Test report on single sign on solutions by using smart cards in Vaasa, Finland

Research: Report on single sign on solutions by using smart cards by Jan-Ole Sandås City of Vaasa, March 2007

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1. TEST REPORT ON SINGLE SIGN ON SOLUTIONS BY USING SMART CARDS IN VAASA.

1.1 Background

The reason for the reseach regarding single sign on soluitions, SSO, was to find out if there was a way to use smart cards to simplify the authentication processes when citizens or employees of the municipality interact with the it-based systems in the administration. In the research, 3 different approaches on authenticating users were researched. Based on the results of the research report, two authentication tokens were tested, the Waasa Card and the Finnish National Id Card (HST)

1.2 Waasa Card

1.2.1 Contact side of the card

The second generation of the Waasa Card has an embeded smart card chip based on an Atmel chip with 64Kb of memory. The chip is today in use as a payment tool for buying lunch in the personnel restaurants. The capacity of the card is relatively high and it is therefore possible to implement several features and applications on the card. The operating system on the chip is Miocos 1.1 that has been developed by Mitotec Oy. This is the latest version of this operating system and will also be the last version because the development has been closed down.

A single sign on solution based on the contact side of Waasa Card has been researched. The Atmel chip that runs the MioCos 1.1 operating system is compatible for use in a single sign on environment. To be able to use a smart card with Microsoft Windows for authentication purposes a cryptographic service provider, CSP, has to be used. The CSP candidate, who has been researched and tested, in this case is Smart Trust Personal from Nexus Ab (http://www.nexus.se).

1.2.2 Testing environment 1

Smart Card:

Waasa Cards with MioCos 1.1 operating system

Server side:

- Windows 2003 Enterprise Server
- The server as a member of an Active Directory
- Enterprise Root CA installed into the server to be able to create smart card logon.
- IIS, Internet Information Server installed
- A CSP, Cryptographic service installed into the server. The only CSP that we have found working with Waasa Card at this moment is Nexus Smart Trust Personal.
- A Smart Card reader and driver

Client side:

- The same CSP as the one installed on the server was installed on the client.
- A Smart Card reader and driver.

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1.2.3 Testing and results

The method of the test was to use autoenrollment to issue certificates to three Waasa Cards. The autoenrollment worked and the certificates were issued on all of the cards. The cards were tested for login from 2 different computers connected to the same Active Directory. Also automatic revokation of the certificates were tested and worked, as it should. The results were positive in all aspects, but the changing of pin codes. This is an issue that seems to be connected to the CSP software that had to be used in conjunction with Waasa Card. This needs further investigation before taking Waasa Card as a login token in full scale.

1.3 HST-based card

1.3.1 Contact side of the card

HST stands for Henkilön Sähköinen Tunnistaminen, which could be translated to a personal electronical authentication. HST is a venture of ministry of finance, ministry of transport and communication and ministry of interior, which is providing the citizens of Finland with an electronic identity card. The HST-card is in addition to traditional visual identification providing means to identify the person over an information network and make it possible to conduct official business, such as filling out tax forms, or applying for a driver´s licence over the network. The Population Register Center has been named as the highest certifying authority in Finland and is responsible for granting the cards and maintaining the infrastructure.

The differences between using Waasa Card or a HST-based card for single sign on purposes are few. The most important difference is that the HST-based cards today are manufactured by Setec Oy and running the operating system SetCos. It is also possible to get the certificate issued to a Osuupankki Visa electron card, which is the one has been used during the research and testing.

1.3.2 Testing environment 2

Smart Card:

Osuuspankki Visa electron card with HST certificate

Server side:

- Windows 2003 Enterprise Server
- The server as a member of an Active Directory
- Enterprise Root CA installed into the server to be able to create smart card logon.
- IIS, Internet Information Server installed
- A CSP, Cryptographic service was installed into the server. Setec SetWeb that is downloadable from www.fineid.fi
- A Smart Card reader and driver

Client side:

- The same CSP as the one installed on the server was to be installed on the client.
- A card reader and driver.

1.3.3 Testing and results

The method of the test was to use autoenrollment to issue certificates to two Osuuspankki Visa electron credit cards. The autoenrollment worked and the certificates were issued on all of the

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cards. The cards were tested for login from 2 different computers connecting to the same Active Directory. Also automatic revokation of the certificates were tested and worked, as it should. The SetWeb CSP software provided a good interface for the user to change pin codes and to see what certificates have been issued and when.

1.4 Summary

The testing based on the research of single sign on solutions by using smart cards was successful. All of the provided cards worked in the way they were supposed to do and also the autoenrollment of the certificates worked flawlessly. The only issue worth mentioning is that if using Waasa Card based on MioCos 1.1 in conjunction with Nexus Smart Trust Personal CSP there was an issue with the changing of pin codes.

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