McGill University

Network Modernization: Improving Operational Efficiency and Resilience with DDI

Project Objectives

- **Modernization of network infrastructure**

- **Unify IPAM, DNS, and DHCP into one consistent platform**

- **Replace fragmented legacy tools with a modern, centralized solution**

- **Support a campus-wide shift from public to private IP addressing for stronger security**

- **Enable self-service for faculties to reduce load on the central IT team**

Main Benefits

- **Improved operational efficiency across hundreds of thousands of IP addresses**

- **Strengthened network resilience with built-in redundancy and handling of high-volume DNS traffic**

- **Faster troubleshooting due to better visibility across services**

- **Simpler network change management and fewer support tickets by delegation of routine tasks to faculties**

- **Improved data accuracy and reduced configuration errors with custom checks and consolidated workflows**

McGill University, based in Montreal, Quebec, is one of Canada's largest and most internationally recognized academic institutions. The university supports around 10,000 employees and more than 50,000 students, requiring a complex, highly distributed network across campuses, data centers, and affiliated hospitals. Its infrastructure spans hundreds of thousands of IP addresses and underpins critical academic, research and administrative services.

> "We gain in time — make big changes faster and spread the workload across many teams. The return on investment is high."
>
> Chung Yu, Senior Network Administrator at McGill University

Situation and Challenges Being Faced

With hundreds of thousands of IP addresses spread across public and private ranges, the university relied on fragmented legacy systems for core network services, resulting in an accumulation of outdated IP addresses, DNS entries, and firewall rules, creating misconfigurations and security risks.

IP address management was primarily handled through spreadsheets and homegrown tools. DNS was managed with BIND, while DHCP ran on Windows servers. These decentralized workflows limited visibility and made it difficult to ensure accuracy across systems.

As security requirements evolved and the university moved away from using public IPs, McGill needed a more controlled and resilient architecture. Consolidating the network footprint and shifting to private addressing required precise coordination and a platform capable of handling large-scale changes reliably. The central IT team also sought a way to streamline processes and support faster provisioning without increasing workload.

A unified DDI solution was essential to simplify management across campuses, data centers and affiliated hospitals. To empower faculties and other departmental IT staff, McGill needed an intuitive, centralized platform that would provide consistent workflows, reduce manual effort and ensure data accuracy across IPAM, DNS and DHCP.

Driven by growing security expectations and the need to support a large, complex academic environment, McGill University launched a major modernization of its entire network infrastructure.

"We were rebuilding the entire network to modernize it. Unifying IPAM, DNS and DHCP into one platform was crucial for moving forward." - Chung Yu, Senior Network Administrator at McGill University.

The Selected EfficientIP Solution

McGill conducted an in-depth evaluation of major DDI vendors as part of its network transformation program. The university ran a full competitive bake-off, testing appliances onsite and assessing each solution against its technical, operational and usability requirements. While all vendors could meet the core functional needs, EfficientIP stood out for its combination of intuitive design, customization flexibility, and cost-effectiveness.

The platform offered a single, unified interface for IPAM, DNS and DHCP, which was essential for McGill's goal of consolidating previously separate systems. EfficientIP's interface made it easy to configure and manage records across all services, even when handling large-scale or multi-environment changes. The solution's strong support for redundancy and high-volume DNS traffic aligned well with the university's performance and security expectations.

Customization was another key differentiator. EfficientIP allowed McGill to tailor workflows and checks to its environment, helping ensure accuracy and consistency across the network. The university also valued the availability of REST APIs, giving it the flexibility to introduce automation as future needs evolve.

Vendor engagement played a significant role. EfficientIP's sales engineering team provided responsive, hands-on support throughout the evaluation, offering guidance and expertise that helped streamline the decision-making process.

> **"When we tested all the products side by side, EfficientIP was easier to work with and customize. It made complex network tasks significantly easier to manage. EfficientIP had the most user-friendly interface of all the vendors we tested — and offered the strongest support for any technical needs too."**
>
> Chung Yu, Senior Network Administrator at McGill University

Main Results

Since adopting EfficientIP, McGill University has achieved substantial gains in efficiency, accuracy and security across its highly distributed network environment. By consolidating IPAM, DNS and DHCP into a single platform, the university has significantly simplified day-to-day administration. Tasks that previously required navigating separate systems can now be completed through one interface, reducing manual effort and accelerating the delivery of network changes.

One of the most notable benefits has been the ability to distribute workload across faculties and departmental IT teams. With clear workflows and an intuitive interface, dozens of users across campus can now carry out routine tasks that once flowed back to the central network team. This shift has reduced ticket volumes, increased agility and freed senior administrators to focus on strategic work and complex issues.

Data accuracy has also improved. EfficientIP's custom checks for live IP and DNS status have helped reduce configuration errors and ensure more reliable information across all DDI services. The unified architecture gives administrators clear, synchronized visibility into records, supporting faster troubleshooting and better decision-making.

The solution has strengthened McGill's security posture as the university transitions away from public IPs and consolidates its address space. EfficientIP supports high-volume DNS traffic with strong redundancy, contributing to reliable operations and helping the university avoid DNS-related disruptions or denial-of-service impacts.

"Instead of jumping between systems, we now do everything from one interface. It's made the whole process much faster and more efficient. We gain in time — the ability to make big changes faster and spread the workload across many teams. The return on investment is high." - Chung Yu, Senior Network Administrator at McGill University.

In the Future

Pleased with the productivity gains and the value of existing customizations with EfficientIP, McGill has already committed to a multi-year renewal.

Looking ahead, McGill University plans to build on its existing DDI foundation by introducing greater levels of automation. EfficientIP's REST APIs offer opportunities to streamline provisioning tasks and reduce reliance on manual processes. The team is exploring the use of simple web-based forms that could trigger automated workflows on the backend, allowing non-technical staff to request and provision network services more easily.

As new IT initiatives progress under the university's CIO, EfficientIP is expected to support evolving performance and security needs - from network consolidation to more advanced provisioning models. McGill also sees potential for deeper integration with platforms such as ServiceNow, where feasible, as part of an effort to further improve efficiency and consistency.

"Automation will be the next step - using EfficientIP as the engine behind faster, more reliable provisioning." - Chung Yu, Senior Network Administrator at McGill University.

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efficient iP®

As one of the world's fastest growing DDI vendors, EfficientIP helps organizations drive business efficiency through agile, secure and reliable network infrastructures. Our unified management framework for DNS-DHCP-IPAM (DDI) and network configurations ensures end-to-end visibility, consistency control and advanced automation. Additionally, our unique 360° DNS security solution protects data confidentiality and application access from anywhere at any time. Companies rely on us to help control the risks and reduce the complexity of challenges they face with modern key IT initiatives such as cloud applications, virtualization, and mobility. Institutions across a variety of industries and government sectors worldwide rely on our offerings to assure business continuity, reduce operating costs and increase the management efficiency of their network and security teams.

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