



Volkswagen certificates successfully managed by Nexus Software



Volkswagen is one of the biggest global players in the automotive industry and No.1 in Europe. VW naturally sees security as an important issue. A PKI solution was to be established to effectively

protect sensitive company information and to control access to mission critical applications. The requirements to be met were a substantial level of security for access control and authentication, but also a demanding flexibility to integrate with the company's existing IT infrastructure. Usability and cost-efficiency were other factors to consider.

THE VOLKSWAGEN GROUP with its headquarters in Wolfsburg is one of the world's leading automobile manufacturers and the largest carmaker in Europe. The Group operates 60 production sites in fifteen European countries and in six further countries in the North and South America, Asia and Africa with a total of nearly 370,000 employees around the world. Volkswagen vehicles are sold in more than 150 countries.

The requirements

A PKI solution should be deployed to produce secure personalized smart cards for authentication. Features should include smart card based Windows login, access to the intranet and applications and also an encryption functionality to secure network transfer over external providers. A secure and efficient distribution and final personalization of the smart cards in VW's distributed organization should also be achieved.

"We are confident that we have chosen the right technology, and having been something of a pioneer means that we have been able to specify what we want from Nexus."

UWE-JENS HOFFMANN,
HEAD OF PKI AT VW

The solution

After extensive evaluation Nexus Certificate Manager was chosen as the central application for the VW PKI already in 2001. Uwe-Jens Hoffmann, responsible for PKI at Volkswagen, explains: "Volkswagen chose Nexus because of the company's documented experience, and the Certificate Manager offered the best price-performance."

To support VW's demands on flexibility and security Nexus was a natural choice. The flexible architecture has been crucial for the development of custom modules to meet VW's requirements in detail. Clusters and load balancers support high availability for 24/7 operation. And in order to guarantee high-security, Hardware Security Modules (HSMs) are used for the generation and storage of the keys.

Smart cards: roll-out and management

A highly customized smart card profile was to meet VW's high security policies. The cards contain three key pairs used for authentication, data encryption and non-repudiation. The keys for encryption are securely





CASE STUDY VOLKSWAGEN

and centrally generated and archived in an encrypted state in the CM Database.

VW's specific requirements demanded a certification authority that is run in one central location where the cards are produced pre-personalized. The cards are locked for secure transport using transport certificates. They are finally personalized at the local registration authorities (RAs) where the users have to personally identify themselves to receive the cards. To prevent any input errors the RA client uses a specifically for VW developed input view with an LDAP interface to enable the retrieval of personal data directly from the VW internal directory.

The cards can be used for:

- Windows logon
- E-Mail encryption and signature
- Authentication to web applications via browser
- Login to SAP R/3 applications
- Authentication to mainframes.

The integration with the directory and status information systems updates the status of user cards and certificates automatically.

Further developments

After the installation in 2001 a major update project followed in 2003. A specially developed "Self Revocation Portal" allowed end users to revoke their cards via web browser almost from the start. With the first complete certificate-lifecycle experiences, a user self service "Self Renewal Portal" was ordered and built in 2006. Both portals were built using the CM-SDK.

Satisfied with the solution

With Nexus Certificate Manager to manage all parts of the VW PKI Volkswagen found a reliable and comfortable solution. "It helps us run this large distributed company with tight security and allows remote users to access applications in a way that is convenient to them", says Uwe-Jens Hofmann.

During the years of operation Nexus has periodically conducted upgrade projects to keep VW at the up to date version of the software. The projects have been carried out in close collaboration with VW. Development work at Nexus, onsite visits and trainings have been conducted many times and will continue in order to secure the convenient deployment of Nexus solutions today and in the future.

Products in service

Nexus Certificate Manager

- Nexus Certificate Manager handles the issuance and the life cycle management of all certificates for the Volkswagen employee smart cards.
- Security has been Common Criteria EAL3+ evaluated and approved according to the German Signature Law (SigG).
- General Purpose Input View supports the import of requested records not only from CSV files, but also from an LDAP directory.
- The flexible architecture of Nexus Certificate Manager enables the development of custom modules for virtually all requirements.

Nexus OCSP Responder

- Nexus OCSP Responder delivers revocation status information according to policies and the German Signature Law (SigG).

Nexus Personal Security Client

- Nexus Personal is middleware used to access computer applications with the smart card's electronic security functions.

