CASE STUDY

Cloud Technology Meets Nonprofit Needs to Combat Homelessness

Homelessness and high technology might appear to be completely unrelated.

And yet, a series of applications built by developers working with Amazon Web Services (AWS) has put one of the fastest expanding technologies—the cloud—to use in easing homelessness in Orange County, California; a place known best for its theme parks and beaches, but also a region suffering the same social crisis affecting the entire country.

Orange County United Way—a nonprofit organization whose mission is delivering measurable long-term solutions to complex social issues—applied AWS technology to help alleviate homelessness during and after the COVID pandemic. And their solution could inspire other nonprofit organizations.

When nonprofit organizations have to respond to chronic, widespread humanitarian challenges and crises—whether they are pandemics or wildfires—the scalability that is an intrinsic part of cloud technology can give the organizations an edge. Using cloud technology, nonprofits can swiftly and cheaply ramp up to respond to surges in demand and then, when a crisis passes or money runs out, taper off services.

In the case of Orange County United Way, it worked with AWS to assemble an informal team and jointly develop three applications. The first program was the Homelessness Prevention Program, the second was

Emergency Rental Assistance, and the third was WelcomeHomeNetwork, which launched in July 2022. The WelcomeHomeNetwork application simplifies the process of connecting landlords who have vacant rental units to prospective tenants with housing vouchers from state, federal, or veterans' programs. The hope is that the application will expand the number of landlords who rent to tenants with vouchers.

In earlier work, Orange County United Way used an application that helped those who had been laid off at the beginning of the pandemic get emergency financial assistance, as part of a Homelessness Prevention Program. That program distributed $3.9 million in the form of $500 debit cards to 7,874 families. Another $2 million was distributed in other forms of assistance.

From that application evolved AssistOC, a platform, upon which the subsequent applications were built. As a result of Orange County United Way's success at distributing the debit cards, the county and two cities—Santa Ana and Irvine—contracted with Orange County United Way to distribute funds under an Emergency Rental Assistance Program. The second application used the platform to distribute rental-assistance funds beginning in March 2021 and ending in October. Together with the WelcomeHomeNetwork, the three applications have given Orange County United Way a reputation

for swiftly, securely, and accurately distributing financial assistance to populations in need.

Orange County United Way began investigating how other communities had reduced homelessness four years ago. One best practice, the organization found, was to establish landlord incentive programs. Orange County United Way then began such a program and has subsequently found housing for 720 individuals in the community, says Chris Ticknor, chief transformation officer for Orange County United Way.

Creating a platform to benefit both tenants and landlords

The program started out with a manual process—relying on email, phone calls and staff on keyboards—but the organization wanted to leverage technology to make the program easy to use for prospective tenants, and more appealing to landlords. "A lot of landlords are risk adverse," says Ticknor, "and taking on someone who is formerly homeless is a different process than the traditional rental applicant."

With the online application system, Ticknor hoped to boost the landlords' confidence by giving them a simple portal and a curated experience that accepts and tracks tenants' applications, making it easy for landlords to advertise newly available units. The application matches the desires of tenants for the features they are seeking, such as wheelchair accessibility or pet-friendly landlords, with available housing.

The application, says Ticknor, "speeds up the process of matching the inventory of voucher holders with the inventory units and gets them placed pretty fast."

But the application doesn't stop working after tenants move in. "We want to assure those landlords that we are there to help them handle any tenant/landlord interactions that they might experience," says Ticknor. Landlords may be curious how a tenant is doing or want to report

a broken lamp. Soon, instead of calling a hotline, the landlords can submit tickets through a portal and get a timely response from support staff. "It's very easy and convenient way for them to stay in the know about the status of their units and the status of their tenants," says Ticknor.

For Orange County United Way staff members, Ticknor says, encoding procedures in the application created a cultural shift, because there was more structure and teams could see trends and patterns allowing them to adopt strategies that focus on the needs in the field."

"This structuring has given us the ability to take a better, more standardized view of things, which allows us to quickly identify gaps in needs and where resources can be best be used," he says.

Ticknor says the application has broadened engagement with landlords, tenants, housing authorities, and case management agencies.

Building a foundation for change

In the spring of 2020, the pandemic was a new and terrifying phenomenon. For a nonprofit dedicated to serving the community, there was also an identity crisis: What could they do to help?

"Orange County's 211 call center was inundated with calls," says Leslee Stockton, sales manager for charities with AWS. "They couldn't keep up. On the other end of that, donor dollars were flooding in—people wanting to help their local community."

Some donors had specific requests, wanting to help furloughed hospitality workers, for example. If Orange County United Way was going to take those funds, they needed to track them.

Orange County United Way reached out to David Murray, an AWS solutions architect charged with helping some of AWS' biggest customers leverage emerging technology to their advantage. Murray has a deep interest in helping the homeless and has become known

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for that passion in Orange County. Given the severe impact of the pandemic lockdown in 2020, Murray also understood the urgency of the project. "Normally when you're designing an app like this, there's a lot of bureaucracy," says Murray. "There's a lot of design meetings, and it can go on for months. We knew we didn't have that much time."

The challenge, Murray explains, is how to give the users—homeless individuals, families or those at risk of becoming homeless—the ability to easily and securely upload reliable identification, such as a driver's license, and proof they had lost their jobs or had other income reduction due to the pandemic. Then the application's "owners"—Orange County United Way staff members—could determine that the individual who uploaded documents was eligible for aid. Given legitimate fears of identity theft, this all had to happen in a way, he says, that "would not break the trust of the user."

The cloud, explains Murray, can offer secure storage without United Way needing to buy new hardware. The managed service AWS offers could configure cloud technology to meet United Way's needs.

Murray regards technology as the easier part of designing applications. The hardest part, he says, "is trying to understand the humans who are going to be the touch points—the users and the owners."

Designers had to make the application easier to use than calling or walking into a United Way office, and more convenient for United Way staff members. "You're always competing against the simplest way for people to do their job," Murray says. "And you have to make it simple, otherwise there's no motivation to use it."

Understanding human needs, he says, probably took the most time out of the swift three-week sprint required of the team to create the application.

The developers also employed a technique called storyboarding, originally used in film and television but more recently imported into software design, to imagine users in different contexts and to construct the flow of their experiences as they do a task. Once human needs are met in software, says Murray, everything else in an application is just "icing on the cake"—from automation and chatbots, to the ability to generate reports.

Murray, who was nominated for an *Orange County Business Journal* "Innovator of the Year" award in 2020 for his work on the app, gives most of the credit to his fellow AWS team members, many of whom were new to the company and just out of its Professional Services Graduate Program. They "keenly jumped in when most of them had never even met me," he says, "and their enthusiasm and talent was what drove us over the line."

Once the application was in use, those who felt at risk of homelessness would call a 211 number to ask for help. They would be slotted into subsequent telephone appointments to avoid long, frustrating wait times. After appointments, document uploading, and verification, the agency could mail out $500 debit cards from an associated financial institution. The application was subsequently updated with the ability to do direct deposits.

Gathering metrics through on-demand detailed reports

Reporting is particularly important to nonprofit organizations, which often have restrictions placed on how donation money can be used. In addition,

nonprofits often have to spend government assistance or aid by a certain deadline, or else return unspent funds. Tracking manual spending is slow and error prone, says Stockton. To solve for that challenge, the developers used a service called Amazon Quicksight, which allows customers to make data-driven decisions by analyzing data and visually displaying it. For Orange County United Way, this has meant reporting performance in minutes instead of days.

The developers created a dashboard that allowed close to real-time tracking of how, where, and when money was spent. The organization could then provide reports to donors tailored to their interests and in a visual format relevant to the data. These reports, which make donors and funders feel they are part of the philanthropic journey, are now generated by the team within minutes, versus the days it took them previously.

"They saw us as the best stewards of their funds," says Ticknor, and saw "how their money was being spent on the demographic or the segment of the community that they wanted to serve."

Working in the cloud, Ticknor says, encourages innovation because costs are low and developers can spin up features, check the utilization rates of those features, and choose to keep the ones that are working and eliminate those that aren't. Fear of failure is less apt to inhibit innovation.

Speed, Stockton emphasizes, is another benefit of cloud technology: "You can take your data, the way it's sitting today on disparate, siloed systems," she says, "and you can take months, weeks, and days to make a decision. Or, you can do the same thing in hours, minutes, and seconds."

For Stockton, the Orange County United Way experience highlights how AWS works. AWS emphasizes customer needs, she says, not the 200 or so services the company offers. "We want

to figure out what a customer is trying to solve." Then, Stockton says, "we'll work backwards into how we can build a solution for them with the building blocks we have."

Digital disruption in the nonprofit world

As Ticknor sees it, the nonprofit world is facing the digital disruption that swept through the corporate world over the last two decades. Individual donors, for example, have become accustomed to online crowdfunding platforms, where they can track progress toward a goal, get a direct sense of the recipient, and enjoy a surge of satisfaction when they see someone has been helped. Traditional nonprofits may need to mimic the transparency and speed of that crowdfunding experience, he says.

In the future, Ticknor hopes to use predictive analytics with the data that Orange County United Way has access to. Such an analytic approach might be able to determine when someone is likely to fall into homelessness and what needs to be done to prevent that.

For organizations considering technological change, he says, some might find it "hard and scary" at the beginning. But the results will come quickly, giving leaders the confidence that they made the right decision. "Using cloud technology has increased our efficiency, transparency and ability to scale," says Chris Ticknor. "It has allowed us to be malleable to the changing needs in our community at a speed never thought possible."

If you think an application like the ones described within this case study could benefit your nonprofit organization, please reach out for a consultation by contacting one of our AWS account representatives today.