



HPE COMPOSABLE INFRASTRUCTURE PLATFORM FUTURE-PROOFS IT AT NETHERLANDS CANCER INSTITUTE

HPE Synergy and HPE ProLiant DL380
speed research, drive efficient care

Industry
Healthcare

Objective
Improve IT agility and performance to support demanding research projects and dynamic clinical services

Approach
Leverage HPE Synergy composable infrastructure for virtual server environment and HPE ProLiant DL380 Gen10 cluster for virtual desktop infrastructure (VDI)

- IT matters**
- Reduces research batch jobs from one hour to 10 minutes
 - Increases agility to run diverse clinical and research workloads
 - Future-proofs IT infrastructure to handle constantly evolving business needs

- Business matters**
- Accelerates research in life-saving cancer treatments
 - Frees clinicians to focus more time on patient care
 - Provides versatile platform to explore new research hypotheses



With an HPE Synergy composable infrastructure platform and HPE ProLiant DL380 Gen10 cluster, the Netherlands Cancer Institute-Antoni van Leeuwenhoek (NKI-AVL) is accelerating research and enhancing efficiency for clinicians. As a result, the high-performance, highly flexible HPE infrastructure is helping NKI-AVL advance discoveries of new cancer treatments and enabling physicians and nurses to spend more focused time on patient care.

“THE HIGH PERFORMANCE WE CAN ACHIEVE ON THE HPE CLUSTER MEANS RESEARCHERS CAN PROCESS JOBS FASTER AND REACH THEIR GOALS SOONER. IT RAISES THE STANDARD OF THEIR RESEARCH FOR SUBMITTING THEIR RESEARCH FINDINGS TO PUBLICATIONS. IT’S CRUCIAL FOR MAKING ADVANCEMENTS IN CANCER DIAGNOSES AND TREATMENT.”

– Mark Platte, IT Architect, Netherlands Cancer Institute

Netherlands Cancer Institute future-proofs IT with HPE Synergy composable infrastructure and HPE ProLiant DL380 Gen10 cluster, accelerating research and improving efficiency of patient care.



The NKI is widely regarded as one of the foremost cancer research centers in the world, committed to advancing new methods for cancer diagnostics and treatment. In collaboration with the Antoni van Leeuwenhoek in Amsterdam, the institute is also a leading provider of specialized care for cancer patients.

There is a vital bond between research and care at NKI-AVL, where new discoveries can lead to more effective patient treatments, and insights gained by clinicians who feed important data back to researchers. In fact, both areas of the organization run on a common IT infrastructure. However, the advantage of a close working relationship also presents a challenge: Patient data and other personal information on the clinical side must be kept private, while researchers want to share as much data as possible to further advance their work.

To meet that challenge, NKI built a software-defined data center on an HPE infrastructure, virtualized with VMware® to create segregated and easily managed compute environments. For years, the institute was standardized on the HPE BladeSystem c7000. Now, to gain greater versatility and automation for the future of cancer research and treatment, NKI has migrated to the HPE Synergy composable infrastructure platform, the next-generation of HPE BladeSystem.

For its VDI environment, the institute also built one of the largest compute clusters in the Netherlands based on 78 HPE ProLiant DL380 Gen10 Servers, powered by Intel® Xeon® Scalable processors. Together, these two technology environments provide a powerful, flexible, and future-proof infrastructure to serve the needs of both clinicians and researchers.

VERSATILE VIRTUALIZED INFRASTRUCTURE FOR RESEARCH AND HEALTHCARE

The HPE Synergy platform, which NKI configured in two racks each with two frames to allow seamless expansion, hosts approximately 400 VMware virtual machines for both clinical and research workloads. On the clinical side, the virtual environment hosts a wide selection of applications such as Microsoft SQL Server databases and supporting applications, which serve business entities that extend across human resources, radiotherapy and diagnostics, medical and surgical oncology, among others. For research, HPE Synergy provides a general-purpose platform for spinning up virtual servers as needed for a broad range of cancer research projects.

The HPE ProLiant DL380 cluster runs the VDI based on VMware Horizon View, which also serves both clinicians and researchers. When considering the types of workloads running in the VDI environment, NKI-AVL determined that 80% of the applications would benefit from video acceleration. Therefore, each server in the cluster is configured with three NVIDIA® T4 enterprise GPUs.

NKI worked with HPE Pointnext Services to design the architecture for both the HPE Synergy virtual server environment and the HPE ProLiant DL380 VDI cluster. Mark Platte, IT architect with NKI, says, “We have a small IT team, so even though we have a lot of knowledge and expertise, we still need a good IT partner to assist with such a major infrastructure project. We came to HPE with a lot of ideas and they helped us determine which ones were feasible given the capabilities of the technology. It helps to work with people who know the product line perfectly and can create an architecture that best meets our unique needs.”





In addition to the computing environments, NKI-AVL also relies on Aruba Networking for its core switching and entire campus Wi-Fi. Platte says NKI has used HPE Networking for many years and liked the added features and capabilities Aruba now brings to the table. For wireless in particular, he calls out the Bluetooth® tracking. “Bluetooth tracking is more accurate than Wi-Fi, so it opens up additional use case options for us in the future.”

He adds that using Aruba ClearPass for access control helps strengthen security across the wireless network. “Once we allow someone on the network, we profile the device in ClearPass, so wherever the user moves around within our buildings, we make sure they connect only with the network they’re authorized to be on.”

ACCELERATES RESEARCH, FREES MORE TIME FOR PATIENT CARE

Because NKI-AVL is largely funded through grants, it acquires technology through capital investments and needs to get as much life out of those investments as possible. Therefore, HPE Pointnext Services helped Platte and his team size the production HPE Synergy and HPE ProLiant environments to accommodate current and anticipated workloads. In fact, the flexible design allows NKI-AVL to serve a dynamic healthcare environment during the day with enough extra capacity to support ad hoc research requests or unexpected surges in clinical activity.

Between 8:00 AM and 6:00 PM, NKI runs as many as 2,000 virtual desktops for clinical and research users. Physicians and nurses can initiate a virtual desktop session in one part of the hospital, then easily move to another area and get right back into their session with a swipe of their badge

(tap and go). Fast user switching saves time and provides clinicians with much greater flexibility to move from patient to patient.

“Any time you can gain time for clinicians to be with patients, it’s good for improving care,” Platte points out. “With VDI they can move around the hospital more freely. If they had to stop and start their applications 15 or 20 times a day, they’d lose a lot of time. Now they have more time to spend with patients.”

At night, after normal working hours, the opportunities to leverage the flexible HPE infrastructure are even greater. For example, as a specialized care facility, far fewer people are on duty in the evenings than during the day. Therefore, as people log off for the evening, the vast majority of virtual desktops are deleted and those that remain—about 400 to 600 typically—are consolidated onto a handful of physical servers. This frees up enormous amounts of compute capacity on the HPE ProLiant DL380 cluster to run other workloads, primarily huge batch processes for research.

Platte notes, “By scaling up the cluster in the evenings, we can help our researchers do different types of operations during the night. The objective is to use all the hardware as completely as possible.”

One example is a software project to improve the image sharpness of imagery used to aid in early research of cancer disease. When captured, there is typically a lot of movement in the image, which can inhibit spotting small anomalies that could be significant for the research project. The software removes the noise from the images, thus providing a much clearer picture. The challenge has been that these images can be hundreds of gigabytes in size, and running the software to sharpen the images could take an hour or more on traditional infrastructure.



“WE ARE LOOKING FOR AUTOMATION TO FREE UP TIME FOR US TO FOCUS MORE ON THE BUSINESS. WE DON’T WANT TO BE SPENDING ALL OUR TIME JUST KEEPING SYSTEMS RUNNING, WE WANT PREDICTIVE CAPABILITIES THAT ANTICIPATE PROBLEMS BEFORE THEY IMPACT OUR USERS, WHICH SYNERGY AND ONEVIEW WILL HELP US TO DO.”

– Mark Platte, IT Architect, Netherlands Cancer Institute

Customer at a glance

Solution

Virtual server platform and VDI for software-defined data center supporting patient care and advanced cancer research

Hardware

- HPE Synergy
- HPE DL380 Gen10 Servers
- NVIDIA T4 enterprise GPUs
- Aruba 300 Series Access Points
- Aruba 3800 Switches
- Aruba 3810M Switch Series
- Aruba 5406R Switches
- Aruba 5412R Switches

Software

- HPE OneView
- Aruba ClearPass
- VMware vSphere®
- VMware Horizon View

HPE Pointnext Services

- HPE Datacenter Consulting
- HPE Datacenter Care
- HPE Proactive Care

By running the software on the HPE ProLiant DL380 cluster with the NVIDIA T4 accelerators, jobs that previously took one hour, for example, now complete in 10 minutes. Moreover, the cluster also provides more compute capacity than was available in the past, so researchers can run more jobs than they could previously.

“The high performance we can achieve on the HPE cluster means researchers can process jobs faster and reach their goals sooner,” Platte says. “It raises the standard of their research for submitting their research findings to publications. It’s crucial for making advancements in cancer diagnoses and treatment.”

LEVERAGING AUTOMATION TO CREATE NEW OPPORTUNITIES FOR CANCER CARE

While Platte and his team are busy addressing the most pressing IT needs of clinicians and researchers, the investment in the HPE Synergy platform and HPE ProLiant cluster was made with an eye toward the future. For example, he foresees being able to take greater advantage of the automation enabled by HPE Synergy and HPE OneView.

“We are looking for automation to free up time for us to focus more on the business,” Platte says. “We don’t want to be spending all our time just keeping systems running,

we want predictive capabilities that anticipate problems before they impact our users, which Synergy and OneView will help us to do.”

In addition, Platte anticipates taking greater advantage of the composability of HPE Synergy in the future. One goal is to provide researchers with a self-service portal through which they can spin up their own VMs on HPE Synergy when they have a new project to test. In the past, just trying out an idea required an expensive capital outlay for hardware. Now, HPE Synergy provides much more flexibility to use and reuse compute resources as desired.

For more than 100 years, NKI has been on a mission to innovate and improve the diagnosis and treatment of cancer, helping to extend life and improve quality of life for those battling the disease. Platte sees technology as a vital resource for carrying on this noble tradition.

He concludes, “In IT, we are constantly looking for ways to leverage cutting-edge technology to create opportunities for both the hospital and research organization. Anything we can do that helps them work more efficiently and make new discoveries is an important contribution to the mission of NKI-AVL.”

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