



Business challenge

Taking on tens of millions of members each year, how could SinfoniaRx ensure fast, accurate analysis of prescription data to help improve patient outcomes and save healthcare providers millions?

Transformation

As demand for its healthcare data analytics services rocketed, SinfoniaRx needed a data-processing platform capable of huge scalability and uninterrupted performance. Choosing IBM® LinuxONE™ has helped the company grow to serve one in every seven U.S. citizens, and deliver billion-dollar cost savings to the nation's healthcare industry.

Business benefits

>\$1B
in cumulative savings delivered to the healthcare industry

>20M
members onboarded within a single year with no impact on performance

1 in 7
U.S. citizens served with potentially life-saving analytics

SinfoniaRx

Delivering better patient outcomes and billion-dollar savings through analytics

SinfoniaRx is an industry leader in Medication Therapy Management (MTM) services, helping optimize medication use and improve the health of patients with chronic illness. Its highly customizable MTM programs support approximately 50 million patients in across more than 350 health plans.

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— Jeffrey Pochily, VP of Network Infrastructure, SinfoniaRx

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Tackling medical complexity

Therapeutic drugs are the cornerstones of modern healthcare. According to the National Center for Health Statistics, part of the Center for Disease Control and Prevention (CDC), almost 50 percent of U.S. citizens have used at least one prescription drug in the last 30 days, 23.1 percent have used three or more prescription drugs, and 11.9 percent have used five or more.

From the perspective of patients, it's important to ensure that any given combination of drugs does not diminish their therapeutic effect or create harmful side effects. For doctors and other medical professionals, it is critical to ensure that patients actually take the drugs prescribed to them, in the correct way and at the correct time. Finally, for healthcare plans and insurance providers, there is an economic factor: by eliminating unnecessary or unused prescriptions, the industry can retain more money for the benefit of all patients.

With thousands of prescription drugs approved for use by the Food and Drug Administration (FDA), it is no easy task for doctors and pharmacists to determine the right combinations of medication for each patient, or to keep track of how closely those patients follow complex sets of

instructions. SinfoníaRx was established in 2006 by the University of Arizona College of Pharmacy to address these needs by pioneering modern Medication Therapy Management (MTM) services.

The company has a team of pharmacists solely focused on providing medication reviews and clinical interventions to improve health, wellness and the management of chronic health conditions. Each patient gets a comprehensive medication review, and SinfoníaRx works with them and their doctors on an ongoing basis to optimize treatment plans. This includes monitoring the medications they take to ensure that they are safe, effective and being taken correctly.

Jeffrey Pochily, VP of Network Infrastructure at SinfoníaRx, comments: "Our MTM programs support around 50 million patients, largely through our client relationships with more than 350 health plans. At the heart of the business is our custom-built analytics software, which crunches the huge quantities of updated prescription data we receive every day. We run hundreds of complex business rules to flag potential clashes between drugs, and we provide detailed individual reports and alerts to both doctors and patients based on deep trend analysis.

"Given our scale and very rapid growth—for example, in the last calendar year, we doubled the number of patients we serve—we recognized a few years back that we needed a truly exceptional platform for data processing. We required consistent performance in dealing with large volumes of data – our current prescription database is over 600 GB. We also needed the ability to keep doubling our business without concern about outgrowing the underlying hardware. Throw into the mix the need for rigorous security around sensitive data in a highly regulated industry, and you have a pretty big challenge in finding the right platform."

Unprecedented performance and scale

To address its challenges around scale, growth, security and performance, SinfoníaRx relies on IBM LinuxONE running the IBM Db2 database as the core platform for its business. The company recently bought its second IBM Linux-only enterprise server, moving the original machine to act as a disaster-recovery option in a second location, and using Db2 native data replication to mirror production data. The application servers (both production and

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—David Armenta, Director of Infrastructure, SinfoníaRx

integration/testing) run alongside the database servers on LinuxONE, all virtualized on SUSE Linux Enterprise Server. Development sits on an x86 server, and the resulting PHP code runs without modification in the Apache environment on LinuxONE.

David Armenta, Director of Infrastructure at SinfoníaRx, recalls: "One of the constraints we faced when we first selected our enterprise platform was our small IT operations team. We needed a solution that we could easily adopt and then scale, without having to take on the challenges of building a distributed application. LinuxONE means that we can avoid the need to change our application architecture as we grow, because we can just keep adding processors and memory on scales that distributed or cloud infrastructure simply doesn't offer."

Pochily adds: “Scalability is one key factor that keeps us on LinuxONE. We’re already serving approximately one in seven U.S. citizens, and we expect to grow by about 30 percent next year. With IBM, we believe we can meet whatever challenges we face and we’re using one of the smaller systems in their toolkit.”

Running on LinuxONE gives SinfoníaRx the flexibility and low cost of Linux, combined with the bullet-proof reliability of an enterprise server platform that also supports many of the world’s largest companies. For clients, this provides the reassurance that SinfoníaRx will consistently deliver potentially life-saving analyses and alerts.

“We are a significant, increasingly high-profile partner to the U.S. health industry, and of course we are also a trusted part of each patient’s treatment program,” says Pochily. “For these reasons, it is vitally important that we deliver our analytics and reporting on time and without interruption. LinuxONE gives us the confidence that we can meet our clients’ needs even as our business continues to grow rapidly.”

End-to-end support

Beyond the IBM LinuxONE hardware and Db2 software, Pochily highlights the contribution of the support from

both IBM and Sirius, an IBM Business Partner. “The support from IBM and Sirius is superb. IBM stands behind its products and really commits resources to keeping us informed. IBM has made available to us some of the brightest people I’ve met in this space—I don’t feel that we would get this kind of support with commodity hardware or a cloud services provider.”

Armenta adds: “The Sirius consultants do a fantastic job of filling in the gaps where we don’t have expertise—that has been critical for us, given our small team. They’re always able to support us, and they have the experience to quickly help us get to where we need to be. It’s also really hard to tell where IBM stops and Sirius starts—it just feels like one extended team supporting us, which makes it completely frictionless.”

Maintaining clients’ trust

In the healthcare industry, security is paramount, and regulation is intense. This makes it imperative for healthcare providers to choose data partners that comply with all necessary standards. For SinfoníaRx, the tried-and-trusted enterprise security on LinuxONE is the base element in protecting sensitive data, with IBM Security solutions layered

around it: IBM Security AppScan®, IBM Security QRadar® SIEM, and IBM Security Guardium®.

SinfoníaRx recently completed the audit process for the HITRUST certification, and Pochily comments that IBM was the strongest of its vendors in this process. He says, “We needed to be able to track everything that happens to our data at the database level—who viewed any individual record, and who made changes. Guardium enables us to do that, and QRadar gives us vital visibility into activity at the network level. We also use AppScan every time we do a release, looking for vulnerabilities in our coding, so certainly our IBM products solve a lot of our challenges on the security front.”

Having what amounts to a private cloud running on LinuxONE also provides security benefits according to David Armenta, who says, “There are many security researchers who are skeptical about the strength of hypervisors on the big public clouds. For us, it feels as though the risk is much lower when the infrastructure belongs to you, because you can see every way in and out of the box. It also means we know exactly where our data resides, which is important in an audit scenario.”

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Pochily adds: “We hear cloud-hosted businesses saying, ‘Oh, we don’t have to worry about hardware’, but that’s also what I would say. LinuxONE is super-reliable and every component has built-in redundancy, plus I have IBM services and Sirius monitoring its health all the time. For us, it’s the best of both worlds: as in the cloud, we don’t have to worry about the hardware, but we also have the peace of mind that everything sits inside our firewall.”

Improving patient outcomes and saving cash

IBM LinuxONE and Db2 support rapid, reliable analysis of billions of lines of data, translating into fast, insightful reporting to SinfoníaRx’s

clients and their patients. When the system identifies potentially harmful clashes between drugs, alerts go out to doctors and their patients, enabling them to avoid potentially life-threatening complications. Beyond the immediate benefits to patient outcomes, the intelligent reporting delivered by SinfoniaRx helps reduce both unnecessary prescriptions and the need for repeated medical interventions, saving huge amounts of money for the industry.

Pochily comments: “We recently reached the point where we have cumulatively saved the healthcare industry one billion dollars, based on our clients’ own estimates of the ROI for events such as identifying a conflict that removes the therapeutic effect of a drug. Our biggest goal is to reduce the incidence of patients having to go back to the hospital for

further treatment, which is good not only for the patients but also in terms of avoiding increased healthcare expenditure.”

Equipped for the future

Armenta says: “A lot of software today is licensed according to the number of processors, so a key advantage of LinuxONE is the efficiency of virtualization, which means that we can use a small number of CPUs to run a large number of virtual machines. We have six processors activated and we think we would need at least 30 CPUs in a distributed or cloud landscape to manage the same workload.

“As we grow, it’s a quick and painless process to fire up new processors or upgrade the memory within the existing LinuxONE machine.”

The expectation of continued rapid growth will be the biggest challenge facing SinfoniaRx. One of the elements that gives the company full confidence in its ability to serve both existing and new clients is the robustness and scalability of the LinuxONE platform.

Pochily concludes: “As we continue to expand our business, LinuxONE helps ensure that there’s no impact on the performance, reliability and security of our most critical analytics applications. We don’t see any convincing rivals to LinuxONE in terms of its non-disruptive scalability, and we look forward to bringing the therapeutic and economic benefits of our solution to many more clients and their patients in the future.”

Solution components

- IBM® Db2®
- IBM LinuxONE™

Connect with us



Take the next step

To learn more about IBM LinuxONE, please contact your IBM representative or IBM Business Partner, or visit the following website: ibm.biz/linuxoneconsolidation

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