IOCTL - Input/Output Control

IOCTL system call is a way for user space programs to communicate with the kernel space, device drivers, allowing them to perform device-specific operations that are not covered by standard system calls like read() or write().

Netlink

Nelink is a special Inter-Process Communication(IPC) between the user space(my code/program) and the linux kernel.

IOCTL vs Netlink:

Aspect	**ioctl()**	**Netlink**
Type	System call interface	Socket-based IPC
Kernel Interface	Fixed commands (SIOCGIF*, etc)	Message-based (RTM_*, NLMSG_*)
Flexibility	Low-rigid API	High-extensible with attributes
Capabilities	Basic config(IF UP?DOWN, IP addr)	Full config (routes, IPs, ARP, monitoring)
Communication mode	One-way (user -> kernel)	Bi-directional (user ⇄ kernel)
Extensibility	Not easily extendable	Modular and extensible
Used in modern tools	No(used in ifconfig)	Yes(ip, etc.)