Business challenge

With AB 60 legislation allowing undocumented residents to apply for driver licenses fast coming into law, DMV was concerned its dated website would buckle under the pressure of millions of new users.

Transformation

IBM, the CDT and DMV worked together to migrate the website to Linux on the IBM z Systems platform. The three-times-faster solution effortlessly handled the surge and provides a completely stable service.

**Stacy Cockrum
Deputy Director and Chief Information Officer, California Department of Motor Vehicles**

Business benefits

Achieved

go-live within very tight deadline

3x faster

than the previous website infrastructure

Increases

DMV staff productivity by removing maintenance overheads

California DMV

California DMV helps the state implement AB 60 for safer roads

The California Department of Motor Vehicles (DMV) is a state agency that registers motor vehicles, and issues and revokes driver's licenses. It collects approximately USD 7.46 billion in revenues annually, employs more than 9,000 people, and oversees about 33 million registered vehicles and 25 million licensed drivers.

"The new IBM website infrastructure is more than three times faster than our old infrastructure."

—Stacy Cockrum, Deputy Director and Chief Information Officer, California Department of Motor Vehicles

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Mobilizing to implement the new bill

DMV had experienced growing issues with its website for a number of years, with support costs rising and service quality declining.

Stacy Cockrum, Deputy Director and Chief Information Officer at DMV, explains: "The website was not designed for the volumes it was supporting in 2013. We had issues with some of the major architectural components, and had experienced extensive outages. This was beginning to impact our customers' ability to process transactions, including applying for driver's licenses."

The website was running on what was felt to be an unnecessarily complex platform hosted at the California Department of Technology (CDT). The time DMV staff spent on managing the platform underpinning the website was distracting them from improving the existing functionality and adding new features.
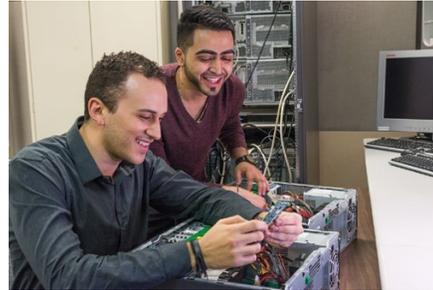
These concerns came to a head in 2013 when the California Legislature passed Assembly Bill 60 (AB 60), the Safe and Responsible Driver Act which gives undocumented residents the right to apply for and obtain a California Driver License. AB 60 was scheduled to go into effect on January 1, 2015. Following a DMV study of 23 years of crash data showing that unlicensed drivers are more likely to cause fatal collisions, the expectation is that AB 60 will improve road safety by increasing the proportion of tested and insured drivers on California's roads.

The State of California expects to process approximately 1.4 million new driver license applications over three years as a result of AB 60. In preparation, the DMV mobilized across all fronts to be ready to assist and provide customers with the necessary services. In particular, the DMV was concerned that its slow, outage-prone website, which was already struggling with its current workload, would not be able to support the anticipated surge in users.

Stacy Cockrum elaborates: "We set out to move applicants from our field offices onto the website wherever possible, so that we could help customers more efficiently and at lower cost to the taxpayer. This included modifying the online Field Office Appointment System to allow prospective applicants to make appointments up to 90 days beforehand, and using our website as a major public information conduit on AB 60."

Legislation similar to AB 60 had come into effect earlier in other jurisdictions such as the State of Colorado, where the equivalent website had experienced a surge of approximately ten times its normal usage and encountered major issues. With California home to many more undocumented people than Colorado, the DMV knew it needed to update its inefficient, unstable website and improve the Appointment System if it was to meet the surge in user numbers.

"We'd been unhappy with the website for a while, but AB 60 gave us the impetus we needed to address our concerns, within a tight time limit before the new law came into force," comments Stacy Cockrum.

Revamping the website

DMV engaged the CDT to assist with the challenge of bringing its website up to the level demanded by AB 60.

Stacy Cockrum notes: "The CDT was the obvious partner for us; as it has an unparalleled understanding of our needs as a state government department. It also gave us the ability to provision technology services off of the existing contract with IBM — in the end, the strong three-way partnership that developed between the CDT, IBM Global Technology Services and the DMV was critical to the success of the project."

This collaborative working relationship was particularly important given the project's strict deadline.

"The timeframe to find and implement a solution before AB 60 came into force on January 1, 2015 was very tight," says Kevin Piombo, Deputy Director Engineering Division at the CDT. "The DMV team approached us in March 2014 and wanted sufficient time to test the new website before opening it up to the public, giving us only eight months. Fortunately, we had discussions about the architecture in the past, and we already had the ideal platform in place by having Linux virtual servers running on the mainframe. All the same, it was a major project and one of the keys to our success was the quality of the working relationship between us, IBM and DMV."

DMV opted to migrate its website to Linux on the IBM® z Systems™ mainframe platform within our CDT-managed environment, freeing DMV from the burden of platform maintenance. The migration also involved replacing TIBCO enterprise service bus with IBM Integration Bus, and Oracle portal with IBM WebSphere® Portal Server.

The Linux virtual servers running the DMV website are guests of z/VM®, IBM's extremely mature mainframe virtualization platform, and run on dedicated Integrated Facility for Linux (IFL) processors. In addition to enabling tens to hundreds of guest images to run on a single z Systems server, z/VM offers ultra-fast provisioning, secure high-performance virtual networking, and transparent access to mainframe tools for scheduling, automation, performance monitoring and virtual machine management.

Stacy Cockrum comments: "Linux on z Systems is an extremely stable platform, which was one of our main priorities. The open architecture is also highly cost-effective and maximizes our development options. Because we're running on the IBM mainframe platform, we benefit from exceptional reliability, security and scalability."

Kevin Piombo adds: "The Linux on z Systems environment enabled us to strip away the complexity of the DMV's previous landscape. It also gave them access to ready-made backup and DR solutions for the mainframe, optimized by the CDT over a number of years. We have significant maturity on z Systems, and that, together with the extreme reliability and scalability of the platform, enables us to offer ultra high service levels at very cost-effective pricing."

Reaping the benefits of a fast, stable solution

The stability and speed of Linux on z Systems helped DMV enable the successful implementation of AB 60, shedding a positive light on the department at a time when all eyes were on it. Not only has the website effortlessly handled traffic levels that would have crashed the old system, it is also generally higher performing and more responsive.

"The new website infrastructure is more than three times faster than our old infrastructure," remarks Stacy Cockrum. "DMV experienced a surge in website users as expected, with a 90 percent increase in page views as a direct result of AB 60—within days of launch, the appointment system had booked all the available appointments out to 90 days. The DMV website sustained this additional workload with very moderate CPU usage and outstanding performance."

Today, with a stable, high-performance platform fully managed by the CDT, DMV can focus on serving citizens rather than on IT maintenance.

"We're saving extensive man hours that used to be spent on fire-fighting and maintenance—and generally when we had outages on the website, we'd have challenges in our operational areas as well," comments Stacy Cockrum. "Now we can concentrate on customer-facing operations and building new functionality without having to worry about IT issues."

As well as boosting staff productivity, the solution offers high cost-effectiveness thanks to the economies of scale enabled by the IBM z Systems platform's extraordinary virtualization capabilities. The new Linux on z environment is massively scalable, and immediately available to other State of California government departments, potentially decreasing everyone's IT costs as more organizations sign up to use it.

"The IBM solution offers great value for the money in terms of its scalability, potential to be shared by multiple organizations and the man-hours saved on maintenance," says Stacy Cockrum. "The work we did with IBM and the CDT to innovate and cut through red tape is another potential plus point for other government agencies. If there are other departments out there keen to improve performance and availability for key services, the collective experience we built up during the project will help them to ensure very fast payback."

Most important, with fewer unlicensed, untested drivers taking to the roads in California as a result of DMV's successful implementation of AB 60, road safety is set to improve throughout the state.

"Our new fast, highly stable website has been crucial in enabling DMV to smoothly handle the surge in driver license applicants and make AB 60 a reality, including freeing our staff from the burden of constant IT issues so we can focus on serving customers," concludes Stacy Cockrum. "We expect that more organizations within the state will join us in making use of this high-performance architecture, lowering the cost for everyone."

Solution components

- IBM Integration Bus
- IBM Global Technology Services®
- IBM WebSphere® Portal Server
- IBM z Systems™

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