Sun Microsystems Java Badge

”At Sun Microsystems™ we created a new smart card solution for network security and physical access control called JavaBadge," said Chris Saleh, marketing manager and program manager for JavaBadge. "We've rebadged every Sun™ employee worldwide, with over 31,000 JavaBadges issued. We are using Java Card™ technology manufactured by Axalto and readers from SCM Microsystems as well as our own embedded ones. The cards have a magnetic stripe and MIFARE™ contactless chip for access control, with most of Sun’s entry doors converted to contactless smart card technology now. We chose Java Card technology because it offers the important advantage of being able to dynamically add applications in the field in real time."

Sun’s implementation of JavaBadge had several objectives:

- Securely enable the virtual enterprise by rebadging employees with a multi-application Java™-powered digital ID card for authentication throughout the enterprise and convenient access to enterprise services
- Improve security and increase productivity
- Reduce costs and complexity
- Provide a single federated source for all credentials
- Deliver best practices and expertise for use in customer enterprise deployments

Sun’s implementation is an excellent example of how smart cards can help enterprises move to a single multi-application ID card or badge that cost-effectively replaces multiple credentials. Sun launched the JavaBadge program to unify a number of Sun credential-based applications on one centrally issued and managed platform. The initial JavaBadge was designed to replace multiple cards:

- Sun’s corporate badge/identity card
- The Sun Ray™ appliance session mobility card
- An authentication token card used by employees to authenticate themselves to systems, applications, and the network from remote locations (e.g., home, hotel), and to digitally sign and encrypt documents and transactions for non-repudiation and improved security
- A remote access challenge/response token
- An e-purse/payment card

One application of the card is building access, but the main reason Sun adopted smart cards was to implement logical access to the company's network using Sun Ray™ appliances, the thin clients deployed at Sun. "We have flexible offices for 25,000 employees, meaning you do not always work at the same office," said Saleh. "Sun Ray delivers IT services in a very cost effective manner, because all sessions reside on servers. The smart card is the key to the system, because it lets people bring up their own sessions and user environment."

"For example, say you want to leave for the gym. You pull out your JavaBadge from the Sun Ray appliance, which powers down to save energy. When you return from the gym you go to another office and use your card to get your session back up again. Once you insert the JavaBadge into the appliance it powers up, gets your personal session from the Sun Ray appliance and takes you right back to your personal session where you left off. Sun calls it 'Session Mobility,' which is being able to carry your user environment from one area to another," explained Saleh.

"We're entering a new phase with Java Card technology to issue certificates on smart cards," said Saleh. "We'll have three applications secured by a public key infrastructure: authentication/single sign-on, signature, and encryption for secure e-mail transmissions. For higher levels of security we

want dual-factor authentication – what you have and what you know. The card is what you have and the personal identification number is what you know in order to log in to services. Down the road, maybe we'll use three-factor authentication with the addition of biometrics."

There were many reasons for Sun to go to smart cards in addition to the ability to use the Sun Ray appliances. "It's technically safer to store PIN and key information on smart card hardware tokens than on a computer hard drive in some server room. It eliminates the inefficient use and inherently weak security of passwords. We were motivated to go to smart cards for legal reasons too. To move commerce to the Internet, we needed a robust system that offers non-repudiation, and Europe dictates smart cards and PKI to achieve this. Finally, the smart cards enabled us to consolidate four or five credentials into one card," stated Saleh.

According to Sun, financial analysis clearly demonstrates savings from using one card instead of many. The JavaBadge costs $284.80 per person over 5 years and the single function cards cost $395.20 per person over 5 years.

"The user reaction is extremely positive. The consolidation of cards, not having to remember as many passwords, mobility and increased sense of security are huge pluses and convenience for them. We are a big proponent of smart cards," he concluded.

References

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This profile was developed by the Smart Card Alliance Secure Personal ID Task Force with the assistance of Albert Leung, Sun Microsystems, for the report, "Logical Access Security: The Role of Smart Cards in Strong Authentication," available at http://www.smartcardalliance.org/alliance_activities/logical_access_report.cfm. For more information about how smart cards are used for secure identification applications, visit the Alliance web site at http://www.smartcardalliance.org.