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9.1 Introduction

SCTP is a newer transport protocol, standardized in the IETF in 2000 (compared with TCP, which was standardized in 1981). It was first designed to meet the needs of the growing IP telephony market; in particular, transporting telephony signaling across the Internet. The requirements it was designed to fulfill are described in RFC 2719 [Ong et al. 1999]. SCTP is a reliable, message-oriented protocol, providing multiple streams between endpoints and transport-level support for multihoming. Since it is a newer transport protocol, it does not have the same ubiquity as TCP or UDP; however, it provides some new features that may simplify certain application designs. We will discuss the reasons to consider using SCTP instead of TCP in [Section 23.12](#).

Although there are some fundamental differences between SCTP and TCP, the *one-to-one* interface for SCTP provides very nearly the same application interface as TCP. This allows for trivial porting of applications, but does not permit use of some of SCTP's advanced features. The *one-to-many* interface provides full support for these features, but may require significant retooling of existing applications. The one-to-many interface is recommended for most new applications developed for SCTP.

This chapter describes additional elementary socket functions that can be used with SCTP. We first describe the two different interface models that are available to the application developer. We will develop a version of our echo server using the one-to-many model in [Chapter 10](#). We also describe the new functions available for and used exclusively with SCTP. We look at the `shutdown` function and how its use with SCTP differs from TCP. We then briefly cover the use of *notifications* in SCTP. Notifications allow an application to be informed of significant protocol events other than the arrival of user data. We will see an example of how to use notifications in [Section 23.4](#).

Since SCTP is a newer protocol, the interface for all its features has not yet completely stabilized. As of this writing, the interfaces described are believed to be stable, but are not yet as ubiquitous as the rest of the sockets API. Users of applications designed to use SCTP exclusively may need to be prepared to install kernel patches or otherwise upgrade their operating system, and applications which need to be ubiquitous need to be able to use TCP if SCTP is not available on the system they are running on.

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