



SUCCESS STORY
Pharmaceutical



ICON | OPPORTUNITY

Public cloud speed and cost efficiency in a private cloud environment optimize real-world data use to drive effective outcomes and achieve regulatory authorization.

Operating at Cloud Speed, ICON Advances Data-Driven Clinical Trials Through a NetApp Ecosystem

It's data, mountains of it, that drives the success of clinical trials, accelerates proof of efficacy, and hastens the delivery of lifesaving new medicines and therapeutic devices to market.

Another NetApp solution delivered by:



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Accelerating
clinical trials

Introducing
New revenue
model
for clinical
data storage

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Cormac Dunne
Director of Infrastructure Services for ICON

At the forefront of the pharma and biotech industries’ clinical trials is ICON plc, headquartered in Dublin, Ireland. Providing cost-effective, faster clinical trials makes ICON a global leader in contract clinical research. Serving the world’s leading drug and medical device developers in 38 countries, ICON is one of the few clinical research organization that uses a data infrastructure to quickly find and recruit sites, investigators, and patients.

BRINGING THERAPIES TO MARKET FASTER AND MORE COST EFFECTIVELY

Before a new therapy can be licensed, most clinical trials take 10 to 15 years, and it is estimated to cost about US\$2 billion to bring a drug to market. The scientists and engineers at ICON are committed to bringing new therapies to market faster and more cost effectively. The growing quantity of business applications that generate data must be able to provide insight and improved performance to add value quickly, efficiently, and reliably. These tasks are key to ICON’s promise to its customers and to the mission of Cormac Dunne, director of Infrastructure Services for ICON.

Together with strategic partner Island Networks, ICON has been working exclusively with NetApp for more than 18 years. During that time, ICON has expanded from a small company housed in one building to a global operation with 15,000 employees in 93 locations around the world.

Ed Waters, president of Island Networks, explains his company’s choice to partner exclusively with NetApp: “The number one reason we chose NetApp is its superior technology stack that has been developed from the software angle up. Vital to our business, NetApp is a partner-driven company. Any partnership is built on trust and integrity, and NetApp has exuded this.”

A foundational partner whose people and processes Dunne calls “trusted and integral,” NetApp has delivered on its promise of high performance and resiliency in numerous system and software deployments. “To make our innovation at ICON possible, we adopted a ‘standardize and simplify’ model a number of years ago, consolidating all of our ICON data on NetApp technology,” says Dunne.

“We have applications that are actually life or death in the context of the data and the availability of those applications.” For example, interactive voice response tools, which provide patient dosage information, must be available on line at all times.

ICON’s data-modeling team and scientists run algorithms on a software-as-a-service (SaaS) grid platform that is deployed on NetApp® E-Series systems. This advanced data modeling requires extreme performance. Another recent deployment of a telephony unified communications program across the organization needed a separate piece of standalone, resilient infrastructure. The FlexPod® platform from NetApp and Cisco, built on NetApp FAS, was Dunne’s choice. He cites the exceptional reference architecture that is backed by NetApp and Cisco engineers.

A SOLID TECHNOLOGY BASE FOR ICON’S DATA CENTERS

FlexPod houses ICON’s data and applications in the company’s European, APAC, and U.S. data centers. Because FlexPod is designed in accordance with a NetApp reference architecture,

“NetApp storage is crucial to our data. We have been able to work with clients to deliver medicines faster to market. We have patients who come to visit and thank people in the organization for our efforts. Understanding each part is a little, but when you combine it, it really does help improve lives and sometimes saves lives.”

Cormac Dunne
Director of Infrastructure Services for ICON

ICON can count on it for the resiliency, redundancy, and performance that are required to run the business. “There are people who depend on ICON’s NetApp technology stacks 24 hours a day in 38 different geographies, so a stable, cost-effective platform is vital,” says Waters.

Waters and Dunne agree that when it comes to having confidence in FlexPod, the integration of Cisco and NetApp components, along with tremendous engineering support from both companies, gives ICON the solid base that the company needs.

To increase data storage efficiency, Dunne is continuing to expand ICON’s data fabric across NetApp products. FlexPod enables a wide range of NetApp ONTAP® features, including FabricPool, which enables ICON to tier data based on a set of policies. FabricPool automatically tiers cold, less frequently accessed data to NetApp StorageGRID® storage, the NetApp S3 object storage solution. By tiering out the cold data, ICON can keep its most performance-demanding data on the all-flash tier in FlexPod.

“In the long term, we have managed to save ICON a lot of money,” Waters said. “The overall advantage of StorageGRID is much greater than offloading, or all-flash. And it’s a good way of doing it, but I think there are greater advantages to object storage in general.”

With StorageGRID as a FabricPool target, ICON can still leverage the technology for other on-premises object and S3 target needs.

“StorageGRID has given us the capability to offload tape completely for their environment, as well as utilize the NetApp FabricPool technology, which is allowing us to offshoot snapshots, and stale data from their high performance, all-flash arrays,” he said. “This has the net effect of improving the efficiency of these high performance, high cost arrays, even more than they currently are.”

CENTRAL IT IS VITAL TO BUSINESS INNOVATION

In conjunction with NetApp and Island Networks, multiple consulting efforts outside the normal sales cycle have occurred, including one in which the team ideated a new

opportunity to generate revenue from IT. By using StorageGRID, with the knowledge that data is secure and available at any time, Dunne’s department can now offer bespoke archiving for clients who want ICON to retain their clinical data for long periods. Dunne is clearly upbeat about what this service means for ICON and for his department. “We’re excited about using NetApp StorageGRID as an archive solution, offering that to the marketplace and flipping this IT expense into a revenue generator,” he says. The opportunity means that Dunne can convert more time and funding back into continuous innovation to service ICON customers.

Taking innovation as far into the future as possible, resulting in cost-effective solutions that deliver vital value to customers, is and will always be first and foremost for ICON. Innovation is at the heart of everything that ICON, Island Networks, and NetApp do together. And this effort includes giving ICON’s 30-plus AI and ML engineers what they need to assess massive and diverse datasets that range from biology to genetics.

ICON's data fabric will only continue to grow, as will the need to manage the cost-effective placement of this data. Technology is permeating the clinical trial; wearables and devices now collect data 24/7, to satisfy the need for real-world use studies "All data within ICON sits on NetApp systems, and our scientists continually seek to understand that data, to draw new meaning from that data, and to understand patterns and how we can use data to help our clients," Dunne explains. Because AI and ML are integral to the future development of ICON, Dunne believes that it makes sense for NetApp storage to house this data.

IMPROVING AND SAVING LIVES THROUGH DATA

The massive growth of the company has included mergers and acquisitions. How has IT managed

that kind of growth, absorbing the massive critical datasets and applications of more than 10 acquired entities under tight timelines? Dunne has harnessed the capabilities of NetApp SnapMirror® replication technology, allowing his team to send a NetApp controller to new acquisitions and to mirror it back to one of ICON's global data centers. "We have been able to seamlessly migrate data and applications from an acquired entity in as little as a weekend," Dunne is happy to report.

As a demonstration of ICON's success, IT is now being consumed differently, adopting technology and practices in the company's private cloud that mimic the public cloud.

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faster to market. We have patients who come back to visit and thank the people in the ICON organization for our efforts. Understanding our role in helping our clients accelerate the development of drugs that save lives and improve the quality of life is rewarding," Dunne concludes.

SOLUTION COMPONENTS

NETAPP PRODUCTS

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[NetApp FAS and E-Series](#)

[NetApp StorageGRID](#)

[NetApp FabricPool](#)

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