ADVANTAGES OF THE "PASSER" CONCEPT OF CO SPLITTERS FOR THE INTRODUCTION OF xDSL SERVICES

Introduction

Digital xDSL services have created the need for widespread access to these services. It has been shown that the simplest and cheapest solution for that is to use the existing telephone network. Adding xDSL services to an existing phone line allows offering additional services to the subscriber that are to be used by the subscriber simultaneously with the conventional telephone services:

1. Another phone number (IP telephone)
2. High speed Internet connection
3. IP TV

Sending digital xDSL signals together with conventional telephone signals is only possible because these signals use different frequency bands. Conventional phone signal is transmitted in the frequency band 0 - 4 kHz, while the ADSL is transmitted in the band 25 - 1104 kHz. Therefore, **CO (Central Office)** splitter at the equipment side has the role of a filter passing the both signals only in specified ranges, combining them afterwards into one signal sent to the subscriber via an existing pair. Another splitter at the subscriber side is simpler, as it has just the role of a filter for the phone signal, in order to prevent the interferences when the subscriber uses conventional phone. Filtering the xDSL signal on the subscriber side is not necessary, because the telephone range has no influence on the user's xDSL modem.

Telephone connection between the existing telephone exchange and the subscriber goes through the Main Distribution Frame (MDF). It enables the cables coming from the telephone exchange to terminal strips - connection modules on the H side of MDF to be joined with the disconnection strips - modules on the V side (subscriber side) and further connected to the subscriber (Figure 1).

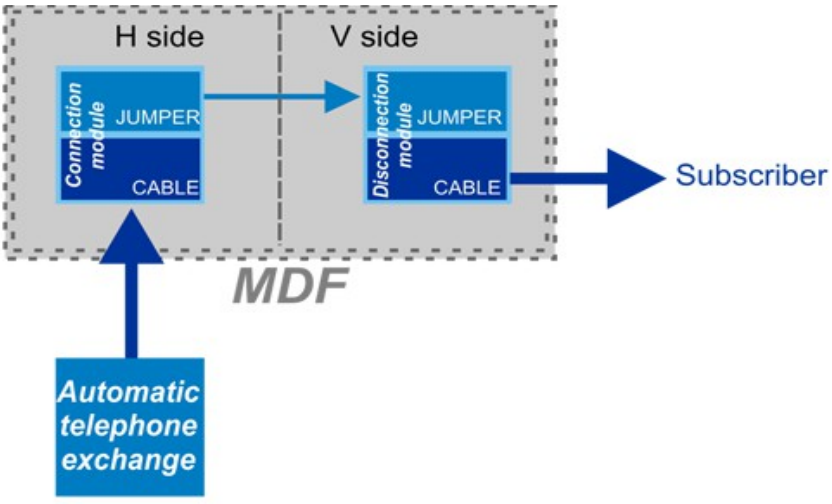

Figure 1. Organization of the main distribution frame without ADSL services

Conventional concept

Therefore, the provision of xDSL services requires adding some equipment and rearranging (extending) the main distribution frame. A common way to make these changes is to use CO splitters integrated within the xDSL equipment as shown in Figure 2. In this case **the wire connecting H and V sides of the distribution frame is cut**, and then **new jumper wires and additional connection modules are installed on the distribution frame** in order to bring the

phone signal to the CO splitters integrated within the xDSL equipment. Complex signal (phone + xDSL) is brought from CO splitters through **additional modules** to V side of the distribution frame, and finally to the subscriber.

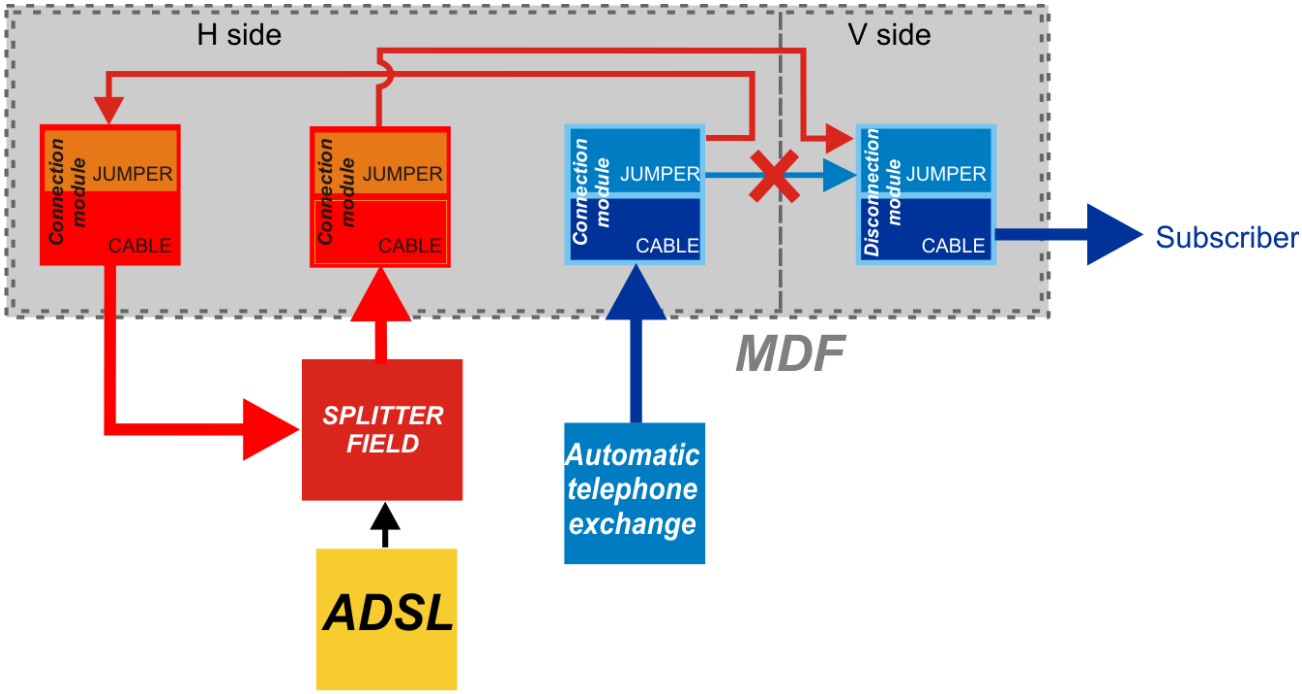

Figure 2. Organization of the main distribution frame with ADSL equipment-Solution with the splitters withinactive equipment

"PASSER" Concept

Another solution to implement a new xDSL service is to use one-pair CO splitters. While the majority of manufacturers use the solution shown in Figure 2, Passer has developed an original solution of one-pair CO splitter shown in Figure 3. When applying this solution, **the existing connection between the H and V sides of the distribution frame is preserved**, whereas one-pair CO splitter is inserted in the disconnection module on the V side of the existing distribution frame. In addition to xDSL equipment, **half as many additional connection modules** are required on the distribution frame. The xDSL signal arrives (by adding only one new jumper wire) to the IDC connector of the one-pair CO splitter. When inserted in the disconnection module, the front contacts of the splitter are directly connected with the phone signal (top contacts), and at the same time (via the bottom contacts), a complex signal (phone + xDSL) is sent to the subscriber. This concept has the following benefits: half the number of the connection modules to be added; less jumper wire; comparatively less work carried out when introducing and cancelling the xDSL services; higher-quality signals due to fewer contacts between the equipment and the subscriber. **The "PASSER" concept is more cost-effective, simpler and higher-quality.**

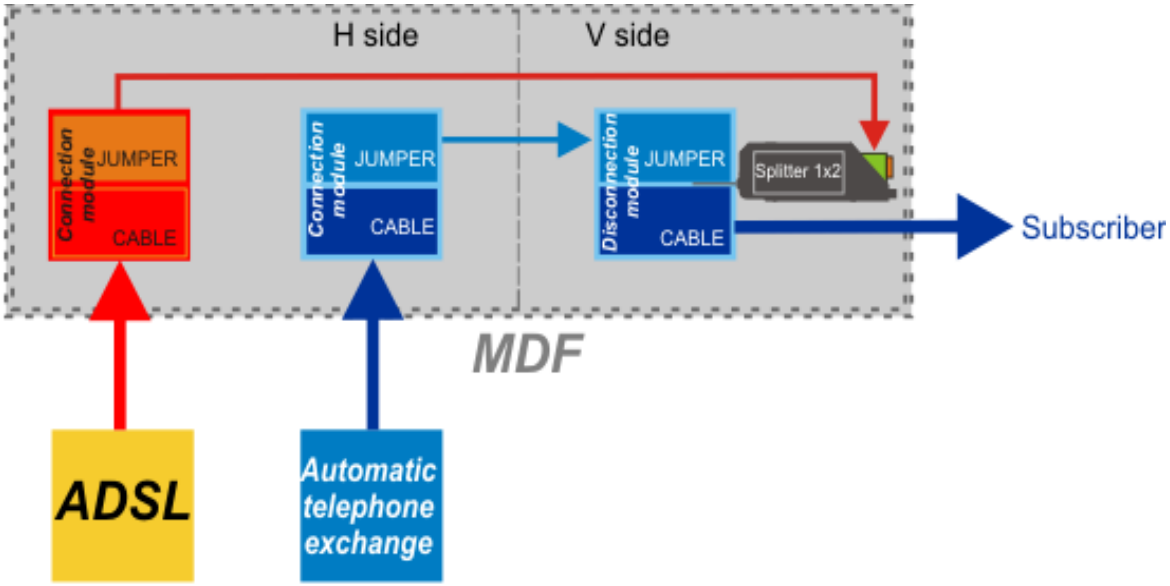

Figure 3. Organization of the main distribution frame with ADSL equipment-Solution with the one-pair PASSER splitters on the MDF