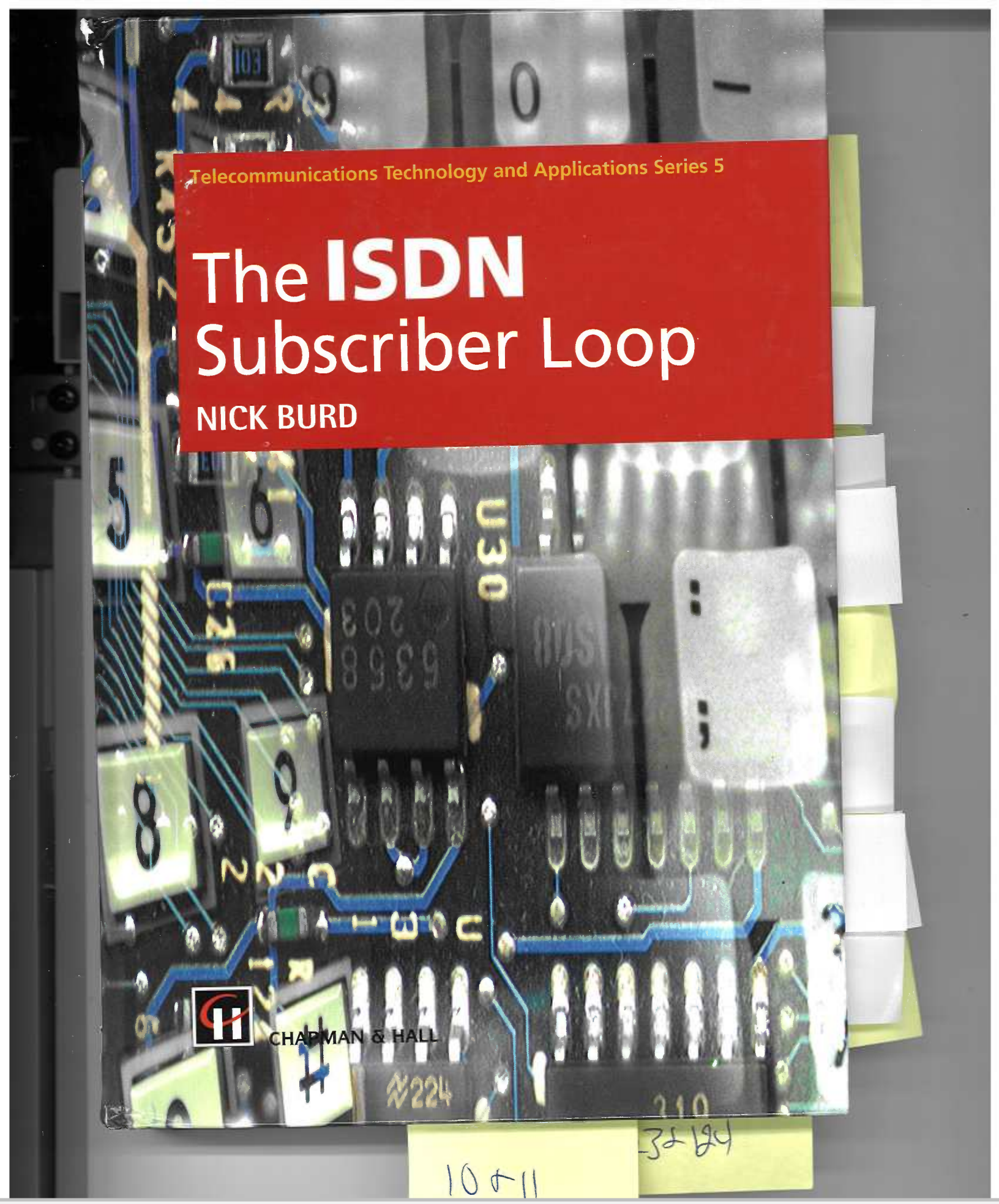

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- information-related services such as the World Wide Web, news, financial or timetable information;
- processing services such as credit card processing, inter-bank money transfers and airline reservation systems;
- messaging services such as email and EDI (electronic data interchange used for direct order entry).

Access to these services is dependent on the targeted customer. For example, the SWIFT system used by banks for customer transfers, bank transfers, statements and confirmations, uses encryption techniques to provide secure communications over leased line connections. On the other hand, services such as public transport timetables, news and weather services, are targeted at a much wider audience and therefore available via videotex or teletex across the PSTN.

1.3 THE INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

This brings us to ISDN, whose purpose it is to support a wide range of both new and existing voice and data services using a limited, but well defined, set of connection types and interfaces between the user and the network. The main feature of ISDN is reflected in its name, that is to provide an end-to-end **Digital Network** capable of supporting **Services** which, from the user's perspective, appear as though they are provided by an **Integrated** network by virtue of the fact that the services are accessed from a single connection to the network using a common set of well defined protocols.

Figure 1.2 shows the arrangement of networks prior to ISDN and how access to them becomes integrated with the implementation of an ISDN. Access to the services of the separate networks is achieved through an ISDN exchange with a single interface to the user such that the user perceives the network to be a single entity. The ISDN subscriber loop and the protocols it employs are defined such that the user can readily access the wide range of services provided by the individual networks that lie behind the user–network interface, and are sufficiently flexible that new services can be added in the future.

The definition of the ISDN subscriber loop is key to the successful implementation of ISDN, because it must:

- provide the user with a flexible digital interface with access to a wide variety of present and future services;

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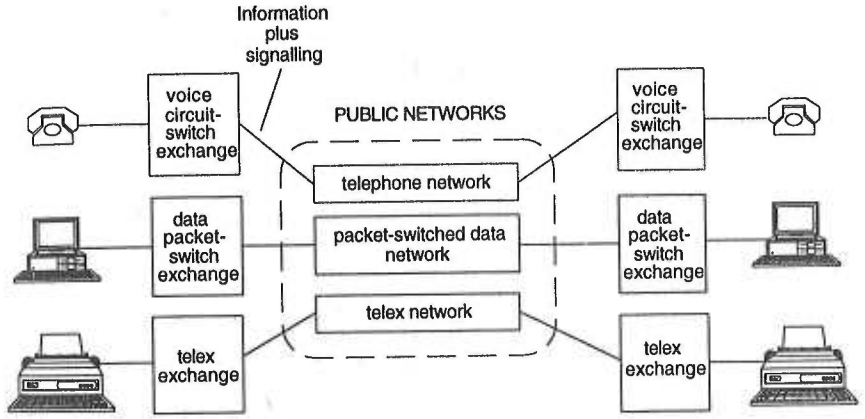
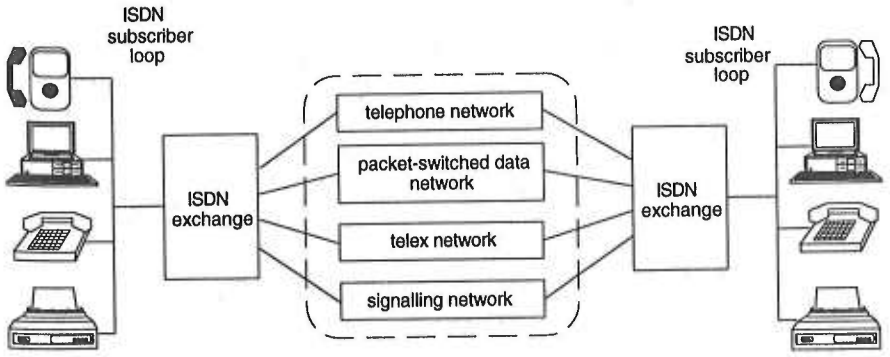
- allow the evolution of the individual network services to progress towards achieving an ISDN according to the different strategies of the networks operators.



(a)



(b)

Fig. 1.2 (a) Separate access to networks prior to ISDN; (b) access integration provided by ISDN.

With many of the world's public networks evolving in different directions and at different paces, it is necessary to define a common starting point for ISDN. This