LINK SERVICES

Link services: login and addressing

Link services and the fabric services discussed in the next section stand next to the Fibre Channel protocol stack. They are required to operate data traffic over a Fibre Channel network. Activities of these services do not result from the data traffic of the application protocols. Instead, these services are required to manage the infrastructure of a Fibre Channel network and thus the data traffic on the level of the application protocols. For example, at any given time the switches of a fabric know the topology of the whole network.

Login

Two ports have to get to know each other before application processes can exchange data over them. To this end the Fibre Channel standard provides a three-stage login mechanism. (Figure 3.20):

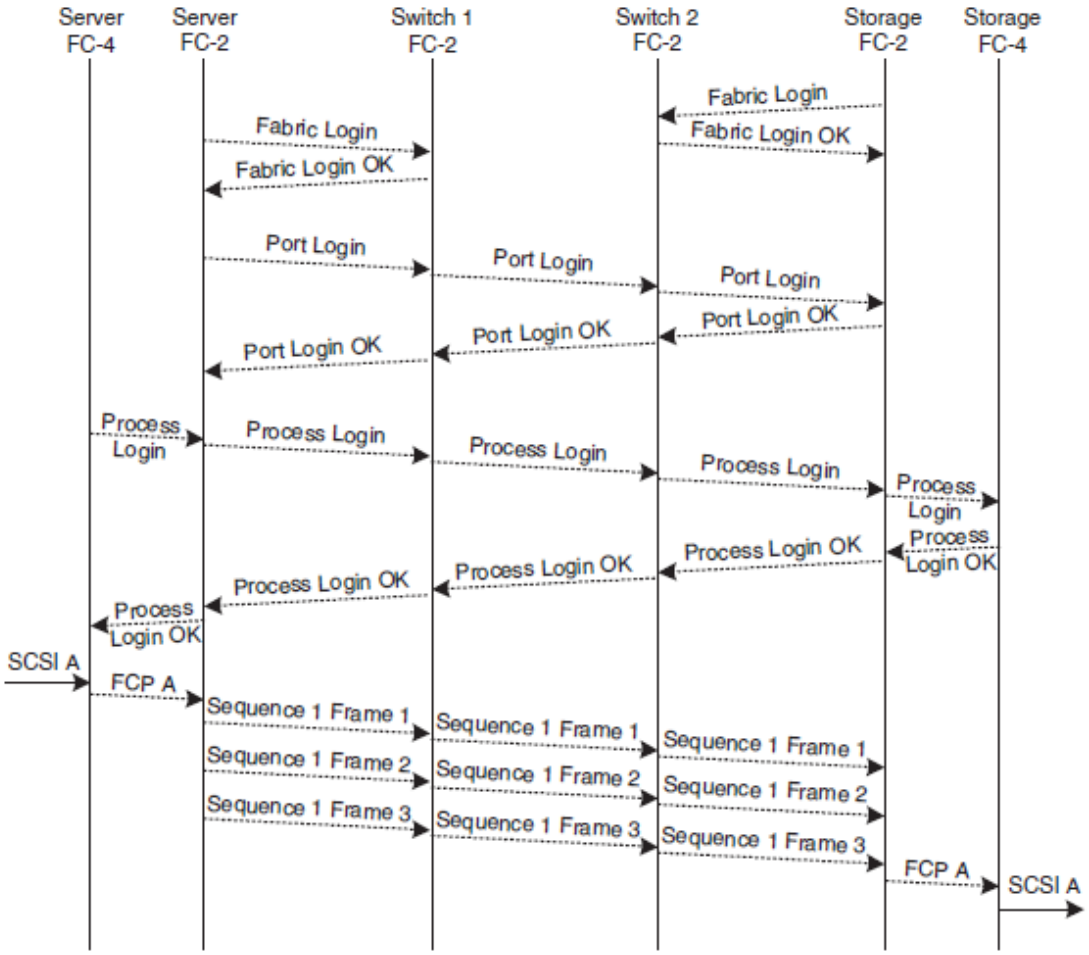

Figure 4.20 Fabric login, N-Port login and process login are the prerequisites for data exchange.

• *Fabric login (FLOGI)*

The fabric login establishes a session between an N-Port and a corresponding F-Port. The fabric login takes place after the initialisation of the link and is an absolute prerequisite for the exchange of further frames. The F-Port assigns the N-Port a dynamic address. In addition, service parameters such as the buffer-to-buffer credit are negotiated.The fabric login is crucial for the point-to-point topology and for the fabric topology. An N-Port can tell from the response of the corresponding port whether it is a fabric topology or a point-to-point topology. In arbitrated loop topology the fabric login is optional.

N-Port login (PLOGI)

N-Port login establishes a session between two N-ports. The N-Port login takes place after the fabric login and is a compulsory prerequisite for the data exchange at FC-4 level. N-Port login negotiates service parameters such as end-to-end credit. N-Port login is optional for Class 3 communication and compulsory for all other service classes.

• *Process login (PRLI)*

Process login establishes a session between two FC-4 processes that are based upon two different N-Ports. These could be system processes in Unix systems and system partitions in mainframes. Process login takes place after the N-Port login. Process login is optional from the point of view of FC-2. However, some FC-4 protocol mappings call for a process login for the exchange of FC-4-specific service parameters.

Addressing

Fibre Channel differentiates between addresses and names. Fibre Channel devices (servers, switches, ports) are differentiated by a 64-bit identifier. The Fibre Channel standard defines different name formats for this. Some name formats guarantee that such a 64-bit identifier will only be issued once worldwide. Such identifiers are thus also known as World Wide Names (WWNs). On the other hand, 64-bit identifiers that can be issued several times in separate networks are simply called Fibre Channel Names (FCNs).

In practice this fine distinction between WWN and FCN is hardly ever noticed, with all 64-bit identifiers being called WWNs. In the following we comply with the general usage and use only the term WWN.