



# SECURE REMOTE MAINTENANCE

## SOFTWARE-DEFINED NETWORKING FOR PRODUCTION ENVIRONMENTS

Remote maintenance keeps production and processing machines in modern industrial production environments up to date. To protect machine operators from remote manipulation of their systems as well as prevent theft of production data, system operators must reliably protect their remote maintenance processes from cyberattacks. Fraunhofer SIT has developed a solution using software-defined networking (SDN) that enables especially flexible, affordable automated remote maintenance. At the same time, this solution provides more security.

Machine operators usually need a great deal of time to set up and operate conventional remote maintenance solutions manually; moreover, this process includes security risks like port activation of firewalls as well as unencrypted connections. To protect machine operators by preventing remote manipulation of their system as well as theft of production data, remote maintenance access must be secured against cyberattacks. Fraunhofer SIT has developed a solution based on SDN.

The advantages: System operators can have maintenance performed on their machines automatically, eliminating the need for cumbersome manual operation. Additionally, the solution automatically reacts to cyberattacks and activates an alarm or prevents them. The Fraunhofer SIT solution enables users to make a custom-designed access decision for each individual maintenance case. A policy framework stored in the solution provides maintenance contract models and individual technical access approval

applied using SDN in the network, which set-ups end-to-end encrypted remote maintenance connections dynamically. A central platform automatically connects the machine operator with the remote maintenance service provider and assumes the access control.

### Target groups

- Machine manufacturers
- Remote maintenance service providers
- Manufacturing companies (e.g. automotive, chemical, mechanical engineering, etc.)
- Operators of infrastructures for industrial networking

### The most important features at a glance

- Access control individually configured for each maintenance case
- Access approval for maintenance contract partners via SDN
- Remote maintenance connections with end-to-end encryption
- Time and money saved via a central platform for access control

### Our offer

- Our solution individually adapted for the customer profile
- Needs analysis and preliminary studies of remote maintenance applications
- Support during implementation of the solution
- Development work and components for individual commercial products based on SDN solutions
- Training sessions

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