Testimony for the

Communications & Technology / State Government

Joint public hearing on:

The Recent Office of Administration
Server Data Loss

February 7, 2024
2:00 p.m.

Background

Established in 1923, the Pennsylvania State Employees' Retirement System (SERS) is one of the nation's oldest and largest statewide retirement plans for public employees, serving nearly a quarter-million current and former Pennsylvania employees, their beneficiaries, and survivors. For most of our members and participants, these retirement benefits are their biggest assets, and are meant to support them for life after retirement. With that as our driving force, all of us at SERS share a singular focus: help prepare our members and participants to achieve financial security in retirement.

It's a mission we take seriously. And it's why we make tremendous efforts to ensure that our members and participants' data is protected and secure, and that the information we provide to them is reliable and trustworthy.

The timing of the Office of Administration data loss was particularly unfortunate, given the need for SERS employers to perform year-end calculations and financial reports, and the desire of members to access data for their personal financial and tax planning efforts.

As one can imagine, the inability to access this information created some urgency and consternation on the part of those members who regularly access their accounts via the SERS website. On the one hand we were fortunate – it could have been much worse. No personal pension account data was compromised – but access to the information of some 98,000 individual members was lost. As a result, users are being required to verify their identities and resubmit new login codes. While many have already begun the reauthorization process, it remains to be seen exactly how many former users will go through that process. In addition, some 511 employer service account holders were impacted. (While SERS has 101 employers, some employers have more than one user).

In the meantime, we owe a debt of gratitude to our internal SERS Bureau of Information Technology specialists, who spent numerous hours providing guidance, direction and support in the rebuilding of lost databases and returning the system to a functioning service.

Here, then, is SERS' overview of what took place, the impacts that were felt by SERS and our members and participants, and some suggestions to avoid similar future problems.

Overview

- At approximately 10:00 a.m. on Tuesday, 01/03/2024, 77 virtual servers at the OA enterprise data center (EDC) were inadvertently deleted. Among these were the database servers supporting SERS MES Online Member and Employer Services (MES) websites. As a result, these applications were offline and unavailable for use through mid-morning on Tuesday, 01/16/2024.

- During the 14-day outage, members were unable to view their point-in-time account summary, reprint 1099R tax forms and annual statements, and run custom benefit estimate calculations. Employers were unable to research SERS membership for new hires, multiple service data, and retiree healthcare information. Also, the roughly 40 smaller independent employers who report payroll and personnel transactions to SERS via the online system were unable to transmit their data.

- No member account data was lost.

- No indication of malicious intent or a cybersecurity incident was shared with SERS.

- Some application data was lost, but was limited to custom benefit estimate calculations, account security profile information, unposted/pending employer personnel and payroll transactions, and user activity logs used to compile internal quarterly reports.

- SERS BIT staff expended considerable effort on manually rebuilding the unrecoverable database and repopulating data where possible. Subsequently, the SERS IT Helpdesk saw an uptick in member support calls following the reopening of the site putting additional pressure on limited resources.

Summary of Key Impacts to SERS

Members and employers were unable to log into their respective online portals. Coincidentally, this is the worst possible timing for a failure of this nature, due to the fact that during this time period:

Employers – SERS staff are working to close out 2023 which requires employers to report all earnings, hours, contributions, and personnel transactions through 12/31/2023. As of 01/08/2024, there were approximately 10 employers who reported via MES with outstanding pay/personnel transactions needed for year-end processing. (Impact Date: MLK Day weekend for annual interest/service credit posting)

Members – Defined Benefit plan members cannot access their account summaries, statement/1099R reprints, or run the custom calculator. With the imminent mailing of 1099R's member will start looking for online reprints to be available. (Impact Dates: 01/12/2024 tentative 1099R mailing date, 01/24/2024 tentative annuitant statement mailing date)

Timeline of Events

- **Wednesday, January 3, 2024**
  - OA IT staff member inadvertently deleted 77 virtual servers in the course of performing routine server maintenance.
  - SERS received OA IT incident notification via email lists that contain impacted OA OIT staff and agency program staff about server issue.

- **Thursday, January 4, 2024**
  - SERS posted a notice on its public website homepage announcing that its member and employer services were unavailable:

    SERS MES application is currently unavailable
    Due to unforeseen commonwealth IT outages, the SERS MES application is currently unavailable. Technicians are working on the issues and hope to have the problem resolved soon. We apologize for any inconvenience to employers or members that might be affected.

- **Friday, January 5, 2024**
  - SERS posted notices to its member and employer services sign-in pages advising that services were unavailable for users who link directly to the application without seeing the homepage. *[Note: The MES application was in an error state beginning Tuesday 1/3 through Friday 1/5, which prevented the login pages from loading when visiting the sites. Because of this error, BIT was unable to post language to the application login pages prior to Friday 1/5 – hence the delay between the notice being posted to the SERS public website and the MES applications themselves.]*

    MES Members Login page – added on 1/5/2024:
    This Application is Currently Unavailable
    Due to unforeseen commonwealth IT outages, this application is currently unavailable. Technicians are working on the issues and hope to have the problem resolved soon. We apologize for any inconvenience.

    MES Employers Login page – added on 1/5/2024:
    This Application is Currently Unavailable
    Due to unforeseen commonwealth IT outages, this application is currently unavailable. Technicians are working on the issues and hope to have the problem resolved soon. We apologize for any inconvenience.

- **Wednesday, January 3 – Sunday, January 7, 2024**
  - OA IT team worked with external vendors to gradually recover servers. By Sunday morning, 76 of 77 servers were fully recovered.

- **Sunday, January 7, 2024**
  - On Sunday evening, the OA IT team recognized that data from the last remaining server that hosted two applications with the PA State Police (BEAST and Prelog) and one application with SERS (Member and Employer Services) still needed to be restored from backups. Team began to research ways to restore availability of those applications.
  - OA/OIT COO contacted SERS CIO at approximately 7:00 pm to advise of ongoing difficulties in restoring the ER MES application database and further indicated that several vendors were engaged in attempts to find a workable solution.

- **Monday, January 8, 2024**
  - OA/OIT COO contacted SERS CIO indicating that recovery efforts were ongoing, but given the persistent technical challenges, SERS should prepare an alternate recovery plan which does not rely on restoration of server backups.
  - SERS CIO briefed SERS Director of Database Administration on the need to develop a Plan B and created a preliminary recovery plan that evening. *[Note: Plan B is total reconstruction from scratch.]*

- **Tuesday, January 9, 2024**
  - OA/OIT officially notified SERS CIO at 10:00 am that the ER MES database was not recoverable, and that SERS must proceed with alternate plans.

- **Wednesday, January 10, 2024 - Friday, January 12, 2024**
  - SERS BIT led a reconstruction of the ER MES database from an internal staging system, source control artifacts, and paper records in collaboration with the OA EDC Database team.

- **Friday, January 12, 2024**
  - SERS posted an update on its website that Member and Employer Services were affected by the OA server outage and members will need to re-authenticate their login information through Keystone Login and create a new four-digit PIN to regain access to their portal. <u>SERS also reassured members that no retirement benefit data was lost, stolen, or inappropriately accessed</u>.
  - By the end of the day, SERS BIT completed system reconstruction and prepared the environment for reopening to members and employers.

- **Tuesday, January 16, 2024** *(Post-Martin Luther King, Jr. holiday, 01/15/2024)*
  - SERS online member and employer services reopened for use. SERS emailed employer service users explaining that they would need to re-enter any partially entered or unposted batches of personnel and payroll data. The following notifications were posted:

#1:

MES Member Login page – added on 1/16/2024 commensurate with site reopening:

This system operates on Commonwealth Enterprise Data Center servers that were impacted by an outage on 1/3/2024. As a secondary system providing a snapshot-in-time view of your pension benefit information stored here at SERS, **no pension or other retirement benefit data was impacted because of the outage.**

Sign-in data that allowed you access to view your pension information, however, was lost. As a result, you will need to complete the online account verification and PIN selection process again to access your account.

In addition, if you saved any pension estimates in your account, they have been lost.

#2:

MES Employers Login page – added on 1/16/2024 commensurate with site reopening:
This system was impacted by a server outage at the Office of Administration on 1/3/2024.

If you report personnel and payroll data, please know that any transactions that were **previously posted** were *not* impacted.

Any partially entered or *unposted* batches; however, were lost. As were any historical data on the status of already posted transactions and batches.

Our staff are working to reestablish security settings and allow access in a phased approach. The first phase will include the payroll staff from employers with outstanding 2023 payroll data to post and HR staff needing to research if their new hires participated in a SERS retirement plan in the past. If you encounter a problem logging onto the system, please email SERS Online Employer Services for assistance.

- o The above two messages posted 01/16/2024 remain on their respective MES Members and Employers login pages as of 02/01/2024.
- o In addition, on 01/16/2024, SERS directly emailed staff of our smaller employers who are registered users of our employer services system, explaining that any partially entered or *unposted* batches of personnel and payroll data were not saved, as were any historical data on the status of already-posted transactions and batches. The employers were advised to re-enter and post their unposted data.

Recovery Effort Details

Ultimately, OA database administrators executed the necessary commands to perform the rebuild effort thanks to the leadership, oversight, and direction of a key SERS BIT staff member, whose diligence, technical savvy, and commitment to the agency is the main reason SERS was able to recover from this event quickly and successfully. Once SERS BIT was officially informed that OA could not restore the MES database, it took BIT 3.5 business days to complete the rebuild.

Technical Overview of Recovery Process

- MES shell database was recreated using a reference copy database housed at SERS which was compared against an active test system (known to be recent due to active development efforts on the 1099R and Annuitant Statement reprint projects) and system source code. *[Note: A shell database contains only the table structures used by the application, but very little to no data.]*

- Member account data is replicated to MES from SERIS (SERS' <u>internal</u> system) daily. Once the shell database was re-established, the existing automated daily process to replicate the member account data was run to pull a fresh copy of SERIS data into the new MES database.

- BIT staff manually entered approximately 500 employer account associations into the MES test database housed at SERS using years' worth of paper records. This data was imported into the new MES database to enable employer access to the application.

- BIT staff worked with DHS security staff to alter the approximately 98,000 existing member accounts so that members would be routed through the existing "create PIN" page. While this change imposed an inconvenience on member users by requiring them to reverify their identity and reset their PIN, it reused an existing and well-proven application feature which is designed to create the same account association data in the database which was lost. This approach minimized risk, created a self-service avenue for recreation of the account data and expedited system availability.

- Routine database administrative tasks were executed to ensure the system was properly backed up and optimized for performance.

Since reopening the Members and Employers applications to users on 01/16/2024, SERS Helpdesk has seen a sharp increase in calls for MES support compared to the same period last year.

Data Loss and Customer Impact

- All unposted and partially entered employer pay/personnel transactions saved in the MES database at the time of failure were lost, including 14 pay batches for calendar year 2023 necessary for year-end processing. Those impacted batches required manual research and re-entry. As of 02/02/2024, all outstanding 2023 data has been received and dozens of other transactional batches have been processed through the MES Employers system and posted to SERIS.

- The data that associates a user's KeystoneID to their SERS identity (both members and employers) was completely lost. Initially, this loss was reported at approximately 200 employer users and 50,000+ member users. Through the recovery effort it was determined that the actual number of affected records was approximately 500 employer users and 98,000 member account associations.

- o All known employer account associations were manually recreated by BIT staff using a combination of active KeystoneID account names provided by DHS and paper copies of employer-submitted MES Access Request Forms.

- o Member account associations could not be recreated. A KeystoneID account change was implemented by DHS staff to leverage an existing application feature to verify a member's identity, establish their PIN, and recreate the missing account association data.

- Data that shows when users logged into the systems and what functions they utilized was lost and is unable to be recreated. Logging of new activity information was automatically resumed when the system was reopened so the loss is limited to historical data. This is a minor inconvenience as only the quarterly intranet reports are impacted.

- All member-generated online custom calculator benefit estimates were lost and could not be recreated.

Preventing Future Recurrences

Pension systems such as SERS are very unique in the kind of information they collect, store and maintain in order to serve their members and participants, as well as in the kinds of services that we provide. As noted, our employers, members and participants rely on us to provide accurate information on a timely basis. Had the computer disruption impacted another area of SERS services, such as the payment system, the results likely would have been far more serious.

Back-Up: Currently, SERS is looking at replicating the "transient" data that only lives at OA EDC to an internal system at SERS – this would add an addition layer of protection. In addition, instituting a back-up system, operated by SERS, would help alleviate a future reoccurrence. Our Internal Audit office has also made a recommendation to incorporate a redundancy capability (considered an industry "best practice") so as to ensure that any lost data can be readily recovered or recreated. We are also reviewing SERS internal policies and protocols to ensure that inadvertent human errors such as occurred at OA EDC recently are minimized.

Independence: In addition, SERS believes that, due to the unique nature of what we do, the types of services we provide, and the kind of information we deal with, maintaining a separate, independent network to support our members is an appropriate and advisable approach. We note that there have been several proposed pieces of legislation that would consolidate IT operations among Commonwealth agencies. While we are open to working with OA to coordinate and implement effective cybersecurity measures, we believe the recent incident underscores reasons why we are not comfortable with the idea of having SERS IT systems under the control of a separate entity. In addition, we would note that the proposed IT consolidation legislation, as currently written, would likely violate the Internal Revenue Code's exclusive benefit rule under 26 U.S.C.§401(a) or the prohibited transactions rules under 26 U.S.C. §503. These are federal requirements for SERS and PSERS in order to remain tax-qualified retirement plans.

Strategic Planning: Finally, we would note that SERS is in the opening stages of a new four-year strategic planning process with the fundamental goal of digitally transforming SERS by expanding digital options while reducing dependence on paper processes. Our objective is to revamp our public website and mobile options to make them more robust and customer friendly. In addition, we will be adding digital features to give our members and participants the flexibility to view their account information and update information online in real time.

This digital transformation at SERS will also create a more streamlined operational workflow internally. Moving to a digital workplace will give SERS staff quicker access to important information across the enterprise, thus helping to improve efficiencies and customer service.

While some of these aspects of our strategic plan may seem tangential, they are vital elements of how we plan to serve our members and participants in the future – in a technology-focused environment that offers the highest levels of efficiency, security and reliability.