



UNIVERSITY OF NORTHERN COLORADO

Project Briefing

Institution Name:	University of Northern Colorado
Project Title:	Next-Generation Cyber Secure Network
Year First Requested:	FY 2019 -2020
Name & Title of Preparer:	Bret Naber CIO/AVP
Capital Construction Fund Amount (CCF):	\$1,191,077
Cash Fund Amount (CF):	\$11,910

Description:

UNC is requesting funds to implement a next-generation network built for visibility, flexibility, security, and automation. We continue to pursue funding to foster innovation and cybersecurity initiatives in our network design. This design will take advantage of new technology and design principles to create a more efficient network that is automated and easier to manage. Greater monitoring and correlation techniques provide better utilization of assets and provide proactive measures for cyber security.

Alignment with UNC's Vision for 2030

This project supports several of UNC's visioning initiatives. Below are the key alignments:

- **Students First:** We exist to transform the lives of our students. We focus on all aspects of their success by making intentional decisions to meet their needs and the needs of our community.
 - Student, staff, and faculty security through proactive action based on correlation analysis.
 - Support for campus infrastructure, securing intellectual property, enabling integration between systems, data utilization, and overall stability.
- **Enhance & Invest:** The success of students relies on a healthy and strong team. We provide our staff and faculty with the support they need to succeed as professionals, educators, and in life. We foster an environment where their individual well-being and sense of belonging are vital to our collective success.
 - Creating an infrastructure that can be used for research and new development.
- **Innovate & Create:** Learning occurs through critical inquiry, discovery, and creation. We leverage technology and capitalize on opportunities to innovate and improve instruction. We anticipate and address societal needs by transforming the campus into a creative laboratory that asks questions, solves problems, and shapes Colorado's future.
 - New strategy provides powerful unified management of firewalls, application controls, intrusion prevention, url filtering, and next-generation malware detection and prevention.
- **Connect & Celebrate:** Strong community connections provide authentic learning experiences and reciprocal partnerships and collaborations. We set the standard for how engaged universities enrich the lives of those on campus, throughout Colorado, and beyond.
 - Flexible guest networks and resources available for community activities

Supporting State Initiatives

Protect the data assets. Continue to support HB 18-1128 and segment critical data.

- Provide advanced threat detection, proactive defenses, and automated mitigation.
- Creating subnetworks for better management of applications and system integration
- Allows for easy management of micro-segmented systems which provides a significant security increase.

Project Benefits:

Benefits from the project are realized in two ways. First, the new security architecture consolidates separate functions into a single solution. There is a growing need to integrate security into the network to defend institutional resources from internal and external threats. Second, the visibility and intelligent design will allow us to optimize our staffing resources. Through monitoring of fewer appliances, automation of security functions like quarantining compromised devices, and more efficient troubleshooting, this will assist with pressures of operating with fewer staff. Total compensation for a single network engineer is approximately \$100k per year.

Timeline:

- In FY 2019-20 UNC requested \$1.5m for a Next-Generation Cyber Secure Network.
 - The project included hardware and software to build an innovative network design that incorporated new state-of-the-art technology. The project was requested because the funding was not available through internal funding or student technology fees.
 - Request was not funded by the state.
- In November of 2019 the UNC Board of Trustees authorized the purchase of core infrastructure and storage, leveraging a lease for five years.
 - This project proposal included some of the equipment that was requested in the original state project that had reached end of life.
- In FY 2020-21, UNC requested \$1.2m for a Next-Generation Cyber Secure Network.
- In March of 2020 UNC-IT consolidated networking and information security functions into one cohesive unit.

Consequences if not funded:

Without a one-time investment, UNC will not be able to shift off current architecture that is resource-intensive, inefficient, and less secure. This project allows UNC to move to more innovative ways of protecting and securing University assets.

Project follows IT best practices:

We are implementing IT best practices, leveraging innovations in network design and technology.

- Software Defined Networking
 - Automation which provides dynamic addressing to users and devices based on predefined profiles
 - A significant increase in efficiency for device management
 - A significant increase of functionality in device identity and visibility
 - Reduced complexity of access management because access is managed through predefined profiles
- Reduce complexity on the network through strategies like Network Segmentation
 - Creating subnetworks for better management of applications and system integration
 - Increase performance and improved security
 - Pushing away from traditional three-tier architecture, allowing for better management of growing traffics loads and reduce the number of network devices needed
 - Allows for easy management of micro-segmented systems which provides a significant security increase