BURNSVILLE-EAGAN-SAVAGE SCHOOL DISTRICT

REQUEST FOR PROPOSAL

PREPARED FOR:

Rachel Gorton

rgorton@isd191.org

Burnsville-Eagan-Savage School District

PREPARED BY:

Jessica Fredrickson

Jess.fredrickson@HighPointNetworks.com

952-715-3491

February 5, 2021

Mrs. Rachel Gorton;

Thank you for inviting High Point Networks (HPN) to respond to the Request for Proposal for Access Switch Replacement. We appreciate the time you have given us thus far, and look forward to discussions around our proposal.

High Point Networks has designed an Extreme Solution for your Access Switch Refresh. High Point Networks holds the highest medallion status with Extreme networks as a Diamond Partner. This medallion status is achieved by hitting revenue goals Extreme defines and having the required certifications. Our bench is deep with Certified Extreme Engineers.

HPN is also a Platinum Aruba Partner and believes in the CX Switch Platform. HPN needed to pick one manufacture to respond with and based on the existing infrastructure in place made the decision to Partner with Extreme. The solution will complement the existing infrastructure and provide a single hand to shake from the core to the edge to the access layer. There is also no ramp up period for learning new technology for your team, since the universal switches continue to be managed by XMC.

HPN has designed a 5420F Universal Access Switch Design for the access layer. The switches come populated with one power supply but have a modular slot for expansion to dual power supplies, for investment protection. HPN has proposed a non-mix stack environment, and all 48P switches for the access layer, with non-PoE switches in the labs. The Universal Hardware provides future 'protection' giving flexibility to deploy either VOS or XOS. Please reference the visio diagrams for full design details.

High Point Networks has had the pleasure of working with the District for 10+ years. The Partnership has been focused around the Data Center. High Point Networks has four main pillars of focus: Data Center, Infrastructure, Security and Unified Communications. We are excited to expand our Partnership and provide the same customer experience on the Networking pillar of your IT ecosystem.

A key benefit of our solution is our project management process. We believe that from concept to completion, it is important to stay focused to ensure our solutions meet your requirements and deadlines, and the project is implemented to your satisfaction. You will be assigned a project manager as a single point of contact who will keep you updated on the progress of the project, mitigate any risks, and ensure the project is completed on time and on budget.

In the included response, you will learn more about High Point Networks and how we can coordinate with your team to be your technology partner for this next chapter of your company's IT strategy.

Thank you for the opportunity to expand our partnership.

Sincerely,

Jessica Fredrickson

HPN RFP RESPONSE:

Burnsville-Eagan-Savage School District – Request for Proposal

Introduction:

The District is requesting bid response from vendors for UPS and data switches. Bid responses must be sent within 28 days of posting of Form 470. Vendors must have a SPIN with current certification. Vendors must be willing to file for reimbursement on behalf of the District if requested.

All responses must be sent electronically to Rachel Gorton at rgorton@isd191.org.

> RESPONSE: High Point Networks is an active service provider with SPIN#143032077.
>
> High Point Networks prefers BEAR method, but is happy to invoice SPI Method if that is the District's preference.

Item 1
UPS Replacement

> RESPONSE: High Point Networks has decided to NO-BID this section.

Item 2

Access Switches

ISD191 seeks bids on internal connections. All cost proposals must reflect any available governmental unit discounts. Each line item on proposal should clearly list Quantity, Manufacturer, Part Number, Description, Unit Price, and Extended Price. Proposals MUST separate eligible and ineligible services by line item for all services to which service provider responds.

Vendors may submit alternative equipment as long as the equipment is an equivalent make and model or serves a similar functionality.

> RESPONSE: High Point Networks has included itemized pricing via Quote#105160.

COMPANY OVERVIEW

High Point Networks is a leading provider of information technology solutions in both SMB and enterprise-level markets, servicing customers from coast to coast. We specialize in anything that spans your network, data center, phone system and endpoints with a strong security focus across all things IT. Our Headquarters is in West Fargo, North Dakota with additional regional offices throughout North Dakota, South Dakota, Minnesota, Montana, Nebraska, and Colorado. No matter where your business is located within the United States, we have you covered. "Always Connected" is a slogan that epitomizes the day-to-day culture of High Point Networks and the way we consistently provide the highest level of customer satisfaction by being reliable, timely, and accurate with our clients.

High Point Networks was created because we noticed that too many Technology Companies were focused on how much they could sell, and that did not seem right to us. We have always been more interested in solving problems. Know that if we train our team to focus on a result more than on a specific deal, we will be successful, and more importantly, our customers will be successful as a result. Helping others, building strong relationships, and working together will always be stitched into our DNA.

MISSION
To provide worthwhile work for like-minded professionals in the world of information technology and cyber security that enhances business outcomes for those we serve.

WEST FARGO, ND
Corporate Headquarters
728 E. Beaton Dr. Ste. 200
701.282.6459

BISMARCK, ND
4204 Boulder Ridge Rd. Ste 200
Bismarck, ND 58503
701.223.4809

SIOUX FALLS, SD
2300 E. 54th St. N. Ste. 3
Sioux Falls, SD 57104
605-789-5700

BROOKINGS, SD
422 4th St.
Brookings, SD 57006
605-697-3060

DETROIT LAKES, MN
910 Lincoln Ave. #6
Detroit Lakes, MN 56501
218-844-8787

TWIN CITIES, MN
7100 Northland Cir. N. Ste. 304
Minneapolis, MN 55428
952-715-3490

BILLINGS, MT
145 Regal St. Ste. 8
Billings, MT 59101
406-281-7943

DENVER, CO
2919 W. 17th Ave. Ste. 201
Longmont, CO 80503
970-541-7887

PUEBLO, CO
3902 Sandalwood Lane
Pueblo, CO 81005
719-545-7505

OMAHA, NE
17002 Marcy Street
Omaha, NE 68118
402.657.7911

HISTORY

Established in 2003, High Point Networks has quickly become one of the region's premier technology providers. High Point Networks founded its Headquarters in West Fargo, North Dakota and has added locations over the years in Bismarck, ND, Sioux Falls, SD, Brookings, SD, Billings, MT, Detroit Lakes, MN, Minneapolis, MN, Denver, CO, Pueblo, CO and Omaha, NE to better serve customers.

High Point Networks has a history of investing in new technology as the market evolves, creating growth both organically and by acquisition. Recent successful acquisitions include:

- VAR division of EarthBend, LLC of Sioux Falls, SD | 2017
- West-Tech Communications of Pueblo, CO | 2018
- Vermillion Technologies of Sioux Falls, SD | 2019

High Point Networks continues to grow its resources and technical expertise. Our solutions solve real challenges, and we are here to partner with you on those challenges – big or small.

PARTICIPATING CONTRACTS-MN

NASPO HPE Compute and Storage Contract #97228 Participating Agent   MN Master Contract Number: T-635(5) Networking

       Extreme Agent

       Palo Alto Networks Agent

       HPE Aruba Agent

COVERAGE AREA

High Point Networks services customers coast to coast. No matter where your business is located within the United States, we have you covered. HPN aligns the best resource for the project. If the engineer is out of another office, there is no negative impact to the customer as travel is always billed based on the closets HPN office.

LEADERSHIP TEAM

TOM MCDOUGALL
President & CEO
Majority Owner

Hometown: Langdon, ND

North Dakota State University

32+

Years of Industry Experience

Tom is the CEO/Founder/Majority Owner of High Point Networks, LLC. Throughout high school, he took on various sales activities in order to have spending money. It was then Tom decided he didn't ever want to be in sales. In college, the only class he took involving a computer was a required basic programming class. So, it stands to reason that his first real job after graduating college was selling computers.

As it turned out, Tom enjoyed helping others with their technology needs. After a couple years, he was recruited by a Fortune 100 company as an area account manager. Two years later, he was asked to move to a different state, declined the offer, and then was hired by a technology firm in Minneapolis to open a branch for them in the Fargo area.

JUSTIN FESTCH
VP of Sales
Owner

Hometown: Langdon, ND

Northwest Technical College

20+

Years of Industry Experience

Justin is the VP of Sales of High Point Networks, LLC, and has been in the technology industry now for 20+ years and is still amazed at not only how fast-paced this industry can be, but also how small of a community technology really is. Justin had the privilege of transitioning from a customer of HPN to a partner. This move has allowed him to learn what customers expect from a trusted IT partner.

He has always thought more like an engineer in terms of what and how a solution can help a business, which is how he was taught when it comes to working with customers on business challenges. He believes that selling technology isn't always having the right answer or being the 'yes man.'

TOM MCDOUGALL
President & CEO
Majority Owner

Upon achieving marginal success, he started to grow the branch by adding engineering and account management talent and, after a 10-year run, decided to part ways. Tom purchased the assets he had created and in October of 2003, High Point Networks was born.

A MESSAGE FROM THE PRESIDENT & CEO

"My goal is to help others get to where they want to go in life and business. At HPN, we help build a plan together, and then we identify what role HPN can play in bringing that plan to fruition.

We understand that technology is not perfect, and at some point, each company will face a challenge. The question is, who do you want by your side when this happens? Rest assured, we will be there when you need us. Our team will work hard to identify the issue and find solutions that solve real challenges. At High Point Networks, we promise to consistently provide the highest level of customer satisfaction.

At the end of the day, I can promise that you will always want HPN on your team, not necessarily for the products we sell, but for the experience we provide."

JUSTIN FESTCH
VP of Sales
Owner

It's about building a partnership with a customer to provide solutions that solve challenges and create new opportunities in their organization.

A MESSAGE FROM THE VP OF SALES

"Technology continues to evolve, and your business should have a trusted IT partner that can bring you solutions that solve real challenges.

The value High Point Networks brings is very hard to describe on paper or in a paragraph, but I will say this:

Our mission is something we use in our business every day and we aim to solve real-world challenges with a measurable return on investment.

Our goal, as an organization, is to present you with products and solutions that are the essential for your business; not just the 'flavor of the week,' or 'what makes a quick buck.' We want to become an extension of your IT team."

PROJECT TEAM

High Point Networks has an extensive team comprised of engineers, project managers, and account managers all with countless years of industry experience prepared to successfully complete your project. With 130+ team members at HPN you can guarantee to have the best resources at your fingertips. Below are some of the parties you can expect to be working on your project.

The Project Team is carefully selected based on the project requirements and goals. HPN believes in putting the right engineering resources on the job regardless of location.

JESS FREDRICKSON
Account Manager
Twin Cities, MN

Jessica Fredrickson started at High Point Networks in 2017, via HPN acquiring EarthBend. Fredrickson is currently an Account Manager with 10+ years of industry experience. Prior to joining High Point Networks, her main responsibilities included technology solution sales to SLED accounts. At High Point Networks, Fredrickson is primarily responsible for technology sales and customer experience in the Minnesota territory.

JESSICA HELLING
Project Manager
West Fargo, ND

Jessica Helling started at High Point Networks in 2018. Helling is currently a Project Manager with eight years of industry experience. Prior to joining High Point Networks, his main responsibilities included managing projects and application support for the IT department. At High Point Networks, Helling focuses on managing many of High Point Networks' as a service projects and firewall installation projects.

KRIS SCHIELE
Network Engineer
West Fargo, ND

Kris Schiele started at High Point Networks in 2015. Schiele is currently a Network Engineer with 16 years of industry experience. Prior to joining High Point Networks, his main responsibilities included supporting the network Infrastructure and servers. At High Point Networks, Schiele is primarily responsible for designing, deploying, and troubleshooting network infrastructure elements including wireless, switching, and firewalls.

CERTIFICATIONS: Sophos Certified Engineer, Sonicwall Network Security Advanced Administration, Aruba Certified Mobility Professional, Extreme Certified Specialist Routing and Switching, CompTIA Security+

MIKE TRAYLOR
Network Engineer
Sioux Falls, SD

Mike Traylor started at High Point Networks in 2019. Mike is currently a Network Engineer with 10 years of industry experience. Prior to joining High Point Networks, he worked in payment card/banking industry where he was primarily responsible for managing nearly 70 firewalls in a Zero Trust environment as well as supporting the routing, switching, and voice equipment. At High Point Networks, Mike is primarily responsible for firewall, switch and router support. designing, deploying, and troubleshooting network infrastructure elements including wireless, switching, and firewalls.

CERTIFICATIONS: CCNA Routing & Switching, CCNA Security, Extreme ECS-Management Center, Extreme ECS-Campus EXOS Routing and Switching, Extreme ECS Campus Fabric, Extreme ECS-Campus Fabric, Extreme EDS-IP Campus, Extreme EDS-Management Center, Sonicwall Network Security Administrator, Sonicwall Network Security Professional, Palo Alto Network (PSE): Platform Associate, Palo Alto Network (PSE): Platform Foundation.

HPN EXTREME NETWORK REFERENCES

High Point Networks is honored to work with customers across all sizes and verticals across the Great Plains in the areas of infrastructure, unified communications, data center, and security. As we work and grow with our clients, we help them plan for and implement new projects and moves of all sizes.

HPN has numerous Extreme customer references and look forward to delivering the same HPN Customer experience with your District! Below is a mixture of SLED customers HPN has partnered with on their Extreme deployment.

- State of North Dakota
- Olmsted County, MN
- Osseo Area Public Schools
- Fridley Public Schools

HPN PROJECT METHODOLOGY

To ensure your project's success, High Point Networks provides professional consulting services to help our clients evaluate, design, test, implement and support these solutions. HPN's team of highly skilled engineers use their in-depth knowledge of technology infrastructures and our skilled resources enabling HPN to provide high quality, cost effective solutions.

Our philosophy is to provide our customers solutions that will solve real business challenges and provide a measurable return on their investments. We strive to become the trusted

advisors of our customers. We want to partner with our customers and become an extension of their own IT teams.
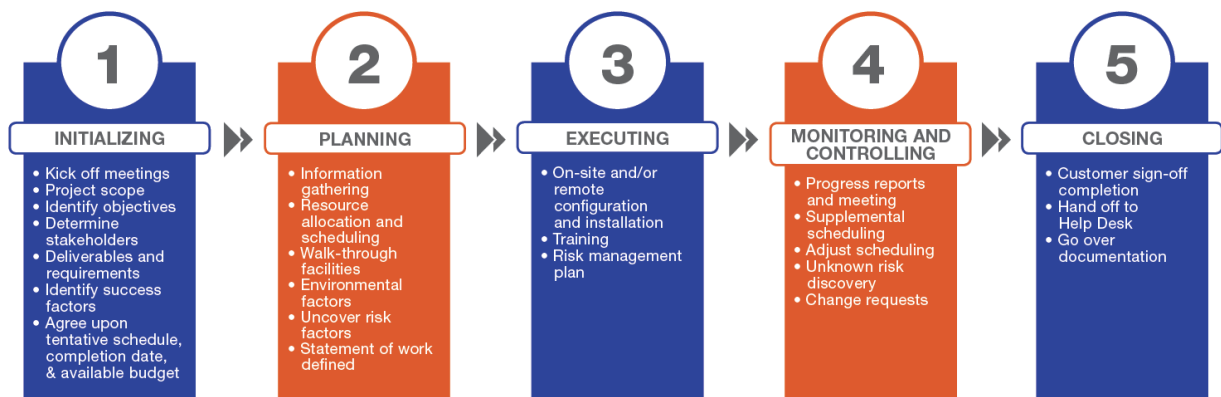
High Point Networks will appoint a single point of contact who will focus on your project from concept to completion to ensure solutions meet all the requirements and deadlines, and that the deliverables are implemented to your satisfaction. Your project manager will keep you informed of the progress of the project, mitigate any risks, and make sure the project is completed on time and on budget.

Our project approach is practical and disciplined, incorporating the customer's input throughout the entire life cycle on priorities, scope, findings, recommendations, and most of all expected deliverables. We will leverage best practices while adopting them to the customer's needs and culture. The goal is to ensure that the customer receives value and their expectations are exceeded from their investment of time and money.

We leverage our client engagement process, which provides the foundation for all project communications. Those components include:

- A review of tasks, responsibilities, and expected deliverables.
- Identification of project concerns, risks, and issues.
- Obtaining the customer's feedback and taking appropriate actions.

Your project will be completed in phases so your project manager can oversee the progress. High Point Networks utilizes the following phases for every project:

1 INITIALIZING
- Kick off meetings
- Project scope
- Identify objectives
- Determine stakeholders
- Deliverables and requirements
- Identify success factors
- Agree upon tentative schedule, completion date, & available budget

2 PLANNING
- Information gathering
- Resource allocation and scheduling
- Walk-through facilities
- Environmental factors
- Uncover risk factors
- Statement of work defined

3 EXECUTING
- On-site and/or remote configuration and installation
- Training
- Risk management plan

4 MONITORING AND CONTROLLING
- Progress reports and meeting
- Supplemental scheduling
- Adjust scheduling
- Unknown risk discovery
- Change requests

5 CLOSING
- Customer sign-off completion
- Hand off to Help Desk
- Go over documentation

HIGH POINT NETWORKS™

470#210012267 HPN Response

Quote Information:

Quote #: 105160
Version: 6
Delivery Date: 03/03/2021
Expiration Date: 03/06/2021

Prepared for:

Burnsville Eagan Savage ISD 191
Attn: Rachel Gorton
200 W Burnsville Pkwy
Burnsville, MN 55337-4292

Prepared by:

High Point Networks, LLC
Jess Fredrickson
Direct: 952-715-3491
jess.fredrickson@highpointnetworks.com

▲ PROJECT SUMMARY

P.O.C(s): Rachel Gorton (Director of Technology) and Bob Weiler (Network Systems Administrator)

District Wide Access Switch Upgrade, impacting 16 Sites detailed below:

- Burnsville High School
- Cedar aka Burnsville Alternate High School
- Eagle Ridge Middle School
- Nicollet Middle School
- William Byrne Elementary
- Harriet Bishop Elementary
- Hidden Valley Elementary
- Marion W. Savage Elementary
- Edward D. Neill Elementary
- Gideon Pond Elementary
- Rahn Elementary
- Sky Oaks Elementary
- Sioux Trail Elementary
- Visa View Elementary
- Diamondhead - DO and ECE
- Warehouse

Out of Scope: Metcalf and River Ridge

DESIGN HIGHLIGHTS: Replace aging and end of support G1 Access Layer Switches. Majority is a mixture of X460 G1 and X440 G1 switches.
HPN has designed a 5420F Universal Access Switch Design for the access layer. The switches come populated with one power supply but have a modular slot for expansion to dual power supplies, for investment protection. HPN has proposed a non-mix stack environment, and all 48P switches for the access layer, with non-PoE switches in the labs. The Universal Hardware provides future 'protection' giving flexibility to deploy either VOS or XOS. Please reference the visio diagrams for full design details.

- There are two models included in the design: 5420F-16MW-32P-4XE for any IDF and MDF closets and 5420F-24T for the Lab switches that didn't require PoE.
- There is 10GB going to the closets, unless it is a closet with 1-2 switches. The smaller sized closets are capable of 10GB, but designed with 1GB connectivity.
- There is no ramp up period for leaning new technology for your team, since the universal switches continue to be managed by XMC.

470#210012267 HPN Response

- ○ Solution does come with 1YR ExtremeCloud IQ if interested in piloting. Recommend sticking with XMC today.
  - The 5420 switch comes with Universal Limited Lifetime Warranty, details below:
    - ○ Hardware Duration: Lifetime -Ends 5 Years from products announced end of sale date.
    - ○ Hardware Replacement: Advance Replacement
      - Typical replacement 5-10 business days
    - ○ Technical Support:
      - Access to Extreme's GTAC for product warranty support 8AM-5PM M-F
      - Services NOT Included with LLW - Installation, network design, and troubleshooting, configuration recommendations, complex topologies, consultation, and optimization services.
      - Product Lifetime - Ends 5 years from products announced end of sale date.
    - ○ Software OS Releases-Publicly Available (non pre-release)
    - ○ Portal: Lifetime
    - ○ Additional Details: Policies and Warranties - Extreme Networks

  - OPTIONAL UPLIFTS
    - ○ ALT #2: 1YR & ALT #3 5YR Optional Uplift
      - Quoted optional ExtremeWorks Software & TAC Support. This IS E-Rate Eligible.
      - Quoted optional ExtremeWorks NBD Parts. This is NOT E-Rate Eligible, but would have to be stacked on top of ExtremeWorks Software & TAC

  - The 5420 switch comes with Base Licensing, details below.

VOSS (with latest GA)

VOSS Features	BASE ($0)	PREMIER ($)	MACSEC ($)
Base Operations and Management	✓	✓	
L2 Switching	✓	✓	
L3 Routing (RIP/OSPF/BGP)	✓	✓	
IP Multicast	✓	✓	
App Telemetry with Sflow+	✓	✓	
DVR Leaf	✓	✓	
Fabric Attach, Extend, RSPAN	✓	✓	
Fabric L2VSN, Routing, Multicast	✓	✓	
Fabric Connect - L3VSN		✓	
DVR Controller		✓	
Full Scale BGP		✓	
Full Scale VRF		✓	
MACsec (128/256-bit)			✓

Legacy License Tier	Unified Licensing
BASE License Tier	BASE
PREMIER License Tier	PREMIER
MACsec Features	MACSEC Feature Pack

EXOS (with latest GA)

EXOS Features	BASE ($0)	PREMIER ($)	MACSEC ($)
Base Operations and Management	✓	✓	
L2 Switching, EAPS, ERPS, Extended Edge	✓	✓	
L3 Routing, RIP, OSPF - Limited Scale	✓	✓	
IP Multicast - Limited Scale	✓	✓	
VxLAN	✓	✓	
Python Scripting	✓	✓	
User Based Security Policies	✓	✓	
Fabric Attach	✓	✓	
Full Scale OSPF, BGP4, ISIS		✓	
Full Scale IP Multicast, Anycast RP, MSDP		✓	
GRE Tunneling		✓	
EVPN		✓	
MACsec (128/256-bit)			✓

Legacy License Tiers and Feature Packs	Unified Licensing
Value Edge, Edge, Advanced Edge License, All Feature packs except MACsec	BASE
CORE License	PREMIER
MACsec Feature Pack	MACSEC Feature Pack

HPN SCOPE OF WORK:

- HPN Responsibilities:
  - ○ Project Management
  - ○ Staging of equipment, pre configuration and base install
  - ○ Provision all equipment to HPN Standards

470#210012267 HPN Response

- Rack and stack all equipment in customer provided racks
- Integration of new switches into XMC
- Knowledge Transfer, as needed
- Client Responsibilities:
  - Provide central staging area for switches at District.
  - Provide a Team lead to assist HPN team access to install switch closets at time of installation.

Exclusions:

- Disposal of Existing Switches. HPN will remove switches from rack and place in closet for disposal.
- Customer wanted to reuse existing Patch Cables
- Cabling -Fiber and/or fiber runs, or Copper wiring

HIGH POINT NETWORKS™

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SPIN#143032077
MN State Contract Vehicles Available, as needed.

Installation / Configuration

Qty	Item	Description	Price	Ext. Price
1	PROSERVE-PKG	High Point Networks Professional Services defined in Project Summary	$69,950.00	$69,950.00
			Subtotal:	$69,950.00

Switch Equipment

Qty	Item	Description	Price	Ext. Price
		All switches come built with single PS, with option to expand to Dual PS. See ALT#1 for Dual Power Supplies		
172	5420F-16MW-32P-4XE	ExtremeSwitching 5420F 16 100Mb/1Gb/2.5Gb 802.3bt 90W PoE 32 10/100/1000BASET FDX/HDX PoE+ 2 Stacking/SFP-DD 4 10G Un-pop SFP+ MACsec Capable Internal Fixed PSU Fans 1 Un-Pop Modular PSU Slot (Includes 1 Yr XIQ Pilot Cloud Subscription)	$2,681.71	$461,254.12
		Switch comes with Limited Lifetime Warranty 8x5 TAC Support.		
172	10099	Power Cord 15A USA NEMA 5-15 C15	$7.07	$1,216.04
			Subtotal:	$462,470.16

ALT#1 Dual Power Supplies

Qty	Item	Description	Price	Ext. Price
		All switches come built with single PS, with option to expand to Dual PS.		
3	XN-ACPWR-1200W	Extreme Networks, Inc XN-ACPWR-1200W - 1200W AC Power Supply	$401.22	$1,203.66
3	10099	Power Cord 15A USA NEMA 5-15 C15	$7.07	$21.21
			Subtotal:	$1,224.87

Lab Switches non PoE

Qty	Item	Description	Price	Ext. Price
		24T Lab Switches that are non PoE		
2	5420F-24T-4XE	ExtremeSwitching 5420F 24 10/100/1000BASET FDX/HDX 2 stacking/SFP-DD 4 10G unpopulated SFP+ MACsec capable internal fixed PSU fans 1 unpopulated modular PSU slot. Includes 1 year XIQ Pilot cloud subs	$1,096.34	$2,192.68
		Switch comes with Limited Lifetime Warranty 8x5 TAC Support.		
2	10099	Power Cord 15A USA NEMA 5-15 C15	$7.07	$14.14
			Subtotal:	$2,206.82

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470#210012267 HPN Response

Interconnections / Stacking

Qty	Item	Description	Price	Ext. Price
		Each Stack can support up to 8 48P switches, as requested.		
140	10304	10 Gigabit Ethernet SFP Passive Cable Assembly 1m Length	$18.05	$2,527.00
41	10305	10 Gigabit Ethernet SFP Plus Passive Cable Assembly 3m Length	$24.76	$1,015.16
46	10301	10 Gigabit Ethernet SFP+ Module 850nm MMF 26-300m Link LC Connector	$162.20	$7,461.20
			Subtotal:	$11,003.36

Management Platform

Qty	Item	Description	Price	Ext. Price
		BES to continue to utilize XMC for management		

ALT#2-1YR: ExtremeWorks Support   *Optional Items

Qty	Item	Description	Price	Ext. Price
		ExtremeWorks 1YR Support Option(s)		
		EW Software & TAC (24x7 Support) = E-Rate Eligible		
172	97000-5420F-16MW-32P-4XE	EW Software & TAC -5420F-16MW-32P-4XE This Term: 365 Days	$377.00	$64,844.00
		EW Edu NBD Part Only = Not E-Rate Eligible		
172	97304-5420F-16MW-32P-4XE	EW Edu NBD Part Only -5420F-16MW-32P-4XE This Term: 365 Days	$162.00	$27,864.00
			*Optional Amount:	$92,708.00

ALT#3-5YR: ExtremeWorks Support   *Optional Items

Qty	Item	Description	Price	Ext. Price
		ExtremeWorks 5YR Support Option(s)		
		EW Software & TAC (24x7 Support) = E-Rate Eligible		
172	97000-5420F-16MW-32P-4XE	EW Software & TAC -5420F-16MW-32P-4XE This Term: 1825 Days	$1,885.00	$324,220.00
		EW Edu NBD Part Only = Not E-Rate Eligible		
172	97304-5420F-16MW-32P-4XE	EW Edu NBD Part Only -5420F-16MW-32P-4XE This Term: 1825 Days	$810.00	$139,320.00
			*Optional Amount:	$463,540.00

ALT#4: CloudIQ 3YR   *Optional Items

Qty	Item	Description	Price	Ext. Price
		ExtremeCloud IQ Cloud Subscription (would replace XMC and ALT#2 & ALT#3)		
		ExtremeCloud IQ = E-Rate Eligible and includes 24x7 TAC Support		
174	XCIQ-PT054-C-EW-3YK12	ExtremeCloud IQ Pilot 5400 Tier 0 for 3YR Cloud Subscription with ExtremeWorks TAC OS (US K-12)	$314.63	$54,745.62

*Optional Amount: $54,745.62

Quote Summary

Description	Amount
Installation / Configuration	$69,950.00
Switch Equipment	$462,470.16
ALT#1 Dual Power Supplies	$1,224.87
Lab Switches non PoE	$2,206.82
Interconnections / Stacking	$11,003.36

Total: $546,855.21

*Optional Items

Description	Amount
ALT#2-1YR: ExtremeWorks Support	$92,708.00
ALT#3-5YR: ExtremeWorks Support	$463,540.00
ALT#4: CloudIQ 3YR	$54,745.62

Optional Subtotal: $610,993.62

Signature _____   Date _____

Highlights

- High-performance, feature-rich fixed-form switches for enterprise edge deployments

- Universal hardware platform providing end-to-end network segmentation and advanced policy with a choice of ExtremeSwitching operating systems

- Fixed and modular 24 and 48-port models with Gigabit and Multi-Gigabit Ethernet connectivity

- 4 x 1/10Gb SFP+ or 4 x 10/25Gb built-in uplink ports

- 30W, 60W and 90W PoE support (IEEE 802.3at / IEEE 802.3bt)

- Up to 8-unit 40Gb per unit stacking

- MACsec on 10/100/1000 access and uplink ports for secure link encryption

- Layer 2/Layer 3 Fabric services for secure network segmentation and automation

- Non-blocking, wire-speed design

Smart Management Choices

- ExtremeCloud™ IQ for powerful, simple and secure public or private cloud management

- 1-year ExtremeCloud IQ Pilot subscription included with each 5420

- Extreme Management Center™ for centralized, unified management capabilities

BUILT ON
BROADCOM®
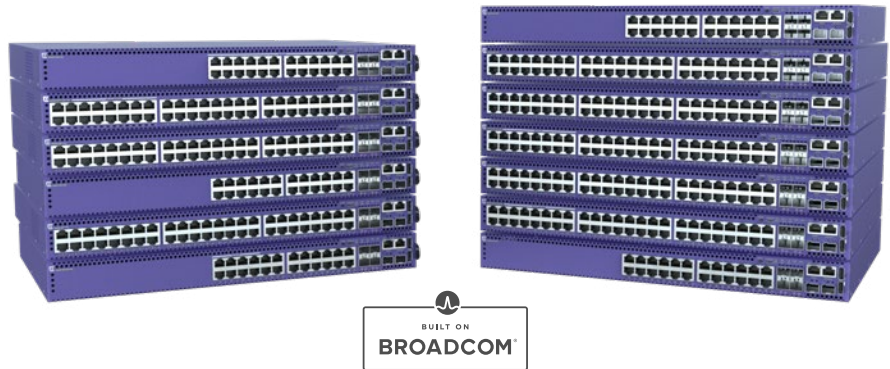
ExtremeSwitching™ 5420 Series

Universal Edge Switch Platform

The ExtremeSwitching 5420 Series is a family of high-performance, feature-rich edge switches designed for the next-generation digital enterprise. The 5420 Series universal hardware provides end-to-end secure network segmentation, in addition to advanced policy capabilities, and offers a user-selectable choice of Extreme's flagship switch operating systems. This makes the 5420 a uniquely flexible platform that can be deployed across a range of edge and wiring-closet environments.

The 5420 Series includes both fixed and modular 24- and 48-port 1 Gigabit models as well as 1 / 2.5 Gigabit multi-rate models, The family also offers 30/60/90W PoE making it an ideal wired backend for wireless APs or in support of next-gen powered Ethernet devices, such as digital signage, pan-tilt-zoom cameras, smart lighting or point-of-sale terminals.

Universal Hardware Platform

The 5420 Series as a universal hardware platform comes with a dual-persona capability allowing user choice of the switch operating system (OS). Either the ExtremeXOS® or VSP Operating System (VOSS) persona can be enabled on 5420 hardware models. The desired persona can be selected at start-up or changed at a later stage. Once selected, the 5420 assumes the features/capabilities of the selected OS.

5420 persona activation can be done manually at boot-up, including via the system CLI. Or, it can be automated by pre-provisioning the 5420 persona in ExtremeCloud IQ. When first booted, the 5420 automatically connects to ExtremeCloud IQ to find its persona. The pre-provisioned OS persona is then remotely enabled on the 5420 system – eliminating the need for manual selection.

Ethernet Fabric Services

The 5420 supports a variety of Ethernet Fabric services, including Extreme's Fabric Connect when running VOSS and Extreme's IP Fabric when running ExtremeXOS. It also supports Fabric Attach for automated connection to either Layer 2 or Layer 3 fabric services. Extreme's Fabric Connect and IP Fabric on the 5420 enable the creation of virtualized networks that automate network operations, simplify network provisioning and enhance security, all while reducing the strain on network and IT personnel.

Power over Ethernet (PoE)

The 5420 Series includes Power over Ethernet models supporting standards-based IEEE 802.3bt (30/60/90W) PoE capabilities. This enables the 5420 to address the needs of powered edge devices, while eliminating the need for additional electrical cabling and circuits. In addition, 5420 PoE models also support perpetual and fast PoE for even more efficient and reliable powered edge device operation.

MACsec Link Encryption

IEEE 802.1AE MACsec is supported on the 5420 access ports, as well as on its built-in uplink ports. MACsec is a hop-by-hop security capability which encrypts/decrypts packets between connected switches or devices. As a link-only encryption, the switches can still apply services to the packet, such as policy or QoS, without compromising the security of packets across the link. With 128-bit and 256-bit Advanced Encryption Standard (AES) support, the 5420 provides the most secure link encryption.

High-Performance Stacking

The 5420 also supports high-speed stacking when running ExtremeXOS via its two built-in SFP-DD stacking ports. Up to eight systems can be stacked using qualified SFP+/SFP-DD direct attach cables and optical transceivers.

Management

The 5420 can be managed by ExtremeCloud™ IQ or Extreme Management Center (XMC) for comprehensive unified management with a consolidated view of users, devices and applications across wired and wireless networks. (NOTE: Each 5420 unit also includes a 1-year ExtremeCloudIQ Pilot subscription.)

Zero-touch provisioning from ExtremeCloud IQ lets one quickly bring new 5420 switches online as well as enable the selection of the operating system (OS) persona. Alternatively, 5420 on-box management can be done manually via a web-based GUI or generic CLI.

External Interfaces

Switch Model	Interfaces
5420F-24T-4XE	24 x 10/100/1000Base-T ports • Full / Half-Duplex (autosensing) • MACsec-capable 4 x 1/10Gb SFP+ uplink ports (unpopulated) • MACsec-capable 2 x Stacking/SFP-DD ports* (unpopulated) 1 x Serial console port (RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 2 x USB A ports for management or external USB flash 1 x USB Micro-B console port
5420F-24P-4XE	24 x 10/100/1000Base-T 802.3at (30W) ports • Full / Half-Duplex (autosensing) • MACsec-capable 4 x 1/10Gb SFP+ uplink ports (unpopulated) • MACsec-capable 2 x Stacking/SFP-DD ports* (unpopulated) 1 x Serial console port (RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 2 x USB A ports for management or external USB flash 1 x USB Micro-B console port
5420F-24S-4XE	24 x 100/1000Base-X (SFP) ports (unpopulated) • MACsec-capable 4 x 1/10Gb SFP+ uplink ports (unpopulated) • MACsec-capable 2 x Stacking/SFP-DD ports* (unpopulated) 1 x Serial console port (RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 2 x USB A ports for management or external USB flash 1 x USB Micro-B console port
5420F-48T-4XE	48 x 10/100/1000Base-T ports • Full / Half-Duplex (autosensing) • MACsec-capable 4 x 1/10Gb SFP+ uplink ports (unpopulated) • MACsec-capable 2 x Stacking/SFP-DD ports* (unpopulated) 1 x Serial console port (RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 2 x USB A ports for management or external USB flash 1 x USB Micro-B console port
5420F-48P-4XE	48 x 10/100/1000Base-T 802.3at (30W) ports • Full / Half-Duplex (autosensing) • MACsec-capable 4 x 1/10Gb SFP+ uplink ports (unpopulated) • MACsec-capable 2 x Stacking/SFP-DD ports* (unpopulated) 1 x Serial console port (RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 2 x USB A ports for management or external USB flash 1 x USB Micro-B console port
5420F-48P-4XL	48 x 10/100/1000Base-T 802.3at (30W) ports • Full / Half-Duplex (autosensing) • MACsec-capable 4 x 1/10Gb SFP+ uplink ports (unpopulated) • MACsec-capable • LRM-capable 2 x Stacking/SFP-DD ports* (unpopulated) 1 x Serial console port (RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 2 x USB A ports for management or external USB flash 1 x USB Micro-B console port

External Interfaces (cont.)

Switch Model	Interfaces

5420F-8W-16P-4XE	8 x 10/100/1000Base-T 802.3bt (90W) ports
	  • Full / Half-Duplex (autosensing)
	  • MACsec-capable
	16 x 10/100/1000Base-T 802.3at (30W) ports
	  • Full / Half-Duplex (autosensing)
	  • MACsec-capable
	4 x 1/10Gb SFP+ uplink ports (unpopulated)
	  • MACsec-capable
	2 x Stacking/SFP-DD ports* (unpopulated)
	1 x Serial console port (RJ-45)
	1 x 10/100/1000BASE-T out-of-band management port
	2 x USB A ports for management or external USB flash
	1 x USB Micro-B console port

5420F-16W-32P-4XE	16 x 10/100/1000Base-T 802.3bt (90W) ports
	  • Full / Half-Duplex (autosensing)
	  • MACsec-capable
	32 x 10/100/1000Base-T 802.3at (30W) ports
	  • Full / Half-Duplex (autosensing)
	  • MACsec-capable
	4 x 1/10Gb SFP+ uplink ports (unpopulated)
	  • MACsec-capable
	2 x Stacking/SFP-DD ports* (unpopulated)
	1 x Serial console port (RJ-45)
	1 x 10/100/1000BASE-T out-of-band management port
	2 x USB A ports for management or external USB flash
	1 x USB Micro-B console port

5420F-16MW-32P-4XE	16 x 100M/1G/2.5GBase-T 802.3bt (90W) ports
	  • MACsec-capable
	32 x 10/100/1000Base-T 802.3at (30W) ports
	  • Full / Half-Duplex (autosensing)
	  • MACsec-capable
	4 x 1/10Gb SFP+ uplink ports (unpopulated)
	  • MACsec-capable
	2 x Stacking/SFP-DD ports* (unpopulated)
	1 x Serial console port (RJ-45)
	1 x 10/100/1000BASE-T out-of-band management port
	2 x USB A ports for management or external USB flash
	1 x USB Micro-B console port

5420M-24T-4YE	24 x 10/100/1000Base-T ports
	  • Full / Half-Duplex (autosensing)
	  • MACsec-capable
	4 x 10/25Gb SFP28 uplink ports (unpopulated)
	  • MACsec-capable
	2 x Stacking/SFP-DD ports* (unpopulated)
	1 x Serial console port (RJ-45)
	1 x 10/100/1000BASE-T out-of-band management port
	2 x USB A ports for management or external USB flash
	1 x USB Micro-B console port

5420M-24W-4YE	24 x 10/100/1000Base-T 802.3bt (90W) ports
	  • Full / Half-Duplex (autosensing)
	  • MACsec-capable
	4 x 10/25Gb SFP28 uplink ports (unpopulated)
	  • MACsec-capable
	2 x Stacking/SFP-DD ports* (unpopulated)
	1 x Serial console port (RJ-45)
	1 x 10/100/1000BASE-T out-of-band management port
	2 x USB A ports for management or external USB flash
	1 x USB Micro-B console port

External Interfaces (cont.)

Switch Model	Interfaces
5420M-48T-4YE	48 x 10/100/1000Base-T ports • Full / Half-Duplex (autosensing) • MACsec-capable 4 x 10/25Gb SFP28 uplink ports (unpopulated) • MACsec-capable 2 x Stacking/SFP-DD ports* (unpopulated) 1 x Serial console port (RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 2 x USB A ports for management or external USB flash 1 x USB Micro-B console port
5420M-48W-4YE	48 x 10/100/1000Base-T 802.3bt (90W) ports • Full / Half-Duplex (autosensing) • MACsec-capable 4 x 10/25Gb SFP28 uplink ports (unpopulated) • MACsec-capable 2 x Stacking/SFP-DD ports* (unpopulated) 1 x Serial console port (RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 2 x USB A ports for management or external USB flash 1 x USB Micro-B console port
5420M-16MW-32P-4YE	16 x 100M/1G/2.5GBase-T 802.3bt (90W) ports • Full / Half-Duplex (autosensing) • MACsec-capable 32 x 10/100/1000Base-T 802.3at (30W) ports • Full / Half-Duplex (autosensing) • MACsec-capable 4 x 10/25Gb SFP28 uplink ports (unpopulated) • MACsec-capable 2 x Stacking/SFP-DD ports* (unpopulated) 1 x Serial console port (RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 2 x USB A ports for management or external USB flash 1 x USB Micro-B console port

* The Stacking/SFP-DD ports can be used either for stacking (with EXOS) or as Ethernet front panel ports (with EXOS or with VOSS in non-Fabric mode).

Weights and Dimensions

Switch Model	Weight*	Physical Dimensions
5420 Systems		
5420F-24T-4XE	9.03 lb /4.10 kg	17.4 in W / 1.7 in H / 11.3 in D 441 mm x 44 mm x 287 mm
5420F-24P-4XE	10.23 lb / 4.64 kg	
5420F-24S-4XE	9.08 lb / 4.12 kg	
5420F-8W-16P-4XE	10.23 lb / 4.64 kg	
5420F-48T-4XE	10.23 lb / 4.64 kg	
5420F-48P-4XE	11.64 lb / 5.28 kg	17.4 in W / 1.7 in H / 13.0 in D 441 mm x 44 mm x 330 mm
5420F-48P-4XL	11.64 lb / 5.28 kg	
5420F-16W-32P-4XE	11.82 lb / 5.36 kg	
5420F-16MW-32P-4XE	11.68 lb / 5.30 kg	
5420M-24T-4YE	9.22 lb / 4.18 kg	
5420M-24W-4YE	9.70 lb / 4.40 kg	
5420M-48T-4YE	9.68 lb / 4.39 kg	
5420M-48W-4YE	10.43 lb / 4.73 kg	
5420M-16MW-32P-4YE	11.68 lb / 5.30 kg	

* Measured weight includes fan (XN-FAN-000) and PSU cover(s), but does not include optional power supply unit(s).

5420F Internal Fixed and Secondary Power Supply Options

Model	Internal Fixed Power Supply Unit (PSU)*	Secondary Power Supply Unit (PSU)**
5420M-24T-4YE	120W AC PSU	XN-ACPWR-150W
5420F-24P-4XE	660W AC PSU	XN-ACPWR-600W
5420F-24S-4XE	150W AC PSU	XN-ACPWR-150W
5420F-48T-4XE	120W AC PSU	XN-ACPWR-150W
5420F-48P-4XE	860W AC PSU	XN-ACPWR-920W
5420F-48P-4XL	860W AC PSU	XN-ACPWR-920W
5420F-8W-16P-4XE	660W AC PSU	XN-ACPWR-600W
5420F-16W-32P-4XE	1200W AC PSU	XN-ACPWR-1200W
5420F-16MW-32P-4XE	1200W AC PSU	XN-ACPWR-1200W

* Internal Fixed PSU is non-orderable and comes pre-installed with each 5420F model.

** Secondary PSU provides power redundancy in 5420F non-PoE models and enables maximum PoE Power Budget in 5420F PoE models (see table below)

5420F Max PoE Power Budget

Model	PoE Budget with Single Internal Fixed PSU	PoE Budget with Recommended Secondary PSU
5420F-24P-4XE	380W	720W
5420F-48P-4XE	740W	1480W
5420F-48P-4XL	740W	1480W
5420F-8MW-16P-4XE	480W	960W
5420F-16MW-32P-4XE	960W	1920W
5420F-16W-32P-4XE	960W	1920W

5420M Primary and Secondary Power Supply Options

Model	PoE Budget with Single Internal Fixed PSU	PoE Budget with Recommended Secondary PSU
5420M-24T-4YE	XN-ACPWR-150W	XN-ACPWR-150W
5420M-24W-4YE	XN-ACPWR-920W	XN-ACPWR-920W
5420M-48T-4YE	XN-ACPWR-150W	XN-ACPWR-150W
5420M-48W-4YE**	XN-ACPWR-920W or XN-ACPWR-2000W	XN-ACPWR-920W or XN-ACPWR-2000W
5420M-16MW-32P-4YE**	XN-ACPWR-920W or XN-ACPWR-2000W	XN-ACPWR-920W or XN-ACPWR-2000W

* Primary PSU is required; Secondary PSU provides power redundancy and enables maximum PoE Budget in 5420M PoE models (see table below).

** Primary and Secondary PSU must be of the same type in 5420M-48W-4YE and 5420M-16MW-32P-4YE models.

5420M Max PoE Power Budget

Model	PSU Type	PoE Budget with Primary PSU Only	PoE Budget with Secondary PSU*
5420M-24W-4YE	XN-ACPWR-920W	720W	1440W
5420M-48W-4YE	XN-ACPWR-920W	720W	1440W
	XN-ACPWR-2000W	1440W	2880W
5420M-16MW-32P-4YE	XN-ACPWR-920W	720W	1440W
	XN-ACPWR-2000W	1440W	2400W

* PoE Budget values reflect use of same PSU type for both Primary and Secondary

Optional Power Supply Unit Specifications

	XN-ACPWR-150W	XN-ACPWR-600W	XN-ACPWR-920W	XN-ACPWR-1200W	XN-ACPWR-2000W *
Voltage Input Range (Nominal)	100-127/200-240 VAC	100-127/200-240 VAC	100-127/200-240 VAC	100-127/200-240 VAC	100-127/200-240 VAC
Line Frequency Range	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz
Power Supply Input Socket	IEC/EN 60320 C14	IEC/EN 60320 C16	IEC/EN 60320 C16	IEC/EN 60320 C16	IEC/EN 60320 C16
Power Cord Input Plug	IEC/EN 60320 C15	IEC/EN 60320 C15	IEC/EN 60320 C15	IEC/EN 60320 C15	IEC/EN 60320 C15
Operating Temperature	0° C to 50° C Normal Operation	0° C to 50° C Normal Operation	0° C to 50° C Normal Operation	0° C to 50° Normal Operation	0° C to 45° C

* 200-240 VAC is required to achieve full 2000W output. If run at 100-120VAC, output is limited to 1100W

** At sea-level, 0o C to 40o C at 1500m; 0o C to 35o C at 3000m

Environmental

Environmental Specifications

EN/ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage

EN/ETSI 300 019-2-2 v2.1.2 - Class 2.3 Transportation

EN/ETSI 300 019-2-3 v2.1.2 - Class 3.1e Operational

EN/ETSI 300 753 (1997-10) - Acoustic Noise

ASTM D3580 Random Vibration Unpackaged 1.5 G

Environmental Compliance

EU RoHS - 2011/65/EU

EU WEEE - 2012/19/EU

EU REACH – Regulation (EC) No 1907/2006 Reporting

China RoHS - SJ/T 11363-2006

Taiwan RoHS - CNS 15663(2013.7)

Operating Conditions

Temp: 0° C to 50° C (32° F to 122° F)

Humidity: 10% to 95% relative humidity, non-condensing

Altitude: 0 to 3,000 meters (9,850 feet)

Shock (half sine) 30m/s2 (3G), 11ms, 60 shocks

Random vibration: 3 to 500 Hz at 1.5 G rms

Packaging and Storage Specifications

Temp: -40° C to 70° C (-40° F to 158° F)

Humidity: 10% to 95% relative humidity, non-condensing

Packaged Shock (half sine): 180 m/s2 (18 G), 6 ms, 600 shocks

Packaged Vibration: 5 to 62 Hz at velocity 5 mm/s, 62 to 500 Hz at 0.2 G

Packaged Random Vibration: 5 to 20 Hz at 1.0 ASD w/–3 dB/oct. from 20 to 200 Hz

Packaged Drop Height: 14 drops minimum on sides and corners at 42 inches (<15 kg box)

Regulatory and Safety

North American ITE

UL 60950-1

UL/CuL 62368-1 Listed

CSA 22.2 No. 60950-1 2nd edition 2014 (Canada)

Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)

CDRH Letter of Approval (US FDA Approval)

European ITE

EN 60950-1 2nd Edition

EN 62368-1

EN 60825-1Class 1 (Lasers Safety)

2014/35/ EU Low Voltage Directive

International ITE

CB Report & Certificate per IEC 60950-1

CB Report & Certificate IEC 62368-1

AS/NZS 60950-1 (Australia /New Zealand)

EMI/EMC Standards

North American EMC for ITE

FCC CFR 47 Part 15 Class A (USA)

ICES-003 Class A (Canada)

European EMC Standards

EN 55032 Class A

EN 55024

EN 61000-3-2,2014 (Harmonics)

EN 61000-3-3 2013 (Flicker)

EN 300 386 (EMC Telecommunications)

2014/30/EU EMC Directive

International EMC Certifications

CISPR 32, Class A (International Emissions)

AS/NZS CISPR32

CISPR 24 Class A (International Immunity)

IEC 61000-4-2 / EN 61000-4-2 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria B

IEC 61000-4-3 /EN 61000-4-3 Radiated Immunity 10V/m, Criteria A

IEC 61000-4-4 / EN 61000-4-4 Transient Burst, 2 kV, Criteria B

IEC 61000-4-5 /EN 61000-4-5 Surge, 2 kV L-L, 2 kV L-G, Level 3, Criteria B

IEC 61000-4-6 Conducted Immunity, 0.15-80 MHz, 10V/rms, 80%AM (1kHz), Criteria A

IEC/EN 61000-4-11 Power Dips & Interruptions, >30%, 25 periods, Criteria C

Country Specific

VCCI Class A (Japan Emissions)

ACMA RCM (Australia Emissions)

CCC Mark (China)

KCC Mark, EMC Approval (Korea)

BSMI (Taiwan)

Anatel (Brazil)

NoM (Mexico)

EAC (Russia, Belarus, Kazkhastan)

NRCS (South Africa)

IEEE 802.3 Media Access Standards

IEEE 802.3ab 1000BASE-T

IEEE 802.3bz 2.5G/5GBASE-T

IEEE 802.3bt Type4 PoE

IEEE 802.3ae 10GBASE-X

IEEE 802.3aq 10GBASE-LRM

IEEE 802.3by 25GBASE-X

IEEE 802.3az Energy Efficient Ethernet

Ordering Information

Part Number	Product Name	Description
5420F-24T-4XE	Fixed 5420 24-port Switch	5420 Universal Switch with 24 x 10/100/1000BASE-T full/half duplex MACsec-capable ports, includes 4 x 1/10G SFP+ MACsec-capable uplink ports, 2 x SFP+ stacking ports, 1 internal fixed PSU, one unpopulated PSU slot, fixed fan module, Base software license, includes 1-year XIQ Pilot subscription
5420F-24P-4XE	Fixed 5420 24-port 30w PoE Switch	5420 Universal Switch with 24 x 10/100/1000BASE-T full/half duplex 802.3at 30W PoE MACsec-capable ports, includes 4 x 1/10G SFP+ MACsec-capable uplink ports, 2 x SFP+ stacking ports, 1 internal fixed PSU, one unpopulated PSU slot, fixed fan module, Base software license, includes 1-year XIQ Pilot subscription
5420F-24S-4XE	Fixed 5420 24-port SFP Switch	5420 Universal Switch with 24 x 100M/1Gb SFP MACsec-capable ports, includes 4 x 1/10G SFP+ MACsec-capable uplink ports, 2 x SFP+ stacking ports, 1 internal fixed PSU, one unpopulated PSU slot, fixed fan module, Base software license, includes 1-year XIQ Pilot subscription
5420F-48T-4XE	Fixed 5420 48-port Switch	5420 Universal Switch with 48 x 10/100/1000BASE-T full/half duplex MACsec-capable ports, includes 4 x 1/10G SFP+ MACsec-capable uplink ports, 2 x SFP+ stacking ports, 1 internal fixed PSU, one unpopulated PSU slot, fixed fan module, Base software license, includes 1-year XIQ Pilot subscription
5420F-48P-4XE	Fixed 5420 48-port 30w PoE Switch	5420 Universal Switch with 48 x 10/100/1000BASE-T full/half duplex 802.3at 30W PoE MACsec-capable ports, includes 4 x 1/10G SFP+ MACsec-capable uplink ports, 2 x SFP+ stacking ports, 1 internal fixed PSU, one unpopulated PSU slot, fixed fan module, Base software license, includes 1-year XIQ Pilot subscription
5420F-48P-4XL	Fixed 5420 48-port 30w PoE Switch w/ LRM	5420 Universal Switch with 48 x 10/100/1000BASE-T full/half duplex 802.3at 30W PoE MACsec-capable ports, includes 4 x 1/10G SFP+ LRM and MACsec-capable uplink ports, 2 x SFP+ stacking ports, 1 internal fixed PSU, one unpopulated PSU slot, fixed fan module, Base software license, includes 1-year XIQ Pilot subscription
5420F-8W-16P-4XE	Fixed 5420 24-port Switch w/ 8 ports 90W and 16 ports 30W PoE	5420 Universal Switch with 8 x 10/100/1000BASE-T full/half duplex 802.3bt 90W PoE MACsec-capable ports and 16 x 10/100/1000BASE-T full/half duplex 802.3at 30W PoE MACsec-capable ports, includes 4 x 1/10G SFP+ MACsec-capable uplink ports, 2 x SFP+ stacking ports, 1 internal fixed PSU, one unpopulated PSU slot, fixed fan module, Base software license, includes 1-year XIQ Pilot subscription
5420F-16W-32P-4XE	Fixed 5420 48-port Switch w/ 16 ports 90W and 32 ports 30W PoE	5420 Universal Switch with 16 x 10/100/1000BASE-T full/half duplex 802.3bt 90W PoE MACsec-capable ports and 32 x 10/100/1000BASE-T full/half duplex 802.3at 30W PoE MACsec-capable ports, includes 4 x 1/10G SFP+ MACsec-capable uplink ports, 2 x SFP+ stacking ports, 1 internal fixed PSU, one unpopulated PSU slot, fixed fan module, Base software license, includes 1-year XIQ Pilot subscription
5420F-16MW-32P-4XE	Fixed 5420 48-port Switch with 16 ports 90W multi-rate and 32 ports 30W PoE	5420 Universal Switch with 16 x 100Mb/1Gb/2.5Gb 802.3bt 90W PoE ports plus 32 x 10/100/1000BASE-T full/half duplex 30W PoE MACsec-capable ports, includes 4 x 1/10G SFP+ MACsec-capable uplink ports, 2 x SFP+ stacking ports, 1 internal fixed PSU, one unpopulated PSU slot, fixed fan module, Base software license, includes 1-year XIQ Pilot subscription
5420M-24T-4YE	Modular 5420 24-port Switch	5420 Universal Switch with 24 x 10/100/1000BASE-T full/half duplex MACsec-capable ports, includes 4 x 10/25G SFP28 MACsec-capable uplink ports, 2 SFP+ stacking ports, two unpopulated PSU slots, modular fan module, Base software license, includes 1-year XIQ Pilot subscription
5420M-24W-4YE	Modular 5420 24-port 90W PoE Switch	5420 Universal Switch with 24 x 10/100/1000BASE-T 802.3bt 90W PoE full/half duplex MACsec-capable ports, includes 4 x 10/25G SFP28 MACsec-capable uplink ports, 2 SFP+ stacking ports, two unpopulated PSU slots, modular fan module, Base software license, includes 1-year XIQ Pilot subscription
5420M-48T-4YE	Modular 5420 48-port Switch	5420 Universal Switch with 48 x 10/100/1000BASE-T full/half duplex MACsec-capable ports, includes 4 x 10/25G SFP28 MACsec-capable uplink ports, 2 SFP+ stacking ports, two unpopulated PSU slots, modular fan module, Base software license, includes 1-year XIQ Pilot subscription
5420M-48W-4YE	Modular 5420 48-port 90W PoE Switch	5420 Universal Switch with 48 x 10/100/1000BASE-T 802.3bt 90W PoE full/half duplex MACsec-capable ports, includes 4 x 10/25G SFP28 MACsec-capable uplink ports, 2 x SFP+ stacking ports, two unpopulated PSU slots, modular fan module, Base software license, includes 1-year XIQ Pilot subscription
5420M-16MW-32P-4YE	Modular 5420 48-port Switch with 16 ports 90W multi-rate and 32 ports PoE	5420 Universal Switch with 16 x 100Mb/1Gb/2.5Gb 802.3bt 90W PoE ports plus 32 x 10/100/1000BASE-T full/half duplex 30W PoE MACsec-capable ports, includes 4 x 10/25G SFP28 MACsec-capable uplink ports, 2 x SFP+ stacking ports, two unpopulated PSU slots, modular fan module, Base software license, includes 1-year XIQ Pilot subscription

Ordering Information (cont.)

Part Number	Product Name	Description
Accessories		
XN-ACPWR-150W	150W AC PSU FB	150W AC PSU supported on 5420 Series
XN-ACPWR-600W	600W AC PSU FB	600W AC PSU supported on 5420 Series
XN-ACPWR-920W	920W AC PSU FB	920W AC PSU supported on 5420 Series
XN-ACPWR-1200W	1200W AC PSU FB	1200W AC PSU supported on 5420 Series
XN-ACPWR-2000W-F	2000W AC PSU FB	2000W AC PSU supported on 5420 Series
XN-FAN-000	Spare Fan Module	Spare Fan Module for 5420 Series
Software Licenses		
5000-PRMR-LIC-P	Premier License for 5000 Series	Perpetual Premier License for 5000 Series switches
5000-MACSEC-LIC-P	MACsec License for the 5000 Series	Perpetual MACsec license for the 5000 Series switches

Warranty

All 5420 Series models are covered under Extreme's Universal LLW policy. For warranty details, please visit: http://www.extremenetworks.com/support/policies.

Power Cords

In support of Extreme Networks Green initiatives, power cords are not included with the 5420, but can be ordered separately. They should be specified at time of ordering.

Optics/Transceivers

For a list of the optics/transceivers supported on the 5420 Series hardware, refer to our Extreme Optics Compatibility Tool at https://optics.extremenetworks.com.

Maintenance Services

Extreme's maintenance and support services with 100% in-sourced engineering experts and over 90% first-person resolution ensure efficient operation of your business-essential network. 24x7x365 phone support, advanced parts replacement, and on-site support augment your staff with experienced resources that help you mitigate critical network issues fast. Visit Extreme Maintenance Services for more information.

http://www.extremenetworks.com/contact

Highlights

ExtremeCloud IQ Essentials

- Standard features of ExtremeCloud IQ
- Enable enterprise applications with opt-in service within ExtremeCloud IQ
- Included with ExtremeCloud IQ Pilot Subscription
- No additional cost

ExtremeGuest™ Essentials

- Sponsored Access/Self-registration/Social ID/SMS: Multiple onboarding options
- Completely customizable location specific splash pages
- Rich set of analytics providing business insight

ExtremeAirDefense® Essentials

- Extends wireless security beyond rogue detection and mitigation to include wireless threat detection
- Visibility into 40+ wireless security threats
- Centralized view for all locations based on security threat score

ExtremeIoT™ Essentials

- Protects high-risk IoT devices
- Simplifies IoT on-boarding and security
- Enables floor staff to on-board and move IoT devices without involving network/IT

ExtremeLocation™ Essentials

- Wi-Fi and BLE based location services
- Current and historical location analytics
- Presence, Zone Tracking, Asset Tracking

ExtremeCloud™ IQ Essentials

The goal of any management solution is to provide the IT department with all the tools required to provide complete enterprise visibility, management, and control from a single platform. This avoids the challenges of having to integrate multiple applications, with multiple databases and often multiple interfaces. ExtremeCloud IQ is an industry-leading and visionary approach to cloud-driven network management, built from the ground up to take full advantage of Extreme's end-to-end networking solutions. ExtremeCloud IQ delivers unified, full-stack management of wireless access points, switches, and routers and enables onboarding, configuration, monitoring, troubleshooting, reporting, and more. ExtremeCloud IQ Essentials integrates four Enterprise Service Applications into its Pilot subscription license.

Product Overview

Enterprises have varied requirements and limited budgets, as a result only the most critical applications or services may be purchased, potentially sacrificing visibility into important network information due to budget constraints. ExtremeCloud IQ Essentials ends the decision making – any organization can now receive access to all enterprise network services without the complexity of integrating multiple applications, tying separate platforms, no additional licenses, no separate database and most importantly, with no additional cost.

ExtremeCloud IQ Essentials

ExtremeCloud IQ Essentials provides four key applications. WIPS, Location services, IoT, and Guest management, enabling organizations to take advantage of an all-in-one platform for wired and wireless management, business insights, location tracking, wireless security, seamless IoT onboarding and guest access, and guest access through a single user interface simplifying network management while infusing network and business insights.

## Application capabilities include:
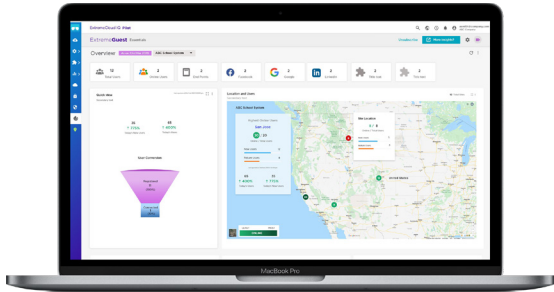
ExtremeGuest™ Essentials

Guest Wi-Fi access is crucial to improving guest, visitor, and shopper experiences in retail, hospitality, and at large event venues, among other locations.

It has become a competitive necessity for organizations to not just provide network access, but to engage visitors with special offers and personalized incentives. In-store shoppers, for example, expect great Wi-Fi experiences to search product reviews and compare prices online. They want to share pictures with friends online before they decide on a product.

ExtremeGuest is a robust and comprehensive guest engagement solution that enables IT administrators to use analytical insights to engage visitors with personalized engagements. For retail it is about knowing how many customers enter the store and how long they stay, for education, what students are on campus and in class, and for public venues having the ability to customize splash pages to better engage with visitors. All providing improved engagements with visitors via analytics measured and reported through ExtremeGuest.
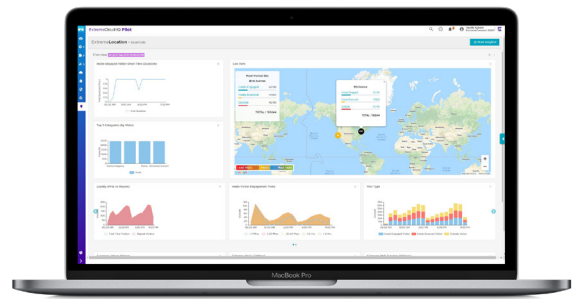
ExtremeLocation™ Essentials

Location services are crucial in helping enterprises locate their employees, students, guest users or high valued assets. Based on location insights, enterprises want to personalize customer engagement and enhance operational efficiencies. ExtremeLocation Essentials supports Wi-Fi and BLE technologies, and enterprises can monitor workflows and assets, the current activity or historically, to improve their overall operations and efficiency. ExtremeLocation provides zone-based location accuracy resolution to support diverse industry-specific use cases. For example, retailers can track new and repeat visitors, engagement times and associates or asset locations, to provide a contextual-based personalized experience to their customers. Healthcare providers may view real-time dashboards and monitor trends of users and assets, to deliver enhanced patient care.
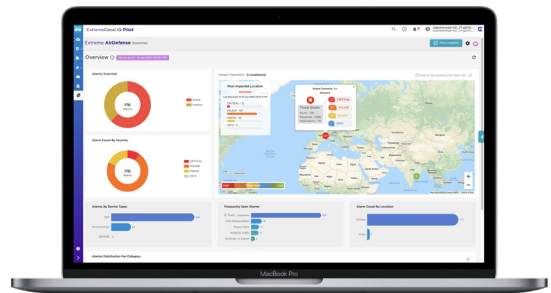
ExtremeAirDefense® Essentials

Extreme AirDefense simplifies the protection, monitoring and security of your Wireless LAN networks. Extreme AirDefense continuously safeguards the network from external threats 24x7x365 and provides additional visibility into the air space.

ExtremeAirDefense Essentials is derived from AirDefense Enterprise which has been a premier WIPS solution in the industry for over 15 years. Essentials service will extend wireless security beyond rogue detection and mitigation to include wireless threat detection and provide global sensor management and visibility of 40+ wireless security threats

The ExtremeAirDefense Essentials system is deployed as a set of access points serving as sensors to monitor the airwaves together with this security application. Sensors can be deployed as either dedicated sensors or in radio-share mode. Dedicated sensors offer higher security through increased visibility. In a dual radio or tri-radio access point, one radio of the access point can be dedicated as a sensor, with the remaining radios serving user data traffic. In radio-share mode, the access point allocates a time slice for sensing function while utilizing the remaining time for serving data traffic. ExtremeAirDefense Essentials includes a dedicated dashboard to provide visibility across all locations from a wireless security perspective.

ExtremeIoT™ Essentials
As the number of connected IoT devices continues to rise, so does an organization's security risk. Typically designed without embedded security features, IoT devices can create new entry points to the network that can be exploited by malicious actors.

ExtremeIOT is a simple IoT security solution that is designed to protect high risk, wired IoT devices. Through the application of security profiles, it controls IoT device attachment and access to the network. It locks down IoT communications to only what's authorized, blocking everything else. With user-friendly workflows for IoT profile assignment, once a profile has been created by the IT administrator, floor staff can apply the profiles so that they can on-board, move and track their IoT devices without burdening network/IT resources. ExtremeIOT is available as a self-contained solution available with the ExtremeCloud IQ Pilot license and the AP150W. ExtremeIOT enables effortless, secure IoT deployment for high value wired devices.

Service and Support

Extreme Networks provides comprehensive service offerings that range from Professional Services to design, deploy and optimize customer networks, customized technical training, to service and support tailored to individual customer needs. Please contact your Extreme Networks account executive for more information about Extreme Networks Service and Support.

Additional Information

For additional technical information on ExtremeCloud IQ and ExtremeCloud IQ Essentials, visit: extremenetworks.com/extremecloud-IQ.

Extreme Networks Overview

Extreme Networks, Inc. (EXTR) is a technology innovator committed to making networking effortless – advancing how we live, work, and share. Extreme pushes the boundaries of technology leveraging the powers of machine learning, artificial intelligence, analytics, and automation.

Founded in 1996, Extreme has close to 25 years of experience in the networking industry. With a culture of agility and innovation – from building the very first Gigabit Ethernet switch to delivering the first and only cloud-driven end-to-end enterprise networking solution – Extreme has a history of anticipating the evolving needs of our clients. Recommended as a Leader by Gartner, Extreme is always looking forward, advancing.

Headquartered in San Jose, California, Extreme is a financially strong corporation with approximately 2,500 employees worldwide and backed by 9,000+ technology partners who share their vision.

Advance With Us™

➢ *Industry's only cloud-driven, end-to-end enterprise networking vendor*

➢ *2020 Gartner Peer Insights Customers' Choice for Wired and Wireless LAN Access Infrastructure*

➢ *2019 Gartner Peer Insights Customers' Choice for Data Center Networking*

➢ *Recommended as a Leader by Gartner in the 2020 Gartner Magic Quadrant for Wired and Wireless LAN Access Infrastructure for third consecutive year*

➢ *#1 Ranked Service & Support; 100% insourced Service & Support*

Over 50,000 customers globally trust Extreme's end-to-end, cloud-driven networking solutions and rely on our top-rated services and support to accelerate digital transformation efforts and deliver progress like never before. Extreme's customers include over half of the Fortune 50, but they continue to keep the qualities of a small company by remaining nimble and responsive to remain customer-focused. Extreme delivers innovative, cutting-edge technology and award-winning support to organizations including some of the world's leading names in education and government. From fast-growing companies with 50 employees, to university and college campuses bursting with technology savvy students, Extreme's customers rely on them to deliver agile, reliable, and secure next-generation autonomous networking capabilities powered by cloud innovation – and at cloud-speed.

Extreme is committed to making the next generation of networking easier, faster, and more secure – delivering enterprise solutions that give customers complete network visibility, control, and insights to help meet their business objectives. Extreme's cloud – whether public, private, or locally hosted – makes network management easier. It enables partners and customers to manage, automate, and gain intelligence from network technologies and devices, from the edge to the enterprise data center, leveraging intelligence from machine learning and assurance from artificial intelligence.

Extreme's wireless, switching, and routing portfolio provides a broad range of end-to-end connectivity solutions, utilizing industry-leading technologies to deliver speed, scale, reliability, and security for all of your users, devices, and applications, no matter where they are located. And Extreme's software solutions streamline and automate the management of their wired and wireless technologies, protect the edge to the data center, fuel business and IT system integrations, and unlock new insights and analytics.

Extreme Networks Services

Customers can rest assured knowing that one of the industry's best support organizations is behind your network. Rated #1 in support, Extreme is a true services partner that has you covered for all of your service and support needs. With Extreme Services, you can always expect a personalized customer experience that's beyond compare with standard solutions, supported by unparalleled experts.

To help maximize the effectiveness of your network and achieve maximum ROI, Extreme offers a **100% in-sourced, award-winning Global Technical Support Center (GTAC)** providing 24x7 access to reliable technical help, **comprehensive maintenance offerings** that let you choose the exact level of service ideal for your organization, **high-touch, dedicated customer advocacy teams with Premier Support**, **specialized, high quality Managed Services**, as well as **full Professional Services** for successful implementations onsite, and **multiple training and certification** offerings including free eLearning courses.

Services as a Differentiator

Extreme is a networking solutions company, but what really differentiates the company is how they go above and beyond for their clients. With a unique customer-first culture, Extreme's dedicated and passionate in-house services team has a history of going the extra mile to understand their customers' needs with a whatever it takes attitude to support customers and ensure their success. No other technology partner is willing to – *go to the extreme* – digging in, thinking outside the network, and going above and beyond to support customers. That kind of service and performance is why so many high-profile organizations rely on Extreme year-after-year and why Extreme is a vendor that customers continue to want to do business with. The quality of Extreme's quick, no-hassle support sets them apart from the competition and demonstrates their commitment to customers.

Extreme is recognized for having the industry's best service and support. Extreme has a 94% customer satisfaction rating in North America. Extreme's customer support solution is also held in very high regard by industry analysts including Gartner, IDC, and Forrester. In fact, Extreme is consistently rated top in for support in the Gartner partner peer review and was named a "**2020 Gartner Peer Insights Customers' Choice**" for **Wired & Wireless LAN Access Infrastructure**. The Gartner Peer Insights Customers' Choice distinction is based on feedback and ratings from end-user professionals who have experience purchasing, implementing, and/or using the product or service. Extreme's customer satisfaction ratings and awards provide strong proof that they put customers first.

Technical Assistance Options

Extreme backs every solution with a passionate user community, a deep KnowledgeBase, and the industry's only 100% in-sourced support team.

Online Community Interaction with The Hub – The Hub is a dynamic Extreme community where you can connect with your peers, get answers to your questions, and share best practices any time of day, 365 days a year. For more information please see: https://community.extremenetworks.com/.

Self-service Access with Searchable KnowledgeBase – The KnowledgeBase enables you to access the collective technical expertise of Extreme's entire GTAC team 24x7 by searching for known solutions to your most challenging issues, all at your convenience. For more information please see: https://gtacknowledge.extremenetworks.com/.

One-on-One Interaction with GTAC Assisted Support – For urgent, complex, or confidential concerns, in-house Extreme GTAC Engineers are available 24 hours a day, 365 days a year to provide direct, high-touch support. The GTAC is staffed only by tenured Extreme employees with an average of ten+ years of experience with Extreme solutions. Extreme's GTAC experts are empowered with access to software/hardware product engineers and developers, and are supported by the infrastructure needed for the efficient handling of all inquiries. GTAC Engineers work in locations around the globe to ensure coverage for all time zones and multiple languages. In addition, the GTAC maintains top-of-the-line technology labs for optimal issue re-creation and fast answers to complex questions.

You can log a case via Extreme's Support Portal, email, or contact Extreme GTAC by phone through Extreme's Automated Call Distribution (ACD) system. Customers will connect directly to GTAC Engineers and technical teams responsible for supporting specific product lines. Extreme's GTAC offers priority setting of problems and escalation management, ensuring the appropriate resources within Extreme are utilized to resolve outstanding technical problems as efficiently as possible. Extreme's GTAC will create a case number and manage and track all aspects of the case until it is resolved. Extreme's GTAC Engineers are committed to providing you with the best support experience possible.

Extreme's priority levels and escalation management response times are as follows:

Service Level Objective:

Case Priority	Response Time	Restore Time (software fix or workaround)	Update Frequency
C1: Customer's network segment or management application is down or experiencing a consistent, measurable performance impact with no immediate resolution available	First Available Engineer – Maximum 15 Minutes	4 Hours	Up to 4 Hours
C2: Customer's network is experiencing intermittent failure or degradation of network or management application.	1 Hour	1 Day	Daily
C3: Customer has issues that do not affect normal network or management application operation and/or questions concerning product function or use.	8 Hours	10 Days	5 Days

Warranty

As a customer-centric company, Extreme endeavors to provide the best possible material and workmanship to ensure a positive first impression for their clients. In the event that one of Extreme's products fails due to defects in one of these factors, Extreme has developed a comprehensive warranty that protects you and promises a simple way for your products to be repaired as soon as possible.

Complete details on all of Extreme's product warranties can be found at:

http://www.extremenetworks.com/support/policies/#warrantyTag. Additionally, Extreme's Warranty Guide can be found at: http://learn.extremenetworks.com/rs/641-VMV-602/images/Extreme-Networks-Product-Warranty.pdf.

Extreme's standard warranties ensure products are protected against manufacturing defects, while their maintenance agreements typically enhance these services with additional features or extend the duration of coverage.

Extreme's Standard Terms and Conditions

Extreme Terms of Support
https://cloud.kapostcontent.net/pub/deabf738-850c-466b-be71-ea4bdfa924db/terms-of-support-legal?kui=KP0docX_zR-Gk6INfyHhCw

Extreme End of Sale and End of Support policy
https://www.extremenetworks.com/support/end-of-sale-and-end-of-support-products/