



FlexAI™ Machine Learning Cluster

Future Proof, Compute and Storage AI Appliance
Uniquely Scales GPU and Storage Independently

Highlights

POWER9 AC922, The Best Server for AI

- 2-6 NVIDIA V100 GPUs with NVLink
- 4X more threads per core than x86
- Over 5X more I/O bandwidth than x86
- 2.6x more RAM than x86
- PCI gen 4
- Integrated NVMe

IBM Spectrum Scale Keeps GPU's Fed

- Parallel access for performance
- Access the same data from all nodes
- SSD/NVMe
- Large file throughput, small file IOPS

IBM PowerAI Enterprise

- Enables rapid AI deployment
- Delivers faster insights
- Supports larger more accurate models
- Incorporates most popular frameworks

H2O.ai Machine Learning Platform

- Leading Algorithms
- Access from R, Python, Flow and more
- AutoML
- Distributed, In-Memory Processing
- Simple Deployment

Flexible

- Variable compute/storage configuration
- Limitless scalability
- Building block design
- Designed for ease of use
- Simple Deployment

Hardware and Software Fully Integrated

FlexAI software is preloaded and hardware is fully rack integrated at Applied Data Systems factory before shipment

Single Point of Contact for Support

Applied Data Systems handles all support requests on your behalf, simplifying support and speeding problem resolution

FlexAI is a Compute and Bandwidth Beast, Built for Maximum AI Throughput

FlexAI delivers unprecedented performance for artificial intelligence (AI), delivering cutting-edge AI innovation with the dependability IT requires. FlexAI is built on IBM AC922 NVIDIA GPU accelerated servers installed with the IBM Enterprise PowerAI software stack and H2O.ai machine learning platform. FlexAI utilizes flash storage and a high-speed parallel file system with high speed networking configured to match the performance of multiple high-bandwidth GPU accelerated servers.

POWER9 AC922 GPU Accelerated Server, Built for the Biggest AI Challenges

FlexAI is powered by the IBM Power System Accelerated Compute Server (AC922) that delivers unprecedented performance for artificial intelligence (AI). Organizations can now deploy data-intensive, deep learning frameworks with confidence. AC922 enables the cutting-edge AI innovation data scientists desire, with the dependability IT requires.

IBM PowerAI Enterprise Deep Learning Framework

FlexAI can be configured with IBM PowerAI Enterprise, making deep learning and machine learning more accessible to your staff, and the benefits of AI more obtainable for your business. It combines popular open source deep learning frameworks, efficient AI development tools, and accelerated IBM® Power Systems™ servers. IBM PowerAI Enterprise is a complete environment for data science as a service, enabling your organization to bring new applied AI applications into production.

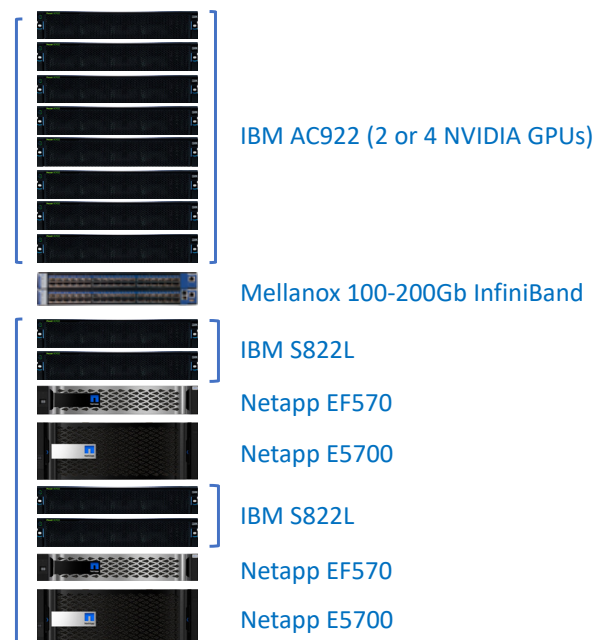
H2O.ai Machine Learning Platform

FlexAI can also be configured with the H2O.ai machine learning platform. H2O is a fully open source, distributed in-memory machine learning platform with linear scalability. H2O's supports the most widely used statistical & machine learning algorithms including gradient boosted machines, generalized linear models, deep learning and more. H2O also has an industry leading AutoML functionality that automatically runs through all the algorithms and their hyperparameters to produce a leaderboard of the best models. The H2O platform is used by over 14,000 organizations globally.

IBM PowerAI Enterprise
Development Platform

H2O.ai Machine Learning
Platform

IBM Spectrum Scale
High throughput, high
IOP SSD tiered to
high-capacity HDD



FlexAI Cluster, Built for Maximum AI Throughput

FlexAI is Fed by IBM Spectrum Scale V5: New Levels of Storage Performance
Substantial improvements in I/O performance

- Significantly reduced inter-node software path latency to support the newest low-latency, high-bandwidth NVMe technology
- Improved performance for many small and large block size workloads simultaneously from new 4 MB default block size with variable sub-block size
- Improved metadata operation performance to a single directory from multiple nodes

High Performance Parallel File System
IBM Spectrum Scale stripes data in parallel to multiple servers with multiple SSDs and HDDs for extreme, scalable performance

Expert Architecture, Solution Design, Tuning, and Implementation
Extensive analysis of existing and future needs, comprehensive solution architecture and validated hardware and software build that ships fully integrated

Intelligent Automated Tiering
Data placement policy engine intelligently tiers data from high-performance flash to low cost storage across a single namespace; places data based on a file's "heat" – easier and more economical than tiering to more expensive, high latency external object or cloud storage

Built-in Data Protection and Services
Snapshots, Fail-over, Replication, RAID 6, Quotas, Tiering, Compression, Storage pools, ILM data placement policies, and Active File Management (AFM)

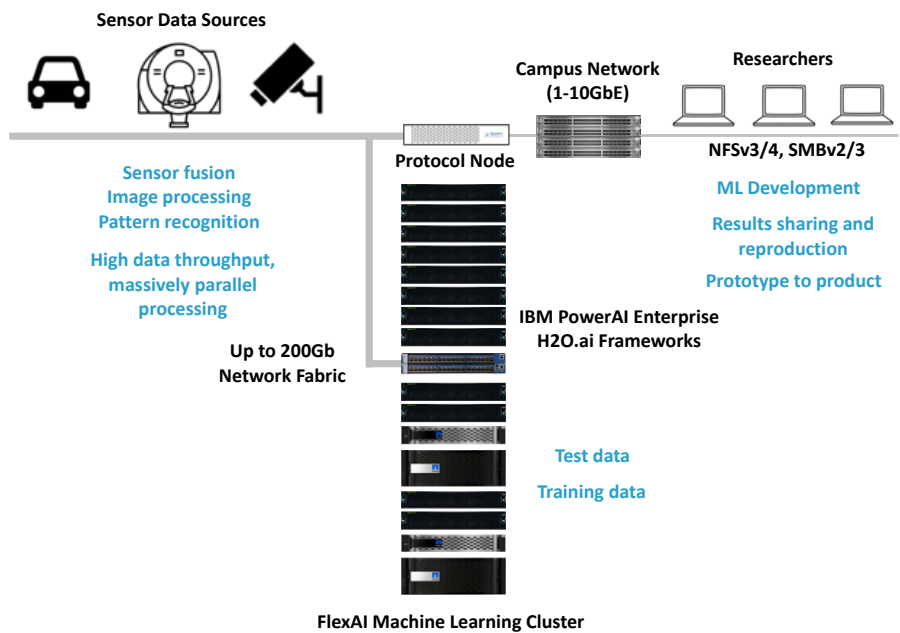
Exclusively Focused on Technical Computing and Data Management
Applied Data Systems is 100% focused on technical computing, specializing in CPU and GPU computing, low latency networking and high-performance storage

Accelerate Machine Learning Workflows with Extreme Storage Performance
Applied Data Systems FlexAI uses the latest and most innovative IBM Spectrum Scale release v5, with expert architectural design and performance tuning by globally acknowledged IBM Spectrum Scale experts. IBM Spectrum Scale is a parallel file system, trusted by 1000's of organizations, that stripes data in parallel to multiple disks across multiple servers, delivering both extreme performance and high capacity at low cost. A layer of ultra-fast, low-latency, high-bandwidth NVMe flash technology can also be integrated with data automatically tiered to lower cost storage pools as access becomes less frequent.

Simplified Data Management at Scale With Extensive Data Services Included
In addition to delivering affordable high performance at scale, FlexAI includes integrated management tools and an advanced GUI to easily administer billions of files and petabytes of data – all under a single global namespace. These include Quotas, Snapshots, Fail-over, Compression, Quality of Service, Filesets, Multi-protocol access (NFSv3/4, SMBv2/3, FTP, HTTP, S3, HDFS and POSIX parallel file system client), Storage pools, RAID 6, ILM data placement policies, and Active File Management (AFM) WAN caching – all included at no extra charge.

Intelligent Tiering and Comprehensive Information Life Cycle Management
IBM Spectrum Scale includes a powerful information lifecycle management toolset that includes a rule-based policy engine and ultra-fast metadata scanning to tier data internally across flash and disk storage pools. Frequently accessed files are stored in higher-performing (NVMe Flash SSD) storage pools, while files that are not accessed frequently are stored in more economical, high capacity, slower disk-based storage pools. Migration policies transparently move data from one storage pool to another without changing the file's location in the directory structure. Automated analysis of data usage patterns pull data back up to higher performance tiers as needed.

FlexAI Modular Building Blocks
Applied Data Systems delivers FlexAI as a modular, repeatable, and highly supportable solution consisting of best of breed industry standard components. Fully custom systems are also available.



FlexAI Fully Integrated AI/ML Solution Data and Workflow



For more information from Applied Data Systems:
844.371.4949 | info@applieddatasystems.com | www.applieddatasystems.com