Infrastructure Trends and Strategies: Artificial Intelligence and Analytics

AN IDC REPORT SERIES

IDC's *Infrastructure Trends and Strategies: Artificial Intelligence and Analytics* service looks at the impact of machine and deep learning workflows, artificial intelligence (AI)-infused applications, and analytics technologies on the infrastructure software and hardware markets. Specific focus is put on the infrastructure needs of newer technologies (e.g., SAP HANA, Greenplum, and Oracle Advanced Analytics), nonrelational analytic data stores (e.g., Hadoop, Spark, MongoDB, and Cassandra), and continuous analytic tools (e.g., Amazon Kinesis, Splunk Universal Forwarder, and Microsoft Azure Data Factory). The program also covers infrastructure needs for relational data warehouses, analytic and performance management applications, and business intelligence and analytic tools and platforms (including AI software platforms). Also included are the infrastructure needs for AI data preparation, AI model training using AI frameworks, and AI inferencing from edge to core to cloud. The impact to infrastructure is examined across compute and processor architectures, storage interfaces and system types, data organization, storage capacity, and revenue for the primary, secondary, and archive tiers. These data points will be used for segmentation and forecasting.

Markets and Subjects Analyzed

- Computing requirements across general-purpose and accelerated computing used in support of new workloads
- Infrastructure types (discrete or converged/integrated), array types (all flash, hybrid storage, or HDD), data organizations, and in-memory technologies supported for AI and analytics workloads
- Deployment location (on premises/off premises) and consumption model (traditional/as a service) preferences
- Implications of analytics on data life-cycle management use cases such as production, backup, replication, and archive
- Artificial intelligence data pipeline (edge to core to cloud)
- Autonomous infrastructure
- Accelerated computing
- Heterogeneous processor architectures

Core Research

- Computing and Storage Infrastructure for Artificial Intelligence and Analytics Taxonomy
- Infrastructure for Artificial Intelligence, Big Data and Analytics Segmentation, Market Size, and Forecast Report
- Infrastructure for Artificial Intelligence and Analytics: Best Practices and End-User Adoption Studies
- Qualitative Assessment of Infrastructure Innovations Enabling Artificial Intelligence Workloads
- Qualitative Assessment of Analytics Use Cases and Applications Infrastructure Needs
- Data Lakes for AI and Analytics

In addition to the insight provided in this service, IDC may conduct research on specific topics or emerging market segments via research offerings that require additional IDC funding and client investment. To learn more about the analysts and published research, please visit: Infrastructure Trends and Strategies: Artificial Intelligence and Analytics.

Key Questions Answered

1. What is the infrastructure revenue from AI and analytics workloads?
2. What are the infrastructure hardware and software requirements imposed by AI and analytics workloads?
3. What is the size and what are the characteristics of the market for enterprise infrastructure that employs machine learning algorithms and for what use cases (predictive analytics, preventive maintenance, and intelligent data placement)?
4. What are the market sizes and characteristics of AI workflows and workloads and analytics technologies hosted on premises, at the edge, in public cloud, and/or on hybrid cloud/multicloud stacks?
5. How long will AI and analytics result sets be retained, and what approaches will be used?
6. What are the optimal compute and storage configurations for AI and analytics workloads?
7. What will be the role of technologies like accelerated computing (GPUs, FPGAs, ASICs, manycore processors, and emerging acceleration technologies), NVMe, tiering, deduplication, and compression as they are related to AI and analytics?
8. What is an AI data pipeline, and why is it needed?

Companies Analyzed

This service reviews the strategies, market positioning, and future direction of several providers in the AI and analytics workloads markets, including:

Alibaba, AMD, AWS, Baidu, Broadcom, Cisco, Cloudera, Cloudian, DataDirect Networks, Dell, Facebook, Google, Hewlett Packard Enterprise, Hortonworks, Huawei, IBM, Inspur, Intel, Juniper, MapR Technologies, Microsoft, NetApp, Nexenta Systems, Nexsan, Nimble Storage, Nimbus Data Systems, NVIDIA, Oracle, Pure Storage, Red Hat, SAP, SAS, SuperMicro, Symantec, Tencent, Xilinx, and Yahoo!