

Application for the serial Com-Server:

## Com-Servers replace analog leased lines

### In many cases THE alternative: Internet instead of cancelled leased line

Many serial devices used in alarm technology, remote control technology, time acquisition etc. are connected today through leased lines and leased line modems to host systems. Deutsche Telekom discontinuing these analog leased lines by no later than September 30, 2009 puts many users in the situation of having to find an adequate replacement. As the drawing shows, using the Internet together with paired W&T Com-Servers is a solution.

- Simple joint use of the - at least on one side - network that is generally already present
- Spatial flexibility of the serial devices
- Independence from the provider of the WAN access

### Box-to-Box mode

In Box-to-Box mode the Com-Servers establish a permanent TCP connection with each other through which the serial device data flow is tunneled. All serial data arriving at the Com-Servers are sent as quickly as possible over the network to the respective counterpart. Technically speaking a Com-Server in Box-to-Box mode works like a master (=TCP client) and the other as a slave (=TCP server). This means the DSL router or firewall on the slave Com-Server simply needs to be able to pass connections arriving on the WAN side to a certain IP address of the internal network ([application example NAT](#)). When line breaks or faults, voltage drop-outs etc. occur, the automatic recovery functions of Box-to-Box mode ensure that the connection is quickly reestablished.

#### Requirements for Box-to-Box mode:

- WAN-side fixed IP addresses on both DSL routers
- A router must be NAT-capable in order to route connections arriving on the WAN side to an internal IP address

### TCP Client mode

If no fixed IP addresses are available, TCP Client mode can be used as an alternative to Box-to-Box mode. Here one of the Com-Servers is configured as a TCP client, so that starting when serial characters are received a connection to the partner Com-Server specified by host name is opened. As in Box-to-Box mode there is then a bi-directional, transparent TCP tunnel available for transporting the serial data. TCP Client mode is especially useful for serial master/slave protocols in which the activity or polling always issues from a master on whose side the Com-Server configured as a TCP client is also installed. The prerequisite for using TCP Client mode is that the DSL router responsible for the network of the serial slave must have the ability to send changes in its IP address to a [dynamic name server service](#) such as DynDNS.

#### Prerequisite for TCP Client mode:

- The DSL router(s) must have a client for dynamic DNS updating
- A router must be NAT-capable in order to route connections arriving on the WAN side to an internal IP address

### Box-to-Box mode in VPNs

An alternative to replacing analog leased lines is to connect the various locations using VPNs (Virtual Private Network). What the various implementation options for this type of linking have in common is that two networks are connected over the Internet using encryption. From the point of view of the clients a VPN tunnel can be considered like a simple infrastructure component, so that no special factors need to be considered when establishing Box-to-Box or TCP Client mode. The configuration always takes place just like within a conventional Intranet. Only the TCP port numbers used by the Com-Servers may need to be enabled in the firewalls by the system administrator.

