



# A SOLID NETWORK IS FERTILE GROUND FOR PENN STATE COLLEGE OF AGRICULTURAL SCIENCES

## Summary

**Company:**

Penn State College of Agricultural Sciences

**Industry:**

Education

**Business Challenges:**

Reliably connect Penn State Extension offices to support a mission of providing access to agricultural research and education in Pennsylvania.

**Technology Solution:**

- SRX340 and SRX240 Services Gateways with AppSecure
- EX2200 Ethernet Switch
- QFX5100 Switch

**Business Results:**

- Built a strong, secure foundation to connect 70 locations
- Increased collaboration among faculty, researchers, and the agricultural community
- Simplified network and security operations with automation

Penn State Extension provides agricultural education for the residents of Pennsylvania, ranging from helping dairy farmers be more profitable to educating people with diabetes about making better food choices. To provide science-based education to 70 extension and research offices, Penn State College of Agricultural Sciences chose Juniper networking and security for its branch office connectivity.

Penn State College of Agricultural Sciences is one of the premier institutions for agricultural research and education in the U.S. The college invests nearly \$97 million in research and graduate study every year, as its scientists look to solve some of today's most pressing agricultural and ecological problems.

The college shares its research and expertise with the community through Penn State Extension. Every county in Pennsylvania has an extension office, where individuals, families, and businesses can tap into the College of Ag Sciences' education programs, which support a productive agriculture and food system, build healthy communities, and ensure the long-term viability of Pennsylvania's natural resources. As part of its educational outreach, Penn State Extension also runs the state's 4-H program and the state's largest farm show.

### Science-Based Education for the Community

That educational mission was made more difficult by unpredictable connectivity between the College of Ag Sciences and the county extension offices. The aging network was unreliable. Commodity Internet connections were spotty, making it harder for the researchers and faculty at the College to work effectively with extension offices. The offices needed more reliable and secure connectivity to e-mail, collaboration tools, and other applications.

Ed Zuech, director of IT at Penn State College of Ag Sciences, knew he faced both technology and budgetary challenges. Penn State Extension is funded through county, state, and federal budgets, and IT decisions were decentralized, making it difficult to make swift improvements.

*"We feel a lot of trust. When we have conversations with the Juniper team, it's not a sales pitch. They ask a lot of questions, and they listen to us, so they can tie the right solution to the right need."*

- Ed Zuech, Director of IT, Penn State College of Agricultural Sciences

But times were changing. Budget models evolved, and IT was centralized. Zuech and Roger Tharp, network system specialist at the college, developed a plan to securely connect 67 extension offices and three research offices to the University Park campus.

At the same time, IT wanted to modernize the branch office networks to support more mobile devices. Network and security had to be simple to configure and maintain, since the college's IT team supports more than 2500 users in 40 locations on campus as well as the 70 extension and research offices. "The ability to centrally manage a geographically separate, diverse customer base was paramount," says Zuech.

### Simplify Branch Office Connectivity

The college upgraded networking and security for its extension offices over a three-year period. Juniper Networks® SRX340 and SRX240 Services Gateways provide next-generation firewall and unified threat management (UTM) capabilities, along with routing, switching, and WAN connectivity. The SRX Series devices also provide scalable, secure, and easy-to-manage connectivity. In addition, to prevent application-borne security threats, the college uses the Juniper Networks AppSecure suite of application security capabilities for SRX Series Services Gateways.

Extension and research offices use the Juniper Networks EX2200 Ethernet Switch, an access device that's ideal for branch wiring closets and open offices. With Power over Ethernet (PoE), the EX2200 supports networked devices like wireless access points and IP phones. Users can connect via Wi-Fi in the extension offices and on campus, and wireless traffic is contained in VLANs to mitigate security risks.

The college also uses the Juniper Networks QFX5100 Switch to provide high-performance, high-density switching in its data center.

The Penn State team was new to the Juniper Networks Junos® operating system, which powers Juniper's networking and security products. Running Junos OS in the network shortens the time to deploy new services while lowering costs for network operations. "Our engineers quickly jumped in to learn the Junos operating system," says Zuech.

The team used Junos OS automation tools to speed operational and configuration tasks on their Juniper switches and security, which saved time and reduced potential configuration errors. Automation has also maximized network uptime by warning of potential problems and automatically responding to system events.

### Practical Agricultural Education

A fast, reliable, and secure branch office network has brought many benefits to Penn State and its extension offices. "Four years ago, we could have easily had 10 or more counties down a day because the VPN tunnels were crashing," says Zuech. "Juniper has been incredibly reliable and solid."

With a reliable network foundation, voice and videoconferencing were easily added into the mix. "There's a lot more collaboration between the researchers and faculty and the extension offices now," Zuech says.

Videoconferencing makes it easier for farmers and community members to attend meetings and classes while staying productive. "A farmer doesn't have to drive three hours for a two-hour meeting anymore," Zuech explains. "The younger farmers might not go to a meeting at the town hall, but they will watch it on their phones."

In fact, he says, "We recently had a gentleman join a videoconference call from the back of his tractor. It's a big culture change."

That culture change is an opportunity for the college's researchers and faculty to get their research and education out to a broader audience. The college has recently been exploring the possibilities of e-learning to share their research and information more widely.



Through it all, the network stays unnoticed. "No one calls and says, 'nice routing today,' and that's OK," Zuech says. "But in IT, we see the efficiencies of having a Juniper network. Our support team has less churn because the network works. Instead of working 20 trouble tickets, they're helping someone with an enhancement."

The college has a strong working relationship with Juniper. “We feel a lot of trust,” says Zuech. “When we have conversations with the Juniper team, it’s not a sales pitch. They ask a lot of questions, and they listen to us, so they can tie the right solution to the right need.”

That confidence in Juniper solutions is so strong that the IT team spread the word at Ag Progress Days at Penn State, Pennsylvania’s largest farm show. “People can come to the show and see what we’re doing with networking,” he says. “We can show them that it’s good. That’s where we start getting into the creativity and can take it to the next level.”

## Planning Ahead

“We’ve been able to build this foundation, and now we’re looking for ways to do things differently,” Zuech says. The team is strengthening perimeter security to protect the college against an increasingly damaging threat landscape. It’s also diving deeper into network automation and orchestration to continue to simplify network operations and accelerate troubleshooting so that IT can focus on technology innovation to support the college’s educational and research mission.

## For More Information

To find out more about Juniper Networks products and solutions, please visit [www.juniper.net](http://www.juniper.net).

## About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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