

# Clinical Solutions In The Digital Era: Why OEMs Are Partnering To Deliver Breakthrough Technologies

Information technology is radically reshaping healthcare. Equipped with digitally enabled clinical tools, doctors are gaining unprecedented insights into the health of their patients, driving improved outcomes in areas of major medical need. This trend is set to continue, with rising computing power, access to health data, and use of Internet of Things (IoT) devices opening new opportunities to improve care.

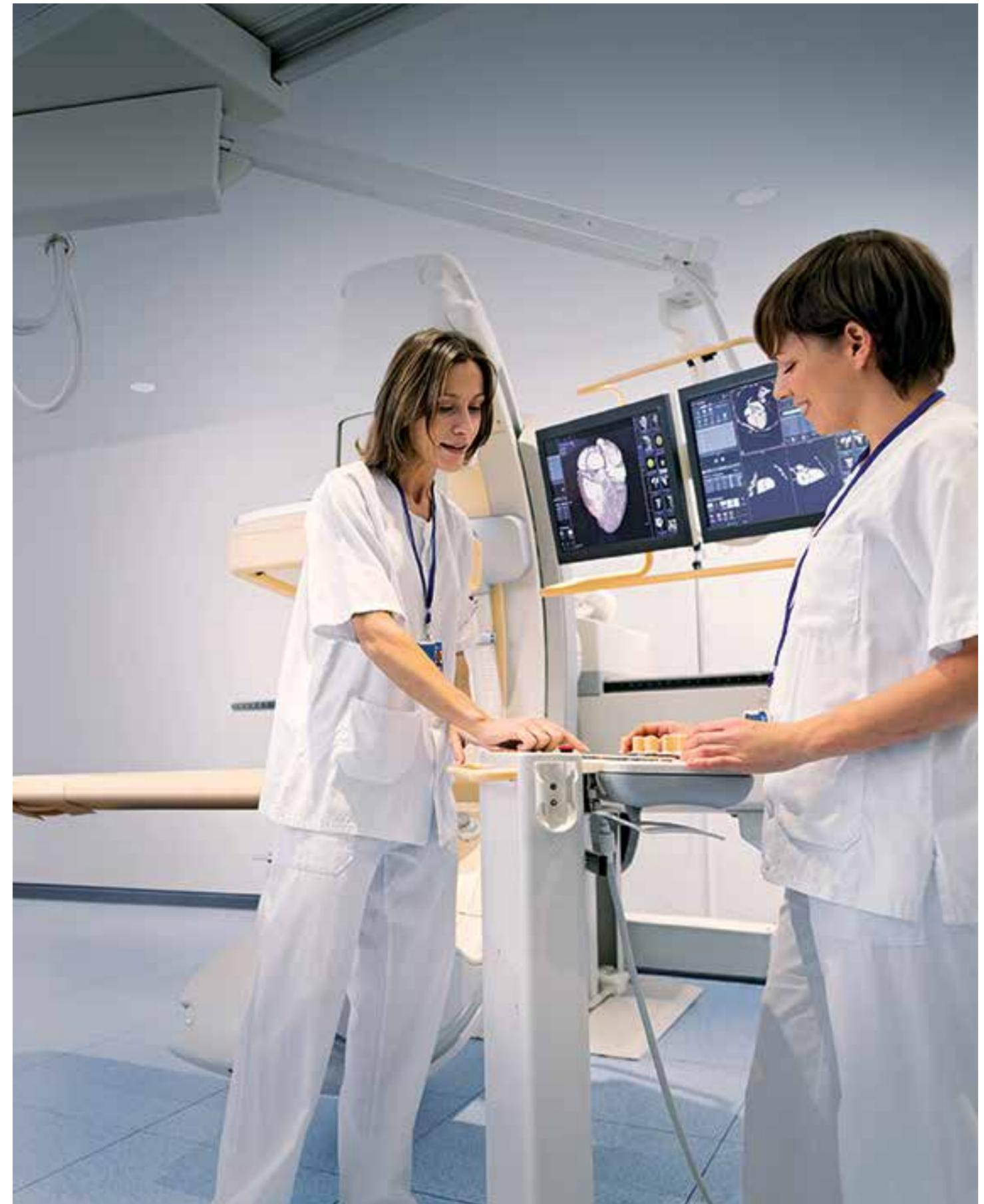
After years of IT-healthcare convergence, clinical systems that fuse leading-edge capabilities from both fields are now the norm, not the exception. Breakthroughs in fields as diverse as cardiac imaging, patient monitoring, and emergency-room diagnoses rely on IT to gather, process, and analyze data. Whenever an original equipment manufacturer (OEM) designs a medical technology that enables physicians to see inside patients with unprecedented clarity or track their health status remotely around the clock, computing infrastructure plays a major role.

## Enabling The Future Of Healthcare

The move toward value-based healthcare is forcing providers to establish powerful analytics. Increasingly, it is no longer enough for hospitals to perform procedures. To get reimbursed in full, they also have to show payers how patients fare after procedures. Tracking these outcomes requires computing capabilities.

IT also underpins the more everyday, but equally important, task of sharing images and health records across healthcare organizations. These systems are essential to the effective functioning of hospitals and other health centers. Equipped with them, healthcare professionals can share records with their peers and access them remotely, enabling experts to support patient care wherever they are.

These trends have now matured to the point that computing is essential to each step in the patient journey. From when a patient visits a healthcare professional to after they return home, they interact with IT-enabled clinical tools designed by OEMs to optimize health outcomes.





## Designing Clinical Solutions In The Digital Era

These changes are both a boon and a challenge for medical technology OEMs. Ever-more powerful computing systems are redefining what is possible, opening new avenues for product development. But to seize the opportunities and deliver new healthcare solutions, medical equipment OEMs must effectively marshal technologies far outside the core competencies of clinically focused teams. In this era, high-performance computing is as integral to health solutions as clinical components.

“We are very strong at developing clinical solutions for our customers. But nowadays those solutions also require an IT infrastructure layer underneath,” Martijn Heemskerk, Healthcare Informatics Ecosystem Director for Philips, said.

OEMs could manage the IT infrastructure layer by investing in in-house capabilities. This allows OEMs to have full control over the technologies that enable their clinical solutions but it also creates problems. The skills needed to design a computed tomography (CT) scanner or cardiac monitor are far removed from those required to establish and maintain IT infrastructure. An OEM would need to invest heavily to achieve the level of IT expertise involved in the delivery of medical technologies.

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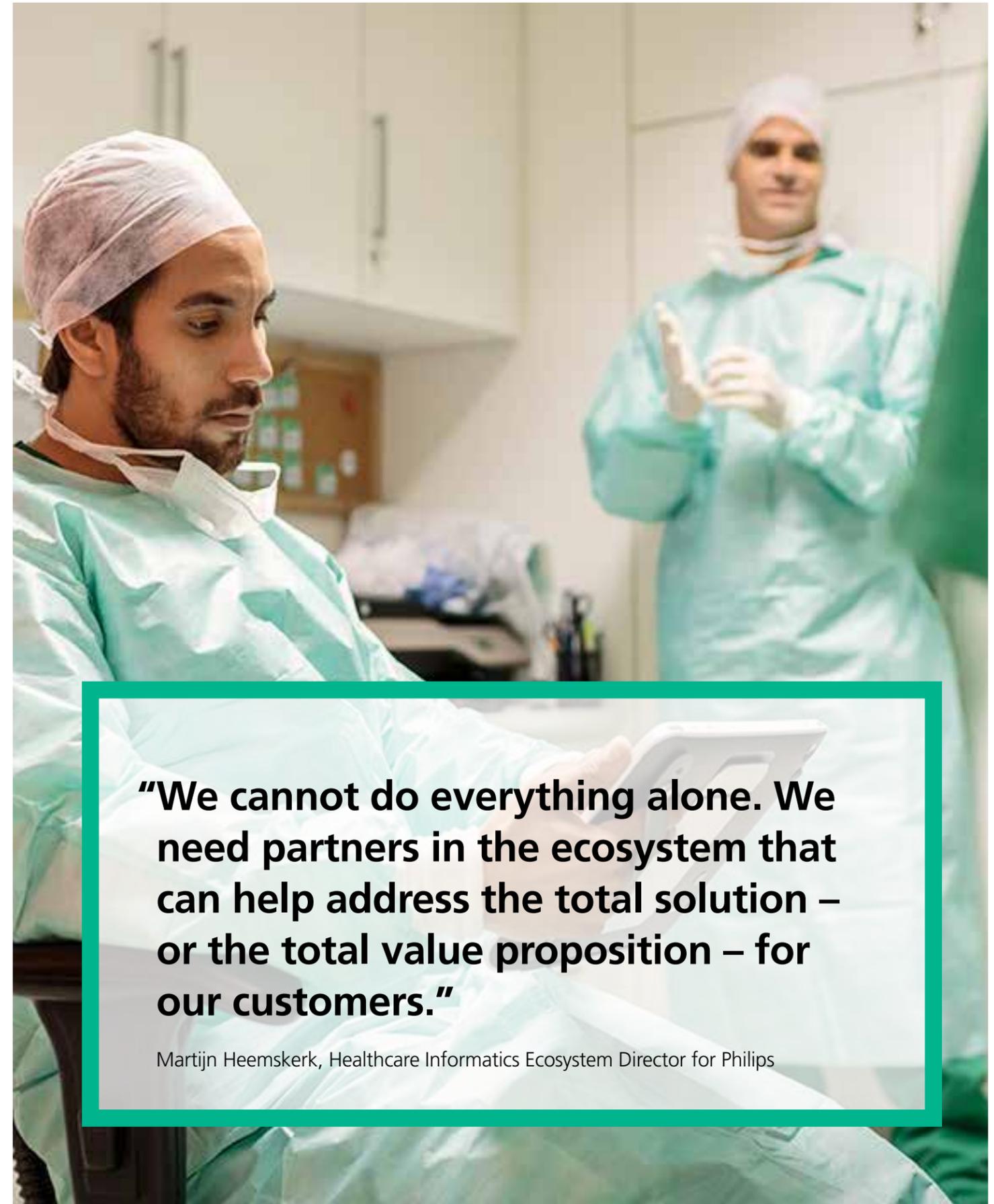
Martijn Heemskerk, Healthcare Informatics Ecosystem Director for Philips

It is questionable whether a company could ever achieve a return on such an investment. Equally, if the OEM fell even slightly short in its attempt to become a leader in two distinct, highly technical fields, it would undermine the solutions it delivers. As IT is essential to modern clinical systems, it must work the first time, and all the time if an OEM is to gain and maintain a reputation for excellence.

This pressure is potentially an argument against the second option, too. Rather than establish deep, internal IT capabilities, an OEM could partner with a specialist provider of computing infrastructure and services. This frees the OEM from the need to invest in its own capabilities, making it a more efficient, cost-effective option, but leaves the manufacturer reliant on the work of third parties. If an OEM chooses a poor partner, the delivery of solutions will be undermined by faulty parts and patchy service.

To succeed, OEMs must manage this challenge effectively. For many leading companies, the answer is to partner with an IT provider with a deep understanding of healthcare and lengthy track record of success in the field. This provides OEMs with reliable products and services that are the same around the world. In the heavily regulated healthcare sector, it is critical to have such a reliable, consistent partner that understands any changes could affect certification status and patient outcomes.

OEMs including General Electric Healthcare (GE), Cerner, and Philips see Hewlett Packard Enterprise (HPE) OEM Solutions as such a partner. By joining with a specialist provider of IT hardware and services, these companies have secured access to safe, reliable, cutting-edge technology while freeing their teams to focus on executing core competencies and creating innovative solutions to meet the healthcare challenges of today.



**“We cannot do everything alone. We need partners in the ecosystem that can help address the total solution – or the total value proposition – for our customers.”**

Martijn Heemskerk, Healthcare Informatics Ecosystem Director for Philips



## GE: Leveraging On-premise And Cloud Assets

This partnered ecosystem model has powered notable advances. GE, for example, partnered with HPE OEM Solutions to visualize the beating heart in three dimensions. As a leader in medical imaging, GE was well placed to tackle aspects of this task, such as accelerating the rotation of the scanner. However, in designing a 16 cm detector and cutting the time it takes for the scanner to spin round the patient to 0.28 seconds, GE unleashed a torrent of data only an IT specialist could handle.

The management of this data was critical to the project. GE needed to instantly transfer all the data without dropping a byte and run intensive mathematical computations to convert it into 3D images. Without these capabilities, GE's efforts would have been in vain.

GE responded to the challenge by partnering with HPE OEM Solutions, which architected a custom IT solution to pair with the scanner. HPE OEM Solutions deployed the on-premise, high-performance platform at the edge – thereby avoiding the latency issues inherent in networked systems – and gave it the power to flawlessly ingest, store, and process data. With 12 GPUs, the system reconstructs 3D images instantly before storing them for future reference.

While on-premise infrastructure is critical to GE's scanner, the cloud is a key enabler of the effective management and sharing of medical images. As a provider of a hybrid IT platform that offers greater flexibility and scalability than either on-premise or cloud systems in isolation, HPE OEM Solutions' support of OEMs extends to data and image storage.

## Philips: Moving To Value-based Healthcare

Working with Philips, HPE OEM Solutions set up networking, services, and servers for the standards-based, interoperable management of patient data and images. The partnership ensures Philips' IntelliSpace Picture Archiving and Communications System (PACS) runs on secure, scalable, and highly available resource-conserving data centers.

Philips' partnership with HPE OEM Solutions is about more than just ensuring its PACS works perfectly, though. Accessing external IT expertise also positions Philips to support the move to value-based healthcare. In this model, OEMs deliver imaging technologies and data management systems as part of broader multi-year, managed service relationships with healthcare providers.

These relationships give OEMs a starring role in attempts to improve healthcare through the linking of functions, processes, and patient flow. Such linkages require both novel medical technologies and turnkey service delivery structures, both of which are built on IT infrastructure.

## Cerner: Enabling A Joined-up Healthcare System

The value of such joined-up systems is evident in HPE OEM Solutions' work with health information company Cerner. On a macro level, HPE OEM Solutions' private cloud computing technology enables Cerner to always have the right amount of capacity at its data centers, ensuring a consistent service while controlling costs. But the more direct benefit of the joined-up system manifests on the patient level.

Building on HPE OEM Solutions' infrastructure, Cerner created an algorithm that analyzes a patient's health record for possible signs of sepsis, a condition that kills if not treated quickly. From the initial data analysis through to the issuing of alerts to physicians elsewhere in the facility, each step in the lifesaving process relies on joined-up, IT-enabled clinical solutions.



## Building Ecosystems For Long-term Success

These joined-up approaches are making a difference to patient outcomes and healthcare efficiency today. In the United States alone, the sepsis technology offers a chance to prevent 250,000 deaths a year. Similar opportunities to use IT to improve patient outcomes through early detection and better management of disease exist across healthcare, raising the possibility of healthier, longer lives for millions of people.

The forward march of technology means such opportunities will proliferate in the years to come, but also that the breadth and depth of skills needed to design and deliver clinical systems will continue to grow. The IT hardware and services OEMs need to succeed will hit new levels of scale and technical complexity.

Faced with this continuing trend, OEMs that tailor their approaches to today's environment will equip themselves to prosper tomorrow. The ecosystem approach insulates OEMs from the challenges of continual technological progress by giving them direct access to partners that not only stay on top of IT advances, but drive them through their own innovation. Now is the time for OEMs to explore IT partnerships and position themselves to deliver breakthrough clinical solutions for years to come.

*Hewlett Packard Enterprise (HPE) Original Equipment Manufacturer (OEM) Solutions is enabling the provision of the highest quality healthcare at lower costs. Healthcare OEMs are working with HPE OEM Solutions to build modern, integrated, patient-centric healthcare that improve the care experience for doctors, patients and caregivers. With 75 years of experience in delivering innovation and digital transformation, HPE OEM Solutions has the resources and expertise to accelerate the right outcomes for your healthcare business. Learn more at:*

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