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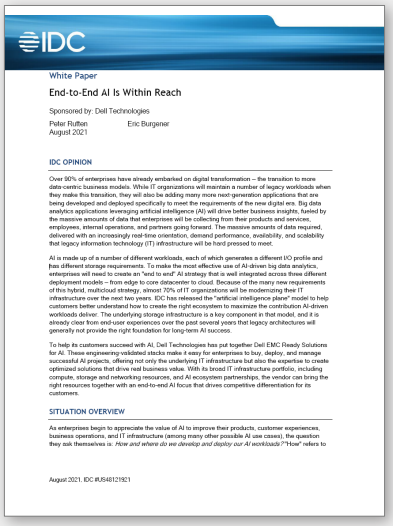
IDC

White Paper

End-to-End AI Is Within Reach

Sponsored by: Dell Technologies

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IDC OPINION

Over 90% of enterprises have already embarked on digital transformation – the transition to more data-centric business models. While IT organizations will maintain a number of legacy workloads when they make this transition, they will also be adding many more next-generation applications that are being developed and deployed specifically to meet the requirements of the new digital era. Big data analytics applications leveraging artificial intelligence (AI) will drive better business insights, fueled by the massive amounts of data that enterprises will be collecting from their products and services, employees, internal operations, and partners going forward. The massive amounts of data required, delivered with an increasingly real-time orientation, demand performance, availability, and scalability that legacy information technology (IT) infrastructure will be hard pressed to meet.

AI is made up of a number of different workloads, each of which generates a different I/O profile and has different storage requirements. To make the most effective use of AI-driven big data analytics, enterprises will need to create an "end to end" AI strategy that is well integrated across three different deployment models – from edge to core datacenter to cloud. Because of the many new requirements of this hybrid, multicloud strategy, almost 70% of IT organizations will be modernizing their IT infrastructure over the next two years. IDC has released the "artificial intelligence plane" model to help customers better understand how to create the right ecosystem to maximize the contribution AI-driven workloads deliver. The underlying storage infrastructure is a key component in that model, and it is already clear from end-user experiences over the past several years that legacy architectures will generally not provide the right foundation for long-term AI success.

To help its customers succeed with AI, Dell Technologies has put together Dell EMC Ready Solutions for AI. These engineering-validated stacks make it easy for enterprises to buy, deploy, and manage successful AI projects, offering not only the underlying IT infrastructure but also the expertise to create optimized solutions that drive real business value. With its broad IT infrastructure portfolio, including compute, storage and networking resources, and AI ecosystem partnerships, the vendor can bring the right resources together with an end-to-end AI focus that drives competitive differentiation for its customers.

SITUATION OVERVIEW

As enterprises begin to appreciate the value of AI to improve their products, customer experiences, business operations, and IT infrastructure (among many other possible AI use cases), the question they ask themselves is: *How and where do we develop and deploy our AI workloads?* "How" refers to

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ABOUT THIS BRIEF

This brief summarizes an IDC white paper that outlines key considerations for enterprises moving to processes and services driven by artificial intelligence. For the full story, see the IDC white paper "End-to-End AI is Within Reach."

End-to-end AI is within reach — but are you ready for it?

THE RISE OF AI IN THE ENTERPRISE

For today's digitally driven enterprises, artificial intelligence applications are growing in importance. Many forward-looking enterprises are now rolling out or laying the groundwork for AI-driven applications that automate and enhance business processes and services. And the future promises to bring much more of the same.

For IT and business leaders, the rise of AI in the enterprise is much more than an incremental change. It's a sea of change that calls for the development of end-to-end AI strategies and new supporting capabilities in the underlying IT infrastructure. This is an important takeaway point from a new IDC white paper—"End-to-End AI is Within Reach"—that outlines key considerations for enterprises moving to processes and services driven by artificial intelligence.

Here are some of IDC's observations from this thought-provoking white paper, sponsored by Dell Technologies.

AI-DRIVEN APPLICATIONS WILL SPAN THE ENTERPRISE.

- IDC expects that within the next few years, AI will start to permeate business processes for most enterprises. In general, more data will drive better products and services, improved customer experience and more relevant business insights.
- Big data analytics applications leveraging artificial intelligence will drive better business insights, fueled by the massive amounts of data that enterprises will collect from their products and services, employees, internal operations and partners.
- As business models become much more data-driven, the key challenge for enterprises will be to identify and capture the data they need to improve their offerings and then use that data effectively to drive value for the business and its customers and partners.

ENTERPRISES NEEDS AN END-TO-END AI STRATEGY.

- To make the most effective use of AI-driven big data analytics, enterprises will need to create an end-to-end AI strategy that is well integrated across three different deployment models—from edge to core data center to cloud. IDC says that because of the many new requirements of this hybrid, multi-cloud strategy, almost 70 percent of IT organizations will modernize their IT infrastructure over the next two years.

- Enterprises successfully deploying AI will have their AI infrastructure distributed across edge, core and cloud deployment locations, each of which will exhibit different workload profiles. Rather than thinking about AI infrastructure as a series of point deployments in different locations, enterprises should strive to craft a well-integrated, end-to-end AI infrastructure strategy that leverages each of these deployment locations effectively.
- There will be a proliferation of data capture points as enterprises glean data from edge devices, their own products and services, employees, supply chain partners and customers. Data needs to stream freely and where it naturally settles in a storage environment. After having been leveraged for insights, data needs to be joined by compute to perform more analysis.

AI WORKLOADS PLACE NEW DEMANDS ON IT INFRASTRUCTURE.

- AI workloads will demand many new capabilities from the underlying IT infrastructure. Getting the underlying infrastructure right is a key determinant of success as enterprises look to AI to help drive better business decisions. Enterprises should consider the infrastructure requirements for AI from three angles—scale, portability and time—as they modernize their IT infrastructure for the data-centric digital era.
- Enterprises will build their infrastructure using both general-purpose and accelerated compute, distributed unstructured storage platforms, a mix of different storage technologies, and AI-driven systems management, as well as AI framework tools like PyTorch and TensorFlow.
- IDC has released an “Artificial Intelligence Plane” model to help customers better understand how to create the right ecosystem to maximize the contribution AI-driven workloads deliver. The underlying storage infrastructure is a key component in that model, and it is already clear from end-user experiences over the last several years that legacy architectures will generally not provide the right foundation for long-term AI success.
- While each phase of the AI pipeline requires some type of performance-intensive compute, AI model training is especially demanding due to the large amount of parallelism involved. There are various types of compute resources that are suitable for the different AI pipeline stages.

DELL TECHNOLOGIES CAN HELP YOU GET THERE.

- Dell Technologies markets a range of systems for every AI scenario, allowing businesses to grow their capabilities at their own pace as their needs shift and as their data sets grow. Deployment scenarios with Dell Technologies solutions include data center, edge, cloud and multi-cloud, with the compute brought to the data rather than the other way around.
- To help their customers succeed with AI, Dell Technologies has put together its Dell EMC Validated Designs for AI. These engineering-validated stacks make it easy for enterprises to buy, deploy and manage successful AI projects, offering not only the underlying IT infrastructure but also the expertise to create optimized solutions that drive real business value.
- With its broad IT infrastructure portfolio, including compute, storage and networking resources, and AI eco-system partnerships, Dell Technologies can bring the right resources together with an end-to-end AI focus that drives competitive differentiation for its customers.

Here’s the bottom line: End-to-end AI is within reach—and now is the time to get started.