



The best of both worlds

Security and agility come together for the University of Mainz Medical Center

by Leah Valentine

5-minute read

Privacy is an essential component of healthcare.

Often, healthcare providers must sacrifice speed or accessibility in favor of keeping patients' information confidential. But when Germany's University of Mainz Medical Center faced heightened urgency because of the COVID-19 pandemic, the organization found a way to maximize both speed and privacy: an IBM hybrid cloud environment featuring [IBM Cloud Satellite™](#) technology.

The University of Mainz Medical Center worked closely with the IBM consulting team to develop four successful applications aimed at simplifying operations during the pandemic: a chatbot to answer patient questions, a COVID-19 testing and



vaccination logistics solution, a secure solution that allows healthcare workers to communicate via mobile devices and a platform for research studies.

“We have the best of both worlds at our disposal: the combination of the IBM hybrid cloud technology together with IBM Cloud Satellite technology allows us to use data-sensitive information in one environment, but also use anonymized data in a very agile and quick set-up environment.”

Dr. Christian Elsner, Chief
Technology Officer, University
of Mainz Medical Center

Designed, built
and launched four
solutions in

4

months

Completed by
a team of

20

people

Addressing the crisis

In the early days of the pandemic, staff at the University of Mainz Medical Center were inundated with calls from citizens with questions about the virus. To free up staff for more direct patient care, the organization turned to IBM for help developing an automated response system that would answer patients' most frequently asked questions. "In just three weeks, we went from a complete prototype to a practical, usable chatbot system that was connected with our phone line," says Dr. Christian Elsner, Chief Technology Officer at the University of Mainz Medical Center. "It was a very, very impressive showcase of technology. Our people experienced what it means to use technology to allocate time in a crisis situation."



That experience proved useful shortly thereafter, when the state government of Rhineland-Palatinate asked the University of Mainz Medical Center to

create a multi-lane COVID-19 testing site that would keep patients' data private, maximize their safety and offer a quick, easy way to test for the virus.

Dr. Elsner describes the approach IBM and the University of Mainz Medical Center took to this challenge: “What we saw in this case was really the hybrid cloud principle at work. We were able to start off in the secure hybrid cloud environment with complete approval from our data security officer. We didn’t need to set up all the technical resources at our site first — we could start in the cloud environment. And it was all Red Hat OpenShift, so it was easy to move to our on-prem environment afterward.”

Once the solution was up and running, patients could use an app to describe their symptoms and set up their appointments. The solution assigned each patient a QR code. When patients arrived at the testing center, the code was scanned, and the information was decrypted using on-premises servers.

After testing became more widely available, the team used the same approach to set up appointments for COVID-19 vaccines — with one exception: for the second iteration, the team took advantage of IBM Cloud Satellite technology, replacing the cloud servers with IBM Cloud Satellite servers hosted on premise. This was among the first times IBM Cloud Satellite was used in a healthcare setting, and the change was completely transparent to the team at the University of Mainz Medical Center because the security and agility remained the same.

Next, Dr. Elsner and his team turned their focus to another challenge made more urgent by the pandemic — communication among healthcare personnel. Because of privacy laws, hospitals and other healthcare

facilities are very limited in terms of how they can communicate digitally. To address the problem, the University of Mainz Medical Center hosted a hackathon, during which teams used [Red Hat® OpenShift®](#) technology, along with the Matrix platform, to enable fast and security-rich communication for medical staff via computers, cell phones and other medical devices.

“Exchanging healthcare data comes with high security standards, and the COVID-19 situation means we need very fast development cycles,” explains Dr. Elsner. “For us, it was ideal to have the IBM hybrid cloud environment to do exactly those things. Normally, you have agility, but you don’t have security. Those two things are perfectly combined with IBM Cloud Satellite technology.”

Lastly, the University of Mainz Medical Center is using IBM Cloud technology for [COMPASS](#) (external link), a project funded by the German Ministry for Research and Education. Dr. Elsner explains: “What we developed together with IBM was an open-source platform, which is kind of an operating system for clinical trials. It’s a cloud-native app, but also a web-based app which allows us to collect distributed data. For example, in one clinical trial we are doing, it collects fitness tracker data.”

Though the platform’s initial focus is on COVID-19 research, Dr. Elsner anticipates that its agility and security will lend the solution to many more studies in the future. “We developed it as a general platform that can be applied to any clinical health study,” he explains.

“A cross functional team was able to go from ‘yes, let’s do this’ to a fully developed solution in four months. It was ridiculously fast.”

Dr. Christian Elsner, Chief Technology Officer,
University of Mainz Medical Center

Ready for more

The healthcare industry has faced an unprecedented number of challenges since the first COVID-19 patient was identified. For the University of Mainz Medical Center, those challenges have resulted in an ability to move quickly to develop and deploy digital solutions. “A cross functional team was able to go from ‘yes, let’s do this’ to a fully developed solution in four months,” says Dr. Elsner. “It was ridiculously fast.”

And with the built-in security features and containerized portability inherent in IBM Cloud technology, Dr. Elsner and his team know they have a solution for the long term. Dr.

Elsner concludes: “We have the best of both worlds at our disposal: the combination of the IBM hybrid cloud technology together with IBM Cloud Satellite technology allows us to use data-sensitive information in one environment, but also use anonymized data in a very agile and quick set-up environment.”



About the University of Mainz Medical Center

Based in the town of Mainz, Germany and located about 30 minutes from Frankfurt airport, the [University of Mainz Medical Center](#) (external link) encompasses a 1,500-bed hospital and an outpatient facility where more than 280,000 patients are seen annually. The center employs 1,200 doctors and 2,900 nurses.

Solution components

- IBM Cloud Satellite™
- Red Hat® OpenShift® on IBM Cloud®

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