

CASE STUDY

Infoblox Provides Operational Efficiency, Visibility, and Customer Satisfaction at UC San Diego

The Solution

- Infoblox Next Level Networking, including DDI, NetMRI, and DNS Firewall

The Results

- More efficient operations through automated IP address management
- Complete and continuous visibility with the deep network discovery and automatic mapping of NetMRI
- Network integrity and security and reduced risk with DNS Firewall to contain malware and adapt to evolving threats
- Improved experience for end users by giving them control over their own zones

UC San Diego

The Customer

The University of California, San Diego was founded as an experiment in 1960. It embodies the spirit of innovation and disruptors who challenge the status quo for the sake of something better. As one of the top 15 research universities in the world, UCSD drives change far beyond its walls to advance society and propel economic growth. UCSD offers more than 200 degree programs to nearly 30,000 students and 6,300 graduate students.

The Challenge

Build a next-generation network

Managing a Network Infrastructure through a Digital Transformation

UCSD was focused on securing, ensuring the integrity of and maximizing visibility into its network. It also needed to make operations more efficient and cost effective while delivering an optimal customer experience.

UC San Diego relies on its IT network as its nervous system. The IT team has a campus-wide presence and needs to provide ubiquitous connectivity as a utility service because people rely on it. As Crystal Harris, Manager of Network Applications Support at UCSD explains, "We need a network that can accommodate the influx of students every semester and interdisciplinary internal and external access from diverse devices."



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“Our engineers are happy with autodiscovery and NetMRI. Our architects are satisfied with the flexibility of the product and how it reflects our campus network. Our end users are happy with the new UI. By everyone’s measure I would say that our deployment has been a success, and we definitely plan to continue on with the Infoblox product into the future.”

Crystal Harris,
Manager of Network Applications Support, UCSD

The University is going through a digital transformation and Harris’ team recently upgraded the core network services as part of its ongoing mission to keep the campus network up to par with the science the school teaches and develops. The network was running on a homegrown system for IP address management (IPAM), and it wasn’t meeting Harris’s requirements. “We needed highly scriptable and flexible APIs in order to create tools or get data from other databases and data sources and put it into our IPAM product,” she says. “We also needed a way to interface with our existing BIND servers.” Harris had worked with network management products from other vendors, and had completed a lengthy trial of Infoblox. She knew that with its extensive collection of APIs and its integrations with technology from other vendors, Infoblox was an obvious choice. “Infoblox met the majority of my requirements much better than other tools,” she says.

UC San Diego Takes Control of Its Multi-Vendor Network with Automation

While maximizing network visibility was a priority for UCSD, so was gaining control of its network with automation.

Maintaining network visibility is essential to keeping track of all the devices on the network, track the variations in the devices, and staying up to date on how the devices are being utilized and secured. UCSD uses Infoblox DDI solution for that, which provides a single pane of glass for viewing the network.

However, Harris needed to take its network automation and discovery up a level as well. Infoblox NetMRI met that requirement. “We use NetMRI to keep track of the versions of network routers and switches,” says Harris, “and to push configuration changes and manage backup configurations. Our primary reason for purchasing it was to get discovery information about ports and Address Resolution Protocol (ARP) information for individual end nodes. We use it very

much for making sure that ports are active, for knowing what’s connected to what port, and for getting an automated map of the network. As engineers provision new networks around the campus, NetMRI automatically discovers them and reports that information back to us in both the NetMRI interface and in the Infoblox Grid™ interface.”

The network team routinely sends logs to Splunk and to a variety of campus databases, and pushes data back to Infoblox for management and automation. In addition, there are eight BIND servers on campus getting zone transfers from the primary Infoblox server. This integrated view with other elements of the network not only makes the overall network more intelligent, but also ensures that the data available is utilized to take effective and immediate actions.

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Maintaining Academic Freedom While Keeping Bad Actors Out

Open exchange of information and ideas is a foundational principle of universities that can sometimes be at odds with network security. “Generally,” says Harris, “higher education institutions have an open computing and access policy that prevents automatic blocking of domains and hosts. Legitimate research into malware, networking, and Internet communications precludes global access restrictions.”



She also points out that free access and cybersecurity must coexist. “UCSD has had an increasing problem with campus constituents accessing malware domains and receiving phishing email,” she says. “Security had a hard time keeping up with domain and host blocking. We decided that a response policy zone (RPZ) would be the solution, and Infoblox’s RPZ-based DNS Firewall conveniently met our requirements.”

Infoblox DNS Firewall detects and contains malware and automatically adapts to evolving threats, effectively preventing campus users from frequenting dangerous sites. For campus members who need unrestricted access for research purposes, Harris’s team provides opt-out servers.

Simplifying Tasks and Freeing Costly Resources

Operational efficiency is just as important in the world of higher education as it is in the world of business—maybe more important. Harris describes the positive impact of Infoblox IPAM on one key role in her organization. “I had one programmer who was developing our kitchen-sink in-house IPAM tool,” she says, “and he was spending 40 percent of his time adding new features that people requested, handling new import formats, or adding new data sources.” She points out that his time was needed for more strategic initiatives. With a feature-rich, automated Infoblox IPAM solution in place, this key resource can now make a more strategic contribution to the team.

She also mentions the operational benefits of running Infoblox over straight BIND and DHCP. “We like the failover. I like the Infoblox Grid™ model. I like having multiple servers running on the Grid, and I like the GUI sitting on top of those services because it means that administrators don’t have to know all the complexities of creating configuration files. That level of abstraction has reduced the effort engineers expend to make updates.” In addition, rolling updates allow the IT team to keep servers and appliances up to date easily without a lot of support overhead.

A Better Experience for UCSD’S Diverse and Demanding Network Users

USCD’s network teams typically operate more like Internet service providers than network management centers, and their customers—research centers, labs, departments, foundations—are full of independent thinkers and creators who want control over their own zones. Making the school’s networks more responsive to the changing needs of a cutting edge university aligns well with the overall mission of imparting knowledge to its students. “Delegation of authority is very important in our support model,” Harris says. “We delegate authority for IPv4 and IPv6 networks to our system administrators, for instance, and Infoblox makes that easy to do.” The end result is a better experience for USCD’s diverse and demanding network users.



Infoblox is leading the way to next-level DDI with its Secure Cloud-Managed Network Services. Infoblox brings next-level security, reliability and automation to cloud and hybrid systems, setting customers on a path to a single pane of glass for network management. Infoblox is a recognized leader with 50 percent market share comprised of 8,000 customers, including 350 of the Fortune 500.

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