



EBOOK

Improve Resilience, Security, and Application Performance with SD-WAN

More than ever, organizations need to make the best use of all their resources. Unreliable networks, cyber threats, and inconsistent application performance put productivity and cost control at risk. **Learn how ExtremeCloud™ SD-WAN can help.**



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1 The Costs of Lost Productivity

As competitive pressures increase, organizations need to reduce risk

The costs of lost productivity are higher than ever

The faster the current business and technology landscapes evolve, the more organizations need to make the best use of all their available resources. Applications are moving out of the data center to SaaS and IaaS, as organizations move to digital channels and bandwidth-intensive communication, collaboration, and productivity tools.

Whether it is a choppy video call, a down switch, or a successful ransomware attack, **unavailable, unreliable, or underperforming network services and applications are a source of cost and risk.**

With the right SD-WAN solution, organizations can reduce risk, complexity, and cost while improving network reliability, delivering consistent, exceptional application performance, and reducing WAN security and internet access risk.



1. Uptime Institute. 2022. [2022 Outage Analysis Report](#).

2. Baym, N, Bergmann, R., Coleman, A., Fernandez, R. R., Rintel, S., Sellen, A., Smith, T. 2021. "Collaboration and Meetings" In [The New Future of Work: Research from Microsoft on the Impact of the Pandemic on Work Practices](#), edited by Jaime Teevan, Brent Hecht, and Sonia Jaffe, 1st ed. Microsoft.

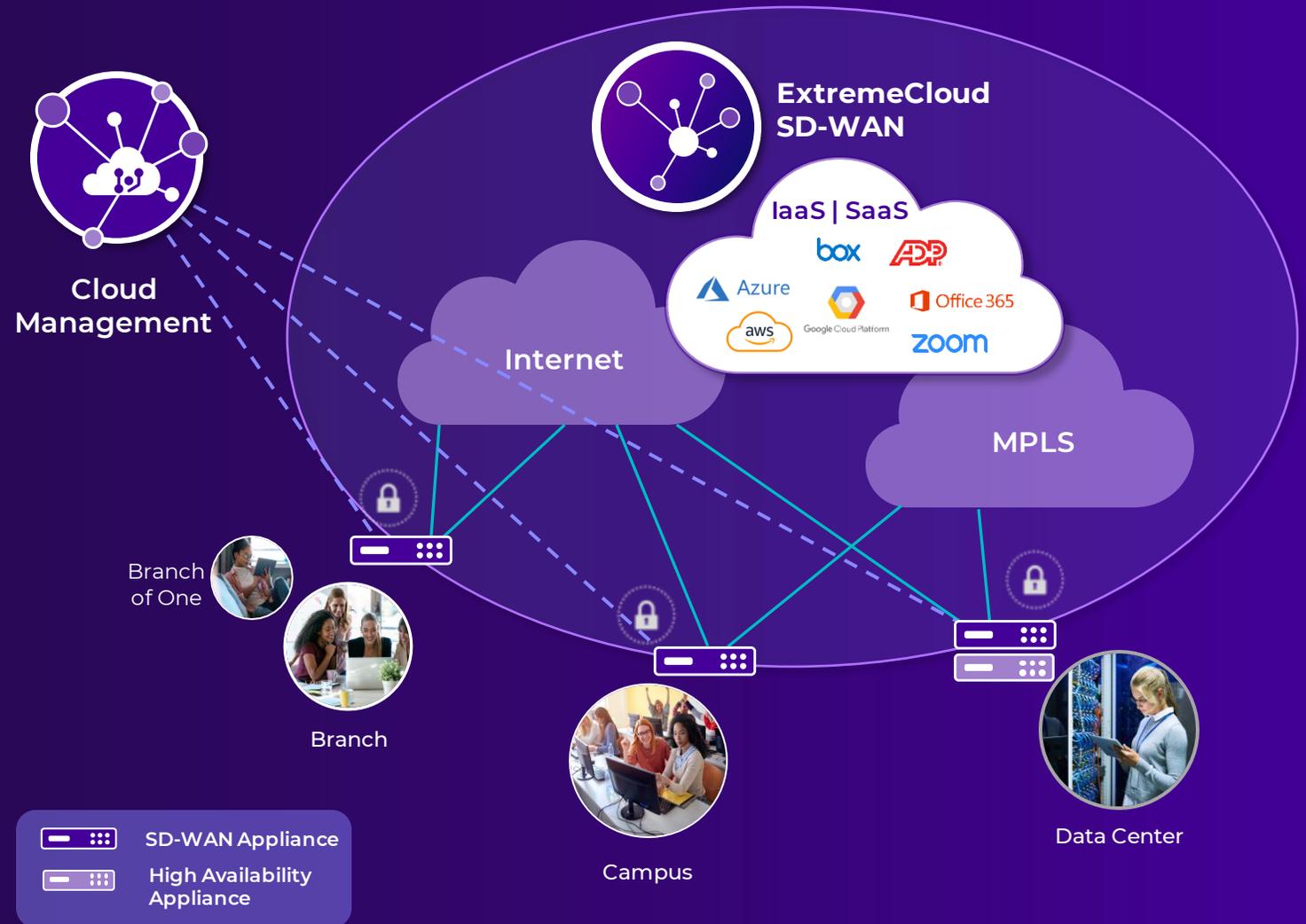
3. Check Point Research. 2022. [Behind the Curtains of the Ransomware Economy – The Victims and the Cybercriminals](#).

4. Marr, B. 2022. [The Top 4 Internet Of Things Trends In 2023](#).

As networks become more complex, SD-WAN can reduce risk and simplify operations

Organizations now need granular application performance management, high-availability, and built-in security at the WAN edge. **Branch routers and many first-gen SD-WANs lack** those critical capabilities.

ExtremeCloud SD-WAN enables IT teams to protect and improve uptime with SD-WAN that features high-availability architecture, advanced application performance management, and robust, layered security.





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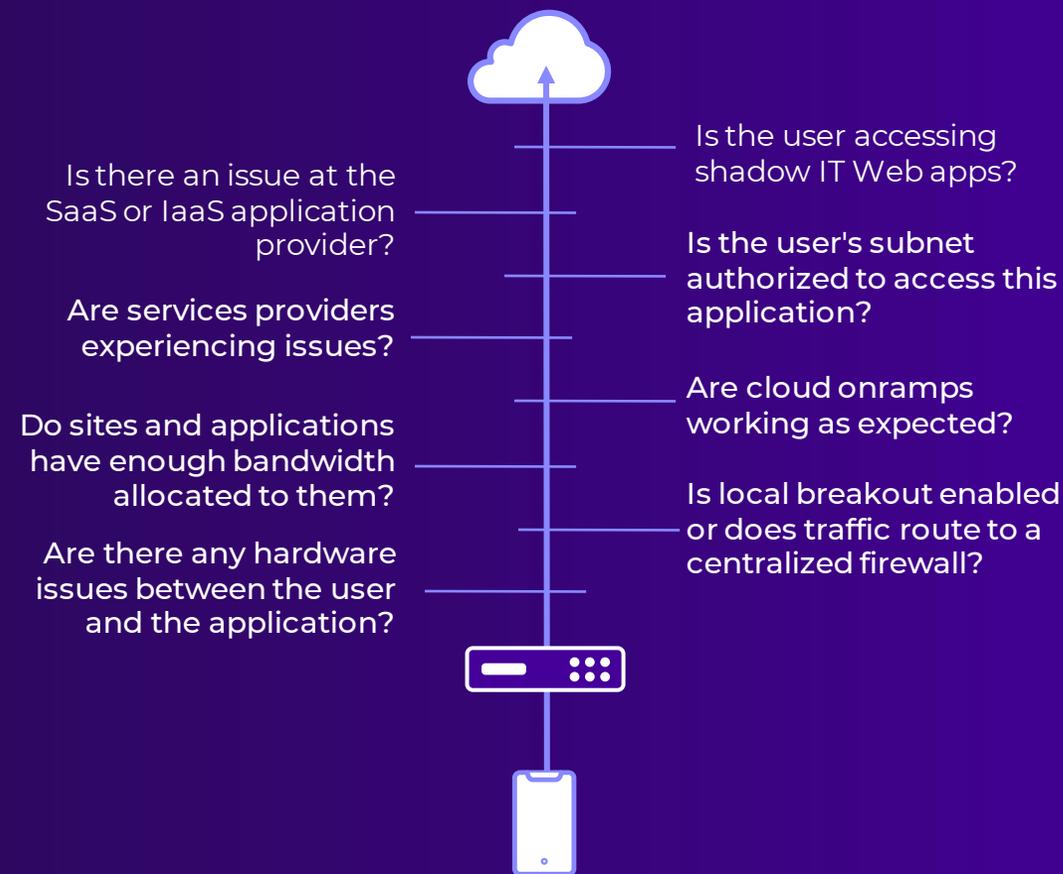
Improve Visibility, Reliability, and Availability

Organizations need enhanced visualizations tools to find and fix complex issues

When applications, sites, and network services are unavailable, unreliable, or underperforming, risk and cost rapidly mount

The availability, performance, and security of network services and applications are increasingly critical to business outcomes. At the same time, the IT estate is becoming increasingly more complex as organizations move workloads to the cloud. Adoption of SaaS and IaaS enables digital transformation and many new opportunities, but it also creates new risks and costs.

Greater complexity in the service delivery chain means more points of potential bottlenecks, failure, and attack. This complexity also makes it more difficult than ever for network and security operations teams to find and fix issues that impact user experience and network security. High-availability, application performance visibility and control and security in an SD-WAN solution simplify operations and reduce risk.



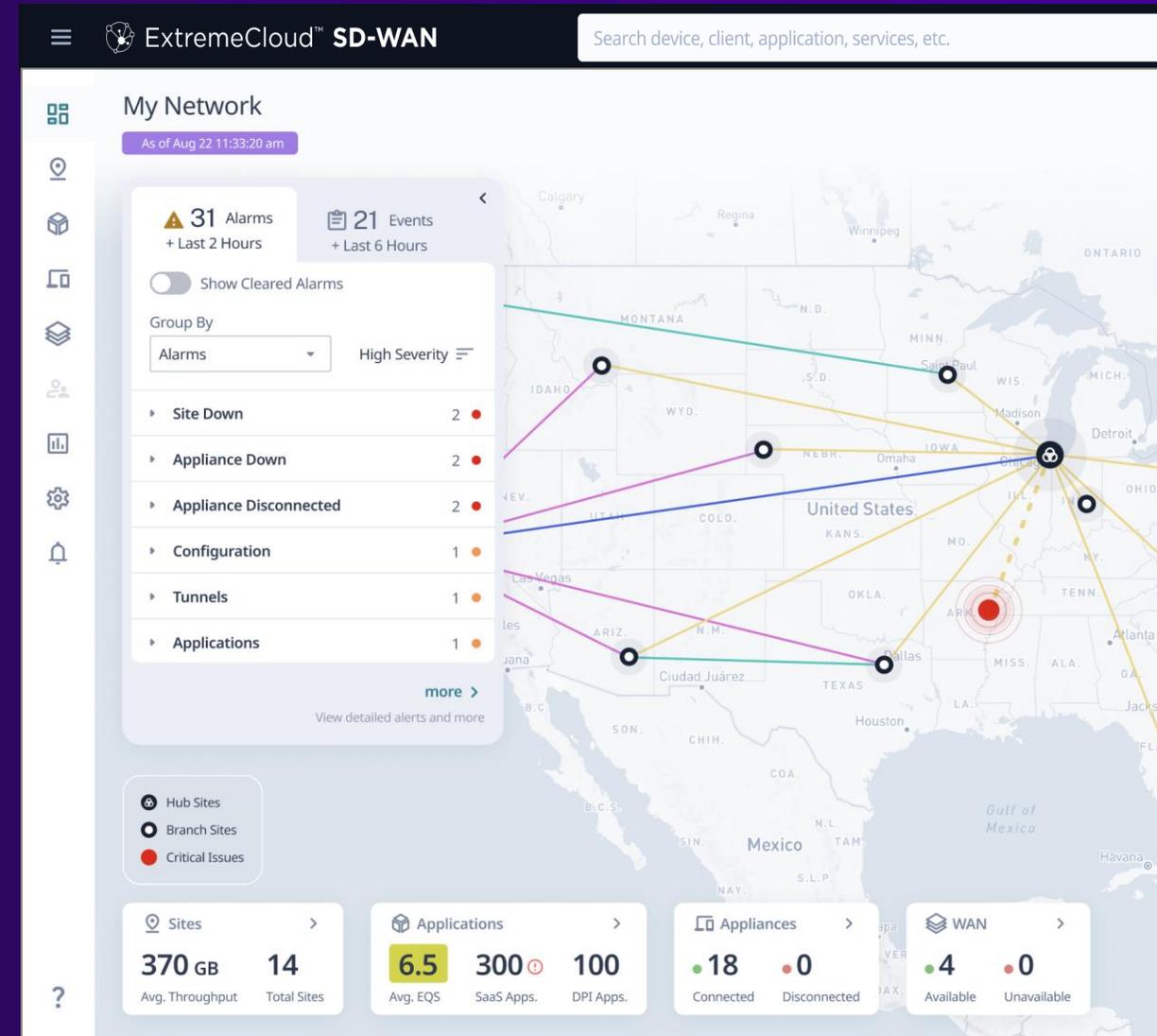
High availability SD-WAN enables business continuity

ExtremeCloud SD-WAN provides a secure, resilient, and high-availability architecture that reduces the risk and impact of downtime.

Multiple WAN transports for site-to-data center-to-infrastructure as a service (IaaS) connectivity improves resilience. Advanced application steering directs application session traffic over the most suitable links, improving both site resilience and performance.

Policy-driven SaaS and IaaS secure breakout at branches reduces potential points of latency or failure in network backhaul restricting access to shadow IT. Broad and deep performance visualization of sites, links, and application performance accelerates troubleshooting and analysis.

Extreme's Next-Business Day Advanced Hardware Replacement (NBDADR) program provides continuity while its high-availability SD-WAN options provide redundant appliances for sub-second fail-over and uninterrupted continuity, even during power outages.



Notifications, alerts, and other tools surface the right insight to the right members of the team to expedite evidence-based decisions.



3 Enable Productivity

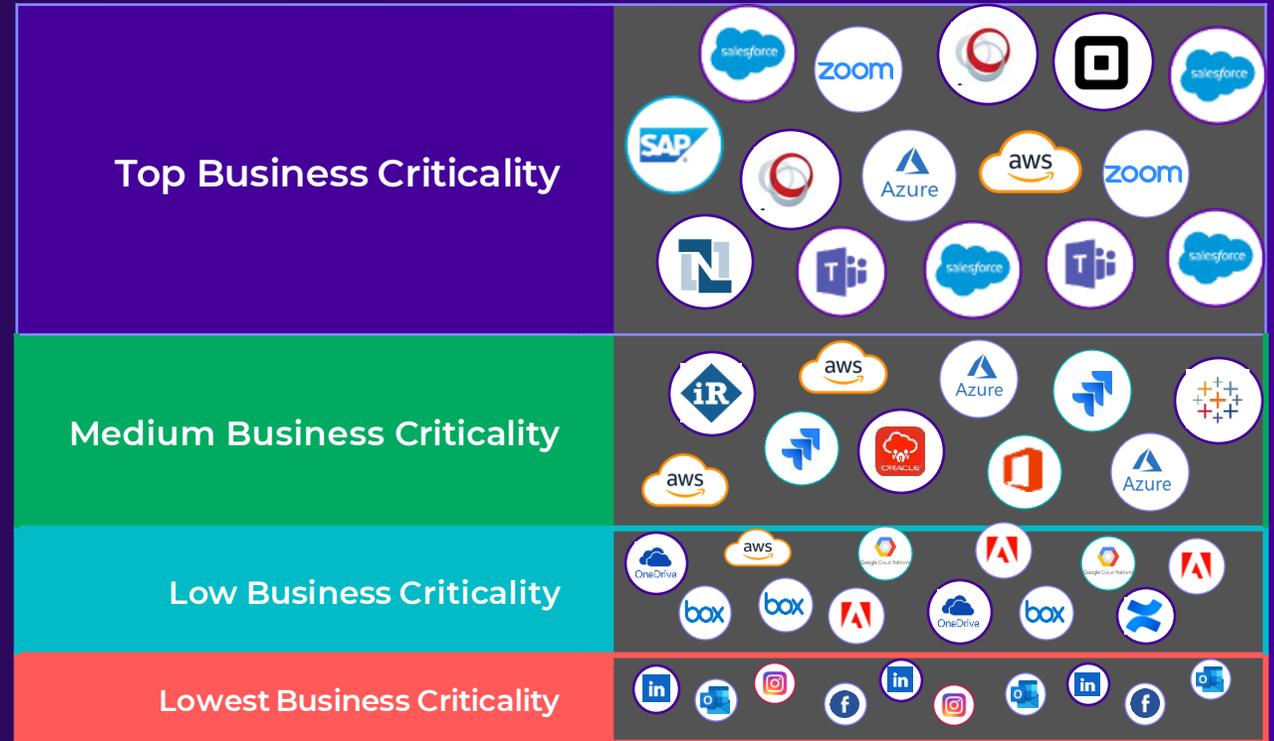
Organizations need exceptional application performance and user experiences

Employee productivity and user experience are critical to business outcomes

As organizations rely more and more on real-time, bandwidth-intensive **productivity, communication, and collaboration** tools, users need consistent, high-quality application experiences to achieve results. And as well as human-induced traffic, up to 43 billion things will be connected in 2023, and IoT is only growing.⁴

Legacy WAN infrastructure is not equipped to address the productivity needs of today's distributed workforces, IoT, or other emerging business trends.

Organizations need solutions that can provide application performance visibility **from endpoint devices all the way to the cloud**, as well as intelligent performance control that **protects critical applications**, even during periods of network congestion.



Network congestion is inevitable. The right SD-WAN enables IT teams to protect the QoE of business-critical applications by automatically reallocating bandwidth from application groups with lower QoS requirements.

4. Marr, B. 2022. *The Top 4 Internet Of Things Trends In 2023*.

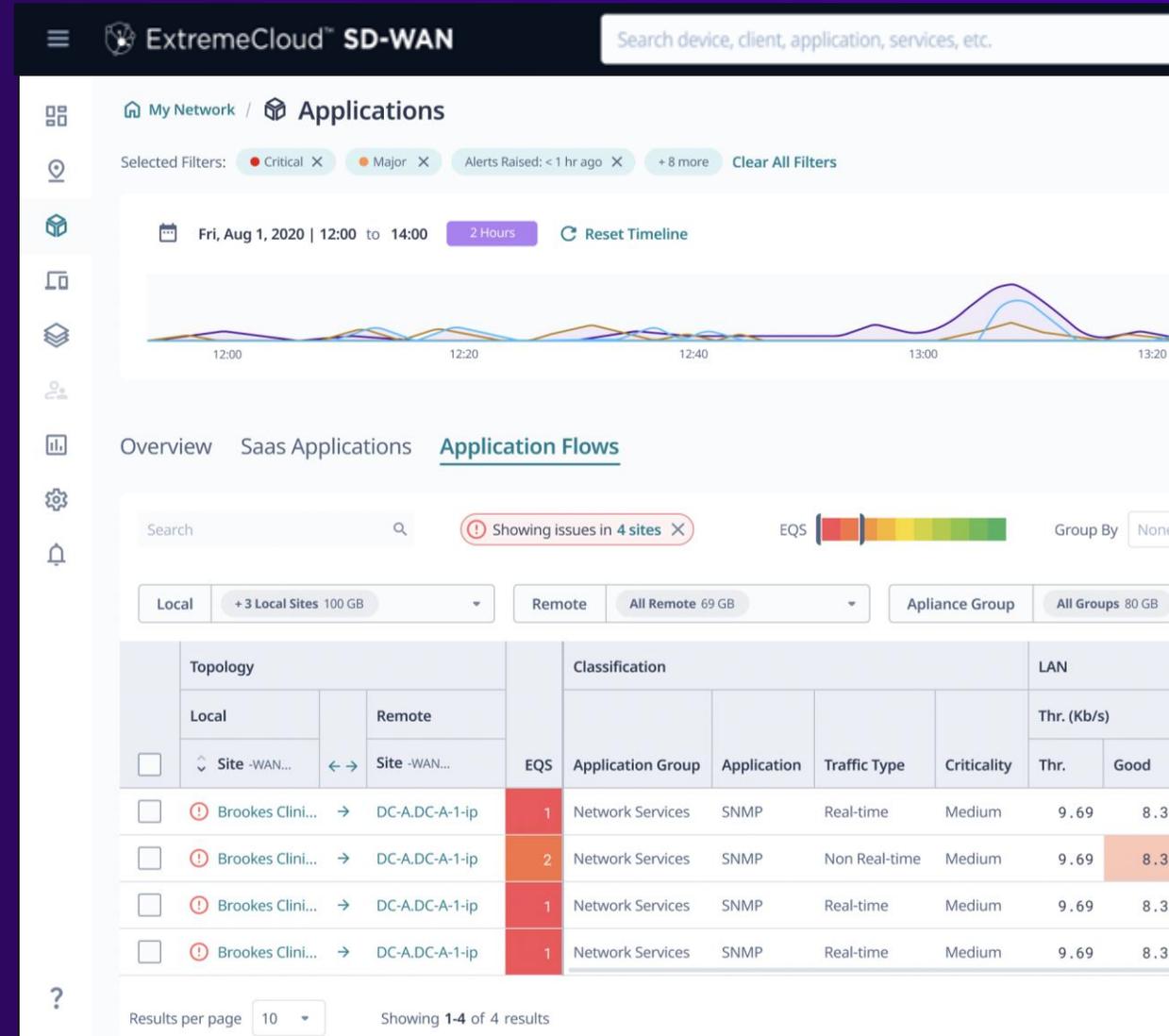
Application performance management aligns performance with business QoE goals

ExtremeCloud SD-WAN enables IT teams to deliver the best user experiences for the lowest cost with automated performance control and advanced application performance visibility.

Granular performance visibility into over 5,000 application services on a site-by-site basis enables quick understanding of user experience and evidence-based decisions about network refinement.

Intelligent application performance control analyzes network traffic, bandwidth availability, and application demand across the WAN, reallocating bandwidth and optimizing performance as needed to meet performance goals. **Built-in advanced WAN optimization** protects large data flows and deduplicates traffic.

Paired with ExtremeCloud IQ, ExtremeCloud SD-WAN provides deep application performance visibility across the LAN, WAN, and into the cloud, which enables faster identification of root causes and return to service.



Advanced application performance visibility provides granular insights into applications, their QoE, and the key metrics of flows between sites.



4 Reduce Security Risk

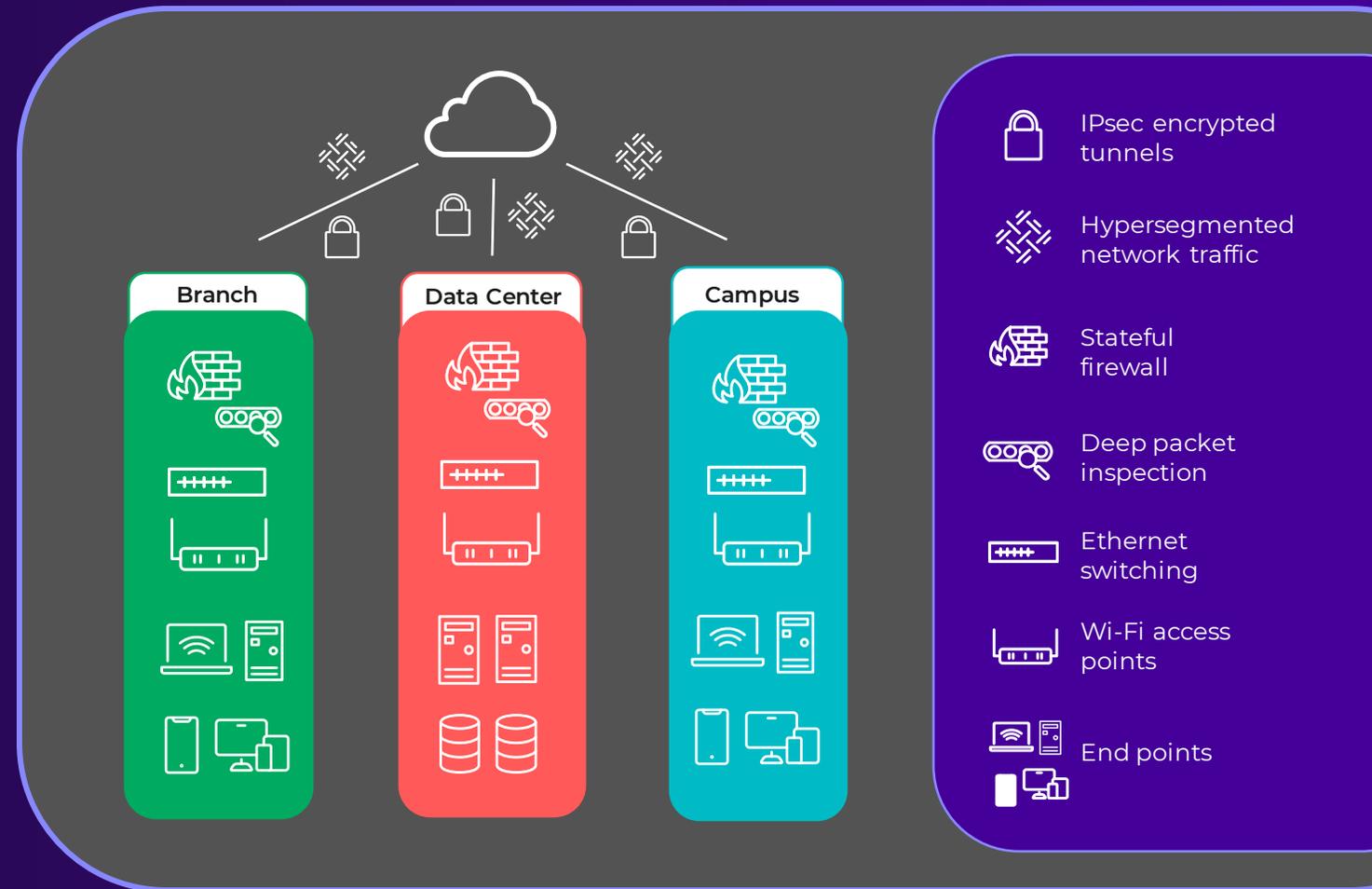
Flexible, simple, and integrated security solutions are now a necessity

Cyberattacks are rapidly escalating, and their toll can be catastrophic

Attacks on corporate networks doubled in 2021 compared with 2020, according to Check Point Research, with up to 92% of executives reporting business-impacting cyberattacks or compromises.⁵

The movement of applications from the data center and its protections to the cloud expands the attack surface and exposes users, applications, and data to new risks. The cost of a successful ransomware attack can be as high as 9.7% of an organization's revenue.³

To keep pace, WAN security must become more comprehensive, more granular, and much simpler, all at the same time.



Robust, layered security reduces risk, cost, and complexity

ExtremeCloud SD-WAN converges networking and security, reducing complexity for IT teams and enabling a layered security posture.

IPsec tunnels secure WAN traffic in transit with encryption while built-in stateful firewalls enables WAN traffic segmentation.

Extreme EdgeSentry, powered by Check Point, protects distributed workforces with firewall as a service, secure web gateway, antivirus, sandboxing, and more.

Bring your own security capabilities enables organizations to make the best use of their current security investments. Organizations can direct SD-WAN traffic to leading security web gateways, such as those offered by Palo Alto Networks, Zscaler, or Symantec.

Paired with Extreme Fabric, ExtremeCloud SD-WAN enables hypersegmentation of network traffic securely over low-cost internet access transport from data centers to branches. Hypersegmentation of network traffic increases attack resistance and limits lateral threat migration.

The screenshot displays the ExtremeCloud SD-WAN Settings interface. The main navigation bar includes 'My Network' and 'Settings'. The 'Policy Configuration' section is active, showing a 'General' tab for the 'SD-WAN Default Policy'. The 'Security' section is expanded, showing a table of VPN Zones with checkboxes for each zone across five columns. The 'Overlays' section is also expanded, showing a table of overlays with columns for Overlay Name, Type, Hubs, and Spokes.

VPN Zones	1	2	3	4	5
1 Warehouses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 Shops	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Headquarters	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4 Datacenters	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5 Default Zone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Overlay Name	Type	Hubs	Spokes
Orange	Hub & Spoke	2	30
Purple	Hub & Spoke	1	20
Blue	Hub & Spoke	N/A	15
Green	Hub & Spoke	0	10

Consistent policy for security, overlays, applications, SaaS and IaaS access, and templated workflows are all simple to set and easy to enforce.



5 Control Network Costs

SD-WAN is a worthwhile investment for any organization concerned about downtime

Are the costs of downtime less than the cost of change?

The true cost and risk of downtime varies by industry and the organization. Using Ponemon Institute's estimate of \$9,000 of cost per minute of downtime.⁵ even 99.9% uptime could still result in up to \$4.7 million of annual downtime costs. Organizations can further refine their cost forecasts by considering:

- Which teams, processes, and outcomes would be affected if a particular location or the whole network lost connectivity
- The slow but steady loss of productivity due to inconsistent application performance and time spent troubleshooting complex QoE issues
- The cost and risk of potential cyber attacks due to gaps in WAN and internet access security.

\$9k

It costs organizations on average about \$9,000 per minute of downtime, according to the Poneman Institute.⁶

30%

Better management of downtime can provide significant cost improvements, according to McKinsey & Company.⁷

70%

of outages in 2021 cost the organizations involved more than \$100,000, according to the Uptime Institute.⁸

24h

30% of outages studied by Uptime Institute took more than 24 hours to resolve.⁹

5, 7. McKinsey & Company. 2016. *The Upside to Downtime*.

6. Check Point Research. 2023. *2023 Security Report*.

8. Uptime Institute. 2022. *2022 Outage Analysis Report*.

9. Ponemon Institute. 2016. *Cost of Data Center Outages*.

Reducing downtime costs is only a start

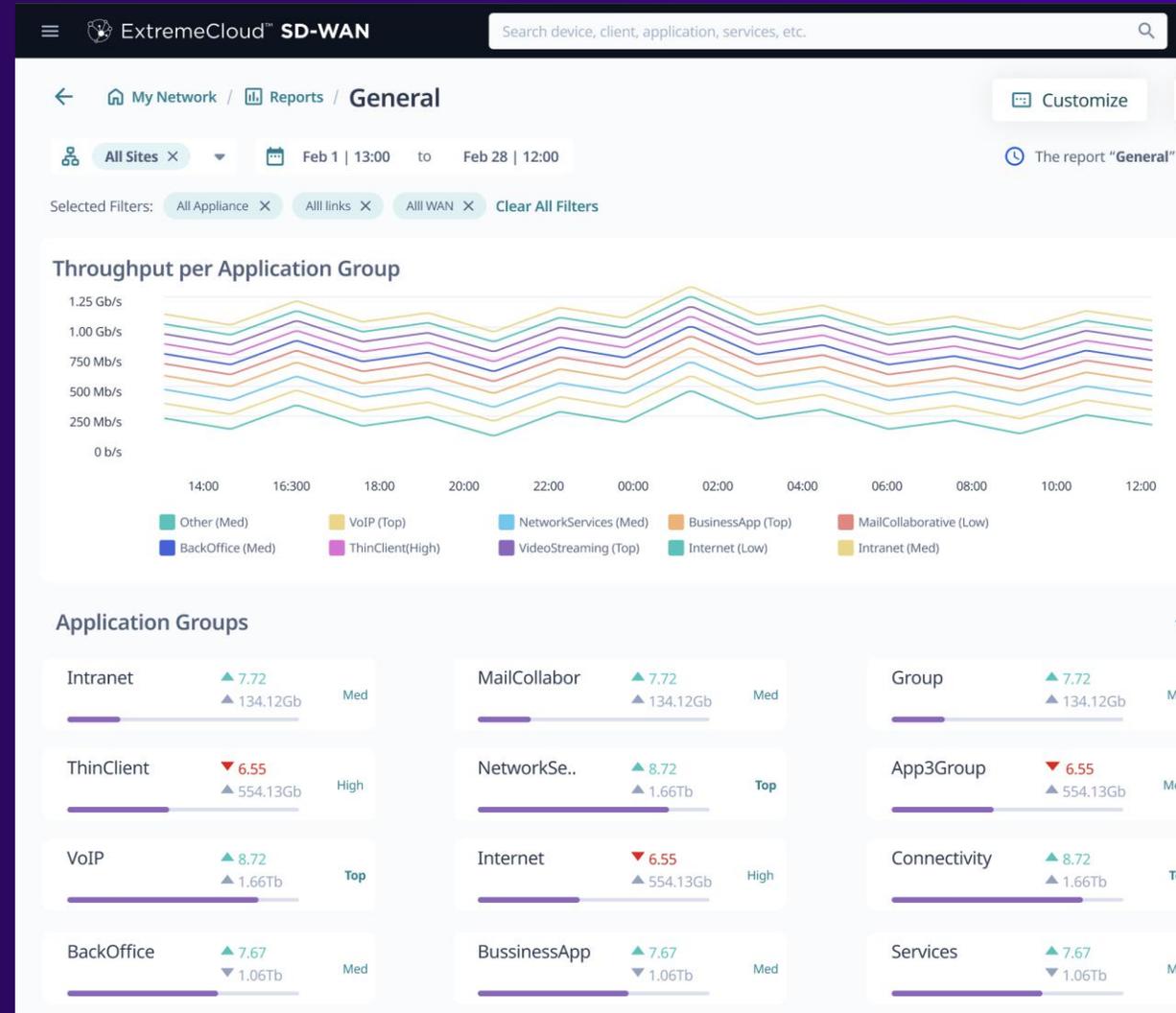
Extreme Networks empowers organizations to pursue secure, sustainable innovation and operational excellence.

ExtremeCloud SD-WAN's advanced application performance reporting enables evidence-based financial decisions about links, sites, applications, and more.

Inclusive, 100% OPEX SD-WAN subscriptions provide predictable costs and free capital budget for other initiatives. Flexible speed tiers and subscription terms with support, maintenance, and customer success included further reduce purchase risk.

ExtremeCloud IQ enables evidence-based decisions about the organization's network, customers, sites, services, applications, and processes. Paired with other Extreme solutions, **Extreme Fabric** enable organizations to understand, orchestrate, and manage Wi-Fi access points, Ethernet switches, and more.

ExtremeLocation enables organizations to act on contextual business and network insights in side-by-side dashboards to **improve operational efficiency and outcomes across the board.**



Application performance reporting provides the evidence-based insights organizations need to make the best financial and technical decisions.



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