



WHITE PAPER

Growth of New Technology Drives Higher Monitoring Speeds for Networks

WHY MORE NETWORKS ARE MIGRATING FROM 100G TO 400G SPEEDS



APCON BLADES LEADING THE 400G TRANSITION

ACI-4130-E28 Blade

- 4 QSFP-DD (400G) ports
- 24 QSFP ports

ACI-4130-E16 Blade

- 16 QSFP-DD (400G) ports

Total Network Visibility

With just a few clicks, APCON's 400G blades gain full visibility into your network-wide traffic.

Variable Connections

Create connections between ingress, egress ports, and load balance groups(LBG):

- One-to-One
- One-to-Many
- Many-to-Many
- Many-to-One
- One-to-LBG
- Many-to-LBG

Advanced Features

Get Packet-Aware Slicing, Deduplication, and Distributed Load Balance Groups with the Advanced Features Module.

FASTER HARDWARE PREPARES DATA CENTERS TO PROCESS AI-POWERED APPLICATIONS

KEEPING UP WITH PROGRESS: 400G IS THE NEW 100G

Recent technology growth presents a new challenge to data centers with the advent of Artificial Intelligence (AI) and the accompanying volumes of supporting data. More data traffic inevitably demands faster port speeds to process, analyze, and perform cybersecurity checks without data loss.

The explosion of corporate investment in AI applications (see chart below) signals the broad adoption of AI. Since those applications rely on complex datasets, significant blocks of information must be processed and transferred within data centers. This scenario requires higher port speeds (i.e., 400G) to ensure efficient data movement.



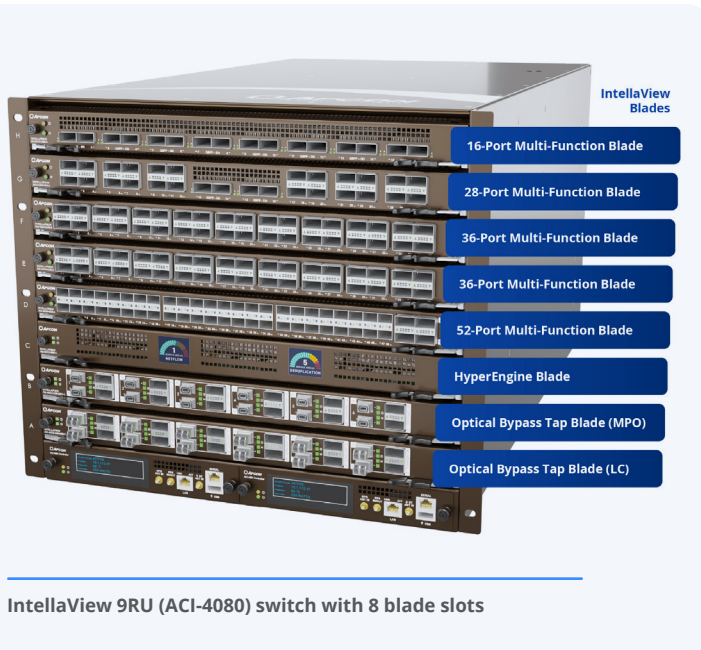
Global Corporate Investment in AI growing trends from 2013 to 2022.

Source: NetBase Quid, 2022 | Chart: 2023 AI Index Report

THE SKY'S THE LIMIT: HOW BUSINESSES ARE USING AI-INFUSED TECHNOLOGY

AI encompasses a broad spectrum of emerging computer technologies, such as machine learning (ML), natural language processing (NLP), and robotics. AI adoption has already revolutionized the processing requirements for a vast array of industries — from finance and healthcare to government and laboratory institutions.

Here are a few examples of how AI is being used to transform IT operations and generate the expansion to faster processing speeds (many using an APCON chassis like the one on the right):



- **Finance/FinTech:** Automated document processing for more accurate credit scoring and chatbot responses; AI algorithms for fraud detection and assessing credit risks
- **Healthcare:** Analyzing medical images and medical history data for disease detection
- **Government:** Risk mitigation relating to privacy, unlawful discrimination, and security
- **Laboratories:** AI-driven robotics for automation of routine lab tasks; AI algorithms for analyzing biological, pharmaceutical, or aerospace data
- **Manufacturing:** Predicting product quality, optimizing production, and reducing raw and/or unsustainable material consumption
- **Retail/E-commerce:** Forecasting product demand; improving online checkout conversion rates; automating in-store processes and social media responses; creating personalized customer offers via chatbots and emails

As interest in and development of AI tools expand over the next decade, hyper-efficient networking will become a benchmark requirement for organizations seeking to maintain an enduring competitive advantage.

IT'S NOT JUST AI: OTHER FACTORS DRIVING THE ACCELERATION FROM 100G TO 400G

APCON product releases and enhancements are in response to customers' current and future processing trends. Mid-market and enterprise data centers are feeling pressured to react to the advent of AI and higher volumes of data to manage. Many corporations are proactively expanding to 400G solutions to stave off latency issues as the business grows. Below are five prominent catalysts for data centers to upgrade to 400G processing line rates sooner rather than later.

- 1. Cost Efficiency and Scalability** | Data centers are continually looking for ways to improve efficiency and scalability. Higher-speed connections can lead to more streamlined data processing and have proven cost-effective when considering the increasing demands on data center infrastructures.
- 2. Migration to Higher Speeds** | Data centers have historically upgraded their network speeds to accommodate growing data traffic. The progress from 10G to 25G, 40G, and 100G has occurred, and now the introduction of 400G has necessitated new operations requirements for faster data transfer rates.
- 3. Bandwidth Requirements** | The adoption of high-speed applications, which bring with them larger data streams, produces significant volumes of information that must be processed and transferred within and across data centers and virtual environments. This data influx has led to an increased demand for higher bandwidth to ensure efficient data movement.
- 4. Emergence of 400G** | In recent years, 400G Ethernet has emerged as the next standard for high-speed data center networking. The transition to 400G is driven by the need for increased bandwidth to support a plethora of data-intensive applications, including AI.
- 5. Increased Infrastructure Demands for AI Workloads** | The deployment of AI workloads, including Machine Learning (ML) and Deep Learning (DL), is increasing. These applications frequently require accelerated processing power, and data centers are upgrading their infrastructures to meet these demands.

INTELLAVIEW 28-PORT MULTI-FUNCTION BLADE

Standard Model: ACI-4130-E28-1

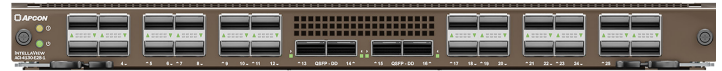
One solution that meets the demand for higher port speeds is the IntellaView ACI-4130-E28-1 blade. It includes 4 QSFP-DD ports and 24 QSFP ports that allow for precise network traffic monitoring. This blade is ideal for organizations that seek multiple ports of 400G along with 24 multi-function lines — all of which provide Traffic Aggregation, Filtering, Load Balancing, and Port Tagging. Advanced options include Protocol (Header) Stripping, Tunnel Management, and Packet Slicing supported at full line rate on every port.

Advanced Model: ACI-4130-E28-2

The IntellaView ACI-4130-E28-2 is an advanced version of the ACI-4130-E28-1 blade that includes a packet processing card to support the Packet Deduplication feature with up to 400G of throughput.

Enhanced Model: ACI-4130-E28-3 (Coming)

The third version of the IntellaView ACI-4130-E28 is in development to provide even more speed options and faster processing of network data streams.

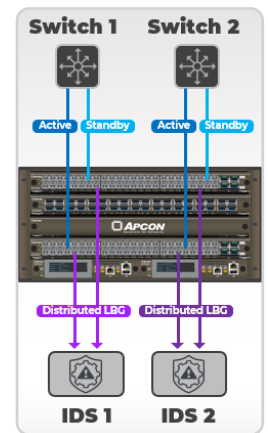


High-Speed Advanced Services

The 28-port and 16-port blade releases coincide with the launch of APCON's latest IntellaView software deployment. A highlight of the software is the Distributed Load Balance Groups (LBGs) service, which works in conjunction with APCON's ACI-4130-E28-2 and ACI-4130-E16-2 blades (when bundled with the Advanced Features Module).

IntellaView Optimization – Distributed Load Balancing

The Distributed LBG service allows an LBG to span multiple blades in a switch (shown at right) — a particularly beneficial capability if an LBG needs to expand, but the blade on which the LBG resides does not have any available ports. Additionally, if a port fails, traffic can flow to shared links and trunks via configured Standby Ports serving as redundant backups.



INTELLAVIEW 16-PORT MULTI-FUNCTION BLADE

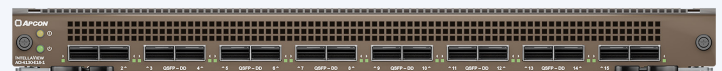
Standard Model: ACI-4130-E16-1

The IntellaView ACI-4130-E16-1 blade includes 16 QSFP-DD ports capable of speeds up to 400G. This high-speed blade allows for precise traffic monitoring and advanced features such as Tunnel Management, Protocol (Header) Stripping, and Packet Slicing.

Advanced Model: ACI-4130-E16-2

The IntellaView ACI-4130-E16-2 is an advanced version of the ACI-4130-E16-1 blade that includes an Advanced Features Module that powers the Distributed Load Balancing Groups, Packet-Aware Slicing, and Packet Deduplication features with up to 400G of throughput. For high-speed processing that prolongs the life of security and monitoring tools, reduces dropped packets, and optimizes storage capacities, the IntellaView ACI-4130-E16-2 blade with the advanced feature module is a powerful addition to any network.

When using the 16-port blade (and/or the 28-port blade), the Distributed LBG service enables certain IntellaView blades like the IntellaView HyperEngine to obtain rates up to 400G throughput using both the Distributed LBG service and the HyperEngine's multiple service engines (when they are run concurrently — see diagram to the right). This reduces third-party network tool oversubscriptions and additional invoice line-item fees.



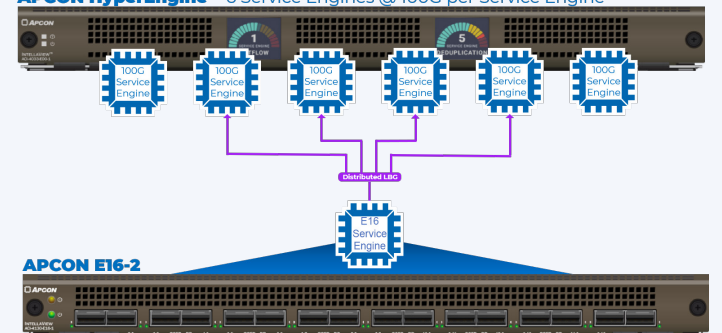
Enhanced Model: ACI-4130-E16-3 (Coming)

The third version of APCON's 16-port blade will showcase an Enhanced Features Module that supports concurrent Packet Deduplication and NetFlow Generation.

Scalable 400G Network Technology with Multi-RU Chassis Options

APCON's 400G solutions fit any APCON chassis: 1RU, 3RU, 5RU, or 9RU sizes. Additional line and breakout rates (10G, 25G, 40G, etc.) are supported for organizations that use lower speeds today, but are preparing for faster networking speeds as AI workflows are more widely adopted for ingesting, organizing, and analyzing troves of data.

APCON HyperEngine – 6 Service Engines @ 100G per Service Engine





Why Choose APCON's Products?

APCON blades boast intuitive graphical user interfaces (GUIs) seamlessly integrated into world-leading physical switches, providing scalability to effectively monitor the continuously expanding landscape of enterprise data centers.

Scalable Solutions

Reliability & Redundancy

Density & Throughput

Innovative Design

SERVICES AND BREAKOUT BLADE OPTIONS

APCON's new 400G blades help aggregate traffic sources to execute advanced processing features including Deduplication, NetFlow Generation, Protocol (Header) Stripping, Deep Packet Inspection, and Tunnel Termination for networkwide monitoring. The blades are compatible with any APCON IntellaView Series chassis.

INTELLAVIEW 28-PORT BLADE BREAKOUT OPTIONS

- QSFP types QSFP+, QSFP28, and QSFP56 are supported in all 28 port sockets, and QSFP-DD is supported in the 4 middle QSFP-DD port sockets
- 4 QSFP-DD ports support 40G/100G/200G/400G
- 24 QSFP ports support 40G/100G/200G
- 2 QSFP variants allow for up to 8 different port breakout modes: 2 x 100G, 4 x 10G/25G/50G/100G, 8 x 10G/25G/50G

INTELLAVIEW 16-PORT BLADE BREAKOUT OPTIONS

- QSFP types QSFP+, QSFP28, QSFP56, and QSFP-DD are supported in all 16 QSFP-DD port sockets
- 16 QSFP-DD ports provide support for 40G/100G/200G/400G rates
- 2 QSFP variants allow for up to 8 different port breakout modes: 2 x 100G, 4 x 10G/25G/50G/100G, 8 x 10G/25G/50G

ORDERING INFORMATION

Part Number	Description
ACI-4130-E28-1	IntellaView 28-Port Blade Basic Services: ACL Filtering, Port Tagging Advanced Services: Packet Slicing, Protocol (Header) Stripping, Tunnel Management
ACI-4130-E28-2	IntellaView 28-Port Blade with 200G Advanced Service Module Basic Services: ACL Filtering, Port Tagging Advanced Services: Protocol (Header) Stripping, Tunnel Management, Packet Slicing, Packet Deduplication, Distributed LBG, Packet-Aware Slicing. Available combined services: <ul style="list-style-type: none"> • Deduplication/Packet-Aware Slicing • Distributed LBG/Deduplication • Distributed LBG/Packet-Aware Slicing • Distributed LBG/Deduplication/ Packet-Aware Slicing
ACI-4130-E28-3	IntellaView 28-Port Blade with 400G Enhanced Features Module Basic Services: ACL Filtering, Port Tagging Advanced Services: Protocol (Header) Stripping, Tunnel Management, Packet Slicing, Packet Deduplication, NetFlow Generation Services that can be combined on this blade: Packet Deduplication/ NetFlow Generation*

*Preliminary - Features and specifications subject to change

Part Number	Description
ACI-4130-E16-1	IntellaView 16-Port Blade Basic Services: ACL Filtering, Port Tagging Advanced Services: Packet Slicing Protocol (Header) Stripping, Tunnel Management
ACI-4130-E16-2	IntellaView 16-Port Blade with 200G Advanced Service Module Basic Services: ACL Filtering, Port Tagging Advanced Services: Protocol (Header) Stripping, Tunnel Management, Packet Slicing, Packet Deduplication, Distributed LBG, Packet-Aware Slicing. Available combined services: <ul style="list-style-type: none"> • Deduplication/Packet-Aware Slicing • Distributed LBG/Deduplication • Distributed LBG/Packet-Aware Slicing • Distributed LBG/Deduplication/ Packet-Aware Slicing
ACI-4130-E16-3	IntellaView 16-Port Blade with 400G Enhanced Features Module Basic Services: ACL Filtering, Port Tagging Advanced Services: Protocol (Header) Stripping, Tunnel Management, Packet Slicing, Packet Deduplication, NetFlow Generation Services that can be combined on this blade: Packet Deduplication/ NetFlow Generation*

*Preliminary - Features and specifications subject to change



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