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## Device Drivers

One of the primary functions of an operating system is to provide hardware abstraction between platform hardware and the programs that run on it. This hardware abstraction typically occurs in device drivers that are part of the operating system, making those components an integral part of the system. IOS is no different in that regard. IOS contains device drivers for a range of platform hardware devices, such as Flash cards and NVRAM, but most notable are its device drivers for network interfaces.

IOS network interface device drivers provide the primary intelligence for packet operations in and out of interfaces. Each driver consists of two main components: a control component and a data component. The control component is responsible for managing the state and status of the device (for example, shutting down an interface). The data component is responsible for all data flow operations through the device and contains logic that assists with the packet switching operations. IOS device drivers are very tightly coupled with the packet switching functions, as we discuss in [Chapter 2](#).

IOS device drivers interface with the rest of the IOS system via a special control structure called the *interface descriptor block* (IDB). The idB contains, among other things, entry points into a device driver's functions and data about a device's state and status. For example, the IP address, the interface state, and the packet statistics are some of the fields that are present in the idB. IOS maintains an idB for each interface present on a platform and maintains an idB for each subinterface.

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