

# Requirements for Secure Data Communication in the Automotive Industry

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A row of four Volkswagen cars is shown against a light blue background. From left to right: a silver Volkswagen Golf, a red Volkswagen Golf, a blue Volkswagen Beetle, and a silver Volkswagen SUV. The cars are slightly faded and semi-transparent.

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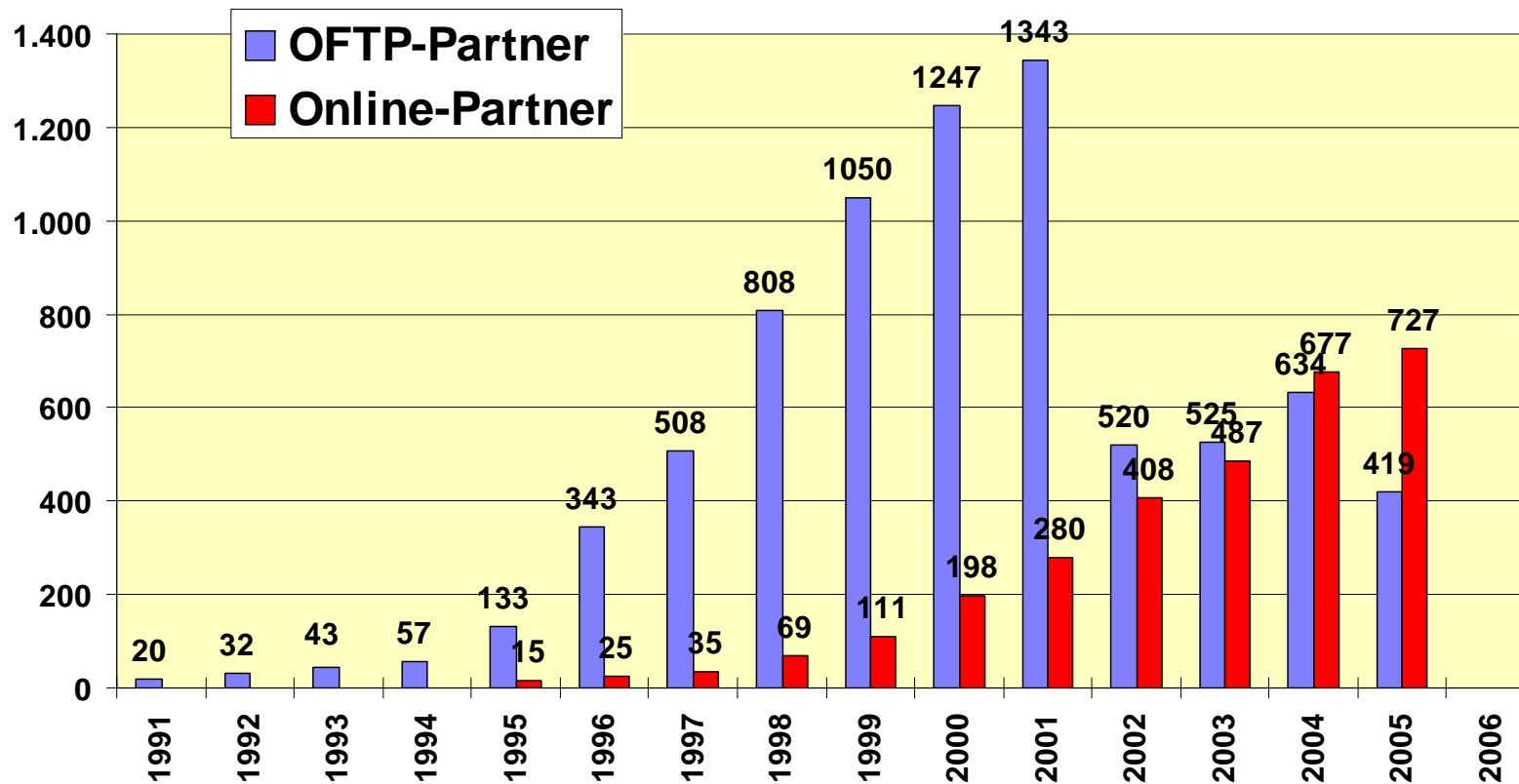
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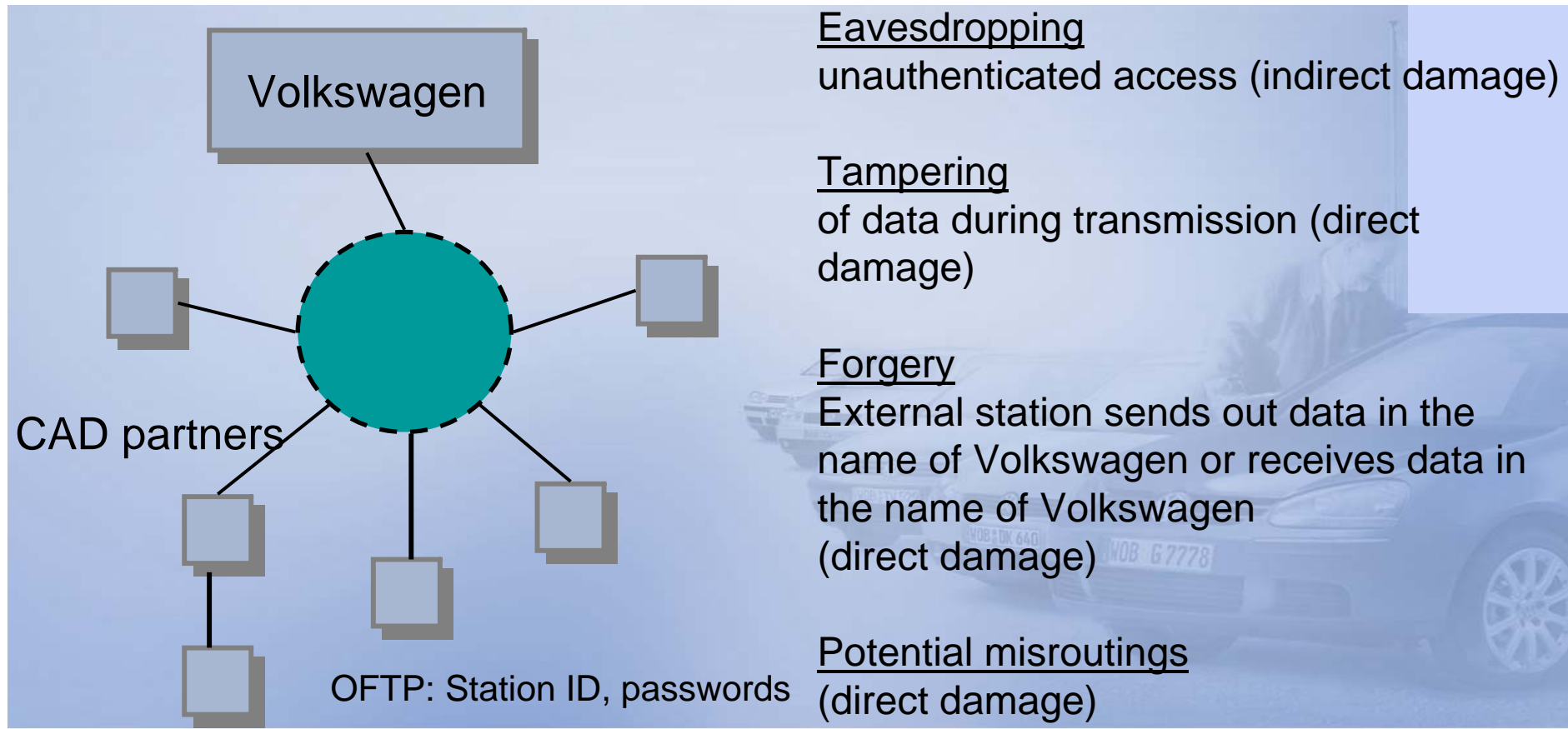
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Initial situation: OFTP data exchange with Volkswagen and its CAD partners

### Data exchange with external partners



## Potential attacks during OFTP transmission





## Problem definition

Volkswagen has decided to encrypt all CAD data exchanged with partners.

Speedy integration of an encryption component into the OFTP software used by Volkswagen had to be realised to comply with this requirement.

It was decided to use the Com-Secure software, based on the assessment of the pros and cons of various software solutions.

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**Volkswagen has decided to use the Com-Secure software solution by gedas deutschland GmbH.**

**Why? existing software, platform-independent, PKI-compatible**

## **What is Com-Secure?**

Com-Secure is a product designed for data encryption within the context of asynchronously encrypted data communication on file level.

Com-Secure applies established encryption methods such as RSA and 3DES.

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Continued: **What is Com-Secure?**

Com-Secure is available for IBM z/OS, IBM MVS, IBM AIX, HP-UX, SunOS, SGI IRIX, Reliant UNIX, Linux, WinNT, Win2000 and WinXP

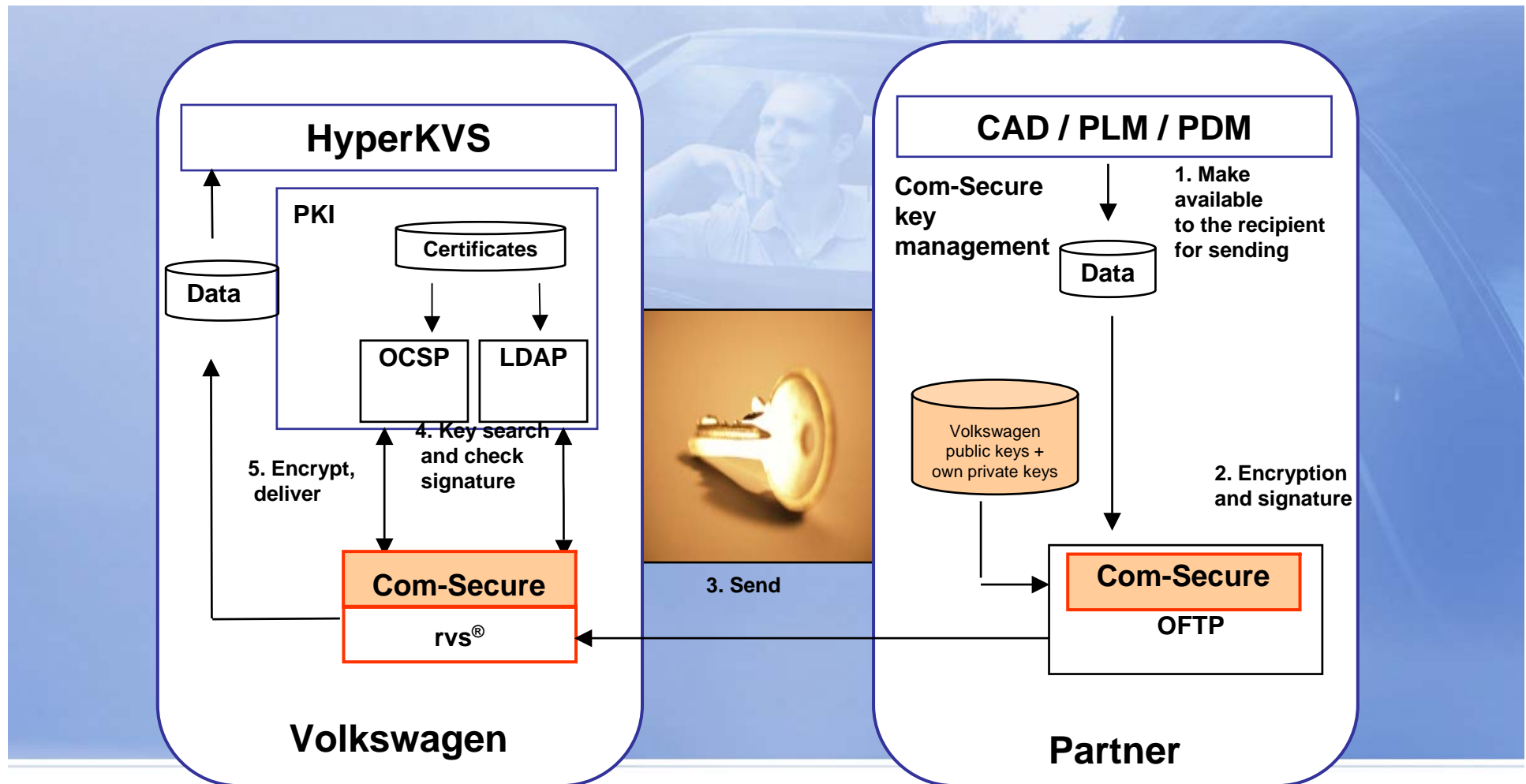
Com-Secure's uncomplicated interface allows easy integration in existing system environments and workflows (command line interface and API).

Com-Secure has been accepted by the other German OFTP companies as encryption product.

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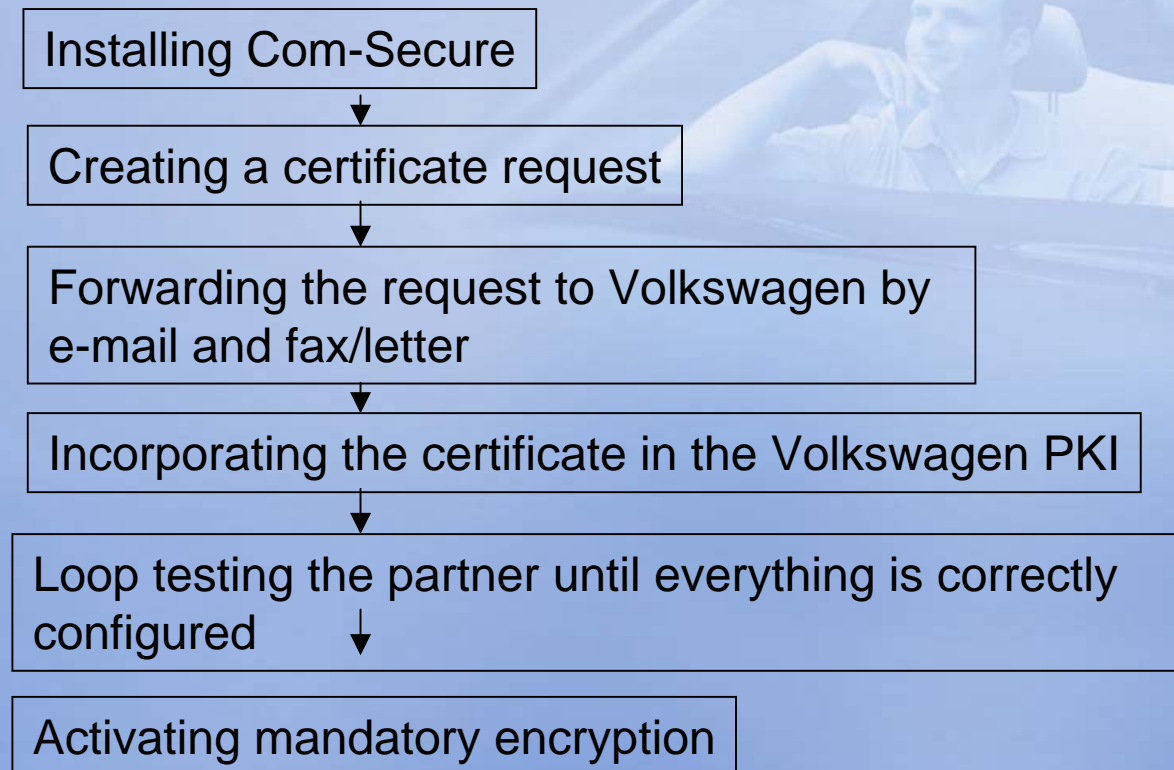


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## Process of implementing and assigning a certificate during operation







## Cooperation with the OFTP software vendors

All relevant OFTP software vendors have been integrated from the start.

The first pilot partners among the engineering companies contracted by Volkswagen could be integrated after internal tests at the OFTP software vendors.

417 Volkswagen engineering companies have adopted the new method. (status 09/2005)

The following OFTP software vendors offer encryption components:

**ATOS ORIGIN**

**Datentechnik Mertens**

**Schmitt Unternehmensberatung GmbH**

**Beratungsbüro Kasch**

**gedas deutschland GmbH**

**Brain Development GmbH**

**Hüingsberg GmbH**

**Seeburger AG**

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## Further steps

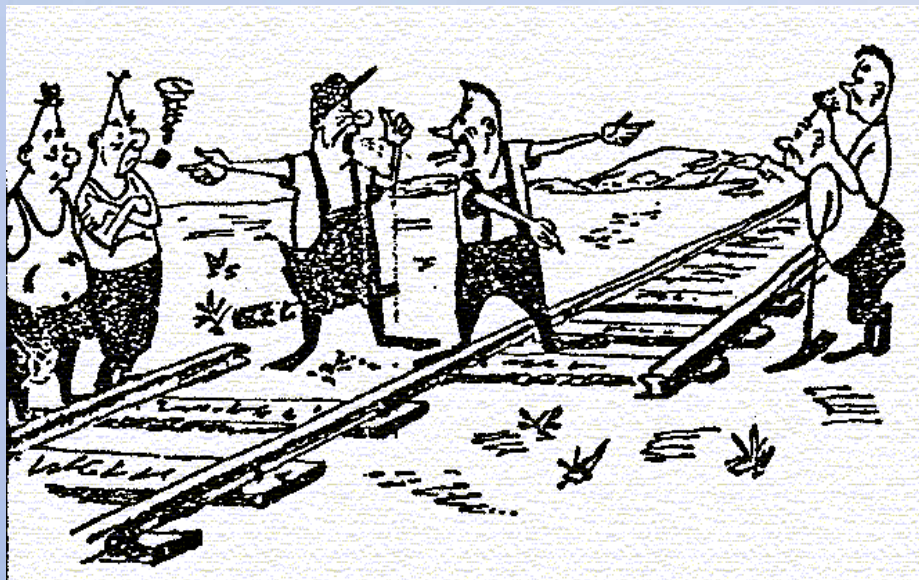
Volkswagen pays the Com-Secure licensing costs for the engineering companies.

Volkswagen's engineering companies did not have to carry any further costs except for expenses arising from adapting the OFTP software solution.

The engineering companies are supported free of charge by the Service Support Center (SSC) of gedas deutschland GmbH within the framework of the network access contract CAx Supplier Network (CSN).



## Small but mean obstacles encountered in the process



All engineering companies connected to Volkswagen via OFTP were supposed to receive a server-based PKI\* certificate.

Volkswagen's engineering companies did install the encryption component, however, shrunk back from the next step: "mandatory encryption" in the Com-Secure software.

\* PKI = Public Key Infrastructure

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Server to server encryption, not merely router to router

All Research and Engineering data shall be treated confidentially.  
Requirement specified in the internal organization guideline ORL 49

Requirement / wording from Volkswagen-internal audit report



## Glossary

LDAP	Lightweight <b>D</b> irectory <b>A</b> ccess <b>P</b> rotocol
SSC	<b>S</b> ervice <b>S</b> upport <b>C</b> enter
CSN	<b>C</b> Ax <b>S</b> upplier <b>N</b> etwork
PDM	<b>P</b> roduct <b>D</b> ata <b>M</b> anagement
PKI	<b>P</b> ublic <b>K</b> ey <b>I</b> nfrastructure

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