

Technical (tech) debt is the cost of maintaining legacy technology - a challenge the public and private sectors face. The state has an estimated \$465 million in tech debt—the cost of equipment and staff time to keep unsupported and insecure older technology running to deliver services—stemming from aging infrastructure, end-of-life applications and systems with security vulnerabilities. When it isn't addressed, the consequences can be severe, and its impacts stretch across organizations.

The State of Colorado cannot advance digital government services with outdated and unsupported legacy systems.

The tech debt remediation portfolio launched in July 2022 with three main pillars:

- Decommissioning the mainframe.
- Moving the state from a leased data center (eFORT) to a state-owned data center and the cloud.
- Remediating Salesforce Vulnerabilities & Asset Management Projects

As we work to think differently about creating a digital government with state services accessible to all, we will continue to add projects to our tech debt portfolio that will allow us to modernize our technology infrastructure.

For more information and to stay up to date on the Tech Debt Remediation effort, please visit the [ReimagineIT website](#) and signup for the [monthly newsletter](#) (<https://public.govdelivery.com/accounts/COOIT/signup/34838>).

1. Which elements of the project are currently underway? Which elements have been completed since the department last updated the JTC? Is the project on schedule with initial plans?

OIT Response:

Decommission Mainframe Program

The state mainframe is a 30-year-old central data center housing millions of data points and linking computers and services throughout the state. It is unreliable and expensive to maintain. OIT will shift to a cloud-based solution for mainframe storage and operations, removing the risk of older equipment failing and interrupting the delivery of critical services to Coloradans. Decommissioning the mainframe is the most important project in our work to remediate technical debt in state systems and applications.

OIT has identified key milestones for the July 29, 2023 migration date.

- The project team is currently working on operational readiness and data migration in preparation for the mock migration. Data migration involves the creation of a duplicate copy of all the operational data on the mainframe in the virtual (cloud) environment. This is the set of requirements to be met before the

migration can occur so that mainframe operations can be sustained once the migration is complete.

- The mock migration testing plan is complete. The plan is being shared with customers and affected OIT staff the week of June 5.
- The mock migration is scheduled from July 14 to July 27, 2023. A mock migration of the mainframe environment is a complete move to the new environment while maintaining the existing state-hosted environment. This allows OIT to test the functionality of the new environment and ensure there are no known vulnerabilities before the actual migration.
- The official mainframe migration to the hosted environment will occur on July 29. During the cutover, mainframe production moves from the State of Colorado to our new cloud service vendor, Ensono. **A mainframe outage will occur between July 28 at 6 p.m. and July 31 at 8 a.m.**

As of June 1, 2023, the mainframe migration project is 44% complete and is anticipated to be completed by the end of the summer (2023).

Additional projects are in progress and running parallel to the mainframe migration effort.

Replacement of TIBCO Cyberfusion with TIBCO Managed File Transfer (MFT) Project - 69% complete

TIBCO Cyberfusion will be replaced with Managed File Transfer (MFT) to securely transfer files between State of Colorado agencies and the Social Security Administration (SSA). This is the latest version of TIBCO's file transfer product supported by the SSA. It is a regulatory requirement that we upgrade our product to the latest version approved by the SSA.

TIBCO Cyberfusion and all related jobs will be removed from the mainframe as part of the update to MFT, and MFT will be hosted in the Amazon Web Services (AWS) Cloud. The team has completed the configuration of VPN connectivity and the Amazon Web Services (AWS) environment. Firewall configuration and agency development work are underway to replace TIBCO Cyberfusion with Managed File Transfer (MFT).

Modernization of the Electronic Benefit Transfer (EBT) Application - (Approved as a project in May 2023)

EBT is the Colorado Department of Human Services (CDHS) application that processes and combines financial files transmitted by other CDHS products, including the County Financial Management System (CFMS), Colorado Benefits Management System (CBMS), Low-Income Assistance to Parents (LEAP), Childcare Automated Tracking

System (CHATS), and Colorado's Statewide Automated Case Management System (Trails). These files work with FIS ebtEDGE to ensure Coloradans' benefits are paid.

The primary goal of this project is to modernize the EBT application. OIT is updating the existing system because it is no longer supported for upgrades and improvements. The modernization will help to ensure benefits are paid on time and correctly for Coloradans. An eREQ was submitted on May 18 for contract approval to begin Modernizing Electronic Benefits Transfer (EBT) work.

The modernization work will start as part of the Mainframe Decommission Program. The project is expected to take nine (9) months to complete - at this time, there has yet to be an estimated completion date.

Modernizing the Automated Child Support Enforcement System (ACSES) (Approved as a project in May 2023)

The Colorado Department of Human Services (CDHS) ACSES system is a 40-year-old computerized network used in most jurisdictions throughout Colorado to collect and redistribute child support. This project will move ACSES from the current mainframe to a cloud-based environment to improve security and reliability and modernize the ACSES system.

In addition to modernizing the ACSES system, the project will identify all dependent systems and databases currently accessible from the mainframe and work to migrate those systems off the mainframe as quickly as possible.

CPPS (Colorado Personnel Payroll System) shift from the mainframe in preparation for the Department of Personnel and Administration's CPPS Modernization Project

The modernization of CPPS is being handled by the Department of Personnel and Administration (DPA) and is outside this project's scope.

Modernizing State ID Module (SIDMOD) Application (Approved as a project in May 2023)

This project aims to allow demographic information to remain in sync across all the systems using State ID as the primary client identifier. To complete this project, a new software application in a modern cloud environment will support SIDMOD functions.

SIDMOD will be integrated with the Colorado benefit systems like the Colorado Benefits Management System (CBMS) and the Automated Child Support Enforcement System (ACSES) to ensure easier access for Coloradans seeking assistance from all state

agencies. The estimated project completion date is June 2024.

eFORT Migration Project - 45% complete

The state's lease of the eFORT Data Center is currently one of the most costly capital lease expenses. Since the state always strives to be good stewards of taxpayers' dollars, OIT identified that significant cost savings could be achieved by consolidating hardware from eFORT into the newly modernized Lakewood Data Center. Not only will a considerable amount of money be saved each year, but the facility offers state-of-the-art equipment and security, making it the best choice to set a foundation for modern infrastructure and advance digital government services in Colorado.

When we began our work to migrate out of the eFORT data center in June 2022, we had 145 racks in use. As of April 2023, 55 of those racks have been emptied. That is a 45% reduction in usage, helping to save money and secure the state for all Coloradans.

The project is on target to be completed by the end of the first quarter 2024.

Cloud Migration Projects

Core Network Refresh - 40% complete

OIT monitors and maintains the core network infrastructure at two data centers and the Capitol Complex network (CCLAN) for 18 state agencies. Many of these routers and switches are old. They are no longer supported by the vendor, presenting a risk of expensive repairs, major network interruptions, and cascading security risks on an enterprise scale.

The network refresh will minimize security risks associated with older and unsupported products that have reached the manufacturer's end of support. New infrastructure equipment will establish a more reliable network and enable modernization opportunities with cloud services and easier integration with newer technology resulting in a better user experience. The estimated completion date is June 30, 2024.

Enterprise Wireless - 45% complete

Statewide Infrastructure Backbone (Session Initiation Protocol - SIP) - 92% complete

This project replaces T-1 trunking with Session Initiation Protocol trunking (SIP) for MIPC phones. SIP Trunking uses Internet Protocol (IP) to enable organizations to place telephone calls through the public telecom network. SIP is a new service through our managed services provider. Using SIP, voice and video become an application on the IP Network like email or the web is an application. It is more reliable and redundant than T-1 trunking.

This project's initial phase began on July 11, 2022, and is now 92% complete.

WINDOWS 2008 Project - 59% Complete / WINDOWS 2012 Project - 2% complete

Microsoft stopped supporting (providing technical support and upgrades for) Windows 2008 in January 2020. Windows 2012 support will end in October 2023. The main focus of this project is to decommission, upgrade or modernize servers running on these operating systems due to the lack of support for Windows 2008 and before support ends for Windows 2012.

Windows 2008 has 171 total servers, and we have successfully decommissioned or upgraded 101 as of June 2023. The Windows 2012 project is currently in the process of completing server inventory (collecting server information). Once complete, they will begin evaluating servers for decommissioning or upgrades.

IT Asset Management (Complete for Tech Debt Scope) and Salesforce Security Vulnerabilities Remediation Project - 69% Complete

The IT Asset Management effort was completed within the scope of the Tech Debt remediation effort in January 2023. OIT will work with operations for ongoing maintenance outside of the scope of the Tech Debt project.

The Salesforce Security Vulnerabilities Remediation project is underway and is approximately 69% complete as of June 1, 2023. The project is scheduled to be completed by the end of September 2023.

2. How much money has been obligated and spent at this point? Please break down amounts and spend separately.

OIT Response:

Program	Actual Expenses (Spent)	Encumbrances (Obligations)	TOTAL
Decommission Mainframe	\$3,130,101.72	\$10,900,228.56	\$14,030,330.28
Exit Efort and Cloud Migration	\$4,691,646.41	\$2,043,059.33	\$6,734,705.74
Tech Debt Projects - ITSM and ITAM	\$2,016,033.08	\$0.00	\$2,016,033.08
Tech Debt Projects - Salesforce Security	\$642,370.00	\$872,630.00	\$1,515,000.00
Administrative Support	\$718,022.43	\$0.00	\$718,022.43
Total	\$11,198,173.64	\$13,815,917.89	\$25,014,091.53

3. What is anticipated to be completed by the next quarterly update?

OIT Response:

The mainframe decommission effort is expected to be completed by July 29, 2023. Testing after the migration is complete may be needed on a case-by-case basis but should not impact the cutover timeline.

The Salesforce Security Vulnerabilities Remediation and Statewide Infrastructure Backbone (SIP) projects are scheduled to be completed by the end of September 2023. The Voice over Internet Protocol (VOIP) Implementation (part of the CORE Network Refresh project) will be completed by the end of August 2023.

4. When does the department/institution anticipate that the project will be complete?

OIT Response:

The mainframe decommission effort is expected to be completed by July 29, 2023. Testing after the migration is complete may be needed on a case-by-case basis but should not impact the cutover timeline.

5. Are there any important concerns or updates you wish to share with the committee?

OIT Response:

There are inherent risks for a project like this as we are moving 40+-year-old code off 30-year-old mainframe hardware. Documentation is minimal, and there will be challenges primarily with interfaces these resident applications have with systems outside the mainframe. We are planning risk mitigation strategies such as the mock migration to find as many problems as possible. However, the bottom line is that the risk of remaining on the existing mainframe hardware outweighs the risk of discovering interface issues post-cutover.

There are also concerns, given resource constraints and competing priorities. OIT has identified many important technical debt projects needing attention, but we need more funding and human capital resources to address all of those projects. We have asked many of our employees to complete the day's work and lean in to support our tech debt work. Therefore, we must prioritize the projects with the highest risk and impact potential for employees, customers and Coloradans rather than addressing all of the technical debt throughout the state.

6. For multi-phase projects, has there been any insight gained through this phase of the project that will cause changes in the next requested phase of the project?

OIT Response:

We have learned much over the past year as we dug deeper into assessing the current tech debt projects. This provided better insight into the work, resources, and support that OIT and agencies need.

- The budget needed to complete the tech debt work.
- Resources and skills needed to complete the tech debt work