

TennCare - Life in the Cloud

ENTERPRISE IT MANAGEMENT INITIATIVES

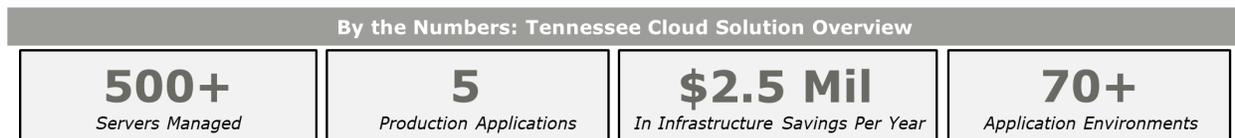
TennCare Cloud Managed Services (12/2020)
TENNCARE | STATE OF TENNESSEE | HUGH HALE (HUGH.HALE@TN.GOV)

Cloud Managed Services: The Origins

Before the implementation of the Cloud Managed Services Project, the on-prem nature of TennCare's Medicaid solutions made adding or changing any infrastructure or technology services, products, and functionalities a highly manual process, lacking automation of provisioning or enforceable security measures. This obsolete resource-intensive infrastructure building process was the catalyst for initiating the cloud-first strategy and Cloud Managed Services solution that came to fruition during TennCare's modernization of their Medicaid Tennessee Eligibility Determination System (TEDS).

During the modernization of the TEDS application, TennCare realized the lengthy amount of time getting a new application environment up and running would take. As an on-prem data center-based department, it took 6 to 8 months to source new hardware for any new application or services. As a result, planning new projects took tremendous time and effort of the infrastructure team and generated higher than necessary long-term capital expenses.

TennCare understood that its ability to effectively deliver IT services and support directly impacts its ability to serve the citizens of Tennessee. The TEDS project, only one of the many applications TennCare supports, currently provides 1.8 million citizens with benefits. Since its launch, the Cloud Managed Services project has been highly successful, resulting in TennCare saving time and money (see below), and allowing them to best serve their citizens.



Implementation:

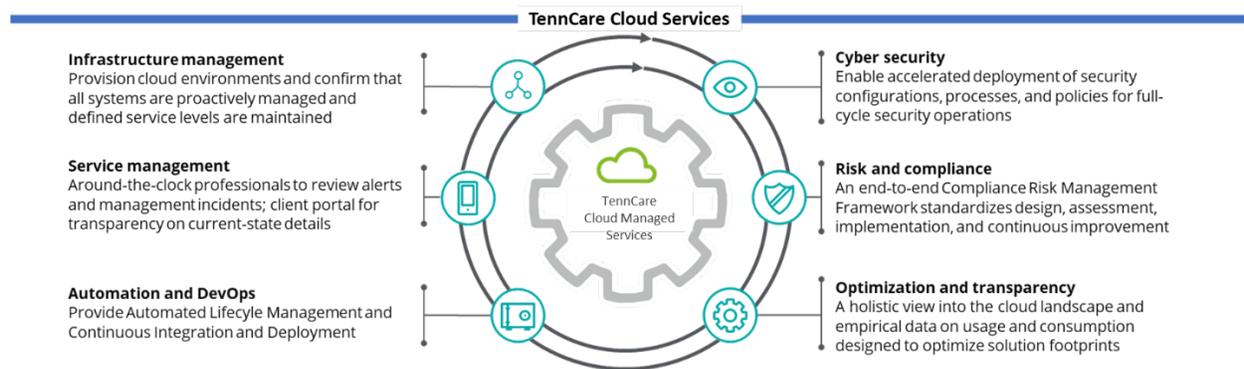
TennCare decided to modernize its aging on-prem enterprise server infrastructure, storage, and hardware provisioning process and move it to Cloud based infrastructure and services. The Cloud Managed Services project aimed to reduce the timing, cost, and resources it would take to set up enterprise architecture for application implementation, increase compliance, scalability, and flexibility of IT systems, and provide agile compute platforms and application environments.

Utilizing cloud-based infrastructure, we achieved this goal and allowed the agency to adopt and meet day-to-day challenges and more easily scale while avoiding long-term expenses. The Cloud Managed Services project was built on modern Application Centric Infrastructure (ACI) and compliant reference architecture while executing in an iterative to agile transformation, reducing maintenance costs significantly. In addition, by using modern ACI based reference architecture of cloud platform, TennCare increased its data-sharing capabilities. The project introduced new compliance and resiliency measures allowing TennCare to adhere to the highest, industry-leading, and mandated security standards. The scope and approach taken for

the Cloud Managed Services project make it a one-of-a-kind blueprint project among the other projects in State.

The Cloud Managed Services adoption is more than just a technology transformation. To move to the cloud effectively, the Department of TennCare used the Deloitte's reference architecture and Cloud Adoption Framework (CAF) and its six perspectives (business, people, governance, platform, security, and operations) to ensure a comprehensive view of the transformation.

A core cross-functional team was formed and initiated the project journey for Cloud Managed Services in 2019. Its scope included:



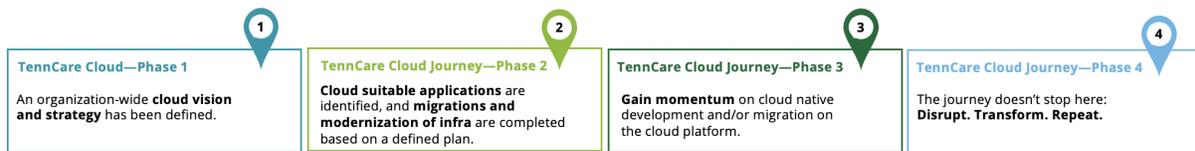
- Creation of cloud governance (Reporting, cost optimization, and enterprise vision)
- Establish enterprise reference architecture (consistent Application Centric Infrastructure (ACI) based virtual private clouds and subnets for various application environments)
- Set up continuous and standard operational processes (Built, configured, and monitored in standard methodology)
- Enable a compliant cloud-based ecosystem (Such as MARS-E 2.2, FedRamp, and IRS pub 1075)

Thus far, TennCare has completed 1-3 of four planned phases of their cloud journey. As noted in the diagram below, to get to the point of successful application implementation that TennCare is at now, they've taken the following steps to ensure the success of their enterprise-wide Cloud vision:

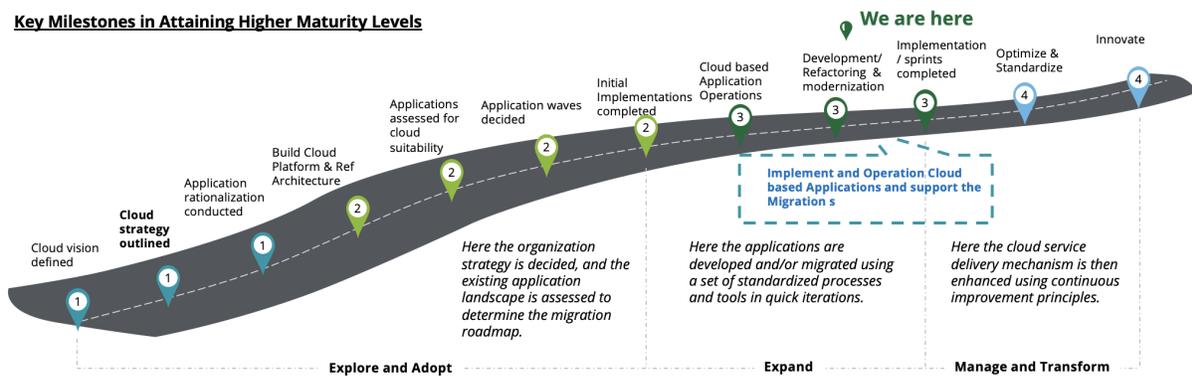
1. **Created a business case and gained executive sponsorship:** To better highlight the impact of a cloud-based enterprise, TennCare performed a financial analysis to assess expected business benefits, migration costs, and cloud operational procedures. Using this information to form a strong business case, TennCare collaborated with industry partners and State leadership to gain executive sponsorship for the Cloud Managed Services project.
2. **Developed a cloud strategy and program governance structure:** TennCare defined a cloud strategy, charter, and guiding principles focused on cloud adoption, migration repeatability, and efficiency to ground their cloud-hosted enterprise goal. In addition,

they designed a program governance structure to enable consistent and efficient execution of the day-to-day activities through the migration design and execution.

3. **Asses suitable cloud applications:** Performing a thorough application assessment enabled TennCare to identify which of its applications are suitable candidates and drive concentrated efforts to migrate shortlisted applications.
4. **Developed a refactoring, modernization, and migration methodology:** Leveraging industry best practices, TennCare and its partners followed a Development/Migration methodology which has a proven record that it is crucial to the program’s success.
5. **Continued pursuit of project goals:** Gaining momentum from their five successful production applications, TennCare continues to target aging systems to transform via cloud-based tech. Their current project, Pre-Admission Evaluations and Referrals for Long-Term Services and Support project is a cloud-based application which will go live this year. PERLSS will fully modernize the existing infrastructure, technical capability, and business execution of the Long-Term Services & Supports agency within TennCare. The solution will support roughly 70 thousand of the most disadvantaged Medicaid recipients in TN; aged, blind, or intellectually/physically disabled. The solution aims to build a system that better supports this population by enhancing their access to benefits, improving user and worker experience, and reducing state costs and inefficiencies.



Key Milestones in Attaining Higher Maturity Levels



Utilizing the steps mentioned above, TennCare successfully modernized and implemented the below **five** applications using Cloud Services:

1. **TennCare Connect (TCC)** – Citizen / Member portal is a self-service portal that allows applicants and members to create an account, check their status, report changes, read letters, and more. This project included the implementation of services to design, develop, and implement the next generation of TennCare Connect in a cloud-hosted and fully responsive application enhancing the member experience when using the portal across different devices.
2. **MATS Partner Portal** – The Medical Appeals Tracking System (MATS) included the implementation of a modern solution for the medical appeals tracking process with end-

to-end workflow tracking, notice processing, scheduling, and reporting functionalities. MATS-PP streamlines communications between TennCare Member Medical Appeals (TMMA) and TennCare Managed Care Contractors (MCCs).

3. **IAM In the Cloud** – The Identity and Access Management (IAM) solution allows authorized TennCare users (Workers, Members, and Partners) web-based access to relevant applications (E.g., Worker Portal, Member Portal, Partner Portal). It uses centralized and enterprise IAM technology products and is hosted on Amazon Web Services. IAM replaced the existing log in process with a newly built UI application, MyTennCare Login to allow single sign on based access to TennCare applications.
4. **Contact Center** - The Contact Center Solution (CCS) projects aid in the management of application processing and application maintenance centers. It leverages leading document recognition and extraction technologies to bring automated processing of documents to the **Document Center** business operation. The project implemented a cloud-based call center consisting of chat, Telephony and Interactive Voice Recognition and Customer Services Management (CSM) components that provide:
 - A **Chatbot** allows members complete self-service without needing to chat with an agent.
 - Agent features that route calls/chats to agents and show the agent the member's case/client information in an agent console without accessing core eligibility determination line of business application.
 - Interaction history in CSM solution that stores call/chat history, including audio/video recording for training, audit, hearing, and legislative business needs.

Key Achievements:

The below section provides more detail into the Implementation steps, and further insight into our phased approach. In this implementation, TennCare has:

- Provisioned application environments and the needed infrastructure across different virtual private cloud/sub-networks for hosting various cloud based application environments, and other enterprise and shared managed support services.
- Conducted annual Disaster Recovery and penetration tests incorporating all of the cloud-based applications
- Established Direct Connect over a dedicated network circuit between State of TN's on-prem data centers and TennCare Cloud's network.
- Utilized around 40+ native Cloud services
- Reduced application environment setup time from 6-8 months to 2-3 weeks with all processes and cloud design package approvals
- Deployed and made production operational five major applications.

From Framework to Citizens: The Impact

Uninterrupted service support for Tennesseans and secure data management:

The TN Cloud Managed Services project provides 24/7 service and support to make five major applications available to citizens and workers, addressing Tennessean's needs and allowing TN workers timely request processing. One of these mission critical apps, TennCare Member Portal, a web application where citizens can view and manage their benefits, services over 500 thousand active accounts in member portal.

TennCare's cloud managed services and infrastructure project has provided Tennesseans with industry-leading security across all five applications. TennCare has tapped into AWE's global network that automatically encrypts all data flowing across it at the physical layer before leaving AWS's secured facilities. In only two years, the Cloud Managed Services project has Conducted 10+ **major cloud Disaster & Recovery tests** that incorporated 30+ different applications and supported COTS components across cloud and on-prem infrastructure, ensuring preparedness for any breaches or security threats. To ensure the security of citizen information, TennCare has implemented web-services security product through API gateway appliance and the Security Information and Event Management (SIEM) tool(s), to provide Security Operations Center (SOC) monitoring services to the State.

Cost and Scalability:

By utilizing cloud services, TennCare has cut costs of infrastructure by paying only for services they use. As a continuous improvement and cost optimization, the State leveraged the new flexible charge models. As part of the Cloud Managed Services project, TennCare implemented a savings plan for all AWS Cloud infrastructure that saved the State an additional **~\$250,000+** in computer resources costs year over year.

In addition to cutting costs, the designated flexible structure has allowed TennCare to move at an unprecedented pace while standing up a new project and IT infrastructure. In the two years of the project thus far, TennCare has provisioned over **570+ servers across 40 virtual private cloud/sub-networks, hosting 70+ application environments** supporting five production applications and other third-party-managed supporting services. As a result, cutting-edge, industry-leading applications have been made available to citizens sooner, while still allowing the State to maximize its budget and dedicate money to exploring more enterprise system enhancements.

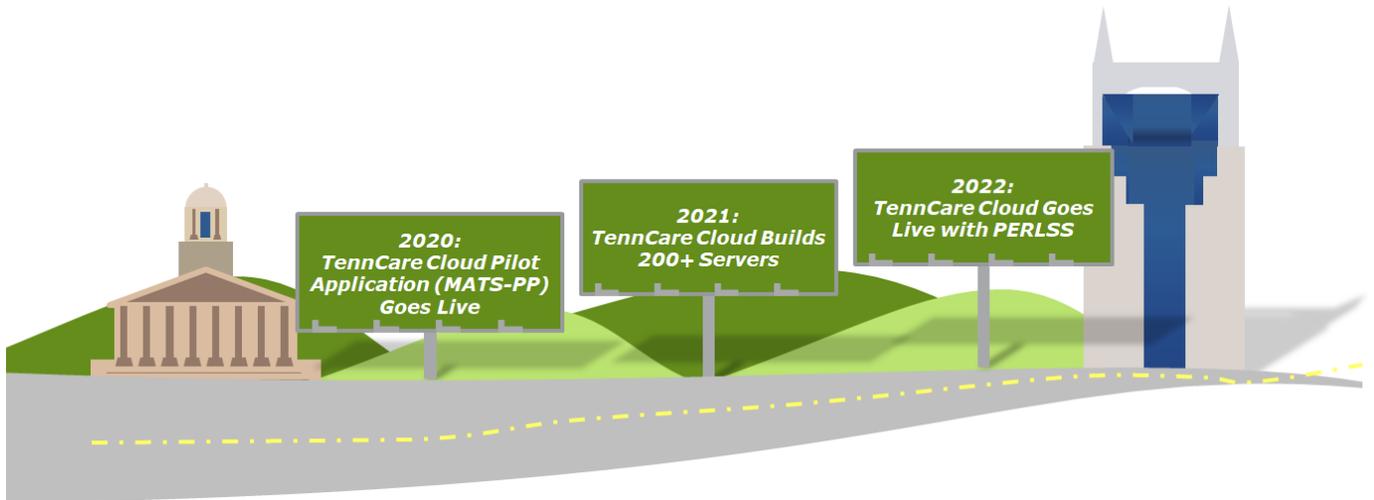
Enterprise vision:

By utilizing Deloitte cloud managed services, TennCare has:

- Provided service and security for five applications
- Realized cost savings by paying only for services used
- Gained the ability to scale platforms and security, quickly and efficiently resulting in the ability to shift their focus to integrating with innovative new Third-party SaaS and PaaS software vendors.

- Developed Vendor partnerships enabling TennCare to bring monolithic solutions into the cloud, setting them at the vanguard of IT for State agencies.

One of the new functionalities brought to the citizens with this project includes single sign-in. The Cloud Managed Services project has provided seamless integration experiences for the citizen by integrating with TN's Identity Access Management (IAM) platform that enables users to securely authenticate with just one set of credentials, creating a coherent, enterprise-wide user experience.



As TennCare looks to the future, upcoming projects are designed and built with the enterprise, cloud-driven vision in mind, such as the Long Term Social Services' cloud-based solution.

TennCare's enterprise-wide vision for leaner, more secure, scalable, and flexible IT structure provides a blueprint not only for Tennessee's future solutions, but for State IT systems as we move into the next era of technology.