



DOE: Mobilizing advanced science

Oak Ridge National Laboratory's comprehensive mobile infrastructure supports extended scientific community

What do you get when you have 4,500 of the country's top scientists, a cutting-edge flexible IT infrastructure, and the fastest super computer in the world? A 3-D printed Shelby Cobra replica made from carbon-fiber-reinforced plastic. This car, and much more, is powered by the brainpower of researchers at Oak Ridge National Laboratory (ORNL). The lab, established in 1943 as part of the wartime effort to develop a nuclear bomb, remains on the cutting edge of advanced research. Today ORNL has an annual operating budget of \$1.4 billion and employs thousands of scientists in hundreds of disciplines to support its mission of scientific discovery, clean energy, and security.

To succeed in its mission, ORNL offers its resources to a diverse research community, and not to mention, is home to the largest particle collider in the United States. ORNL knows what it takes to attract and retain top talent by providing its 10,000-acre campus, 250-member IT team, and visiting researchers the functionality and technology needed to deliver advanced-science projects.

In order to remain a magnet for science, ORNL needed to enable a flexible IT infrastructure that empowers its research community. Secure mobile computing is a foundational element in any advanced IT infrastructure solution. ORNL needed a comprehensive mobile platform that could support the Bring-Your-Own-Device (BYOD) and remote access needs of researchers as well as the strict security requirements of the organization. After reviewing available solutions, ORNL installed a Citrix solution. ORNL was able to take advantage of Citrix's enterprise-class solutions to make it possible for hundreds of outside researchers who visit the lab each day to access ORNL data and support systems.

ORNL's mobile infrastructure enables research to continue anytime and anywhere, and on any device. So, when Eastern Tennessee, ORNL's home, experienced some of the worst snowstorms in years this past spring, paralyzing the region for weeks, ORNL was able to minimize its loss of productivity by enabling the staff to work from home instead of tempting the fates by commuting to the lab in treacherous weather.

"Our IT team spun up 500 additional desktop loads dynamically so that our staff could work from home rather than risk life and limb getting to the lab," said Travis Howerton, Deputy Director of IT Services, Oak Ridge National Laboratory. "With remote access authentication, external load balancing, routing, and more, we knew that we could deliver our systems and applications in a highly secure, available, and scalable way. This infrastructure solution enables our research teams to continue working in any condition, rain, snow, or shine without disrupting sensitive research."

Tina Snyder, mobile device team lead for ORNL, confirmed that the lab saw three to four times more users of its remote access services during the snowstorm and in its wake. She noted, “It’s not our job to tell researchers what they need to have to do their research. It’s our job to help them do so securely and in compliance with requirements.” And, that’s exactly what ORNL offered its researchers under piles of snow last spring.

While the chief driver for ORNL’s investment in an advanced mobile infrastructure was increasing researcher productivity, there’s no doubt that the lab is also saving on hardware and equipment costs with its virtualized infrastructure. And, although ORNL’s mission aims at retaining and recruiting top scientific talent, this isn’t the lab’s only target audience. Consider, for example, the lab’s summer intern program. “Every year, ORNL hosts approximately 500 students,” says ORNL Client Computing Operations lead Suzanne Willoughby. “And those students need to be given the tools to participate in research here. With XenApp and XenDesktop, we’re able to provide those tools without investing in additional equipment. Students can simply pull

up a virtual ORNL desktop on their own laptops or access it via thin client in the conference rooms or elsewhere in the lab. This represents a considerable cost savings to the departments that support these programs.”

ORNL’s team – both young and old – is focused on discovering, testing, and using the best technologies in the most advanced laboratory in the country. These brilliant minds expect the technology needed to outfit all their scientific dreams – from green energy research to printing a 3-D carbon fiber car. Being able to track data, check work email, and look up benefits on mobile devices provides an added bonus and boost in productivity for researchers.

You can’t just tell the top scientists in the world “no” and you don’t want your IT team to be a party of “no” when it comes to having the latest and greatest capabilities. The unique user facility and incubator for the greatest minds in the country has an aggressive vision for the future, enabling them to keep up with their scientists needs. At ORNL, what used to be impossible is now routine.

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