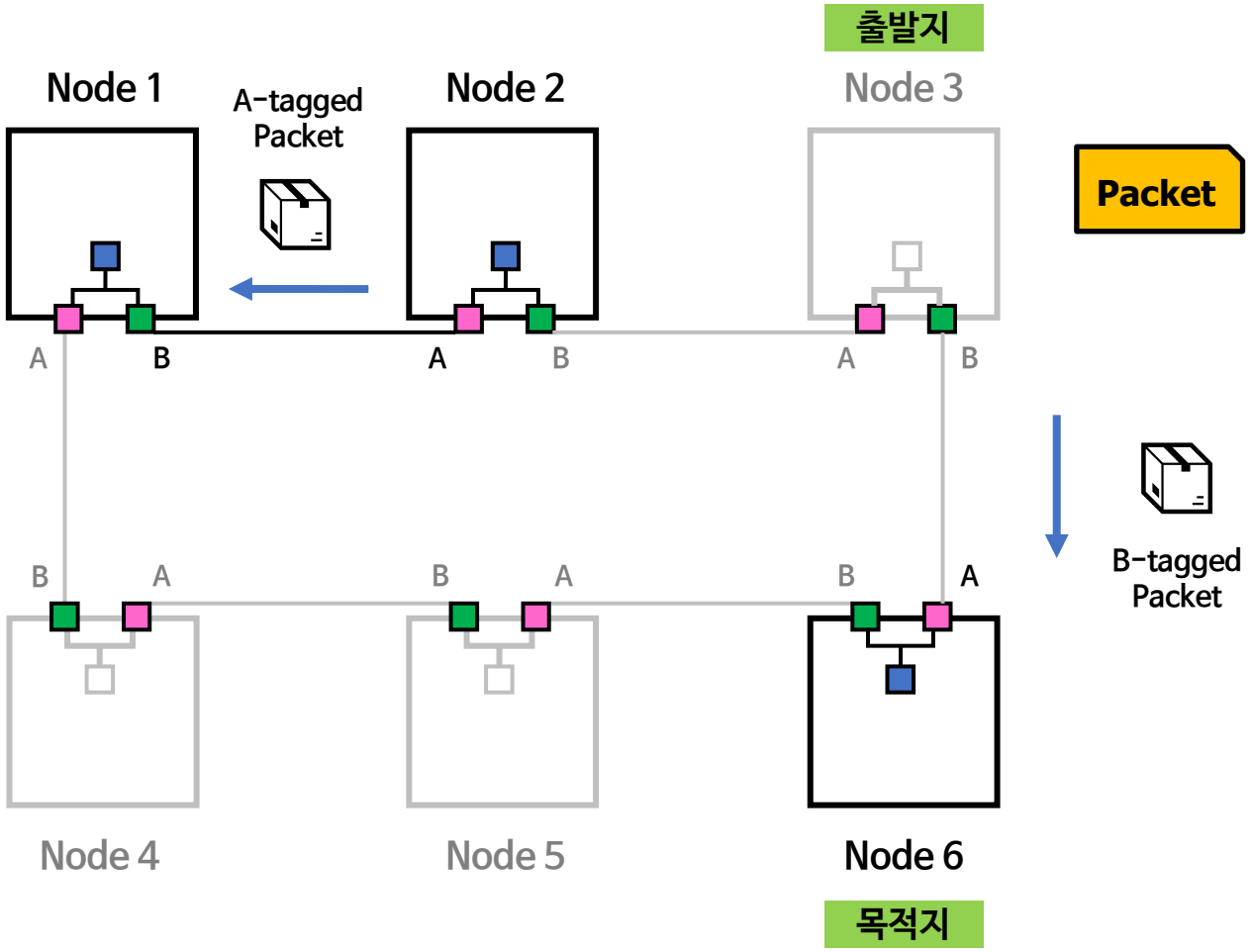


HSR Tagged

- A-frame
- B-frame

HSR Ring Topology

High Availability Seamless Redundancy

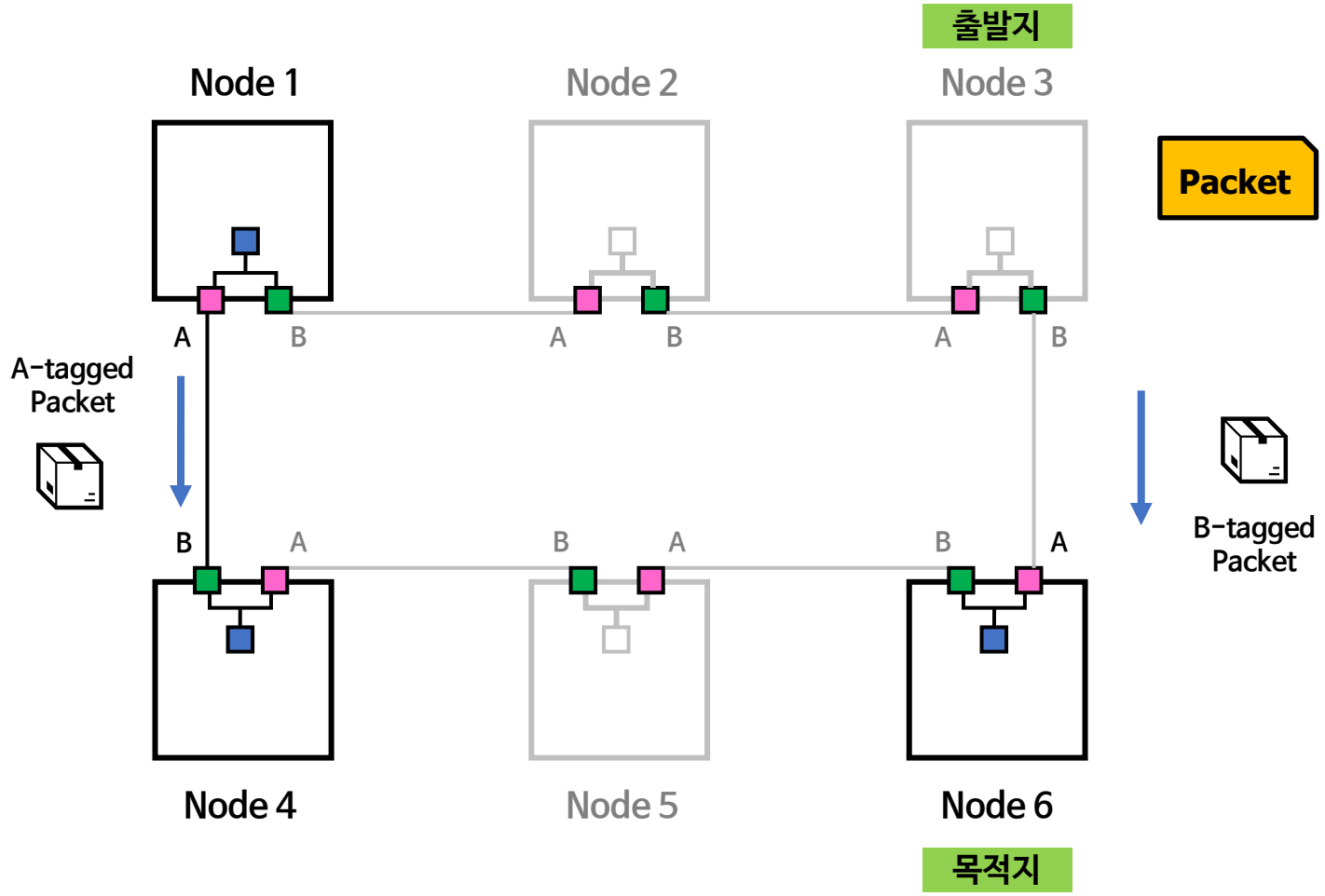


HSR Tagged

- A-frame
- B-frame

HSR Ring Topology

High Availability Seamless Redundancy



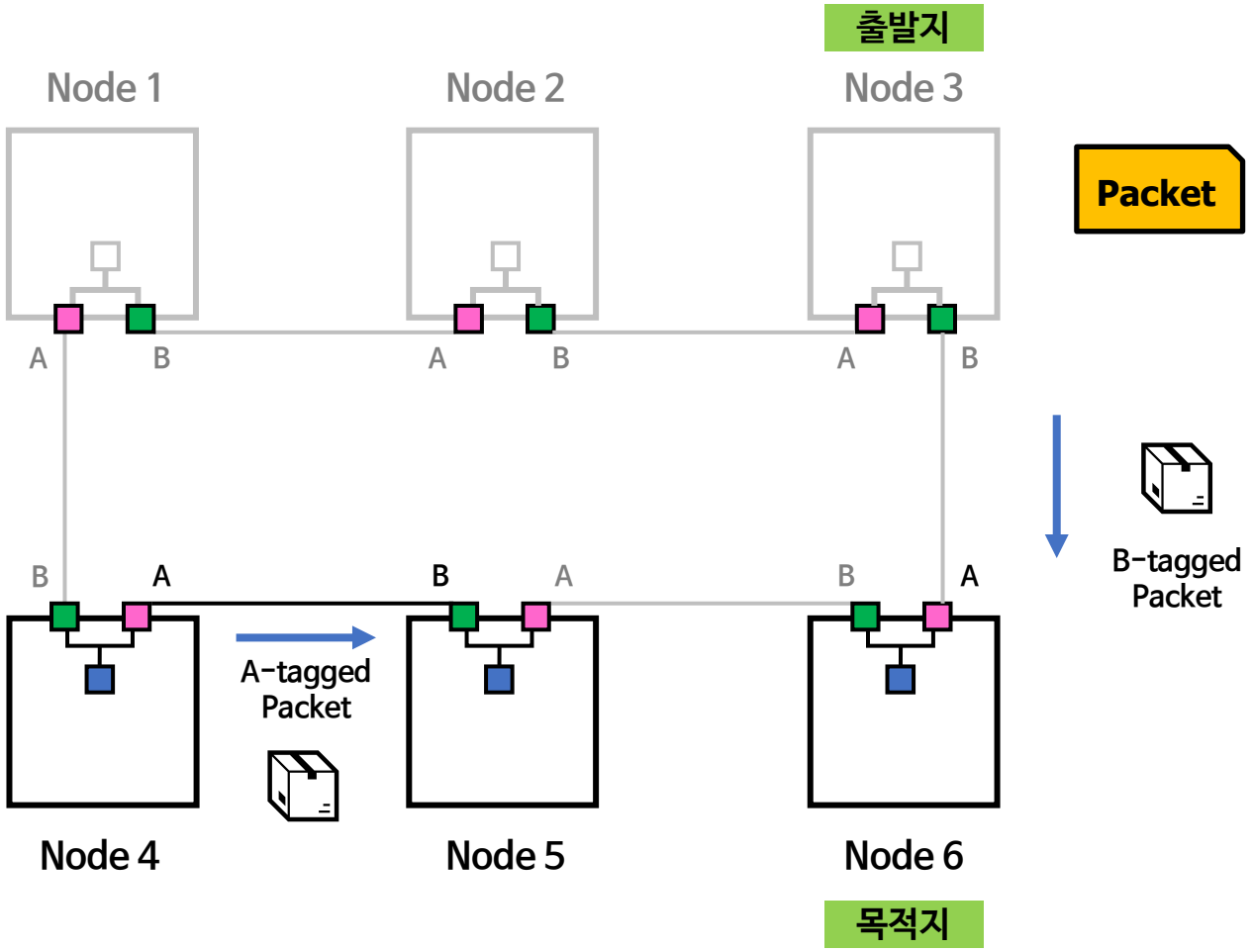
HSR Tagged

A-frame

B-frame

HSR Ring Topology

High Availability Seamless Redundancy



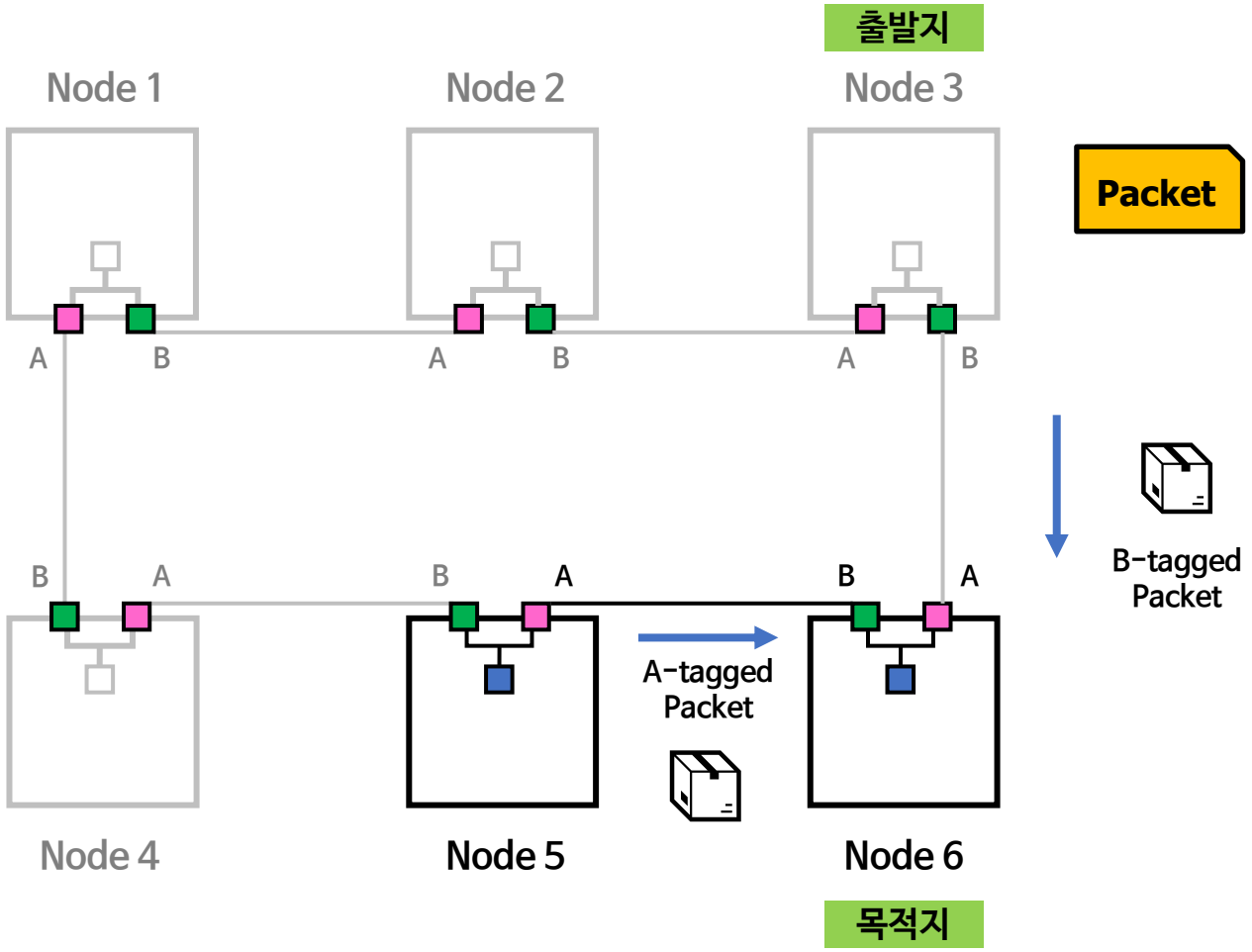
HSR Tagged

A-frame

B-frame

HSR Ring Topology

High Availability Seamless Redundancy



HSR Tagged

A-frame

B-frame

HSR Ring Topology

NAT

Packet Sending

Routing

HSR

TCP

Packet Receiving

Network Protocols

Packet Filtering

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Linux Kernel Networking Stack

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지금부터 리눅스 커널 컨트리뷰션을 위해
리눅스 커널 생태계를 알아봅시다.

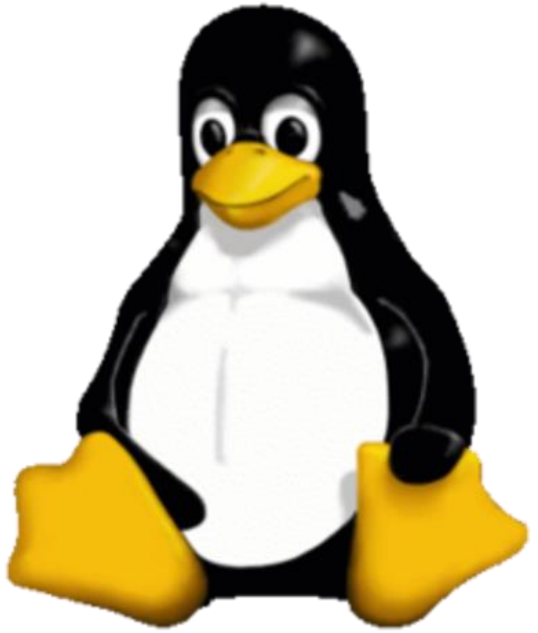
2

Kernel 생태계

Linux Kernel

Linux Kernel은 Linux 운영 체제(OS)의 핵심 구성 요소

컴퓨터 하드웨어와 프로세스를 연결하는 핵심 인터페이스

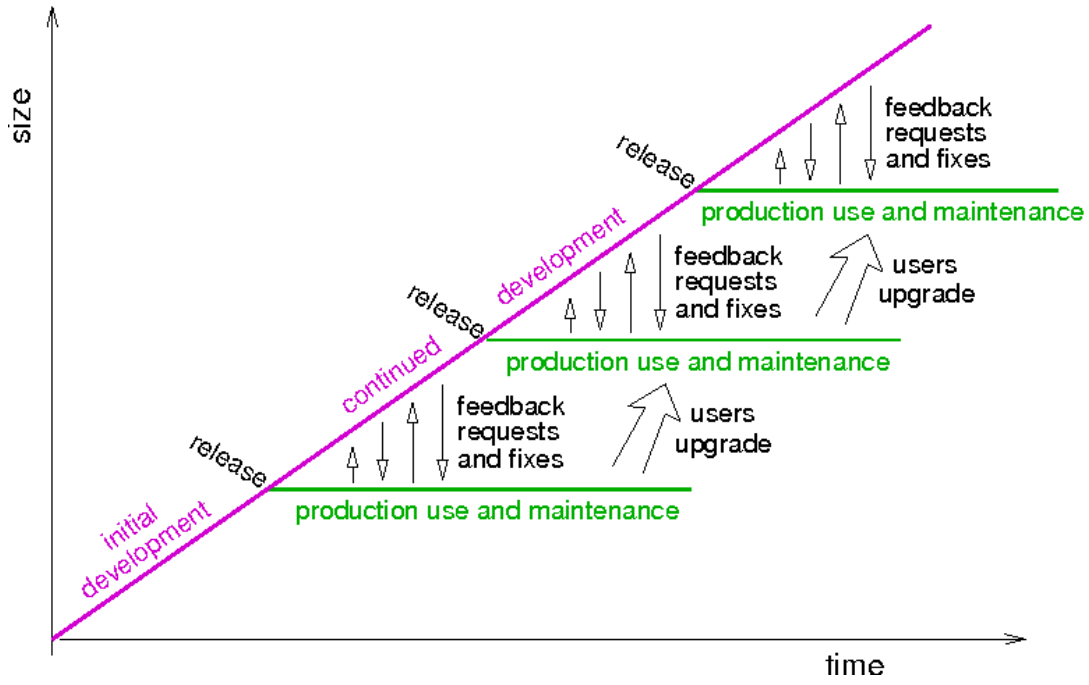


Linux Kernel 마스코트 Tux

Linux Kernel 개발

전 세계 개발자들이 참여하는
최대 규모의 오픈소스 프로젝트

개발은 패치(Patch)라는 단위로 이루어짐



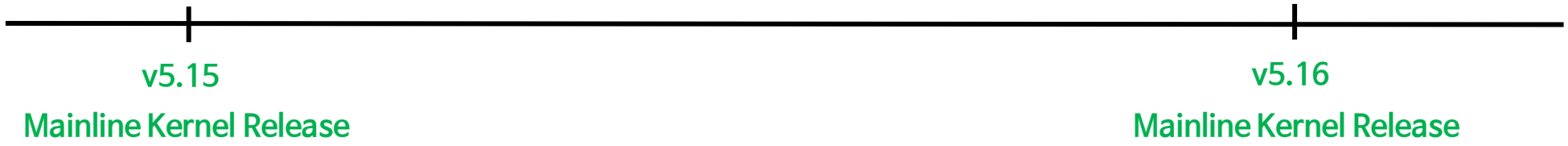
https://www.semanticscholar.org/paper/Perpetual-development%3A-A-model-of-the-Linux-kernel-Feitelson/eb7cf446e983e98c1400c8181949f038caf0c8a8/figure/1

커널 release

10-11주(약 2개월) 마다 신규 커널 버전이 출시가 되고, stable 커널은 주 1회마다 출시

1. Mainline Kernel
2. Release Candidate (RC)
3. Stable
4. Long-term

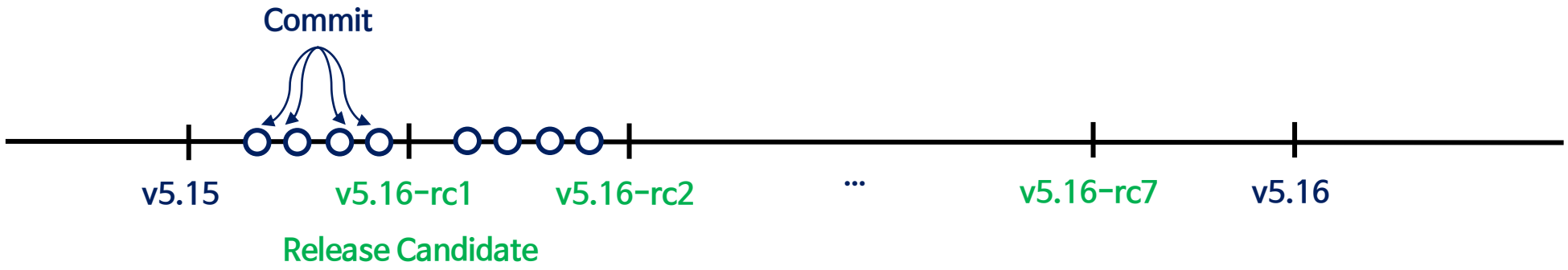
커널 release 종류



1. Mainline Kernel

- 9~10주 주기로 릴리즈되는 커널
- 새로운 기능들이 소개되고 주요 버그 fix 패치가 합쳐져 출시

커널 release 종류



2. Release Candidate (RC)

- Mainline kernel의 pre-release라고도 부름
- 신규 기능을 테스트하는 커널 버전
- 이 release는 반드시 소스코드를 컴파일해서 사용해야 함
- 주로 rc7까지 진행된 뒤 Mainline Release 진행

커널 release 종류

3. Stable

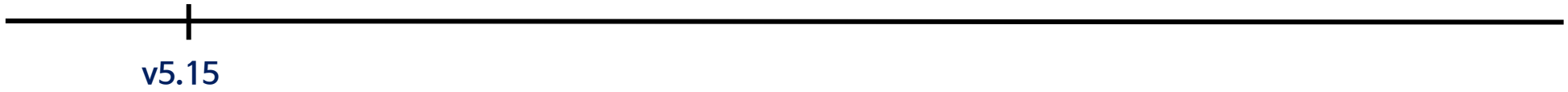
- Bug fix만 진행되는 kernel release 버전 (mainline kernel backporting)
- mainline Kernel이 release 된 이후에 stable mode로 전환

커널 release 종류

4. Long-term

- **stable release** 버전 중 critical한 bug fix를 제공하는 kernel release 버전

Linux Kernel Release Cycle



5.15 mainline kernel version release

Linux Kernel Release Cycle

5.15 mainline kernel version release

Linux Kernel Release Cycle

5.15 mainline kernel version release

Linux Kernel Release Cycle

5.15 mainline kernel version release -〉

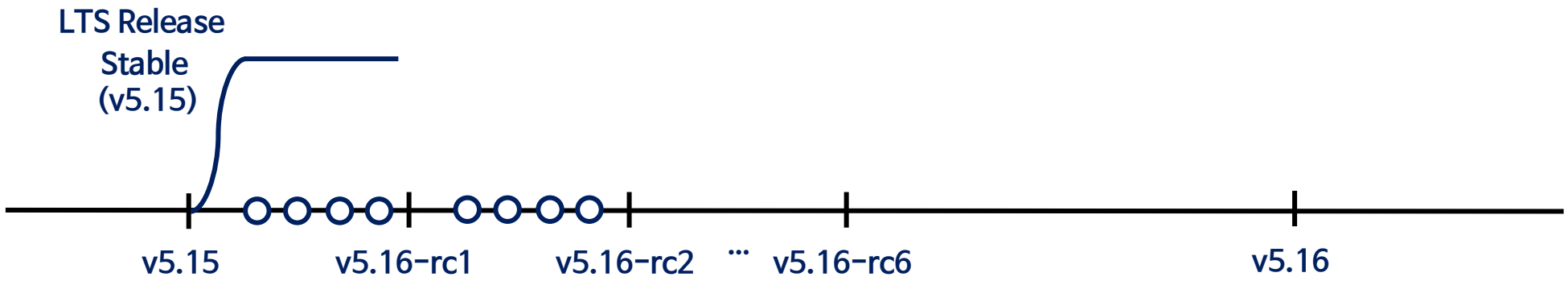
Linux Kernel Release Cycle

5.15 mainline kernel version release -〉 5.16-rc1

Linux Kernel Release Cycle

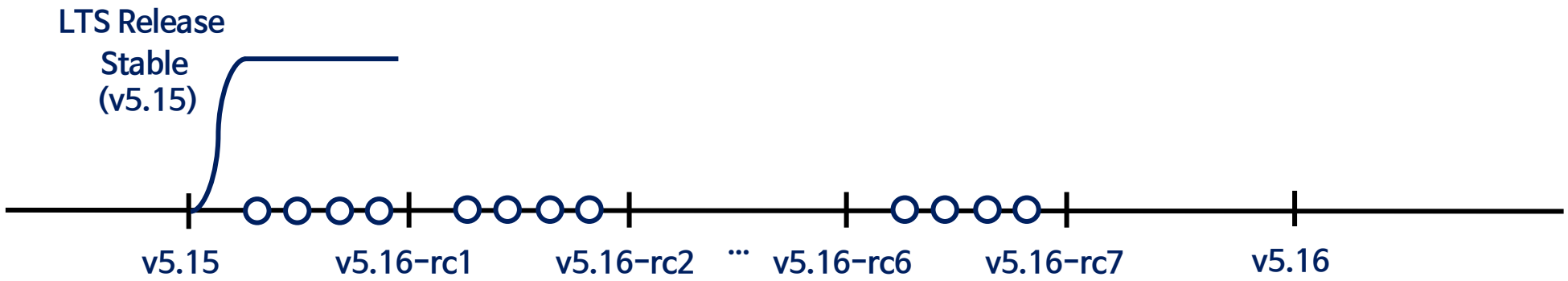
5.15 mainline kernel version release -> 5.16-rc1 -> 5.16-rc2

Linux Kernel Release Cycle



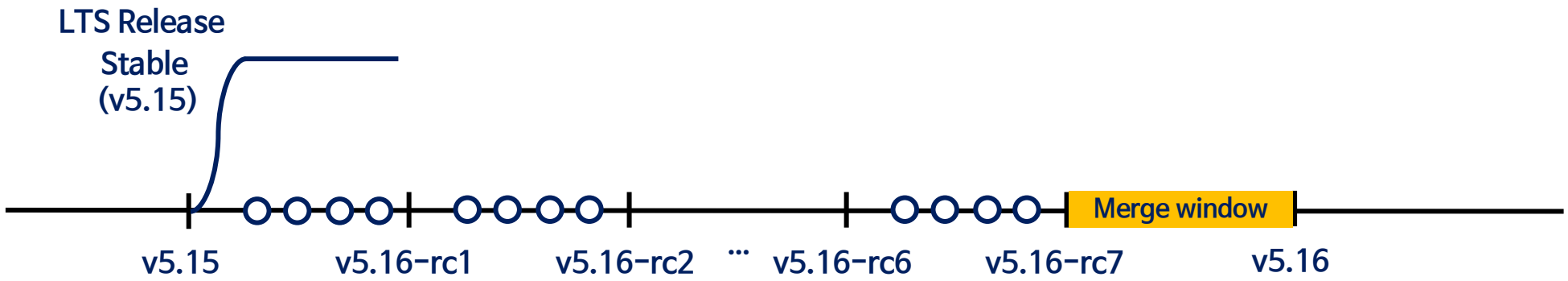
5.15 mainline kernel version release -> 5.16-rc1 -> 5.16-rc2 -> ...

Linux Kernel Release Cycle



5.15 mainline kernel version release -> 5.16-rc1 -> 5.16-rc2 -> … -> 5.16-rc7

Linux Kernel Release Cycle

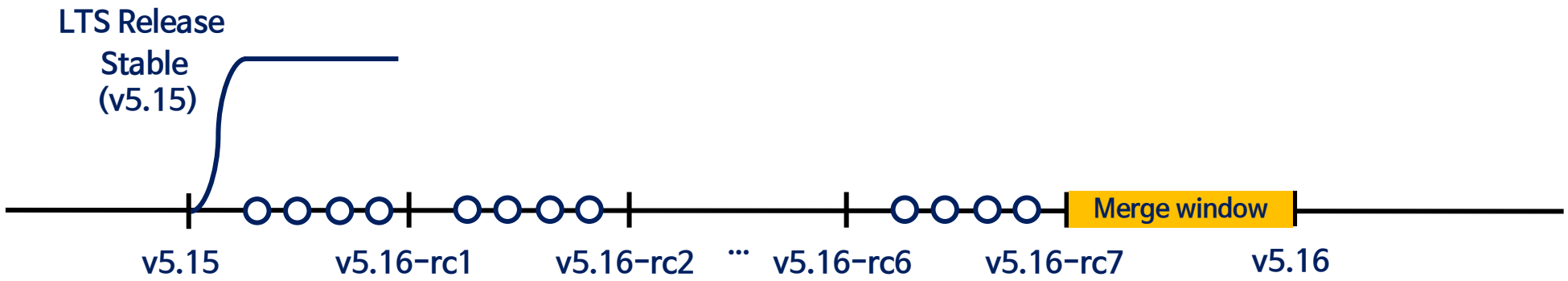


5.15 mainline kernel version release -> 5.16-rc1 -> 5.16-rc2 -> … -> 5.16-rc7 -> merge window

Linux Kernel Release Cycle

http://vger.kernel.org/~davem/net-next.html

Linux Kernel Release Cycle



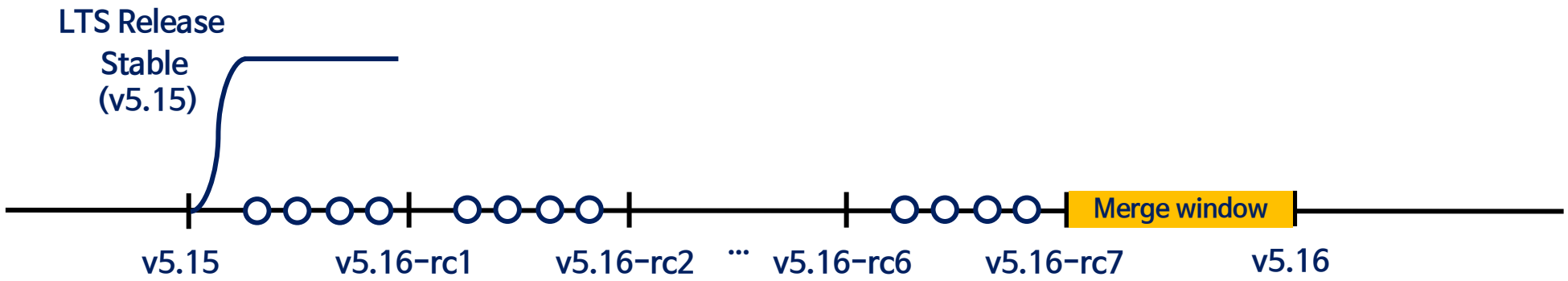
5.15 mainline kernel version release -〉 5.16-rc1 -〉 5.16-rc2 -〉 … -〉 5.16-rc7 -〉 merge window

* Merge window

- 2주 정도 merge window 기간을 가지며, 이 merge window 기간 동안 리눅스 토발즈가 subsystem의 maintainer에게서 코드를 pull을 받아서 합치는 작업 진행

- 이 기간이 끝나면 새로운 버전 커널 release가 된 후, 2주 주기로 〈mainline kernel version 명〉-rc-〈rc version 명〉이라는 이름으로 커널 개발이 진행된다.

Linux Kernel Release Cycle



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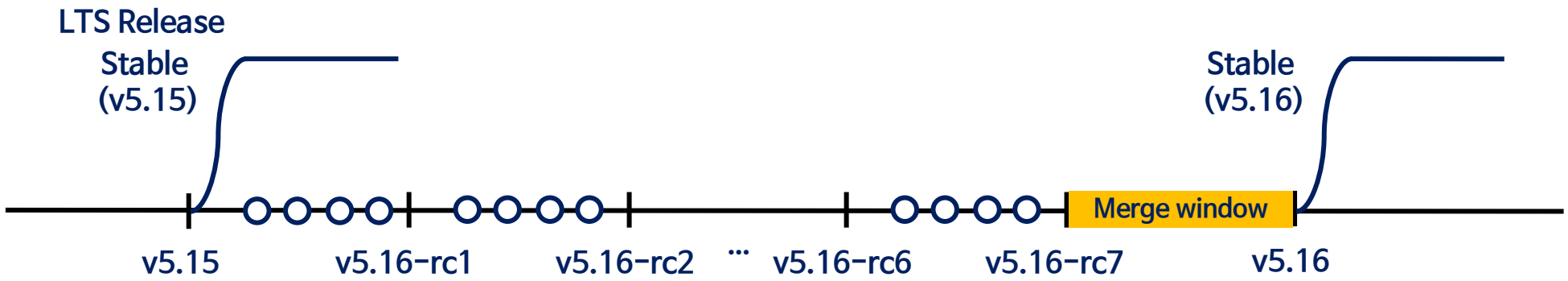
Linux Kernel Release Cycle



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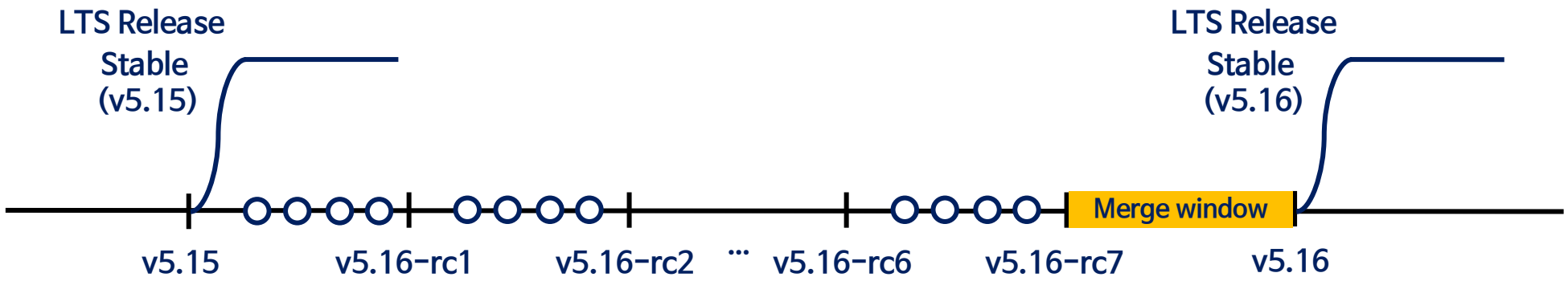
Linux Kernel Release Cycle



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Linux Kernel Release Cycle

http://vger.kernel.org/~davem/net-next.html

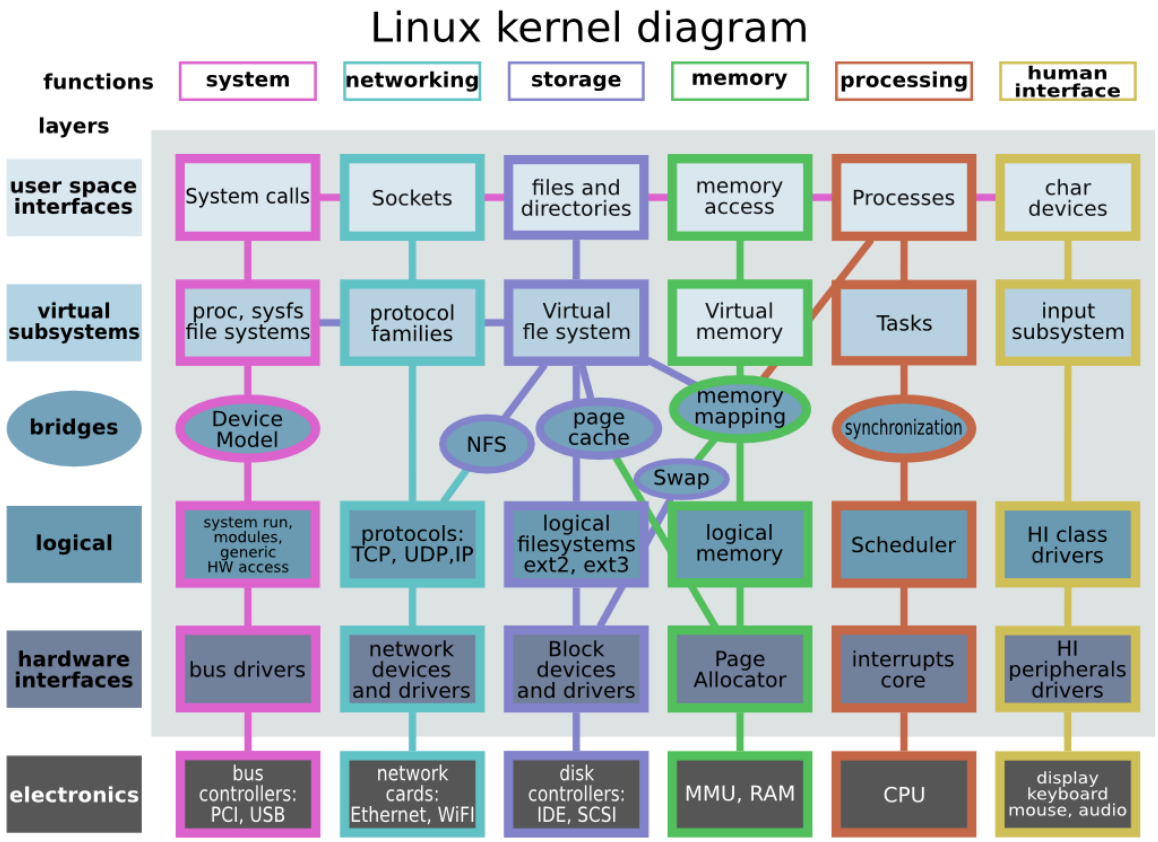
Linux Kernel Subsystem

http://www.MakeLinux.net/kernel/diagram

커널 내부에는 수많은 서브시스템이 있고,

Linux Kernel Subsystem

http://www.MakeLinux.net/kernel/diagram



커널 내부에는 수많은 서브시스템이 있고,
서브시스템별 개발된 기능들이 합쳐져 메인라인 커널로 출시

Linux Kernel Subsystem

```
linux $ tree -d -L 1
.
├── arch
├── block
├── certs
├── crypto
├── Documentation
├── drivers
├── fs
├── include
├── init
├── ipc
├── kernel
├── lib
├── LICENSES
├── mm
├── net
├── samples
├── scripts
├── security
├── sound
├── tools
├── usr
└── virt
```

Linux Kernel v5.17 git

git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git

Linux Kernel Subsystem

```
linux $ tree -d -L 1
.
├── arch
├── block          => 블록 디바이스 서브시스템
├── certs
├── crypto
├── Documentation
├── drivers            => 드라이버 서브시스템
├── fs               => 파일 시스템 서브시스템
├── include
├── init
├── ipc                    => IPC 서브시스템
├── kernel
├── lib
├── LICENSES
├── mm               => 메모리 관리 서브시스템
├── net                => 네트워크 서브시스템
├── samples
├── scripts
├── security
├── sound
├── tools
├── usr
└── virt
```

Linux Kernel v5.17 git

git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git

Kernel Tree

Kernel.org git repositories

https://git.kernel.org/

Git repositories hosted at kernel.org (singapore)

index

search

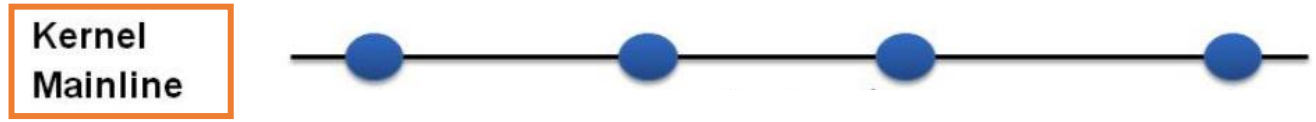
Name	Description	Owner	Idle	Links
pub/scm/bluetooth				
bluetooth-next.git	Unnamed repository; edit this file 'description' to name the repository.	Grokmirror user	19 months	summary log tree
bluez-hcidump.git	Bluetooth packet analyzer	Marcel Holtmann	5 years	summary log tree
bluez.git	Bluetooth protocol stack for Linux	Marcel Holtmann	20 hours	summary log tree
obexd.git	OBEX Server	Marcel Holtmann	5 years	summary log tree
sbc.git	Bluetooth low-complexity, subband codec (SBC) library	Marcel Holtmann	4 months	summary log tree
pub/scm/boot				
dracut/dracut.git	dracut - Initramfs generator using udev	Harald Hoyer	8 months	summary log tree
efilinux/efilinux.git	The efilinux UEFI boot loader	Matt Fleming	8 years	summary log tree
syslinux/syslinux.git	Unnamed repository; edit this file 'description' to name the repository.	Syslinux workgroup	6 years	summary log tree
pub/scm/devel				
pahole/pahole.git	Pahole and other DWARF utils	Arnaldo Carvalho de Melo	21 hours	summary log tree
sparse/chrisl/sparse.git	Chris Li's sparse repository.	Christopher Li	5 years	summary log tree
sparse/sparse-dev.git	Sparse's development tree	Luc Van Oostenryck	4 months	summary log tree
sparse/sparse-logs.git	Raw logs of warnings of Sparse running on the kernel with summary logs.	Luc Van Oostenryck	4 months	summary log tree
sparse/sparse.git	C semantic parser	Luc Van Oostenryck	4 months	summary log tree
pub/scm/docs				
docsko/korg.git	Source of korg.docs.kernel.org	Doc Group	8 months	summary log tree
kernel/kernel-docs.git	Kernel Documentation tree	Doc Group	9 years	summary log tree
kernel/ksmap.git	Kernel.org keysign map source	Kernel.org users	3 weeks	summary log tree
kernel/pgpkeys.git	Kernel developers PGP keys	Kernel.org Admin	3 days	summary log tree
kernel/website.git	Kernel.org website source	Website Editors	2 days	summary log tree

커널 코드는 몇몇 주요 subsystem git repository로 관리되는데
이걸 Kernel Tree라고 함

Kernel Tree

Mainline Kernel tree

- Linus Torvalds가 관리
- Mainline kernel tree와 RC release 소스 코드가 관리



* https://www.devcurmudgeon.com/images/mainline-lts-ltsi-genivi-20131025.pdf#page=18

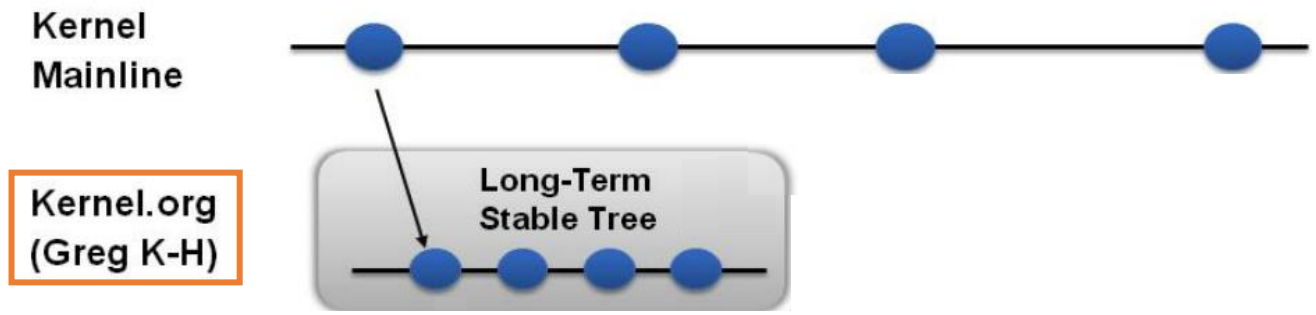
Kernel Tree

Mainline Kernel tree

- Linus Torvalds가 관리
- Mainline kernel tree와 RC release 소스 코드가 관리

Stable Kernel tree

- Greg Kroah-Hartman가 관리
- stable release branches 소스 코드가 관리



* https://www.devcurmudgeon.com/images/mainline-lts-ltsi-genivi-20131025.pdf#page=18

Kernel Tree

Mainline Kernel tree

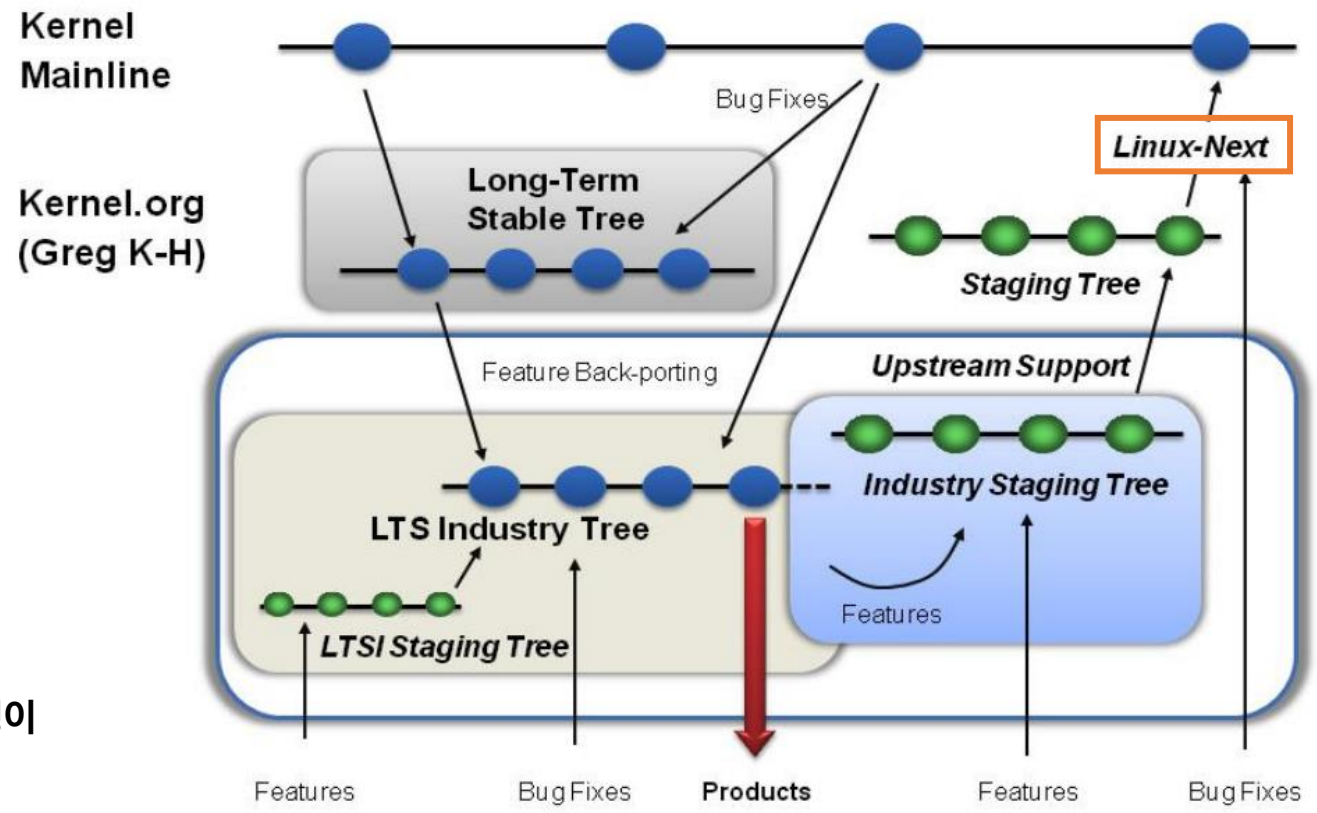
- Linus Torvalds가 관리
- Mainline kernel tree와 RC release 소스 코드가 관리

Stable Kernel tree

- Greg Kroah-Hartman가 관리
- stable release branches 소스 코드가 관리

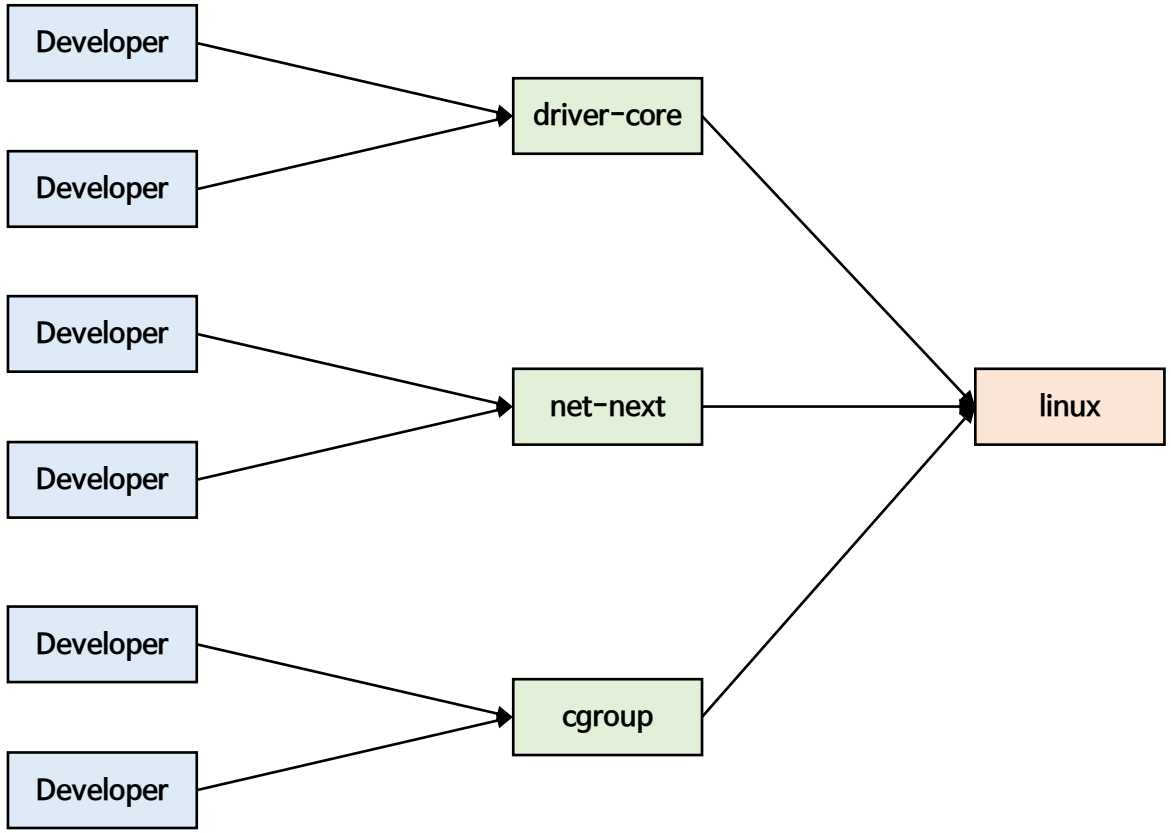
linux-next tree

- Stephen Rothwell가 관리.
- Subsystem의 변경 사항을 주기적으로 반영하고, 해당 코드의 통합 테스팅이 진행되는 곳
- 테스팅이 진행된 이후 mainline kernel tree로 pull request가 진행



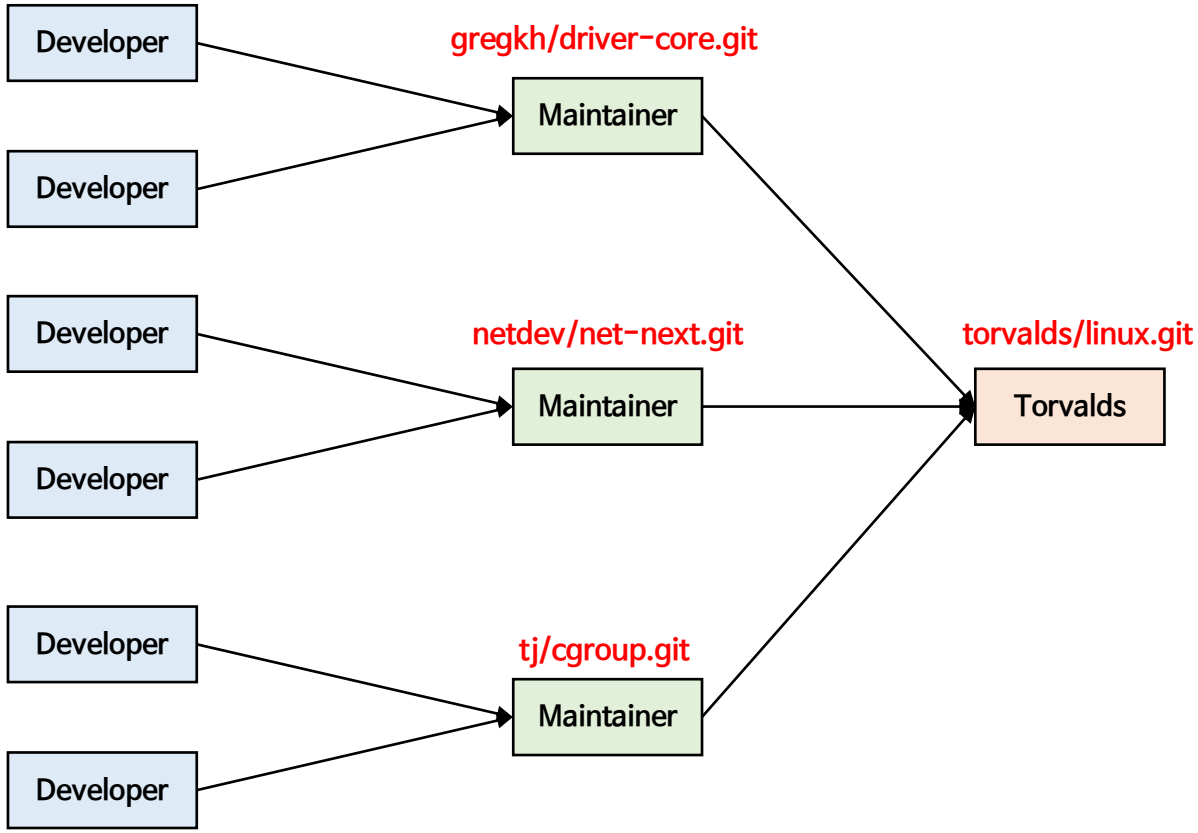
* https://www.devcurmudgeon.com/images/mainline-lts-ltsi-genivi-20131025.pdf#page=18

Linux Kernel Tree Hierarchy



주요 서브시스템은 독립된 tree를 가짐

Linux Kernel Tree Hierarchy



서브시스템 별 해당 tree를 관리하는 maintainer가 존재

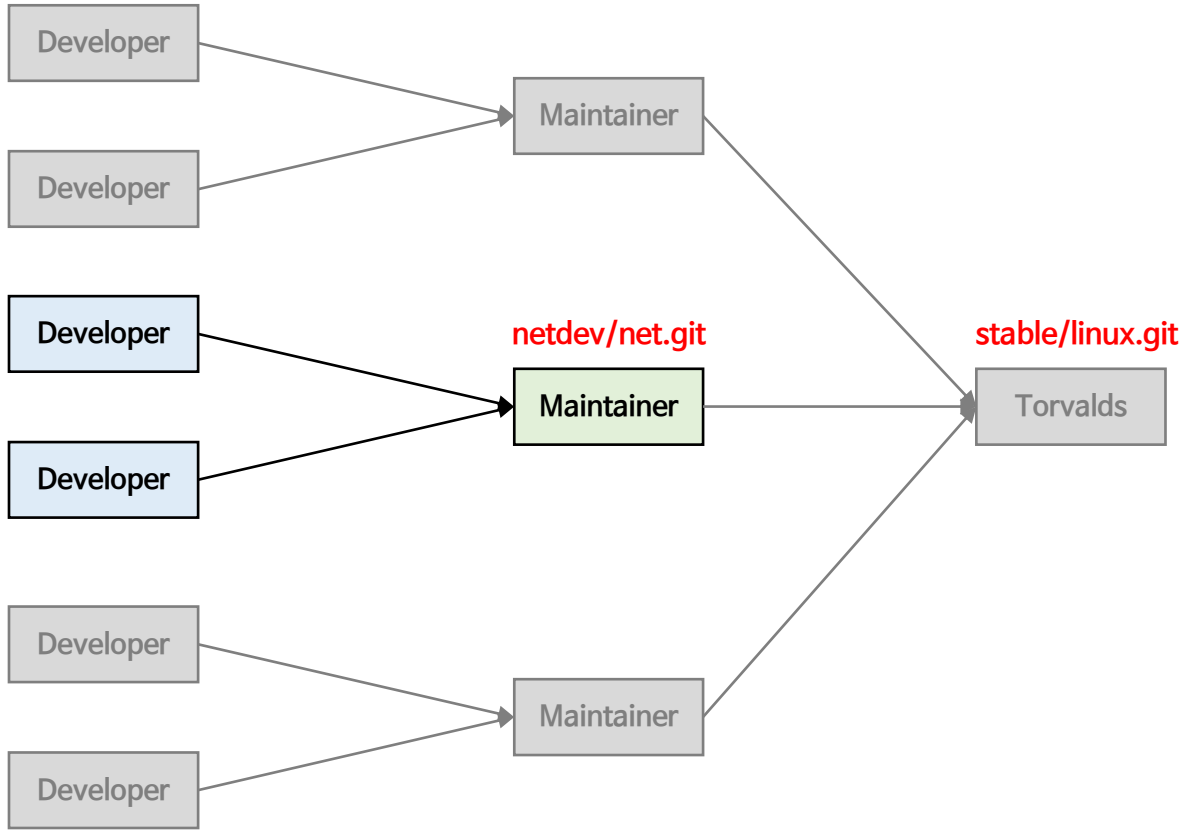
Subsystem Maintainers

index : kernel/git/netdev/net.git

git.kernel.org/pub/scm/linux/kernel/git/netdev/net.git Netdev Group

netdev/net.git : stable 버전 tree

기존 release 버전의 버그 fix patch만 허용

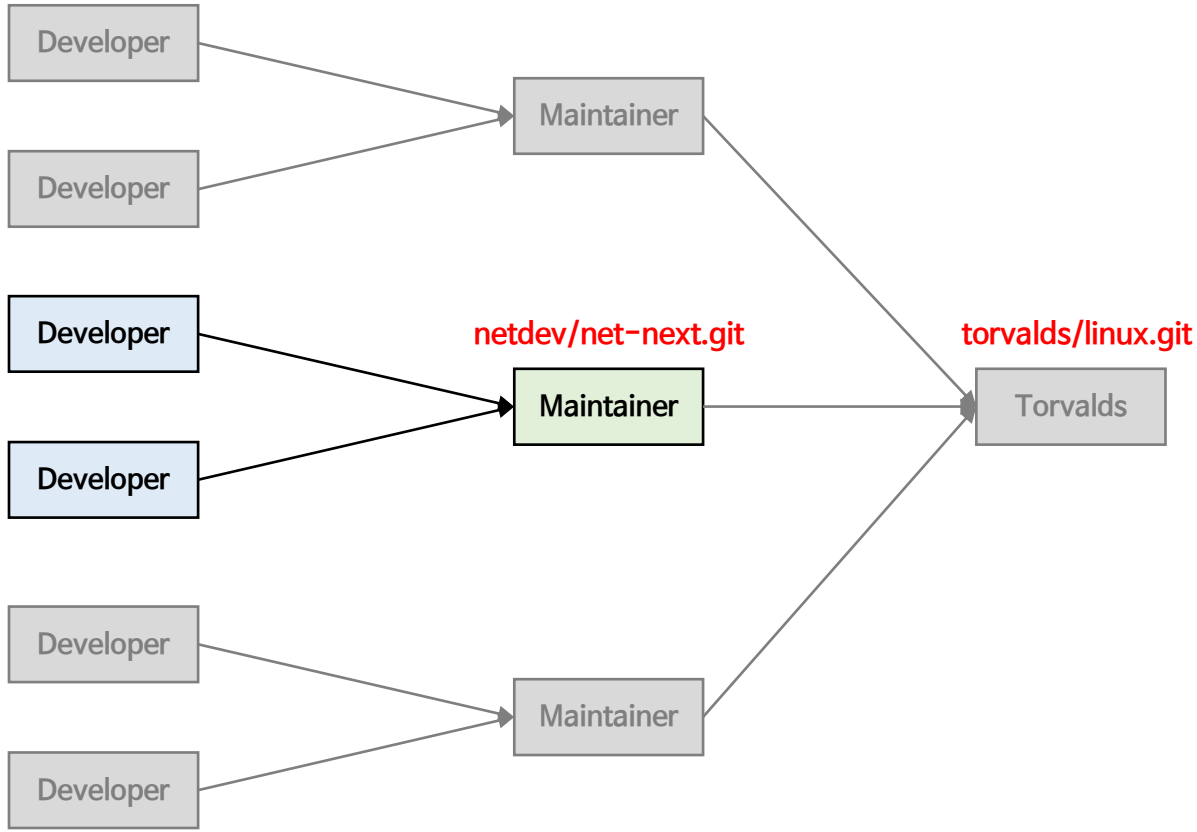


Subsystem Maintainers

index : kernel/git/netdev/net-next.git

git.kernel.org/pub/scm/linux/kernel/git/netdev/net-next.git Netdev Group

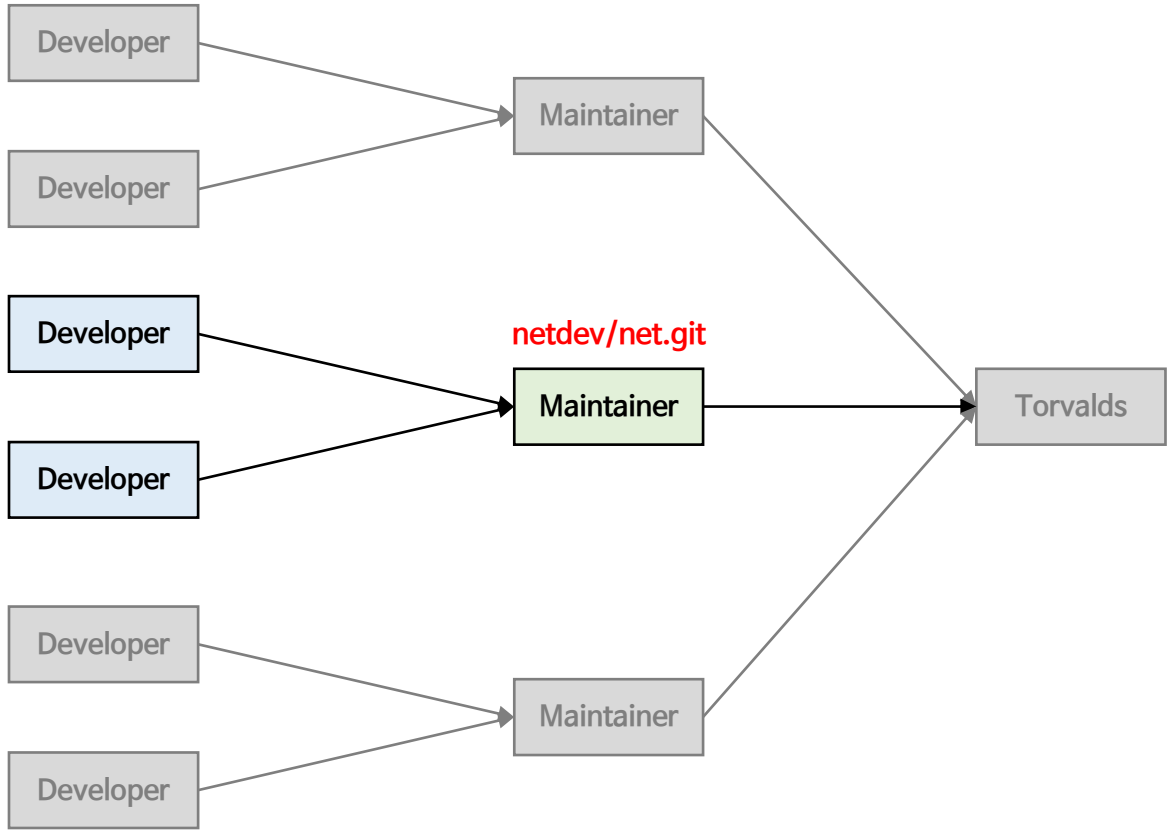
netdev/net-next.git : 기능 개선 / 버그 수정 tree



Subsystem Maintainers

- MAINTAINERS 파일

```
$ cat MAINTAINERS | grep -A 30 'NETWORKING \[GENERAL]'
NETWORKING [GENERAL]
M:  "David S. Miller" <davem@davemloft.net>
M:  Eric Dumazet <edumazet@google.com>
M:  Jakub Kicinski <kuba@kernel.org>
M:  Paolo Abeni <pabeni@redhat.com>
L:  netdev@vger.kernel.org
S:  Maintained
Q:  https://patchwork.kernel.org/project/netdevbpf/list/
B:  mailto:netdev@vger.kernel.org
T:  git git://git.kernel.org/.../netdev/net.git
T:  git git://git.kernel.org/.../netdev/net-next.git
F:  Documentation/networking/
F:  Documentation/process/maintainer-netdev.rst
F:  include/linux/in.h
F:  include/linux/net.h
F:  include/linux/netdevice.h
F:  include/net/
F:  include/uapi/linux/in.h
F:  include/uapi/linux/net.h
F:  include/uapi/linux/net_namespace.h
F:  include/uapi/linux/netdevice.h
F:  lib/net_utils.c
F:  lib/random32.c
F:  net/
F:  tools/testing/selftests/net/
```



Mailing List

각 서브시스템별로 mailing list를 가지며
컨트리뷰터들의 패치나 discussion이 이루어진다.

```
$ cat MAINTAINERS | grep -A 30 'NETWORKING \[GENERAL]'
NETWORKING [GENERAL]
M:  "David S. Miller" <davem@davemloft.net>
M:  Eric Dumazet <edumazet@google.com>
M:  Jakub Kicinski <kuba@kernel.org>
M:  Paolo Abeni <pabeni@redhat.com>
L:  netdev@vger.kernel.org
S:  Maintained
```

Majordomo lists at VGER.KERNEL.ORG

REMEMBER: Subscription to these lists go via <majordomo@vger.kernel.org> !

Note about archives: Listed archives are those that have been reported to vger's maintainers, or that we have found out otherwise. As things are, *list of archives is not complete.*

alsa-devel, autofs, backports, bpf, ceph-devel, cgroups, cpufreq, dash, dccp, devicetree-compiler, devicetree-spec, devicetree, dmaengine, dwarves, ecryptfs, fio, fstests, git-commits-24, git-commits-head, git, hail-devel, initramfs, io-uring, irda-users, kernel-janitors, kernel-packagers, kernel-testers, keyrings, kvm-commits, kvm-ia64, kvm-ppc, kvm, lartc, libzbc, linux-8086, linux-acpi, linux-admin, linux-alpha, linux-api, linux-apps, linux-arch, linux-arm-msm, linux-assembly, linux-bbs, linux-bcache, linux-bcachefs, linux-block, linux-bluetooth, linux-btrace, linux-btrfs, linux-c-programming, linux-can, linux-cifs, linux-clk, linux-config, linux-console, linux-coverity, linux-crypto, linux-csky, linux-cxl, linux-diald, linux-doc, linux-edac, linux-efi, linux-embedded, linux-ext4, linux-fbdev, linux-fido, linux-fpga, linux-fscrypt, linux-fsdevel, linux-fsf, linux-ftp, linux-gcc, linux-gpio, linux-hams, linux-hardening, linux-hexagon, linux-hotplug, linux-hwmon, linux-hyperv, linux-i2c, linux-ia64, linux-ibcs2, linux-ide, linux-iio, linux-input, linux-integrity, linux-ipx, linux-isdn, linux-japanese, linux-kbuild, linux-kernel-announce, linux-kernel-announce.posters, linux-kernel, linux-kselftest, linux-laptop, linux-leds, linux-linuxss, linux-llvm, linux-lugnuts, linux-m68k-cvscommit, linux-m68k, linux-man, linux-mca, linux-media, linux-metag, linux-mips, linux-mmc, linux-modules, linux-msdos-devel, linux-msdos, linux-new-lists, linux-newbie, linux-next, linux-nfs, linux-nilfs, linux-numa, linux-omap, linux-opengl, linux-parisc, linux-pci, linux-perf-users, linux-pm, linux-ppp, linux-pwm, linux-raid, linux-rdma, linux-remoteproc, linux-renesas-soc, linux-rt-users, linux-rtc, linux-s390, linux-samsung-soc, linux-scsi, linux-sctp, linux-security-module, linux-serial, linux-sgx, linux-sh, linux-smp, linux-soc, linux-sound, linux-sparse, linux-spdx, linux-spi, linux-standards, linux-svgalib, linux-tape, linux-tegra, linux-tip-commits, linux-toolchains, linux-trace-devel, linux-trace-kernel, linux-trace-users, linux-unionfs, linux-usb, linux-userfs, linux-watchdog, linux-wireless, linux-word, linux-wpan, linux-x11, linux-x25, linux-x86_64, linux-xfs, live-patching, lm-sensors, lpc-bpf, lpc-netdev-bpf, lpc-netdev, lvs-devel, mm-commits, netconf2019, netdev-driver-reviewers, netdev, netfilter-devel, netfilter, perfbook, phone-devel, platform-driver-x86, rcu, reiserfs-devel, rust-for-linux, selinux-refpolicy, selinux, smatch, sparclinux, stable-commits, stable-rt, stable, stgt, target-devel, testing, trinity, ultralinux, util-linux, workflows, xdp-newbies,

Listname	Number of subscribers
List: alsa-devel; (subscribe / unsubscribe) Info: Archives: http://www.spinics.net/lists/alsa-devel/ Footer: --- To unsubscribe from this list: send the line "unsubscribe alsa-devel" in	252
List: autofs; (subscribe / unsubscribe) Info: This is the mailing list for autofs development. Archives: Footer:	108

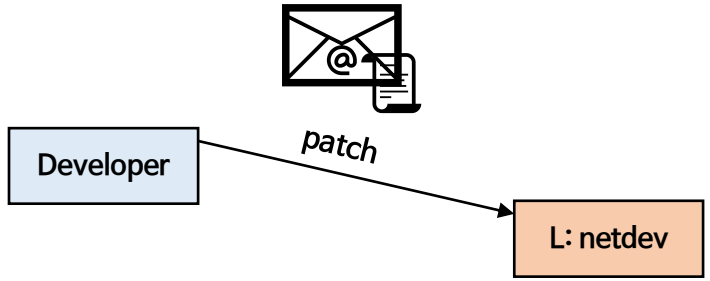
http://vger.kernel.org/vger-lists.html

Mailing List

[PATCH net-next] mlxsw: spectrum: use netif_is_macsec() instead of open code

Open code which is dev->priv_flags & IFF_MACSEC has already defined as
netif_is_macsec(). So use netif_is_macsec() instead of open code.
This patch doesn't change logic.

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>



컨트리뷰터가 패치 전송

Mailing List

```
[PATCH net-next] mlxsw: spectrum: use netif_is_macsec() instead of open code

Open code which is dev->priv_flags & IFF_MACSEC has already defined as
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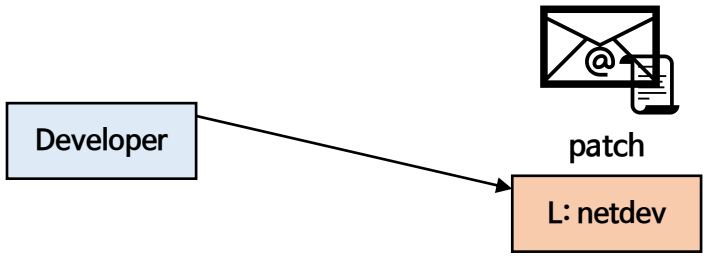
```



Mailing List에서 Review 와 Discussion 발생

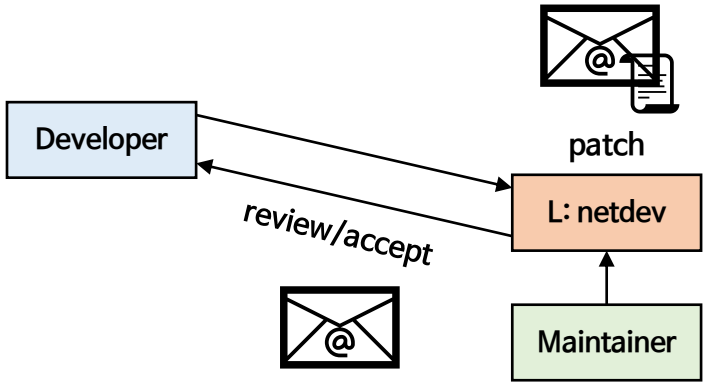
Mailing List

패치가 accepted 되면 서브시스템에
반영되었다는 메일이 전송됨

[PATCH net-next] mlxsw: spectrum: use netif_is_macsec() instead of open code

Open code which is dev->priv_flags & IFF_MACSEC has already defined as netif_is_macsec(). So use netif_is_macsec() instead of open code.
This patch doesn't change logic.

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>



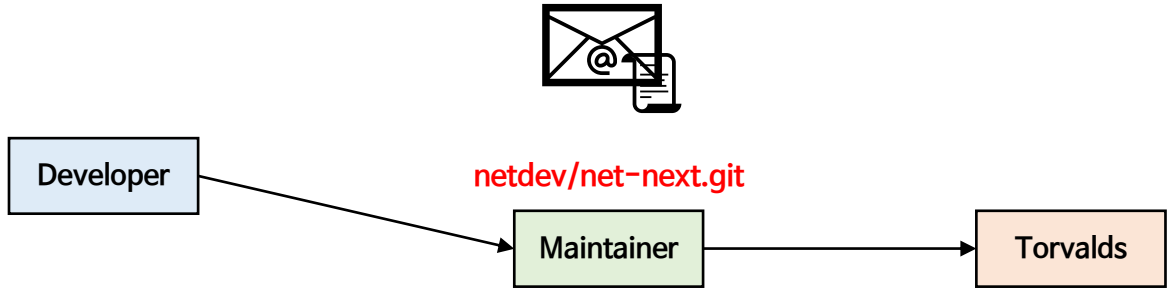
Re: [PATCH net-next] mlxsw: spectrum: use netif_is_macsec() instead of open ode

Hello:

This series was applied to netdev/net-next.git (master)
by David S. Miller <davem@davemloft.net>:

Subsystem Maintainers

패치는 net-next git tree에 반영



Subsystem Maintainers

index : kernel/git/torvalds/linux.git

Linux kernel source tree

about summary refs log tree commit diff stats

author	Linus Torvalds <torvalds@linux-foundation.org>	2022-03-17 12:55:26 -0700
committer	Linus Torvalds <torvalds@linux-foundation.org>	2022-03-17 12:55:26 -0700
commit	551acdc3c3d2b6bc97f11e31dcf960bc36343bfc (patch)	
tree	1a2bf01b80da58fc613735b1c3fb03e5fb55bc2c	
parent	c81801eb7f2476a25d8fb27449e01b0bef46908a (diff)	
parent	b04683ff8f0823b869c219c78ba0d974bddea0b5 (diff)	
download	linux-551acdc3c3d2b6bc97f11e31dcf960bc36343bfc.tar.gz	

Merge tag 'net-5.17-final' of git://git.kernel.org/pub/scm/linux/kernel/git/netdev/net

```
Pull networking fixes from Jakub Kicinski:
 "Including fixes from netfilter, ipsec, and wireless.

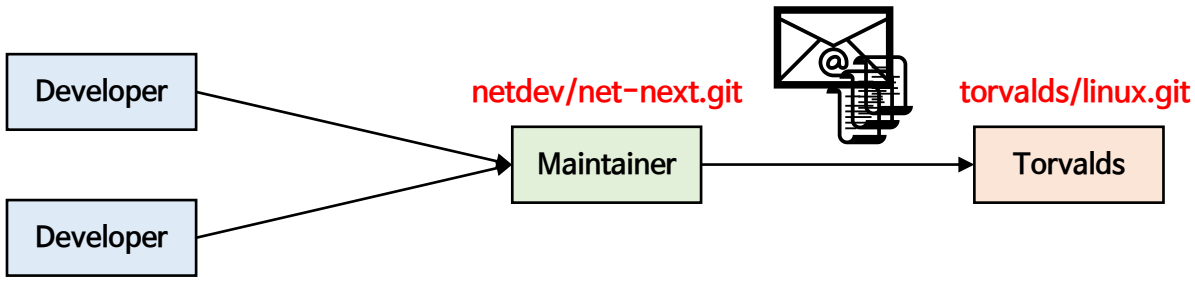
  A few last minute revert / disable and fix patches came down from our
  sub-trees. We're not waiting for any fixes at this point.

  Current release - regressions:

   - Revert "netfilter: nat: force port remap to prevent shadowing
     well-known ports", restore working conntrack on asymmetric paths

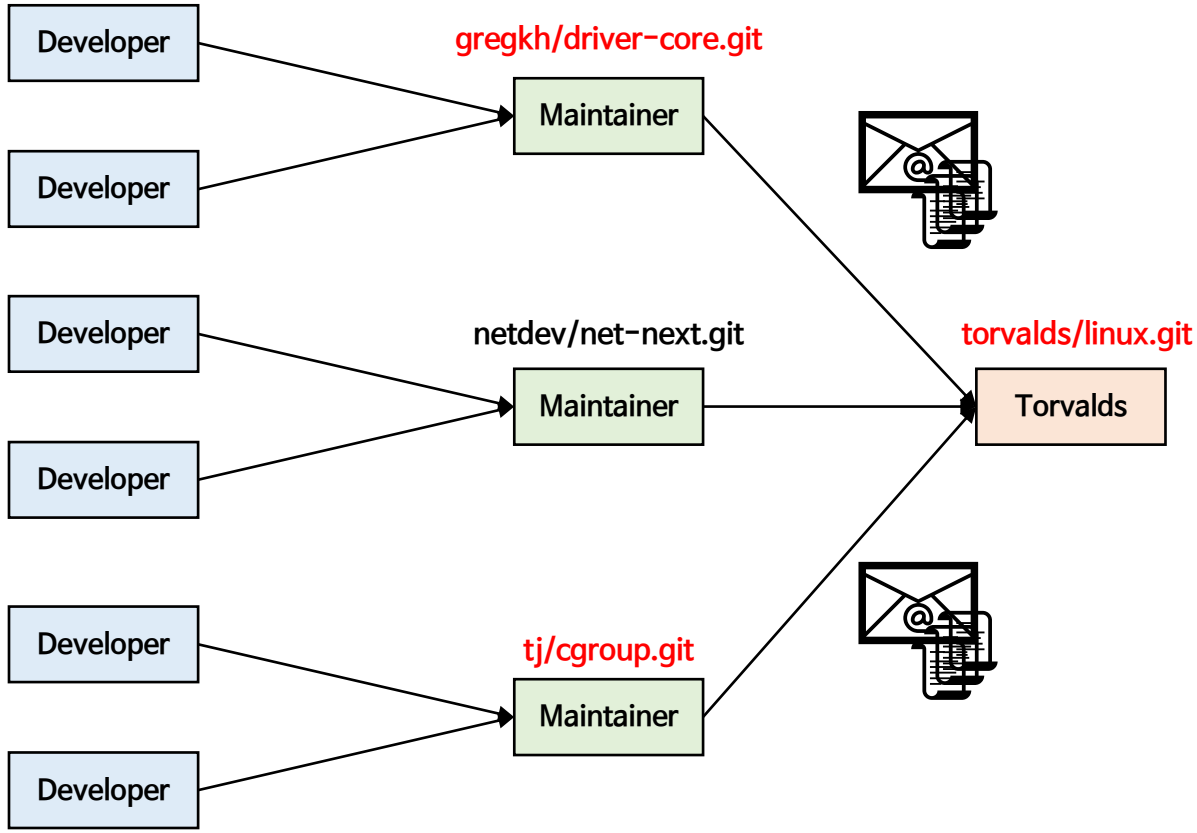
   - Revert "ath10k: drop beacon and probe response which leak from
     other channel", restore working AP and mesh mode on QCA9984

   - eth: intel: fix hang during reboot/shutdown
```



상위 tree로 Pull Request 전송

Subsystem Maintainers



다양한 서브시스템에서도 상위 tree로 Pull Request 전송

Patch

리눅스 커널의 기여 단위

리눅스 커널의 기여 단위

**개발자들은 개발 내용을 patch로 만들어서
이메일로 메일링 리스트에 제출**

리눅스 커널의 기여 단위

개발자들은 개발 내용을 patch로 만들어서
이메일로 메일링 리스트에 제출

```
$ git format-patch -1
--subject-prefix="PATCH, net-next"
```

Patch

리눅스 커널의 기여 단위

개발자들은 개발 내용을 patch로 만들어서
이메일로 메일링 리스트에 제출

```
$ git format-patch -1
--subject-prefix="PATCH, net-next"
```

```
From 0199215216978b612d4e8be11e878b87bc643033 Mon Sep 17 00:00:00 2001
From: Juhee Kang <claudiajkang@gmail.com>
Date: Sun, 10 Oct 2021 13:03:29 +0900
Subject: [PATCH, net-next] mlxsw: spectrum: use netif_is_macsec() instead of
 open code

Open code which is dev->priv_flags & IFF_MACSEC has already defined as
netif_is_macsec(). So use netif_is_macsec() instead of open code.
This patch doesn't change logic.

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
---
include/linux/netdevice.h | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

diff --git a/include/linux/netdevice.h b/include/linux/netdevice.h
index 15f4a658e436..0723c1314ea2 100644
--- a/include/linux/netdevice.h
+++ b/include/linux/netdevice.h
@@ -5237,7 +5237,7 @@ static inline void netif_keep_dst(struct net_device *dev)
static inline bool netif_reduces_vlan_mtu(struct net_device *dev)
{
       /* TODO: reserve and use an additional IFF bit, if we get more users */
-       return dev->priv_flags & IFF_MACSEC;
+       return netif_is_macsec(dev);
}

extern struct pernet_operations __net_initdata loopback_net_ops;
--
2.34.1
```

리눅스 커널의 기여 단위

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```
$ git format-patch -1
--subject-prefix="PATCH, net-next"
```

```
$ git send-patch --cc “Network Maintainer
<example@email.com>“ --to “Network
Mailing List <list@email.com>” *.patch
```

Patch

리눅스 커널의 기여 단위

개발자들은 개발 내용을 patch로 만들어서
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Mailing List <list@email.com>” *.patch
```

Patchwork Netdev + BPF | Patches | Bundles | About this | Login | Register | Mail settings

Show patches with: Submitter = **Juhee Kang** | 29 patches

Patch	Date	Submitter	Delegate	State
[net-next,3/3] pktgen: document the latest pktgen usage options	2021-08-25	Juhee Kang	netdev	Accepted
[net-next,2/3] samples: pktgen: add trap SIGINT for printing execution result	2021-08-25	Juhee Kang	netdev	Accepted
[net-next,1/3] samples: pktgen: fix to print when terminated normally	2021-08-25	Juhee Kang	netdev	Accepted
[net-next,2/2] samples: pktgen: add missing IPv6 option to pktgen scripts	2021-08-12	Juhee Kang	netdev	Accepted
[net-next,1/2] samples: pktgen: pass the environment variable of normal user to suc	2021-08-12	Juhee Kang	netdev	Accepted
[bpf-next,v2,2/2] samples: bpf: Add the omitted xdp samples to .gitignore	2021-07-27	Juhee Kang	bpf	Accepted
[bpf-next,v2,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	2021-07-27	Juhee Kang	bpf	Accepted
[bpf-next,2/2] samples: bpf: Add the omitted xdp samples to .gitignore	2021-07-24	Juhee Kang	bpf	Superseded
[bpf-next,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	2021-07-24	Juhee Kang	bpf	Superseded

Patch

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[bpf-next,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	2021-07-24	Juhee Kang	bpf	Superseded

Patch 구성

```
commit 0199215216978b612d4e8be11e878b87bc643033
Author:     Juhee Kang <claudiajkang@gmail.com>
AuthorDate: Sun Oct 10 13:03:29 2021 +0900
Commit:     David S. Miller <davem@davemloft.net>
CommitDate: Sun Oct 10 11:18:48 2021 +0100

    mlxsw: spectrum: use netif_is_macsec() instead of open code

    Open code which is dev->priv_flags & IFF_MACSEC has already defined as
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extern struct pernet_operations __net_initdata loopback_net_ops;
--
2.34.1
```

Commit ID

commit을 중복 없이 기억하기 위해 SHA1 알고리즘으로 만들어진 hash 값을 사용

Patch 구성

```
commit 0199215216978b612d4e8be11e878b87bc643033
Author:     Juhee Kang <claudiajkang@gmail.com>
AuthorDate: Sun Oct 10 13:03:29 2021 +0900
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    netif_is_macsec(). So use netif_is_macsec() instead of open code.
    This patch doesn't change logic.

    Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
    Signed-off-by: David S. Miller <davem@davemloft.net>
---
include/linux/netdevice.h | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

diff --git a/include/linux/netdevice.h b/include/linux/netdevice.h
index 15f4a658e436..0723c1314ea2 100644
--- a/include/linux/netdevice.h
+++ b/include/linux/netdevice.h
@@ -5237,7 +5237,7 @@ static inline void netif_keep_dst(struct net_device *dev)
static inline bool netif_reduces_vlan_mtu(struct net_device *dev)
{
        /* TODO: reserve and use an additional IFF bit, if we get more users */
-       return dev->priv_flags & IFF_MACSEC;
+       return netif_is_macsec(dev);
}

extern struct pernet_operations __net_initdata loopback_net_ops;
--
2.34.1
```

Commit ID

Author

패치를 작성한 사람의 정보
ex) 작성자 이름 〈작성자 메일 정보〉

Author Date

작성자가 해당 커밋을 작성한 시간

Patch 구성

```
commit 0199215216978b612d4e8be11e878b87bc643033
Author:     Juhee Kang <claudiajkang@gmail.com>
AuthorDate: Sun Oct 10 13:03:29 2021 +0900
Commit:     David S. Miller <davem@davemloft.net>
CommitDate: Sun Oct 10 11:18:48 2021 +0100

    mlxsw: spectrum: use netif_is_macsec() instead of open code

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    Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
    Signed-off-by: David S. Miller <davem@davemloft.net>
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{
        /* TODO: reserve and use an additional IFF bit, if we get more users */
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+       return netif_is_macsec(dev);
}

extern struct pernet_operations __net_initdata loopback_net_ops;
--
2.34.1
```

Commit ID

Author

Author Date

Commit

리눅스 커널에서 committer은 해당 패치를 git 저장소에 **반영한 사람**을 의미

ex) Maintainer 혹은 Reviewer

Commit Date

해당 커밋이 반영된 시간

Patch 구성

```
commit 0199215216978b612d4e8be11e878b87bc643033
Author:     Juhee Kang <claudiajkang@gmail.com>
AuthorDate: Sun Oct 10 13:03:29 2021 +0900
Commit:     David S. Miller <davem@davemloft.net>
CommitDate: Sun Oct 10 11:18:48 2021 +0100

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    Signed-off-by: David S. Miller <davem@davemloft.net>
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include/linux/netdevice.h | 2 +-
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diff --git a/include/linux/netdevice.h b/include/linux/netdevice.h
index 15f4a658e436..0723c1314ea2 100644
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+++ b/include/linux/netdevice.h
@@ -5237,7 +5237,7 @@ static inline void netif_keep_dst(struct net_device *dev)
static inline bool netif_reduces_vlan_mtu(struct net_device *dev)
{
        /* TODO: reserve and use an additional IFF bit, if we get more users */
-       return dev->priv_flags & IFF_MACSEC;
+       return netif_is_macsec(dev);
}

extern struct pernet_operations __net_initdata loopback_net_ops;
--
2.34.1
```

Commit ID

Author

Author Date

Commit

Commit Date

Commit Header

해당 커밋에 대한 간략한 설명
다음과 같은 형식으로 작성

ex) 모듈 이름: 세부 모듈: 커밋 설명

Commit Description

해당 커밋에 대한 상세한 설명을 작성

Patch 구성

```
commit 0199215216978b612d4e8be11e878b87bc643033
Author:     Juhee Kang <claudiajkang@gmail.com>
AuthorDate: Sun Oct 10 13:03:29 2021 +0900
Commit:     David S. Miller <davem@davemloft.net>
CommitDate: Sun Oct 10 11:18:48 2021 +0100

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    netif_is_macsec(). So use netif_is_macsec() instead of open code.
    This patch doesn't change logic.

    Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
    Signed-off-by: David S. Miller <davem@davemloft.net>
---
include/linux/netdevice.h | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

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+       return netif_is_macsec(dev);
}

extern struct pernet_operations __net_initdata loopback_net_ops;
--
2.34.1
```

- Commit ID
- Author
- Author Date
- Commit
- Commit Date
- Commit Header
- Commit Description
- Commit Tag

Signed-off-by:

작성자는 라이센싱 정책에 대해 이해했고
커밋을 오픈소스 패치로 제출하는 것에 동의

ex) Signed-off-by: 이름 〈메일〉

Patch 구성

```
mlxsw: spectrum: use netif_is_macsec() instead of open code

=== Commit Body ===

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
```

```
samples: bpf: Fix tracex7 error raised on the missing argument

=== Commit Body ===

Acked-by: Yonghong Song <yhs@fb.com>
```

```
amt: Use BIT macros instead of open codes

=== Commit Body ===

Reviewed-by: Taehee Yoo <ap420073@gmail.com>
Tested-by: Taehee Yoo <ap420073@gmail.com>
```

```
net: hsr: fix hsr build error when lockdep is not enabled

=== Commit Body ===

Reported-by: Eric Dumazet <eric.dumazet@gmail.com>
```

```
bpf_glue: include errno.h

=== Commit Body ===

Fixes: ac4e0913beb1 ("bpf: Export bpf syscall wrapper")
```

Commit Tag Detail

1) Signed-off-by

라이센싱 정책에 대해 이해했고, 커밋을 오픈소스 패치로 제출하는 것에 동의

2) Acked-by

메인테이너가 해당 패치를 확인하였고, 개발자가 작성한 패치를 반영하기로 결정

3) Reviewed-by

해당 패치의 코드에 대해 Reviewer 혹은 다른 개발자가 리뷰하였음

4) Tested-by

해당 패치의 변경사항에 대해 Reviewer 혹은 다른 개발자가 테스트하였음

5) Reported-by / Suggested-by

해당 버그를 발견하거나 기능을 제안한 사람을 명시하기 위해 남기는 태그

6) Fixes

해당 패치가 어떤 커밋에서 발생한 버그를 해결하는지를 추적하기 위한 태그

Patch 구성

```
commit 0199215216978b612d4e8be11e878b87bc643033
Author:     Juhee Kang <claudiajkang@gmail.com>
AuthorDate: Sun Oct 10 13:03:29 2021 +0900
Commit:     David S. Miller <davem@davemloft.net>
CommitDate: Sun Oct 10 11:18:48 2021 +0100

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    Signed-off-by: David S. Miller <davem@davemloft.net>
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include/linux/netdevice.h | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

diff --git a/include/linux/netdevice.h b/include/linux/netdevice.h
index 15f4a658e436..0723c1314ea2 100644
--- a/include/linux/netdevice.h
+++ b/include/linux/netdevice.h
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-       return dev->priv_flags & IFF_MACSEC;
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}

extern struct pernet_operations __net_initdata loopback_net_ops;
--
2.34.1
```

- Commit ID
- Author
- Author Date
- Commit
- Commit Date
- Commit Header
- Commit Description
- Commit Tag
- diff 결과 (스냅샷 정보)

해당 커밋에 포함된 diff 결과

- 수정이 발생한 파일 목록

```
include/linux/netdevice.h | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
```

- 세부 수정사항

```
static inline bool netif_reduces_vlan_mtu(struct net_device *dev)
{
        /* TODO: reserve and use an additional IFF bit, if we get more
users */
-       return dev->priv_flags & IFF_MACSEC;
+       return netif_is_macsec(dev);
```

리눅스 Kernel에 이제 실제로 Contribution 해볼까요?

3

Kernel 기여하기

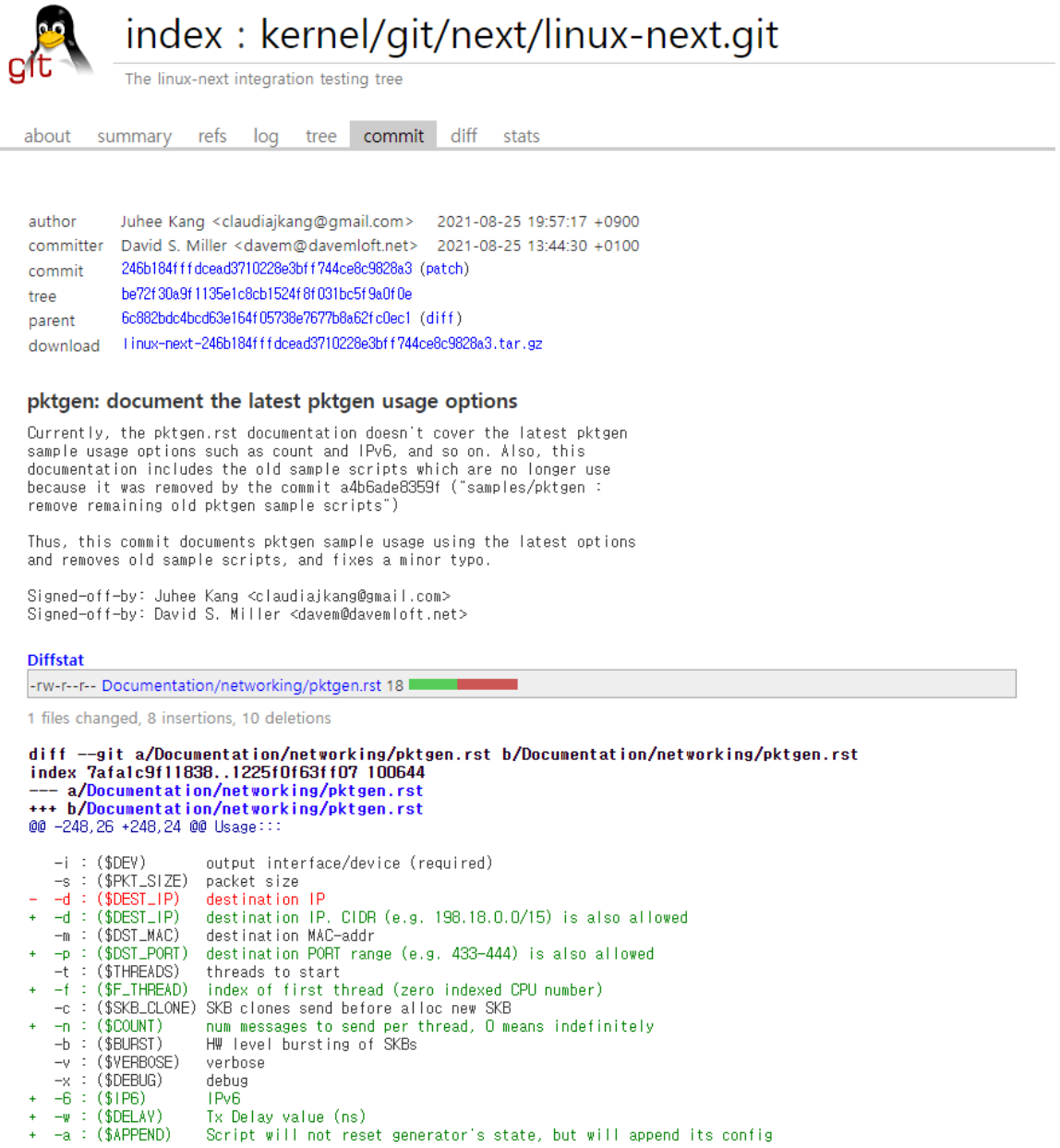
컨트리뷰션 방법

① 문서 기여

② 버그 수정

③ 기능 개선

1. 문서 기여



index : kernel/git/next/linux-next.git

The linux-next integration testing tree

about summary refs log tree commit diff stats

author Juhee Kang <claudiajkang@gmail.com> 2021-08-25 19:57:17 +0900
committer David S. Miller <davem@davemloft.net> 2021-08-25 13:44:30 +0100
commit 246b184fffdcead3710228e3bff744ce8c9828a3 (patch)
tree be72f30a9f1135e1c8cb1524f8f031bc5f9a0f0e
parent 6c882bdc4bcd63e164f05738e7677b8a62fc0ec1 (diff)
download linux-next-246b184fffdcead3710228e3bff744ce8c9828a3.tar.gz

pktgen: document the latest pktgen usage options

```
Currently, the pktgen.rst documentation doesn't cover the latest pktgen
sample usage options such as count and IPv6, and so on. Also, this
documentation includes the old sample scripts which are no longer use
because it was removed by the commit a4b6ade8359f ("samples/pktgen :
remove remaining old pktgen sample scripts")

Thus, this commit documents pktgen sample usage using the latest options
and removes old sample scripts, and fixes a minor typo.

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
Signed-off-by: David S. Miller <davem@davemloft.net>
```

Diffstat

-rw-r--r-- Documentation/networking/pktgen.rst 18

1 files changed, 8 insertions, 10 deletions

```
diff --git a/Documentation/networking/pktgen.rst b/Documentation/networking/pktgen.rst
index 7afa1c9f11838..1225f0f63ff07 100644
--- a/Documentation/networking/pktgen.rst
+++ b/Documentation/networking/pktgen.rst
@@ -248,26 +248,24 @@ Usage:::

    -i : ($DEV)       output interface/device (required)
    -s : ($PKT_SIZE)  packet size
-   -d : ($DEST_IP)   destination IP
+   -d : ($DEST_IP)   destination IP. CIDR (e.g. 198.18.0.0/15) is also allowed
    -m : ($DST_MAC)   destination MAC-addr
+   -p : ($DST_PORT)  destination PORT range (e.g. 433-444) is also allowed
    -t : ($THREADS)   threads to start
+   -f : ($F_THREAD)  index of first thread (zero indexed CPU number)
    -c : ($SKB_CLONE) SKB clones send before alloc new SKB
+   -n : ($COUNT)     num messages to send per thread, 0 means indefinitely
    -b : ($BURST)     HW level bursting of SKBs
    -v : ($VERBOSE)   verbose
    -x : ($DEBUG)     debug
+   -6 : ($IP6)       IPv6
+   -w : ($DELAY)     Tx Delay value (ns)
+   -a : ($APPEND)    Script will not reset generator's state, but will append its config
```

신규 문서 추가

기존 문서 수정

2. 버그 수정

index : kernel/git/next/linux-next.git

The linux-next integration testing tree

about summary refs log tree commit diff stats

author	Juhee Kang <claudiajkang@gmail.com> 2021-10-04 21:14:38 +0900
committer	Pablo Neira Ayuso <pablo@netfilter.org> 2021-10-07 19:35:57 +0200
commit	902c0b1887522a099aa4e1e6b4b476c2fe5dd13e (patch)
tree	37a3ee3d04c0a7d451b3d6c30f1794bb6d266276
parent	8d6c414cd2fb74aa6812e9bfec6178f8246c4f3a (diff)
download	linux-next-902c0b1887522a099aa4e1e6b4b476c2fe5dd13e.tar.gz

netfilter: xt_IDLETIMER: fix panic that occurs when timer_type has garbage value

```
Currently, when the rule related to IDLETIMER is added, idletimer_tg timer
structure is initialized by kmalloc on executing idletimer_tg_create
function. However, in this process timer->timer_type is not defined to
a specific value. Thus, timer->timer_type has garbage value and it occurs
kernel panic. So, this commit fixes the panic by initializing
timer->timer_type using kzalloc instead of kmalloc.

Test commands:
    # iptables -A OUTPUT -j IDLETIMER --timeout 1 --label test
    $ cat /sys/class/xt_idletimer/timers/test
      Killed

Splat looks like:
    BUG: KASAN: user-memory-access in alarm_expires_remaining+0x49/0x70
    Read of size 8 at addr 0000002e8c7bc4c8 by task cat/917
    CPU: 12 PID: 917 Comm: cat Not tainted 5.14.0+ #3 79940a339f71eb14fc81aee1757a20d5bf13eb0e
    Hardware name: QEMU Standard PC (Q35 + ICH9, 2009), BIOS 1.13.0-1ubuntu1.1 04/01/2014
    Call Trace:
     dump_stack_lvl+0x6e/0x9c
     kasan_report.cold+0x112/0x117
     ? alarm_expires_remaining+0x49/0x70
     __asan_load8+0x86/0xb0
     alarm_expires_remaining+0x49/0x70
     idletimer_tg_show+0xe5/0x19b [xt_IDLETIMER 11219304af9316a21bee5ba9d58f76a6b9bccc6d]
     dev_attr_show+0x3c/0x60
     sysfs_kf_seq_show+0x11d/0x1f0
     ? device_remove_bin_file+0x20/0x20
     kernfs_seq_show+0xa4/0xb0
```

버그가 잘 동작하도록 수정 후 패치 전송

3. 기능 개선

index : kernel/git/next/linux-next.git

The linux-next integration testing tree

about summary refs log tree commit diff stats

author Juhee Kang <claudiajkang@gmail.com> 2021-08-13 00:08:13 +0900
committer David S. Miller <davem@davemloft.net> 2021-08-16 11:02:09 +0100
commit 0f0c4f1b72e090b23131700bb155944cc28b2a7b (patch)
tree 1dc881a9d04a4256e1f91415a6e7f9ec0796b729
parent 7caeabd726f22e6a6c44c434574fb489986e5baa (diff)
download linux-next-0f0c4f1b72e090b23131700bb155944cc28b2a7b.tar.gz

samples: pktgen: add missing IPv6 option to pktgen scripts

Currently, "sample04" and "sample05" are not working properly when running with an IPv6 option("-6"). The commit 0f06a6787e05 ("samples: Add an IPv6 "-6" option to the pktgen scripts") has omitted the addition of this option at "sample04" and "sample05".

In order to support IPv6 option, this commit adds logic related to IPv6 option.

Fixes: 0f06a6787e05 ("samples: Add an IPv6 "-6" option to the pktgen scripts")

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
Signed-off-by: David S. Miller <davem@davemloft.net>

Diffstat

-rwxr-xr-x samples/pktgen/pktgen_sample04_many_flows.sh 12
-rwxr-xr-x samples/pktgen/pktgen_sample05_flow_per_thread.sh 12

2 files changed, 14 insertions, 10 deletions

```
diff --git a/samples/pktgen/pktgen_sample04_many_flows.sh b/samples/pktgen/pktgen_sample04_many_flows.sh
index 56c5f5af350f6..cff51f861506d 100755
--- a/samples/pktgen/pktgen_sample04_many_flows.sh
+++ b/samples/pktgen/pktgen_sample04_many_flows.sh
@@ -13,13 +13,15 @@ root_check_run_with_sudo "$@"
 # Parameter parsing via include
 source ${basedir}/parameters.sh
 # Set some default params, if they didn't get set
-[ -z "$DEST_IP" ]   && DEST_IP="198.18.0.42"
+if [ -z "$DEST_IP" ]; then
+    [ -z "$IP6" ] && DEST_IP="198.18.0.42" || DEST_IP="FD00::1"
+fi
 [ -z "$DST_MAC" ]   && DST_MAC="90:e2:ba:ff:ff:ff"
 [ -z "$CLONE_SKB" ] && CLONE_SKB="0"
 [ -z "$COUNT" ]     && COUNT="0" # Zero means indefinitely
 if [ -n "$DEST_IP" ]; then
-    validate_addr $DEST_IP
-    read -r DST_MIN DST_MAX <<< $(parse_addr $DEST_IP)
+    validate_addr${IP6} $DEST_IP
+    read -r DST_MIN DST_MAX <<< $(parse_addr${IP6} $DEST_IP)
```

신규 기능 추가

3. 기능 개선

index : kernel/git/next/linux-next.git

The linux-next integration testing tree

about summary refs log tree commit diff stats

author Juhee Kang <claudiajkang@gmail.com> 2022-02-05 15:40:38 +0000
committer David S. Miller <davem@davemloft.net> 2022-02-06 10:55:52 +0000
commit 4acc45db711586dadb98e681ccb93f29372907a2 (patch)
tree f69f105c0d756fd7caacec85ef42c2d9463843bf
parent 5a8fb33e530512ee67a11b30f3451a4f030f4b01 (diff)
download linux-next-4acc45db711586dadb98e681ccb93f29372907a2.tar.gz

net: hsr: use hlist_head instead of list_head for mac addresses

```
Currently, HSR manages mac addresses of known HSR nodes by using list_head.
It takes a lot of time when there are a lot of registered nodes due to
finding specific mac address nodes by using linear search. We can be
reducing the time by using hlist. Thus, this patch moves list_head to
hlist_head for mac addresses and this allows for further improvement of
network performance.

    Condition: registered 10,000 known HSR nodes
    Before:
    # iperf3 -c 192.168.10.1 -i 1 -t 10
    Connecting to host 192.168.10.1, port 5201
    [  5] local 192.168.10.2 port 59442 connected to 192.168.10.1 port 5201
    [ ID] Interval           Transfer     Bitrate         Retr  Cwnd
    [  5]   0.00-1.49   sec  3.75 MBytes  21.1 Mbits/sec    0    158 KBytes
    [  5]   1.49-2.05   sec  1.25 MBytes  18.7 Mbits/sec    0    166 KBytes
    [  5]   2.05-3.06   sec  2.44 MBytes  20.3 Mbits/sec   56   16.9 KBytes
    [  5]   3.06-4.08   sec  1.43 MBytes  11.7 Mbits/sec   11   38.0 KBytes
    [  5]   4.08-5.00   sec   951 KBytes  8.49 Mbits/sec    0   56.3 KBytes

    After:
    # iperf3 -c 192.168.10.1 -i 1 -t 10
    Connecting to host 192.168.10.1, port 5201
    [  5] local 192.168.10.2 port 36460 connected to 192.168.10.1 port 5201
    [ ID] Interval           Transfer     Bitrate         Retr  Cwnd
    [  5]   0.00-1.00   sec  7.39 MBytes  62.0 Mbits/sec    3    130 KBytes
    [  5]   1.00-2.00   sec  5.06 MBytes  42.4 Mbits/sec   16    113 KBytes
    [  5]   2.00-3.00   sec  8.58 MBytes  72.0 Mbits/sec   42   94.3 KBytes
    [  5]   3.00-4.00   sec  7.44 MBytes  62.4 Mbits/sec    2    131 KBytes
    [  5]   4.00-5.07   sec  8.13 MBytes  63.5 Mbits/sec   38   92.9 KBytes

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
Signed-off-by: David S. Miller <davem@davemloft.net>
```

Diffstat

-rw-r--r-- net/hsr/hsr_debugfs.c 40
-rw-r--r-- net/hsr/hsr_device.c 10
-rw-r--r-- net/hsr/hsr_forward.c 7

기존 기능 강화

Kernel Patch in Action

버그를 수정하는 패치를 진행한다고 가정

문제 발견

```
$ cd samples/bpf
$ make -j
$ ./tracex7
sh: 1: Syntax error: word unexpected (expecting ")")
```

커널의 테스트 스크립트
실행 도중 에러 발생

커널 개발 환경 구성 – 리눅스 환경 설정

Fedora
Debian
OpenSUSE
Ubuntu

가상 환경에 리눅스 설치

커널 개발 환경 구성 – 리눅스 환경 설정

```
# apt-get install build-essential vim git cscope
libncurses-dev libssl-dev bison flex bison
```

가상 환경 리눅스에 개발 관련 패키지 설치

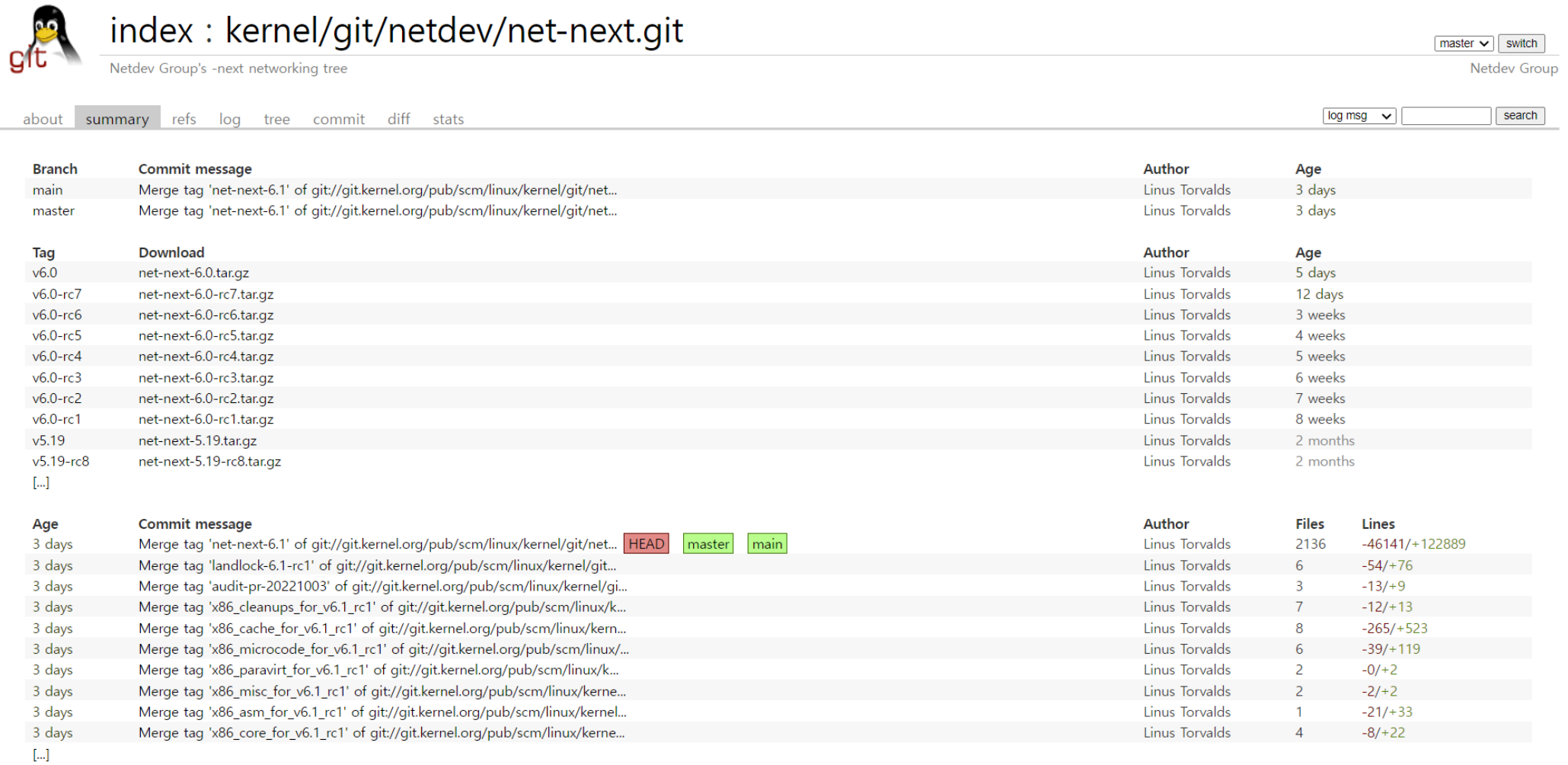
커널 개발 환경 구성 – 리눅스 환경 설정

```
# apt-get install build-essential vim git cscope
libncurses-dev libssl-dev bison flex bison
# systemctl enable serial-getty@ttyS0.service
# systemctl start serial-getty@ttyS0.service
# systemctl daemon-reload
# vim /etc/default/grub

GRUB_DEFAULT=3
GRUB_TIMEOUT_STYLE=menu
GRUB_TIMEOUT=3

# update-grub2
```

가상 환경 리눅스에 개발 관련 패키지 설치
및 디버깅을 위한 환경 구축

커널 개발 환경 구성 – 커널 개발 소스 코드 다운

```
$ git clone https://git.kernel.org/pub/scm/linux/kernel/git/netdev/net-next.git
```



index : kernel/git/netdev/net-next.git

Netdev Group's -next networking tree

master switch

Netdev Group

about summary refs log tree commit diff stats

log msg search

Branch	Commit message	Author	Age
main	Merge tag 'net-next-6.1' of git://git.kernel.org/pub/scm/linux/kernel/git/net...	Linus Torvalds	3 days
master	Merge tag 'net-next-6.1' of git://git.kernel.org/pub/scm/linux/kernel/git/net...	Linus Torvalds	3 days

Tag	Download	Author	Age
v6.0	net-next-6.0.tar.gz	Linus Torvalds	5 days
v6.0-rc7	net-next-6.0-rc7.tar.gz	Linus Torvalds	12 days
v6.0-rc6	net-next-6.0-rc6.tar.gz	Linus Torvalds	3 weeks
v6.0-rc5	net-next-6.0-rc5.tar.gz	Linus Torvalds	4 weeks
v6.0-rc4	net-next-6.0-rc4.tar.gz	Linus Torvalds	5 weeks
v6.0-rc3	net-next-6.0-rc3.tar.gz	Linus Torvalds	6 weeks
v6.0-rc2	net-next-6.0-rc2.tar.gz	Linus Torvalds	7 weeks
v6.0-rc1	net-next-6.0-rc1.tar.gz	Linus Torvalds	8 weeks
v5.19	net-next-5.19.tar.gz	Linus Torvalds	2 months
v5.19-rc8	net-next-5.19-rc8.tar.gz	Linus Torvalds	2 months

[...]

Age	Commit message	Author	Files	Lines
3 days	Merge tag 'net-next-6.1' of git://git.kernel.org/pub/scm/linux/kernel/git/net... HEAD master main	Linus Torvalds	2136	-46141/+122889
3 days	Merge tag 'landlock-6.1-rc1' of git://git.kernel.org/pub/scm/linux/kernel/git...	Linus Torvalds	6	-54/+76
3 days	Merge tag 'audit-pr-20221003' of git://git.kernel.org/pub/scm/linux/kernel/gi...	Linus Torvalds	3	-13/+9
3 days	Merge tag 'x86_cleanups_for_v6.1_rc1' of git://git.kernel.org/pub/scm/linux/k...	Linus Torvalds	7	-12/+13
3 days	Merge tag 'x86_cache_for_v6.1_rc1' of git://git.kernel.org/pub/scm/linux/kern...	Linus Torvalds	8	-265/+523
3 days	Merge tag 'x86_microcode_for_v6.1_rc1' of git://git.kernel.org/pub/scm/linux/...	Linus Torvalds	6	-39/+119
3 days	Merge tag 'x86_paravirt_for_v6.1_rc1' of git://git.kernel.org/pub/scm/linux/k...	Linus Torvalds	2	-0/+2
3 days	Merge tag 'x86_misc_for_v6.1_rc1' of git://git.kernel.org/pub/scm/linux/kerne...	Linus Torvalds	2	-2/+2
3 days	Merge tag 'x86_asm_for_v6.1_rc1' of git://git.kernel.org/pub/scm/linux/kernel...	Linus Torvalds	1	-21/+33
3 days	Merge tag 'x86_core_for_v6.1_rc1' of git://git.kernel.org/pub/scm/linux/kerne...	Linus Torvalds	4	-8/+22

[...]

문제 재현 및 원인 판단

```
$ cd samples/bpf
$ make -j
$ ./tracex7
sh: 1: Syntax error: word unexpected (expecting ")")
```

커널의 테스트 스크립트
실행 도중 에러 발생

문제 재현 및 원인 판단

```
$ cd samples/bpf
$ make -j
$ ./tracex7
sh: 1: Syntax error: word unexpected (expecting ")")
# vim tracex7_user.c
```

커널의 테스트 스크립트
실행 도중 에러 발생

```
1 tracex7_user.c +                                                    X
int main(int argc, char **argv)
{
    // ... SNIP ...
    char filename[256];
    char command[256];
    int ret = 0;
    FILE *f;

    snprintf(filename, sizeof(filename), "%s_kern.o", argv[0]);
++-- 24 lines: obj = bpf_object__open_file(filename, NULL);----------

    snprintf(command, 256, "mount %s tmpmnt/", argv[1]);
    f = popen(command, "r");
    ret = pclose(f);

cleanup:
    bpf_link__destroy(link);
    bpf_object__close(obj);
    return ret ? 0 : 1;
}
NORMAL  tracex7_user.c  +                                  18%    8:0
```

프로그램 실행 시 인자를
확인하지 않아 발생한 문제

버그 해결을 위해 소스코드 수정

```
$ git diff
```

```
diff --git a/samples/bpf/test_override_return.sh b/samples/bpf/test_override_return.sh
index e68b9ee6814b8b..35db26f736b9d9 100755
--- a/samples/bpf/test_override_return.sh
+++ b/samples/bpf/test_override_return.sh
@@ -1,5 +1,6 @@
#!/bin/bash
+rm -r tmpmnt
rm -f testfile.img
dd if=/dev/zero of=testfile.img bs=1M seek=1000 count=1
DEVICE=$(losetup --show -f testfile.img)
diff --git a/samples/bpf/tracex7_user.c b/samples/bpf/tracex7_user.c
index fdcd6580dd736a..8be7ce18d3ba05 100644
--- a/samples/bpf/tracex7_user.c
+++ b/samples/bpf/tracex7_user.c
@@ -14,6 +14,11 @@ int main(int argc, char **argv)
int ret = 0;
FILE *f;
+ if (!argv[1]) {
+ fprintf(stderr, "ERROR: Run with the btrfs device argument!\n");
+ return 0;
+ }
+
snprintf(filename, sizeof(filename), "%s_kern.o", argv[0]);
obj = bpf_object__open_file(filename, NULL);
if (libbpf_get_error(obj)) {
```

커밋 메시지 작성

소스 코드 수정 후, 커밋 메시지 작성 후 커밋 진행

```
$ git commit -s
```

커밋 메시지 작성

커밋 메시지 작성이 어렵다면?

```
$ git log -- <내가 수정한 파일 이름 filename>
```

커밋 메시지 작성

커밋 메시지 작성이 어렵다면?

```
$ git log -- samples/bpf/tracex7_user.c   〈해당 파일의 이전 커밋 확인〉
```

```
commit 2bf3e2ef425bc2a164f10b554b7db6a8b4090ef4
Author: Jakub Kicinski <kuba@kernel.org>
Date:   Mon May 14 22:35:02 2018 -0700

    samples: bpf: include bpf/bpf.h instead of local libbpf.h

    There are two files in the tree called libbpf.h which is becoming
    problematic.  Most samples don't actually need the local libbpf.h
    they simply include it to get to bpf/bpf.h.  Include bpf/bpf.h
    directly instead.

    Signed-off-by: Jakub Kicinski <jakub.kicinski@netronome.com>
    Acked-by: Jesper Dangaard Brouer <brouer@redhat.com>
    Signed-off-by: Alexei Starovoitov <ast@kernel.org>

commit 965de87e54b803223bff703ea6b2a76c056695ae
Author: Josef Bacik <jbacik@fb.com>
Date:   Mon Dec 11 11:36:49 2017 -0500

    samples/bpf: add a test for bpf_override_return
```

커밋 메시지 작성

```
samples: bpf: Fix tracex7 error raised on the missing argument

The current behavior of 'tracex7' doesn't consist with other bpf samples
 tracex{1..6}. Other samples do not require any argument to run with, but
tracex7 should be run with btrfs device argument. (it should be executed
with test_override_return.sh)

Currently, tracex7 doesn't have any description about how to run this
program and raises an unexpected error. And this result might be
confusing since users might not have a hunch about how to run this
program.

          // Current behavior
          # ./tracex7
          sh: 1: Syntax error: word unexpected (expecting ")")
          // Fixed behavior
          # ./tracex7 ERROR: Run with the btrfs device argument!

In order to fix this error, this commit adds logic to report a message
and exit when running this program with a missing argument.

Additionally in test_override_return.sh, there is a problem with
multiple directory(tmpmnt) creation. So in this commit adds a line with
removing the directory with every execution.

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
```

커밋 메시지 작성

```
samples: bpf: Fix tracex7 error raised on the missing argument

The current behavior of 'tracex7' doesn't consist with other bpf samples
 tracex{1..6}. Other samples do not require any argument to run with, but
tracex7 should be run with btrfs device argument. (it should be executed
with test_override_return.sh)

Currently, tracex7 doesn't have any description about how to run this
program and raises an unexpected error. And this result might be
confusing since users might not have a hunch about how to run this
program.

          // Current behavior
          # ./tracex7
          sh: 1: Syntax error: word unexpected (expecting ")")
          // Fixed behavior
          # ./tracex7 ERROR: Run with the btrfs device argument!

In order to fix this error, this commit adds logic to report a message
and exit when running this program with a missing argument.

Additionally in test_override_return.sh, there is a problem with
multiple directory(tmpmnt) creation. So in this commit adds a line with
removing the directory with every execution.

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
```

커밋 헤더는
가능하다면 50자 이내

커밋 메시지 작성

```
samples: bpf: Fix tracex7 error raised on the missing argument

The current behavior of 'tracex7' doesn't consist with other bpf samples
 tracex{1..6}. Other samples do not require any argument to run with, but
tracex7 should be run with btrfs device argument. (it should be executed
with test_override_return.sh)

Currently, tracex7 doesn't have any description about how to run this
program and raises an unexpected error. And this result might be
confusing since users might not have a hunch about how to run this
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          // Current behavior
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and exit when running this program with a missing argument.

Additionally in test_override_return.sh, there is a problem with
multiple directory(tmpmnt) creation. So in this commit adds a line with
removing the directory with every execution.

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
```

커밋 설명은 상세하게
한 줄에 72자 넘지 않도록

커밋 메시지 작성

```
samples: bpf: Fix tracex7 error raised on the missing argument

The current behavior of 'tracex7' doesn't consist with other bpf samples
 tracex{1..6}. Other samples do not require any argument to run with, but
tracex7 should be run with btrfs device argument. (it should be executed
with test_override_return.sh)

Currently, tracex7 doesn't have any description about how to run this
program and raises an unexpected error. And this result might be
confusing since users might not have a hunch about how to run this
program.

          // Current behavior
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In order to fix this error, this commit adds logic to report a message
and exit when running this program with a missing argument.

Additionally in test_override_return.sh, there is a problem with
multiple directory(tmpmnt) creation. So in this commit adds a line with
removing the directory with every execution.

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
```

필요하다면, 발생한 문제의
상세한 설명을 위해 재현방법 서술

커밋 메시지 작성

```
samples: bpf: Fix tracex7 error raised on the missing argument

The current behavior of 'tracex7' doesn't consist with other bpf samples
 tracex{1..6}. Other samples do not require any argument to run with, but
tracex7 should be run with btrfs device argument. (it should be executed
with test_override_return.sh)

Currently, tracex7 doesn't have any description about how to run this
program and raises an unexpected error. And this result might be
confusing since users might not have a hunch about how to run this
program.

          // Current behavior
          # ./tracex7
          sh: 1: Syntax error: word unexpected (expecting ")")
          // Fixed behavior
          # ./tracex7 ERROR: Run with the btrfs device argument!

In order to fix this error, this commit adds logic to report a message
and exit when running this program with a missing argument.

Additionally in test_override_return.sh, there is a problem with
multiple directory(tmpmnt) creation. So in this commit adds a line with
removing the directory with every execution.

Signed-off-by: Juhee Kang <claudiajkang@gmail.com>
```

Signed-off-by 태그 작성

커널 개발 환경 구성 – Patch 메일 전송을 위한 환경 구축

```
# apt-get install git-email

$ git config --global sendemail.smtpencryption tls
$ git config --global sendemail.smtpserver <mailserver>
$ git config --global sendemail.smtpuser <email>
$ git config --global sendemail.smtpserverport 587
$ git config --global sendemail.smtppass <password>
```

git-email 패키지를 통해
작성된 patch를 쉽게 메일로 전송 가능

git config을 이용해 smtp 계정 설정
ex) gmail smtp 설정

패치 메일 작성 준비 및 컨벤션 테스트

```
$ git format-patch -1 --subject-prefix=“PATCH, bpf-next“
```

패치 메일 작성 준비 및 컨벤션 테스트

```
                〈커밋 개수〉
$ git format-patch -1 --subject-prefix="PATCH, bpf-next"
```

패치 메일 작성 준비 및 컨벤션 테스트

```
                〈커밋 개수〉          〈커널 tree에 따른 메일 prefix 추가〉
$ git format-patch -1 --subject-prefix="PATCH, bpf-next"
```

패치 메일 작성 준비 및 컨벤션 테스트

```
                〈커밋 개수〉          〈커널 tree에 따른 메일 prefix 추가〉
$ git format-patch -1 --subject-prefix="PATCH, bpf-next"
0001-samples-bpf-Fix-tracex7-error-raised-on-the-missing-.patch
```

패치 메일 작성 준비 및 컨벤션 테스트

```
$ git format-patch -1 --subject-prefix=“PATCH, bpf-next“
0001-samples-bpf-Fix-tracex7-error-raised-on-the-missing-.patch

$ apt-get install codespell python-ply python-git
$ ./scripts/checkpatch.pl --strict --codespell 0001-*.patch
```

패치 메일 작성 준비 및 컨벤션 테스트

```
$ git format-patch -1 --subject-prefix="PATCH, bpf-next"
0001-samples-bpf-Fix-tracex7-error-raised-on-the-missing-.patch

$ apt-get install codespell python-ply python-git
$ ./scripts/checkpatch.pl --strict --codespell 0001-*.patch
```

〈인자로 패치 파일 전달〉

패치 메일 작성 준비 및 컨벤션 테스트

```
$ git format-patch -1 --subject-prefix="PATCH, bpf-next"
0001-samples-bpf-Fix-tracex7-error-raised-on-the-missing-.patch

$ apt-get install codespell python-ply python-git
$ ./scripts/checkpatch.pl --strict --codespell 0001-*.patch
total: 0 errors, 0 warnings, 0 checks, 17 lines checked

0001-*.patch has no obvious style problems and is ready for submission.
```

〈인자로 패치 파일 전달〉

패치 메일 작성 준비 및 컨벤션 테스트

```
$ git format-patch -1 --subject-prefix="PATCH, bpf-next"
0001-samples-bpf-Fix-tracex7-error-raised-on-the-missing-.patch

$ apt-get install codespell python-ply python-git
$ ./scripts/checkpatch.pl --strict --codespell 0001-*.patch
total: 0 errors, 0 warnings, 0 checks, 17 lines checked

0001-*.patch has no obvious style problems and is ready for submission.
```

〈인자로 패치 파일 전달〉

〈컨벤션 문제 없음〉

패치 메일 수신 대상 찾기 및 전송

```
$ ./scripts/get_maintainer.pl --no-multiline --no-rolestats 0001-*.patch
```

메인테이너와
메일링 리스트 찾기

패치 메일 수신 대상 찾기 및 전송

〈인자로 패치 파일 전달〉

```
$ ./scripts/get_maintainer.pl --no-multiline --no-rolestats 0001-*.patch
```

메인테이너와
메일링 리스트 찾기

패치 메일 수신 대상 찾기 및 전송

```
$ ./scripts/get_maintainer.pl --no-multiline --no-rolestats 0001-*.patch
Alexei Starovoitov <ast@kernel.org>, Daniel Borkmann <daniel@iogearbox.net>,
Andrii Nakryiko <andrii@kernel.org>, netdev@vger.kernel.org, bpf@vger.kernel.org
```

메인테이너와
메일링 리스트 찾기

패치 메일 수신 대상 찾기 및 전송

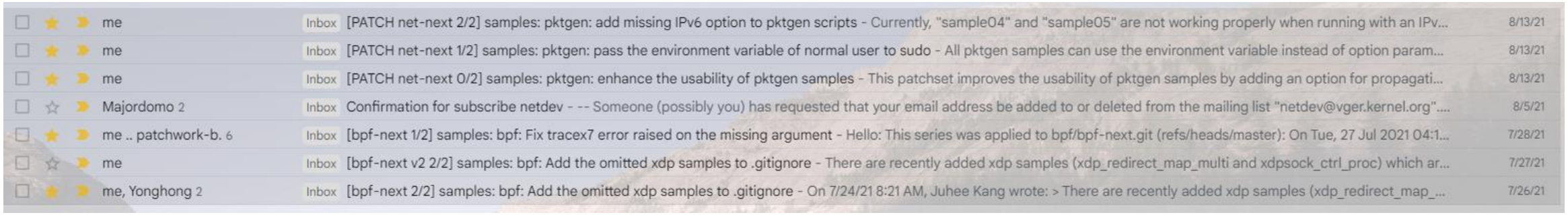
```
$ ./scripts/get_maintainer.pl --no-multiline --no-rolestats 0001-*.patch
Alexei Starovoitov <ast@kernel.org>, Daniel Borkmann <daniel@iogearbox.net>,
Andrii Nakryiko <andrii@kernel.org>, netdev@vger.kernel.org, bpf@vger.kernel.org

$ git send-email --to="maintainer mail" --to="mailing list mail" 0001-*.patch
Send this email? ([y]es|[n]o|[q]uit|[a]ll): Y

[...]
Result: OK
```

메일 전송하기

메일 전송되었는지 확인



Gmail을 통해서도 확인 가능

메일 전송되었는지 확인

Patchwork Netdev + BPF | Patches | Bundles | About this project | Login | Register | Mail settings

Show patches with: Submitter = **Juhee Kang** | 29 patches

Patch	Series	A/R/T	S/W/F	Date	Submitter	Delegate	State
[net-next,3/3] pktgen: document the latest pktgen usage options	samples: pktgen: enhance the ability to print the execution results of samples	- - -	14 1 -	2021-08-25	Juhee Kang	netdev	Accepted
[net-next,2/3] samples: pktgen: add trap SIGINT for printing execution result	samples: pktgen: enhance the ability to print the execution results of samples	- - -	14 1 -	2021-08-25	Juhee Kang	netdev	Accepted
[net-next,1/3] samples: pktgen: fix to print when terminated normally	samples: pktgen: enhance the ability to print the execution results of samples	- - -	14 1 -	2021-08-25	Juhee Kang	netdev	Accepted
[net-next,2/2] samples: pktgen: add missing IPv6 option to pktgen scripts	samples: pktgen: enhance the usability of pktgen samples	- - -	13 - 2	2021-08-12	Juhee Kang	netdev	Accepted
[net-next,1/2] samples: pktgen: pass the environment variable of normal user to sudo	samples: pktgen: enhance the usability of pktgen samples	- - -	14 1 -	2021-08-12	Juhee Kang	netdev	Accepted
[bpf-next,v2,2/2] samples: bpf: Add the omitted xdp samples to .gitignore	[bpf-next,v2,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	- - -	14 1 -	2021-07-27	Juhee Kang	bpf	Accepted
[bpf-next,v2,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	[bpf-next,v2,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	1 - -	14 1 -	2021-07-27	Juhee Kang	bpf	Accepted
[bpf-next,2/2] samples: bpf: Add the omitted xdp samples to .gitignore	[bpf-next,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	1 - -	14 1 -	2021-07-24	Juhee Kang	bpf	Superseded
[bpf-next,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	[bpf-next,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	1 - -	14 1 -	2021-07-24	Juhee Kang	bpf	Superseded

https://patchwork.kernel.org/project/netdevbpf/list

Patchwork을 통해서도 확인

리뷰 확인

```
From: Andrii Nakryiko <andrii.nakryiko@gmail.com>
To: Juhee Kang <claudiajkang@gmail.com>
Cc: Daniel Borkmann <daniel@iogearbox.net>, Alexei Starovoitov <ast@kernel.org>,
    Andrii Nakryiko <andrii@kernel.org>, Networking <netdev@vger.kernel.org>, bpf <bpf@vger.kernel.org>
Subject: Re: [bpf-next 1/2] samples: bpf: Fix tracex7 error raised on the missing argument

On Sat, Jul 24, 2021 at 8:21 AM Juhee Kang <claudiajkang@gmail.com> wrote:
[...]
> diff --git a/samples/bpf/test_override_return.sh b/samples/bpf/test_override_return.sh
> index e68b9ee6814b..6480b55502c7 100755
> --- a/samples/bpf/test_override_return.sh
> +++ b/samples/bpf/test_override_return.sh
> @@ -1,5 +1,6 @@
>  #!/bin/bash
>
> +rm -rf tmpmnt

Do we need -rf or -r would do?

[...]
> --
> 2.27.0
```

리뷰 응답

```
From: Juhee Kang <claudiajkang@gmail.com>
To: Andrii Nakryiko <andrii.nakryiko@gmail.com>
Cc: Daniel Borkmann <daniel@iogearbox.net>, Alexei Starovoitov <ast@kernel.org>,
    Andrii Nakryiko <andrii@kernel.org>, Networking <netdev@vger.kernel.org>, bpf <bpf@vger.kernel.org>
Subject: Re: [bpf-next 1/2] samples: bpf: Fix tracex7 error raised on the missing argument

On Tue, Jul 27, 2021 at 5:08 AM Andrii Nakryiko <andrii.nakryiko@gmail.com> wrote:
> On Sat, Jul 24, 2021 at 8:21 AM Juhee Kang <claudiajkang@gmail.com> wrote:
[...]
> > diff --git a/samples/bpf/test_override_return.sh b/samples/bpf/test_override_return.sh
> > index e68b9ee6814b..6480b55502c7 100755
> > --- a/samples/bpf/test_override_return.sh
> > +++ b/samples/bpf/test_override_return.sh
> > @@ -1,5 +1,6 @@
> >  #!/bin/bash
> >
> > +rm -rf tmpmnt

> Do we need -rf or -r would do?

It works properly using only -r.
Thanks for pointing it out! I will stick to this method.

I will send the next version as soon as possible.

[...]
> > 2.27.0
```

코드 수정 후 패치 메일 작성 준비

〈두번째 버전의 패치임을 명시〉

```
$ git format-patch -1 -v2 --subject-prefix="PATCH, bpf-next"
```

코드 수정 후 패치 메일 작성 준비

```
$ git format-patch -1 -v2 --subject-prefix="PATCH, bpf-next"
v2-0001-samples-bpf-Fix-tracex7-error-raised-on-the-missing-.patch


$ ./scripts/checkpatch.pl --strict --codespell v2-0001-*.patch
total: 0 errors, 0 warnings, 0 checks, 17 lines checked

v2-0001-*.patch has no obvious style problems and is ready for submission.
```

패치 메일 수신 대상 찾기 및 전송

```
$ ./scripts/get_maintainer.pl --no-multiline --no-rolestats v2-0001-*.patch
Alexei Starovoitov <ast@kernel.org>, Daniel Borkmann <daniel@iogearbox.net>,
Andrii Nakryiko <andrii@kernel.org>, netdev@vger.kernel.org, bpf@vger.kernel.org

$ git send-email --to="maintainer mail" --to="mailing list mail" v2-0001-*.patch
Send this email? ([y]es|[n]o|[q]uit|[a]ll): Y

[...]
Result: OK
```

메일 전송하기

패치 accept

```
From: patchwork-bot+netdevbpf <patchwork-bot+netdevbpf@kernel.org>
To: Juhee Kang <claudiajkang@gmail.com>
Subject: Re: [bpf-next v2 1/2] samples: bpf: Fix tracex7 error raised on the missing argument

Hello:

This series was applied to bpf/bpf-next.git (refs/heads/master):

On Tue, 27 Jul 2021 04:10:55 +0000 you wrote:
> The current behavior of 'tracex7' doesn't consist with other bpf samples
> tracex{1..6}. Other samples do not require any argument to run with, but
> tracex7 should be run with btrfs device argument. (it should be executed
> with test_override_return.sh)
> [...]

Here is the summary with links:
  - [bpf-next,v2,1/2] samples: bpf: Fix tracex7 error raised on the missing argument
    https://git.kernel.org/bpf/bpf-next/c/7d07006f0592
  - [bpf-next,v2,2/2] samples: bpf: Add the omitted xdp samples to .gitignore
    https://git.kernel.org/bpf/bpf-next/c/05e9b4f60d31

You are awesome, thank you!
--
Deet-doot-dot, I am a bot.
https://korg.docs.kernel.org/patchwork/pwbot.html
```

패치 accept

patchwork-bot+netdevbpf@kernel.org
to me, daniel, ast, andrii, yhs, netdev, bpf

Hello:

This series was applied to bpf/bpf-next.git (refs/heads/master):

On Tue, 27 Jul 2021 04:10:55 +0000 you wrote:
> The current behavior of 'tracex7' doesn't consist with other bpf samples
> tracex{1..6}. Other samples do not require any argument to run with, but
> tracex7 should be run with btrfs device argument. (it should be executed
> with test_override_return.sh)
>
> Currently, tracex7 doesn't have any description about how to run this
> program and raises an unexpected error. And this result might be
> confusing since users might not have a hunch about how to run this
> program.
>
> [...]

Here is the summary with links:
- [bpf-next,v2,1/2] samples: bpf: Fix tracex7 error raised on the missing argument
  https://git.kernel.org/bpf/bpf-next/c/7d07006f0592
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You are awesome, thank you!
--
Deet-doot-dot, I am a bot.
https://korg.docs.kernel.org/patchwork/pwbot.html

Gmail을 통해서도 확인 가능

패치 accept

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Show patches with: Submitter = **Juhee Kang** | 29 patches

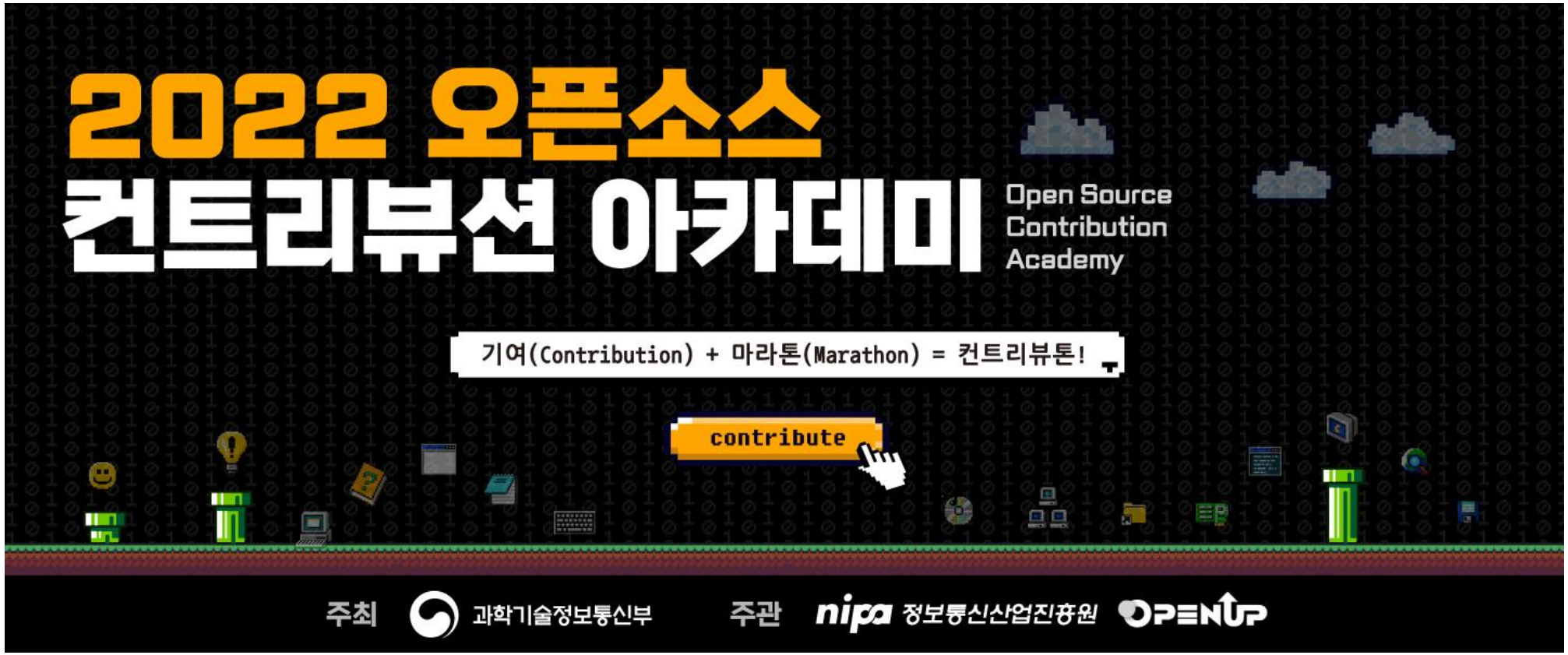
Patch	Date	Submitter	Delegate	State
[net-next,3/3] pktgen: document the latest pktgen usage options	2021-08-25	Juhee Kang	netdev	Accepted
[net-next,2/3] samples: pktgen: add trap SIGINT for printing execution result	2021-08-25	Juhee Kang	netdev	Accepted
[net-next,1/3] samples: pktgen: fix to print when terminated normally	2021-08-25	Juhee Kang	netdev	Accepted
[net-next,2/2] samples: pktgen: add missing IPv6 option to pktgen scripts	2021-08-12	Juhee Kang	netdev	Accepted
[net-next,1/2] samples: pktgen: pass the environment variable of normal user to suc	2021-08-12	Juhee Kang	netdev	Accepted
[bpf-next,v2,2/2] samples: bpf: Add the omitted xdp samples to .gitignore	2021-07-27	Juhee Kang	bpf	Accepted
[bpf-next,v2,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	2021-07-27	Juhee Kang	bpf	Accepted
[bpf-next,2/2] samples: bpf: Add the omitted xdp samples to .gitignore	2021-07-24	Juhee Kang	bpf	Superseded
[bpf-next,1/2] samples: bpf: Fix tracex7 error raised on the missing argument	2021-07-24	Juhee Kang	bpf	Superseded

https://patchwork.kernel.org/project/netdevbpf/list

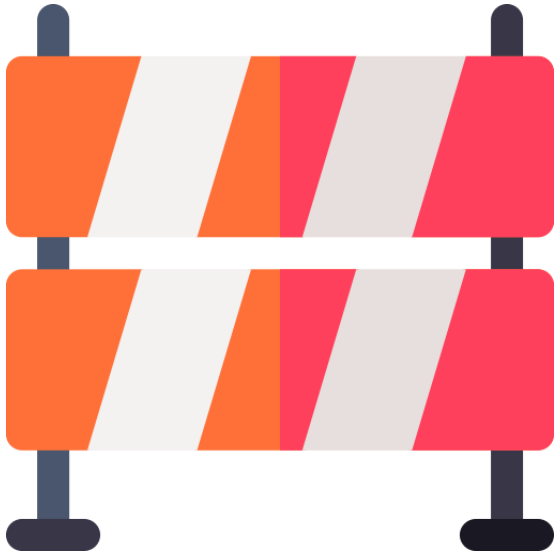
Patchwork을 통해서도 확인

여기까지가 간단한 리눅스 커널 커밋 과정이었습니다.

커널 패치를 진행해보고 싶으시다면?



커널 관련 컨트리뷰션 프로그램 참여



커널 패치를 위한 장벽 중 하나라도 극복이 되셨길!

Q & A