



## **The digital front door:**

Bringing the full-cycle  
consumer experience  
to healthcare

## Healthcare has a customer experience problem, and it's impacting both care quality and the bottom line.

To give it some context, "healthcare as an industry has the lowest Net Promoter Score of any industry," says healthcare transformation activist Dave deBronkart.<sup>1,2</sup> On a scale in which a 50 is considered good, healthcare's NPS hovers somewhere near 15. By comparison, companies such as Amazon, Starbucks, Apple and Netflix are above 60.

Brand leadership expert Denise Lee Yohn agrees, noting "the problem is that healthcare companies should design patient experiences like companies design customer experiences, but they're not."<sup>3</sup> Instead, patients struggle with repeated requests for the same basic demographic information, antiquated website search functions that make it impossible to find nearby physicians, and multiple forms to fill out manually at numerous check-in stations.

Perhaps that is why 81% of consumers are unsatisfied with their healthcare experience.<sup>4</sup>



Healthcare companies should **design patient experiences** like companies design customer experiences, but they don't.

Indeed, it is time for the full-cycle consumer experience to come to healthcare. Nearly every other industry — from automotive, to banking, to entertainment — has implemented digital tools to improve customer experience.

To fix these problems, Amazon Web Services (AWS) is bringing digital tools to healthcare. Health systems and health plans can now build cloud-based infrastructures to manage the entire omnichannel relationship with patients and other healthcare consumers. This "digital front door" is the seamless experience that welcomes and guides patients from discovery of health services through discharge and follow-up, whether they engage through a website, call center, patient portal or physical door.

The full-cycle experience is not only the right approach for patients, it also leads to higher revenue and reimbursements. US hospitals that provided a “superior” patient experience gained net margins that were 50% higher, on average, than those with an “average” customer experience.<sup>5</sup> And for a health plan with \$1 billion in annual revenue, even a moderate improvement in customer experience would potentially generate an additional \$491 million over three years.<sup>6</sup>

More importantly, patient follow-up has been associated with meaningful reductions in readmission rates for patients with chronic conditions and an elevated risk of readmission.<sup>7</sup> Therefore, hospitals with the digital tools to effectively follow up with patients post-discharge can earn higher CMS reimbursements for Medicare and Medicaid recipients and more effectively manage all members.



## There's an ideal care pathway for you.

What we want to do is personalize the consumer health journey using machine learning, so that we can serve the right assets at the right time to nudge you down the right care path so you get the best treatment.

— **Shez Partovi, AWS Director of Worldwide Business Development for Healthcare & Life Sciences**

### The digital tools

The tools made available by AWS to healthcare organizations originated in the Amazon online retail environment. They come with more than a decade of expertise in creating superior customer experiences. These are the same tools used by Netflix to help movie-lovers discover their new favorite movies based on their preferences and previously watched shows, and by The New York Times to personalize the news homepage experience.

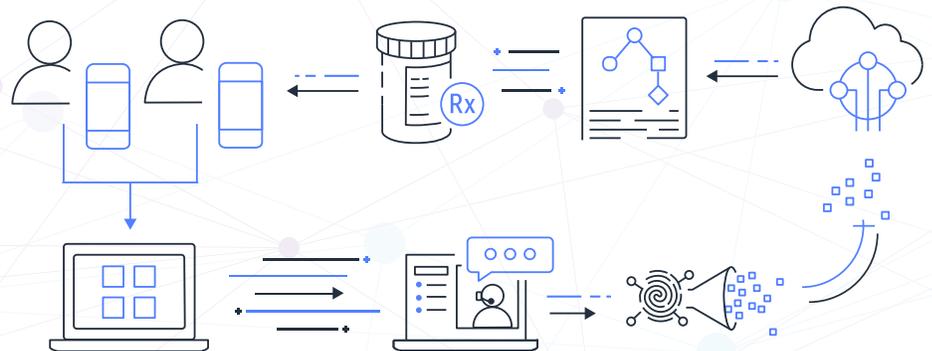
“These are world-class, mission-critical applications used by Fortune 50 companies that we are now moving into healthcare,” explains Shez Partovi, AWS Director of Worldwide Business Development for Healthcare & Life Sciences.

Here are just a few of the ways they are being implemented in healthcare:

**Amazon Personalize** uses machine learning to serve up the assets and information most likely to encourage a patient to take meaningful actions, such as to make an appointment, refill a prescription or even pay a bill.

Critical to this is AWS' omnichannel approach — the ability to manage interactions across both digital and physical touchpoints. On a health system's website, for example, Personalize recognizes consumers and learns their interests, surfacing additional information to assist in researching medical conditions or sorting through a daunting physician directory to recommend the most appropriate choice. Via email and text, Personalize can help payers send recommended content proven to have the highest likelihood of getting patients to schedule a mammogram, or it can pro-actively provide information about a healthy eating plan. It also recognizes where phone calls might be more effective for exercise coaching, or if a patient would be more likely to join group support if their physician recommends it during the yearly exam.

**These are world-class, mission-critical applications used by Fortune 50 companies that we are now moving into healthcare.**



Omnichannel engagement is facilitated through **Amazon Pinpoint**, which allows the health system to recognize consumers when they interact with it, and to put together a profile of how best to communicate for optimal care. Pinpoint knows whether to email, text or call a particular patient to get the highest engagement, and it manages identity so that patients don't have to "introduce themselves" with the same forms again and again.

Medlife, an online pharmacy and one-stop healthcare platform in India, uses Pinpoint as part of its system for efficient prescription refills.<sup>8</sup> An alert, appropriately formatted for engagement, notifies a patient that a refill is due. The patient then clicks a link to request the refill, GPS tracking finds the patient to schedule a delivery, a text message lets the patient know the prescription is on the way, and another text message follows up for feedback. This is much more consumer friendly than the typical US patient's multi-call — sometimes multi-day — process to refill a prescription.

**Amazon Connect** uses chat bots, automated messaging and human operators to streamline and customize the call center experience.

NHS, the largest healthcare provider in the UK, used Amazon Connect, which leveraged AI services such as Lex and Polly, to build an automated system to handle repetitive calls regarding its European Health Card.<sup>9</sup> The system reduced volume to the call center by 40% — a meaningful reduction for a center that handles close to 5 billion calls a year. Automation also contributed to a cost savings of \$650,000 and converted the call center from 9-to-5 operation to a 24-7 resource for consumers.

ChartSpan, the largest managed service provider of chronic care management programs in the US, used Connect to revamp an ineffective call center platform that was costing millions due to repeated outages and performance issues. The new AWS contact center platform increased staff productivity by 12% and decreased costs by 80.5% due to Connect's consumption-based pricing.<sup>10</sup>



The **Alexa Healthcare Skills Kit** adds voice interaction to health and wellness, and healthcare organizations are building Skills designed to help consumers manage a variety of healthcare needs at home using voice commands.<sup>11</sup> Cigna Health Today allows eligible employees with one of Cigna's large national accounts to manage their health-improvement goals and increase opportunities for personalized wellness incentives. Patients can use Swedish Health Connect, developed by Providence St. Joseph Health, to find a nearby urgent care center and schedule a same-day appointment.

"Alexa Healthcare Skills is instrumental to the digital front-door strategy," says Wilson To, Worldwide Head of Healthcare Business Development at AWS. "It allows organizations to extend engagement capabilities beyond their walls, meeting patients where they are today to provide information through a voice experience."

## Security, scalability and flexibility

Effective consumer engagement depends on the strength of the platform that supports it. With AWS, the backbone of the digital front door is its cloud infrastructure. First and foremost, engagement tools are driven by consumer behavior and identity data, which AWS stores and protects with the highest-level security standards including HIPAA, HITECH and SOC.

“We’re able to offer a greater degree of security than anything on premise,” says Pat Combes, Worldwide Technical Leader for Healthcare & Life Sciences at AWS. Indeed, the healthcare industry’s pivot to the cloud is evidenced by a recent Black Book Research survey: 91% of hospital CIOs now believe that cloud computing is the most agile and effective way to manage data.<sup>12</sup>

Further, the AWS cloud infrastructure is “engineered to scale with the last-mile delivery in mind for customers,” Combes notes.

This security and scalability delivers seamless interaction for a health system’s end users. For example, AWS services ensure that CMS’ healthcare.gov website can scale to handle hundreds of thousands of simultaneous users during peak insurance signup periods.<sup>13</sup>



AWS also helped MedStar Health, the largest nonprofit healthcare provider in Maryland and the Washington, D.C., region, consolidate 102 web properties into a single dynamic destination for patients. In doing so, MedStar was able to reduce downtime from 120 minutes to less than 5 minutes per month, as well as decrease download times from 1,500 milliseconds to 250 milliseconds.<sup>14</sup>

Flexibility is also important, and AWS customers have access to the entire suite of tools — from customer engagement to data storage — with the option to use as much or as little as they want. AWS does not require customers to migrate platforms; they can integrate what they need via tools such as API, software development kit or command-line interface, and they are not charged for functionalities they don’t need or don’t use.

## The future of healthcare

With digital engagement tools and a strong cloud-based infrastructure, the full-cycle consumer experience available to airline frequent flyers and Amazon retail shoppers can now remove the friction of interacting with the health system. It provides the tools for healthcare organizations, both providers and payers, to educate, engage and ultimately empower their communities to take ownership of their own health.

Both the healthcare experience and patient outcomes will see meaningful change when providers and payers harness this technology to recognize patients when they enter the digital front door and to guide them along their care journeys.

“There’s a lot that can be learned from patient engagement and used to improve treatment in the future,” Combes notes. “We are passionate about deploying our technology to customers so they can transform healthcare and improve patient outcomes.”

## References

1. PwC. Four ways healthcare can improve customer experience. March 27, 2018. Retrieved May 27, 2019, from <https://usblogs.pwc.com/emerging-technology/four-ways-healthcare-can-improve-customer-experience/>.
2. e-Patient Dave Website, About. Retrieved May 26, 2019, from <https://www.epatientdave.com/about-dave/>.
3. Forbes. Healthcare Companies Should Design Patient Experiences Like Customer Experiences. February 15, 2017. Retrieved May 27, 2019, from <https://www.forbes.com/sites/deniselyohn/2017/02/15/healthcare-companies-should-design-patient-experiences-like-customer-experiences/#56bf31ae6038>.
4. Prophet and GE Healthcare Camden Group. The Current State of the Patient Experience. Retrieved May 14, 2019, from <https://www.prophet.com/patientexperience/the-current-state-of-the-patient-experience.html>.
5. Revcycle Intelligence. High Patient Experience Scores Boost Hospital Net Margins by 50%. May 11, 2016. Retrieved June 3, 2019, from <https://revcycleintelligence.com/news/high-patient-experience-scores-boost-hospital-revenue-by-50>.
6. Tempkin Group. ROI of Customer Experience, 2018. August 2018. Retrieved May 14, 2019, from <https://temkingroup.com/product/roi-customer-experience-2018/>.
7. Annals of Family Medicine. Timeliness of Outpatient Follow-up: “An Evidence-Based Approach for Planning After Hospital Discharge. March 2015. Retrieved May 28, 2019, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4369604/>.
8. AWS. Medlife Uses AWS to Efficiently Manage Containers and SMS. Retrieved May 28, 2019, from <https://aws.amazon.com/solutions/case-studies/medlife/>.
9. AWS. NHS Business Services Authority Case Study. March 4, 2019. Retrieved May 28, 2019, from <https://www.youtube.com/watch?v=pBxUg6Mx7Y>.
10. AWS. ChartSpan Customer Testimonial. Retrieved May 15, 2019, from <https://aws.amazon.com/connect/customers/>.
11. AWS, Alexa Blogs. Introducing New Alexa Healthcare Skills. April 4, 2019. Retrieved June 3, 2019, from <https://developer.amazon.com/blogs/alexa/post/ff33dbc7-6cf5-4db8-b203-99144a251a21/introducing-new-alexa-healthcare-skills>.
12. Siwicki, Bill. Next-Gen Cloud Computing: How Healthcare Can Prepare for the Future. Healthcare IT News. August 1, 2018. Retrieved April 3, 2019, from <https://www.healthcareitnews.com/news/next-gen-cloud-computing-how-healthcare-can-prepare-future>.
13. AWS. Healthcare.gov Case Study. Retrieved May 14, 2019, from <https://aws.amazon.com/solutions/case-studies/healthcare-gov/>.
14. AWS. MedStar Health Case Study. Retrieved May 14, 2019, from <https://aws.amazon.com/solutions/case-studies/medstar-health/>.



For more information about AWS  
in Healthcare and Life Sciences,  
go to <http://aws.amazon.com/health>