"SPOCS fulfilled the missing tool within our organisation to create an optimal VDSL2 roll out strategy."

**Branched topologies**
SPOCS is capable to define and calculate the crosstalk levels in branched topologies, e.g. a branch-out of a thick cable at the CO into a number of smaller cables at cabinets/splices.

**Inspectors of intermediate results and models**
Inspectors provide you with a dedicated plot of the requested information of for example PBO model, transmit spectrum and the noise level observed by the associated (victim) modem under test.

**Plugins**
Several plugins enable you to (i) define multi-section loops (with bridge taps if needed) and to add them to the library of loop models, (ii) analyze all kinds of electrical characteristics of the loop under study, such as loss, impedance, delay, etc., (iii) view the transmit spectra of each modem model in the library, and more.

**Free demo available**
Send inquiries concerning a free demonstration of SPOCS to the email address above. There are possibilities to have a live demonstration via webex and/or installing a demo version on your own PC for a certain period of time.

**Customer testimonial**
"SPOCS fulfilled the missing tool within our organisation to create an optimal VDSL2 roll out strategy" - Manager Network Strategy at a large incumbent telecom operator.

To make the next step in offering more bit rate to customers, operators are considering for instance VDSL2. VDSL2 will disturb ADSL and/or ADSL2+ when both systems are deployed in the same cable. PSD shaping is introduced to minimize this impact. SPOCS enables you to predict the performance and impact of xDSL systems in this and any other kind of scenarios.

Situation
Today, ADSL and ADSL2+ are frontrunners in the battle for bandwidth. This makes that VDSL2 will be seen as the "new" technology that disturbs the "existing" technology, and not the other way around. VDSL2 maximizes the coverage of customers and the total capacity, but implies a large investment. Operators will have different strategies and several technologies will be deployed.
Predict the performance for a wide range of xDSL systems, under a large number of different stress conditions (cable loss, NEXT, FEXT, noise scenarios).

VDSL disturbs ADSL2+

Complexity
It is a fact that VDSL disturbs ADSL2+. To minimize the negative impact of such a mix, several restrictive (local) access rules can be considered:

VDSL2 will disturb ADSL and/or ADSL2+ when both systems are deployed in the same cable.

1. Physical domain separation: VDSL deployment is not allowed within x km from the exchange.
2. Spectral domain separation: Transmitting frequency must be above 2.2 MHz.

Options 1 and 2 will restrict the commercial exploitation of xDSL significantly. PSD shaping is the most promising, and enabled in the VDSL2 standard. It is a very important but complex task to check if the PSD shapes are adequate, if the VDSL2 performance is acceptable and to design country specific access rules.

Solution for performance prediction
SPOCS is a software tool that has the ability to predict the performance of an xDSL system under various operational stress conditions. This stress includes the impairment of a large number of different xDSL disturbing neighbouring systems at arbitrary locations, and the loss and cross-stalk coupling of different cable types at arbitrary lengths. SPOCS can represent the performance of the DSL system 'under test' as maximum bit rate, as margin or as reach. The highly intuitive and easy-to-use Graphical User Interface (GUI) allows you to quickly investigate the scenarios of your interest. There are three different flavours of SPOCS: SPOCS Basic, Standard and Premium. The SPOCS Premium contains all the features defined below. The other flavours contain a subset.

Solution for performance testing
An additional functionality of SPOCS is the profiler that enables the user to export this PSD shape as a noise profile and to upload it into a noise generator. In other words, SPOCS can specify the Noise Profile for a noise generator as part of a test setup to verify, for instance, modem performance.

What can SPOCS do for you?

SPOCS
SPOCS allows you to predict the performance for a wide range of xDSL systems, under a large number of different stress conditions (cable loss, NEXT, FEXT, noise scenarios). Performance can be evaluated as maximum bit rate, as margin or as reach. The highly intuitive and easy-to-use Graphical User Interface (GUI) allows you to quickly investigate the scenarios of your interest. There are three different flavours of SPOCS: SPOCS Basic, Standard and Premium. The SPOCS Premium contains all the features defined below. The other flavours contain a subset.

Pre-defined models
SPOCS includes a large number of pre-defined models for loops, transmitters, receivers and “Power-Back-off” of transmitted spectra.

User-definable model libraries
The model libraries are extended with the added feature that relevant parameters are tunable via the Graphical User Interface. Besides that, new models (custom-made or developed by TNO) can be added to the library to stay up-to-date with the developments in standardisation.

Exportable noise profiles
The intermediate spectral (noise) results can be exported for further usage. For instance as input for noise generators that allow the generation of custom-specified noise. This allows users to perform lab testing to verify that the tested modems perform up to what can be expected of the equipment.

SPOCS Engine and Macro scripting
A calculation engine enables the expert user to do “number crunching” by feeding SPOCS with scenarios that are modified within a Matlab script. This approach is favourable when hundreds of different scenarios are to be evaluated. Furthermore, macro scripting for repetitive tasks is supported.