Root Cause Analysis

Event:  Easy Login Maintenance Option (ELMO) Outage, December 5, 2009

Summary:  On Saturday December 5, 2009 at approximately 11:00 PM, a user reported to the OIT Data Center after-hours operator that ELMO was unavailable. The following morning, the OIT Support Center verified the outage. It was determined that a domain controller was unresponsive. The configuration change was made which forced the system to use a different domain controller. Once this change was made, service was restored.

Detail:

Synopsis:  The OIT Support Center was contacted via email on 6 December at approximately 8:00 AM and informed of an issue with ELMO. They verified that an error message was being returned when a user selected option 1, 2 or 3. The ELMO connection log indicated that the problem began on 4 December at approximately 6:30 PM. After confirming with UAS IT, the problem was identified as a non responsive UAF domain controller. At 8:30 AM on 6 December, OIT Support Center staff modified the ELMO internal configuration to point a different domain controller. Once this change was made, users were able to bind with the UAF domain and normal operation resumed.

The user who reported the outage also noted several other issues associated with the outage. He noted that when he originally tried to reset his password via ELMO the morning of December 5th an error message was not returned, although the process appeared to hang. Later, that same day, an error message started appearing. The user also noted that the OIT Support Center’s after-hours voice menu greeting was confusing upon selecting option 2. He left a voice mail message but the message was not returned. The user was unaware who to contact about problems with ELMO based on the error message returned.

Cause:  A review of the event logs did not show any unusual activity relating to binding or resource allocation with the server. The OIT Data Center on-duty operator also did not notice any issues with this server during routine monitoring of the systems. Indications showed that the server was connected and all processes/services were running. It is unclear what specifically caused the domain controller to be unresponsive. A user not receiving an error message earlier in the day, but receiving one later that evening, may indicate a resource issue on the server that eventually caused the system to be completely unresponsive to LDAP queries. The voice menu greeting has an internal and external greeting. The external greeting was old and referenced an old Statewide Help Desk phone number that was no longer utilized but is still in service. The error message returned to the user informs them to notify a UAS email address and not the OIT Support Center.
**Action Items and Future Prevention:** OIT Windows Servers has subsequently implemented a script that attempts to connect to each UAF domain controller every 10 minutes to ensure it is active, able to do LDAP binding, and able to search LDAP anonymously. If this script is unsuccessful twice within a 10 minute period, the domain controller will reboot automatically. The OIT Support Center’s external voice menu greeting was removed from the old number. Users who call the current OIT Support Center number after hours and select option 2 will get the OIT Data Center after-hours help desk greeting which will ask the caller to leave a voice mail message. UAS IT staff is currently working to revise error messages returned to ELMO users to refer them to the OIT Support Center rather than UAS IT. Future consideration should be explored to have OIT Support Center staff on-call after hours to respond to ELMO outages.