

PROJECT START: JUNE 2021
COMPLETED: JANUARY 2024
OPERATIONS ONGOING

STATE OF CALIFORNIA

NASCIO State IT Recognition Awards

Digital Services: Government to Citizen

***Covered California and the California Healthcare Eligibility,
Enrollment, and Retention System (CalHEERS)***

Kevin Cornish

*Chief Information Officer
Covered California*

kevin.cornish@covered.ca.gov

Rene Mollow

*Deputy Director
Health Care Benefits & Eligibility
California Department of
Health Care Services*

Rene.Mollow@dhcs.ca.gov

Lorna Eby

*CalHEERS Project Director
California Health and Human
Services Office of Technology
& Solutions Integration*

lorna.eby@calheers.ca.gov





EXECUTIVE SUMMARY

Health insurance isn't just about helping people with their medical bills. In California, everyone is healthier when they have access to affordable, high-quality healthcare.

The passage of the Affordable Care Act (ACA) in 2010 led to the creation of Covered California, a new state agency committed to providing Californians access to affordable, quality health coverage and care. A robust, secure digital platform was immediately needed to provide access to ACA benefits for nearly 40 million California residents.

Addressing this challenge, Covered California partnered with the Department of Healthcare Services (DHCS), California's Medicaid agency, to build a platform that will provide an engaging consumer experience and support California residents looking for affordable, high-quality healthcare. California grew to become the largest state-based health insurance marketplace empowering consumers to select name-brand health insurance at an affordable price. Providing access to Medicaid and private insurance payers, nearly a third of all California residents rely on Covered California's CalHEERS platform to meet their health coverage needs.

Eight years after its initial implementation, the effort required to enhance and maintain CalHEERS' legacy infrastructure and aging technology grew, and the platform became increasingly expensive to operate under the accelerated demand experienced during the COVID19 public health emergency. In 2022, CalHEERS occasionally exceeded the performance limitations of its legacy on premises infrastructure and struggled to manage the exceptional transaction demands and frequent feature releases of that time period.

By June 2023, the CalHEERS project, under the CalHHS Office of Technology and Solutions Integration and its systems integrator Deloitte, finished a multi-year journey to redesign and redeploy the platform as microservices in the Amazon Web Services cloud, leveraging human-centered design (HCD) process to improve CalHEERS' choice architecture ensuring California residents find the best healthcare plan. More than 1.78 million Californians chose a health plan through Covered California in 2024 on the updated CalHEERS platform – the largest number of enrollments of any state-based exchange since the passage of the ACA in 2010.

The speed with which changes are implemented in the updated CalHEERS platform continues to benefit millions of Californians. During the Medi-Cal (Medicaid) public health emergency unwinding period, when new automation initiatives needed to be implemented quickly to raise the ex-parte rate for Medi-Cal health insurance renewals and enhancements were identified for the automated Covered California plan selection for those who lose Medi-Cal coverage, changes were implemented within weeks, helping millions of Californians stay covered.

When an unexpected telecommunications outage impacted Covered California's consumer service center during the peak of open enrollment in January 2024, Covered California turned to the experienced CalHEERS project team to quickly implement a new cloud-based solution to restore call center access to the tens of thousands of consumer inquiries daily. Over the weekend, the project team implemented a new contact center solution in the cloud enabling 1,200 service center agents to continue supporting Californians' access to affordable, high-quality healthcare coverage.

With a modern platform deployed in the cloud, Covered California and DHCS are better prepared to empower millions of Californians to shop and compare health coverage that meets their needs and leads to better health outcomes for communities across the Golden State.



IDEA

Californians have the right to healthcare when they need it. Covered California is the state's health insurance marketplace, where Californians can find affordable, high-quality insurance from top insurance companies.

The Affordable Care Act has improved millions of lives over the past decade and is vital to the American health care system. Covered California and DHCS continuously work to realize the benefits of the ACA for the people who call the Golden State their home.

Roughly 70 percent of ACA health insurance transactions occur during a three-month open enrollment period, requiring investment in substantial on-premises computing and storage infrastructure to support demand. However, for the other nine months of the year, these assets were largely unused. As California explored a more efficient and scalable system, it looked toward the cloud and its ability to scale instantaneously to support the state's dynamic workload.

Furthermore, cloud technology offers an opportunity to reduce infrastructure costs, system downtime and application latency. Modern cloud technologies also improve system security and allow for increased adoption of future technologies and systems.

The old platform used proprietary technology, limiting its flexibility to customize the experience for California consumers.

Moving toward a new California-owned enrollment portal solution built on these new open-source technologies allows California to implement changes more quickly and enable future innovation that supports California's unique needs.

California had six primary goals in mind for its technology modernization effort.



1. Reduce total cost of ownership

Build an architecture that scales per usage and is less expensive to build and maintain.



2. Enhance customer experience

Build a modern UI/UX experience that is consistent, easy to comprehend, and applies human-centered design and choice architecture's leading practices to help consumers select the best health plan for them.



3. Increase uptime and flexibility

Provide performance and scalability to support the largest state-based health insurance marketplace and the 15 million Californians on Medi-Cal.



4. Manage vendor lock-in

Reduce commercial vendor "lock-in" through modular technologies focusing on commoditized platforms.



5. Improve delivery efficiency

Reduce the time and effort required to deliver policy updates and platform innovations to consumers.



6. Innovation through technology

Cloud-driven technology adoption maximizes business and operational efficiency while mitigating the risks of adopting rapidly emerging technologies.



of the new system was officially in production. Over the next several months, foundational components such as the container platform, the API gateway, a more secure identity solution, and a modern data warehouse solution were completed successfully.






Both initiatives would come together in May 2023 when the new PCAP enrollment portals and the new database platform jointly went live in production, replacing the legacy solutions. In June 2023, the final technology modernization of the business rules engine was released to production, completing the multi-year journey of improving the California customer experience on a modern cloud solution.

To measure the impact of these changes, the project team defined quantifiable metrics against the established goals. These helped articulate the future vision so sponsors and stakeholders would understand and be aware of key project activities and create buy-in on the modernization efforts. The team worked with internal and external business partners to minimize any downstream user impact, consistently testing various validation efforts, providing ongoing and transparent communication, and analyzing the progress against those goals to mitigate ongoing risk. This built top-down confidence in the project and allowed California to innovate and enhance the end-user experience.

IMPLEMENTATION

The approach to moving towards the new enrollment portals and a new technology platform on the cloud was made in multiple phases to maintain the ongoing critical business service delivery of health insurance. After migrating the platform as-is to the cloud, we followed with an innovation phase that reimaged the California consumer health insurance enrollment experience on a future-forward modern architecture that uses cloud-native technologies and minimizes proprietary legacy software.

In 2021, Covered California and the Department of Health Care Services approved two initiatives to start in parallel – the Plan Choice Assister Portal (PCAP) project and the Technology Refresh (TR) project. Project teams began analyzing the current landscape and defining the best approach considering California's needs. Following the same successful incremental implementation approach, by February of 2022, the first technology components

 <p>Modernization Kick-off</p> 	 <p>Platform OpenShift Container API Gateway 3scale & FUSE Address Validation SmartyStreet LW Phase 1 & 2 • Foundation • Demographics • IVR</p>	 <p>Security ForgeRock Identity & Access Mgmt. Solution Websaver Apache LW Phase 3 • Security • Correspondence • Dashboard</p>	 <p>Data Warehouse Databricks, Snowflake LW Phase 4 • Eligibility • Verification • Document</p>	 <p>LW Phase 5 • Account • Administration • Enrollment</p>	 <p>LW Phase 6 Partner Flow</p>	 <p>Content Delivery Network CloudFront</p>	 <p>Database Modernization Aurora PostgreSQL Plan Choice Assister Portal • Enrollment & Shopping Portal • Salesforce Portal</p>	 <p>Rules Engine Drools Decision Manager Partner Integrations Fuse </p>
	February	May	July	September	February	April	May	June
 2022					2023			

INNOVATING CLOUD SYSTEMS

The number of users of the platform varies dramatically; it can go from a few hundred users one day to 288,000 the next. At peak, over 170 million transactions are processed daily, and the near-infinite power of the cloud allows California to scale up to meet the demand.

California works with 43 state, federal, and industry partners on 72 external interface connections. Shifting these interface connections to the modern platform required close coordination to successfully implement system changes on both sides.

The overall number of components migrated to the new technologies was huge—more than 4,500 database code objects, 7,000 health insurance eligibility business rules, and millions of lines of application code needed to be migrated into the new target platform. It also needed to be secure since the system handles large quantities of personally identifiable information (PII), and the user experience needed to be fast, with Californians expecting sub-second response times when interacting online.



To meet the high bar on these expectations, California turned again to cloud platforms. Environments were built to mirror production size, and peak volume-sized transactions were simulated in these non-production environments. These cloud environments were scaled down to keep operational costs low when resources were less critical for testing. This allowed the project team to cost-effectively simulate millions of test conditions that would otherwise have been impossible without the cloud.

California also uses the cloud's high-reliability and geo-redundancy capabilities for a hybrid Production-Disaster Recovery solution. Workloads are deployed across a three-availability-zone architecture, with all three sites running in tandem and sharing the overall application traffic. These availability zones are the equivalent of physically isolated and geographically distributed data centers, each comprising one or more physical cloud data centers. The multi-availability-zone approach removes the need for the state to host a separate and typically underutilized Disaster Recovery environment.

Cloud automation technologies continue to increase California's ability to address and prevent issues before they occur, avoiding disruptions to the consumer's experience. Self-healing bots built into the new platform automatically detect anomalies, increase compute capacity to compensate for an unresponsive component, and route traffic automatically without operator intervention.

288K

The number of people on CoveredCA.com at the peak of open enrollment served by the new platform.



IMPACT

The experience of being in the cloud during the global pandemic not only underscored the importance of being future-ready through technology but also highlighted the need to continue scaling up and transforming the delivery of services to be ready for unexpected events that generate greater demand for government services and more significant influxes of new enrollments, as we saw with the COVID-19 Public Health Emergency and the American Rescue Plan.

However, in the years following the pandemic, it was evident that much work still needed to be done to improve services for California residents. With so many still reeling from the lingering impacts of the loss of coverage and confusion around employer-sponsored health insurance during the pandemic, California sought to modernize the platform to better serve the public by providing a seamless and efficient experience for Californians enrolling in health insurance.

Rather than sticking to traditional methods, California decided to innovate, working with its industry partners to leverage cutting-edge technology being used across enterprises and industries and scaling it to the program's needs and in the service of Californians.

SCALING TO SERVE CALIFORNIANS SEAMLESSLY

Covered California experienced the full benefits that the new cloud-native microservices architecture had to offer this recent open enrollment. Previously, on the legacy monolithic architecture, if a surge in demand occurred, the system would take up to 15 minutes to scale to meet that demand. With the new solution, if one microservice on the site saw an uptick in activity, the system would scale up that one service within 15 seconds to meet the consumers. This

1.78M

The number of people that signed up for health insurance through Covered California' during the 2024 open enrollment — an all-time high

provides for a consistent consumer experience. Breaking down the system into smaller microservices also allowed California to scale up individual microservices according to performance needs, resulting in a 50 percent improvement in the system's responsiveness.

Additionally, through this modernized system, the team can expedite system recovery time if the database services experience malfunctions. The old architecture required 90 minutes to recover from a database failure; now, consumers can access their benefits within 90 seconds when the unexpected occurs. California improved the system's resilience to disruptions and delivered better user service by providing a more seamless customer experience.

This most recent open enrollment shows the results with Covered California surpassing the previous record enrollment with 1.78 million Californians choosing a health plan through the health insurance marketplace, with 306,000 new enrollees and 1.47 million renewing their coverage.



Carlo Oakland, CA

Carlo suffered an injury that left him unable to walk — fortunately, he had signed up for health insurance at just the right time during a special enrollment period.

[WATCH CARLO'S STORY HERE](#) ▶

ENSURING COVERAGE FOR ALL CALIFORNIANS

During the COVID-19 pandemic, it is estimated that between 2 and 3 million Californians were at risk of losing insurance due to a lapse in eligibility at the end of the COVID-19 Public Health Emergency. The Families First Coronavirus Response Act (FFCRA) allowed continued coverage to individuals on Medicaid, referred to as the Continuous Coverage Enrollment Requirement, until the end of the COVID-19 Public Health Emergency.

On March 31, 2023, the Continuous Coverage Enrollment Requirement ended, and Medicaid agencies across the nation resumed the annual requirement to review Medicaid eligibility on April 1, 2023. California, the nation's largest Medicaid program, had approximately 16 million individuals on Medicaid in April 2023, and under federal requirements had 14 months to fully redetermine all individuals on the Medi-Cal program. This undertaking, referred to as the Continuous Coverage Unwinding, is the biggest healthcare event after the Affordable Care Act, due to the scale and the magnitude of impacted populations. As such, it was clear to DHCS that changes to the CalHEERS eligibility renewal business rules were required to help Californians transition their health insurance seamlessly in a post-pandemic world.

In August 2023, the CalHEERS policy and system teams met with the federal United States Digital Services (USDS) in Sacramento to focus on identifying key strategies in two workstreams: 1) improvements in the ex parte process and 2) non-ex parte-related processes to decrease the administrative churn for the disenrolled.

Enabled by the new CalHEERS technology platform, California implemented this system change within weeks of the USDS engagement (in late September 2023) for the

cohort of Medi-Cal members coming up for a December 2023 renewal. This change improved California's ex parte rate from an average of 34 percent to 66 percent for the December 2023 month of eligibility while decreasing the Medi-Cal disenrollment rate from 19-21 percent every month to 9 percent in December 2023. As a result of these efforts, hundreds of thousands of California residents retained their health insurance coverage without going through the challenging and lengthy renewal packet submission process.

HOW COVERED CALIFORNIA'S MODERNIZED SYSTEMS ENABLED AGILITY

Thanks to the new capabilities provided by modernizing the platform to cloud-native technologies by the start of the 2024 enrollment period, Covered California was able to quickly pivot when a crisis struck earlier this year. In January 2024, on the last few days of the open enrollment period, Covered California's third-party telecommunications vendor experienced a system outage with its on-premise call center solution. This added unforeseen complications and barred consumers from communicating with the department as they sought help determining the right plans for their coverage needs. To help Californians get the health insurance they need, the marketplace worked alongside OTSI and Deloitte, to implement a new solution using Amazon Connect. Over a long weekend, the team established a new and modern contact center for 1,200 agents to support Californians as they made their final enrollment decisions. By engineering the new architecture for the unexpected, Covered California was able to continue to provide critical help to California consumers.

WHAT'S NEXT?

The two initiatives – the Plan Choice Architecture Portal and the CalHEERS Technology Refresh – opened new doors for California through the flexibility that a modern, state-of-the-art cloud platform provides. The project team continues to explore technology innovations to improve system operations, including streamlining the document verification process, expanding the platform to other insurance affordability programs, and using technologies like AB testing to collect data to improve the consumer experience.

Beyond enhancing the system's capabilities, the project solidified the agency's commitment to harnessing innovation and human-centered design to identify enhancements. These enhancements are part of an ambitious annual 24-month roadmap that builds upon the strong foundation enabled through cloud technology. The project team is proud of its many accomplishments and strives for excellence in ensuring the people of California have access to affordable, high-quality healthcare coverage that is right for them