AXELLIO

CORPORATE OVERVIEW
AEROSPACE & DEFENSE

Axellio Inc. is a leading innovator in high-performance network packet capture, storage, and analysis solutions. Axellio was spun-out in 2018 from an earlier company with a twenty-year legacy of innovation in enterprise IT high-performance storage solutions for commercial enterprise as well as aerospace and defense agencies.

AXELLIO SUMMARY

Founded: 2018

HQ:
Colorado Springs, Colorado, USA

Background:
20 years' experience in high-performance enterprise storage solutions

Target Market:
Network and Security Operations in commercial enterprise, defense, and intelligence

Offering:

- **PacketXpress™**
  High-speed collection, recording, and analysis platform
- **FabricXpress™**
  High-performance, high-density compute and storage platform

INNOVATION FOR NETWORK & SECURITY OPERATIONS

With its vast experience in high-performance storage, Axellio developed a unique solution for the most challenging problem in network and security operations: how to capture packets both economically and reliably for detailed analysis while providing efficient access to the data.

IT management has always valued full packet data, but the cost and complexity of capturing, storing, and using this data has been prohibitive for most organizations. Until now, systems were also not able to keep up with increasing network speeds and traffic volumes without packet loss that rendered the data less useful. So, organizations resorted to using statistical information such as NetFlow, events, or aggregated data to assure security, services, and application delivery, which was less expensive for event detection, performance analysis, and planning, but is limited by an incomplete view. Capturing and storing the full packets without loss provides the detail required to detect security vulnerabilities, identify root cause, and validate mitigation attempts.

Axellio addresses the pressing issues of Network and Cybersecurity Operations today, including:

- Ensuring reliable packet capture across today's highspeed networks
- Supplying enough storage for days or weeks of data while having immediate and efficient access to data
- Shielding the existing monitoring and analysis environment from traffic spikes and overload while extending its useful life and ensuring accurate results
- Providing a high-performance, high-density compute and storage platform for any application

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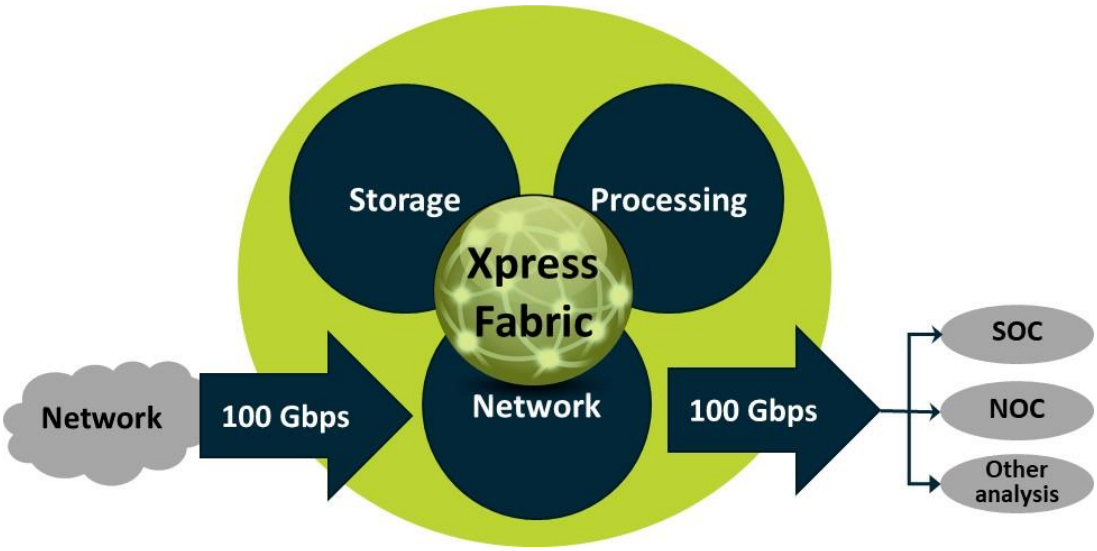
Axellio, through its Xpress Fabric interconnect — a mix of unique architecture and core-software — created a high-speed platform uniquely qualified to address those needs:



- **Network**
  - Reliable, sustained 100 Gbps capture and recording without packet-loss.
  - Instantaneous distribution of the recorded traffic to third-party onboard or offboard monitoring and analysis applications. Distribution speeds at up to 100 Gbps and traffic content can be adjusted to avoid application overload.
- **Storage** for back-in-time pre- and post-event analysis with up to 725 Terabyte onboard storage and ability to archive to the cloud or on premises solutions.
- **On-board analysis** for any of your analysis applications, making the most of the high-speed onboard processing and storage capabilities.

This is made possible through its unique architecture and software design which is , optimized for high performance computing, based on standard off-the-shelf components:

- **Storage** – Up to 48, high-speed solid-state-disk drives, dual ported with PCIe direct-connect.
- **Processing** – Up to 4 Intel Xeon Cascade Lake processors, with a total of 224 virtual cores providing high-speed interconnect and memory bandwidth with 48 PCIe lanes per CPU.
- **Networking** – 100 Gbps SmartNIC Hardware and FPGA software purposely designed for packet capture via inline, tap, or span Ethernet ports.
- **Xpress Fabric** – a switched PCIe fabric with 160 dynamically configurable PCIe lanes, allowing for 240 Gigabytes per second or 1920 Gigabits per second of total throughput.

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APPLICATIONS

This architecture has been applied to two primary applications:

- **FabricXpress™** – High-performance, high-density compute and storage platform for any application, used in applications such as high-availability storage, high-speed streaming and analytics, as well as financial trading applications.
- **PacketXpress™** – High-speed collection, recording, and analysis platform for Network and Security Operations' monitoring and analysis applications

Designed to support your specific applications you rely on in Network and Security Operations, our solutions are 100% vendor-agnostic so you can continue using the tools that you are already familiar with:

HARDWARE

Flexible configurations with 3rd party options:

NVIDIA, napatech, Mellanox, intel, Chelsio Communications

PLATFORM SOFTWARE

veeam, cassandra, Microsoft, vmware, Grafana, OpenShift, kafka, MySQL, Red Hat, TensorFlow, Hive, Hortonworks, redis, Spark

NETWORK OPERATIONS

solarwinds, WIRESHARK, PAESSLER THE NETWORK MONITORING COMPANY, dynatrace, splunk>, New Relic., ManageEngine, Nagios

SECURITY OPERATIONS

SURICATA, SNORT, OSSEC, Security Onion, splunk>, Elastic Search

Both applications are made available on two distinct platforms addressing the need of both tactical mission deployment as well as fixed installed Garrison implementations. Both platforms provide similar compute power as outlined above:

- **Rack Mountable – ARX Platform**
  3 standard rack units (3U) high, 30-inch deep for industry standard rack mounting with an N+2 redundant power supply. ARX, in combination with PacketXpress, is currently deployed as the Garrison Defensive Platform for Army Defense Cyber Operations under an OTA contract.

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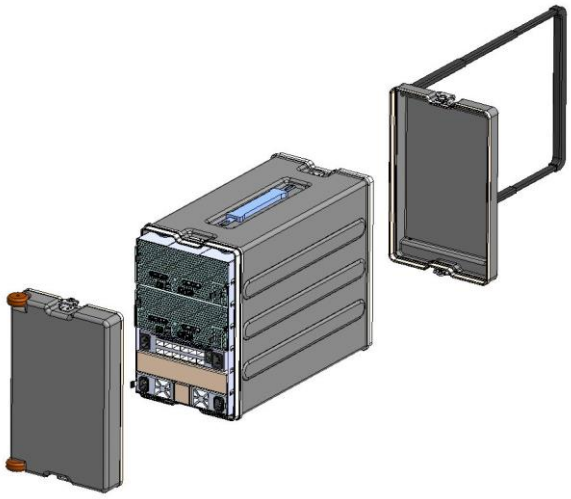
- **Mobile – AMX Platform**
  Portable high-performance computing platform for tactical, rapid field deployment, with data center level performance in a modular, rugged, size, weight, and power (SWaP) optimized formfactor. Its integrated rugged design in a TSA approved carry-on size, allows for easy deployment while offering field replaceable modules, and is designed to quickly stack for deployment at scale.

  AMX development is co-funded by Air Force PEO C3I&N and Missile Defense Agency under accelerated Phase 2 SBIR funding — and its first prototype delivery is in progress.



AXELLIO IN DoD

Since its inception two years ago, Axellio has been involved in numerous DoD projects:

AGENCY	APPLICATION
Intelligence Community	Internal R&D (IRAD) project with Raytheon; proved ability to capture 100 Gigabit ethernet network traffic without packet loss
Air Force Space & Missile Center	Internal R&D (IRAD) project with Northrop Grumman to support Overhead Persistent Infrared (OPIR) ground station imagery processing; 50x improvement
	Internal R&D (IRAD) project with L3Harris to support Big Top space operator training platform; reduced footprint by nearly 90% and increased performance
Air Force PEO C3I&N & Missile Defense Agency	Awarded Phase I & II SBIR projects to develop FabricXpress fly-away kit for deployable enterprise data center in carry-on suitcase
Army PM DCO	Awarded OTA for Garrison Defensive Cyber Operation Platform (GDP) with phased deployment of 60 installations throughout the world
Air Force Research Laboratory	Awarded OTA for Data-at-Rest encryption for secure collaboration with research partners
Army C4ISR	Selected for demonstration phase for next-generation Tactical Intelligence Targeting Access Node (TITAN) ground station
Navy/Marine Corp	Awarded special project by Assistant Secretary of the Navy for Research, Development, and Acquisition for Maritime Dynamic Over-the-Horizon Targeting System