Application for the serial Com-Server:

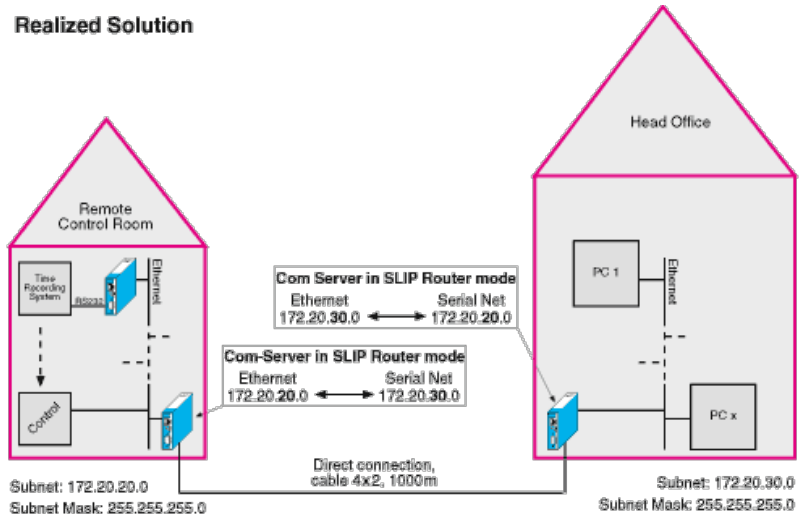
Coupling of Ethernet LANs via telephone cable and SLIP routers

The starting point:

A large industrial corporation having various buildings on its industrial site wants to centralize the administration of its operating data acquisition; in addition to the data for time acquisition, the objective is to make machine run times as well as control and alarm messages available over the existing TCP/IP network infrastructure.

The main problem connected with the project was the presence of older buildings. In the first place, these were connected to the outside world using standard telephone cable having insufficient bandwidth for today's network applications. Exacerbating the problem were the rather long distances (up to 1 km), which doesn't allow a copper-based Ethernet without additional active components.

The decision was made to go with Com-Servers in SLIP router mode, which with the integrated RS422 interface are able to meet the cable length requirements at a data throughput of 115 kbps. As you can see from the drawing, this approach created TCP/IP subnets, which are integrated into the main network without any logical restrictions.



In addition to the low costs as compared with other solutions, this approach brings numerous additional benefits:

- Spatial flexibility for the controlling PCs in the central system. By using the appropriate software and access authorization, each computer, which is connected to the network, can for example access the data on the time acquisition terminal.
- Easy expandability. Additional stations can be added to the network without any additional cabling expense or effort.

Technical background:

As is already apparent from the name "Serial Line Internet Protocol", SLIP offers a way to send IP data traffic including higher-level protocols such as UDP or TCP over a serial point-to-point connection. In terms of the OSI model, SLIP - like Ethernet or token ring - operates on the physical level. In the specific case of a Com-Server working like a SLIP router, this means - depending on the data direction - replacement of the Ethernet protocol frame by a serial SLIP frame or vice-versa.

We are available to you in person:

Wiesemann & Theis GmbH
Porschestr. 12
42279 Wuppertal
Phone: +49 202/2680-110 (Mon.-Fri. 8 a.m. to 5 p.m.)
Fax: +49 202/2680-265
info@wut.de