

White Paper

Operationalize AI at Scale: Securely, Simply, Anywhere

TCS AI Infrastructure Solution Powered by Nutanix Agentic AI



Table of Contents

Introduction.....	03
Market Trends.....	03
Enterprise AI Challenges.....	04
An AI Strategy Built to Solve Enterprise Adoption Challenges.....	05
TCS and Nutanix Collaboration for AI Enabled Enterprises.....	08
Key Benefits for Business Leaders.....	08
Unlock the full potential of AI with TCS and Nutanix.....	08



Introduction

Artificial Intelligence is no longer a nice to have for enterprises, but an essential capability for staying agile, innovative, and competitive. However, turning AI from an idea into something that delivers real value at scale is still a challenge for many organizations. Skill shortages, rising infrastructure costs, complex integrations with legacy systems, and concerns around data privacy and governance often slow progress. Bringing AI infrastructure into existing IT environments can be time consuming, especially when older systems aren't designed to support modern AI workloads, and strict regulatory requirements around sensitive data add another layer of complexity.

At its core, AI infrastructure includes the hardware and software needed to process data, train models, and run AI applications, workloads that demand high performance, particularly for deep learning. As industries like healthcare, retail, finance, manufacturing, and automotive increasingly rely on AI to improve efficiency, enhance customer experiences, and drive innovation, this white paper looks at current market trends, common adoption hurdles, and how a joint TCS and Nutanix solution can help organizations unlock the full potential of AI.

Market Trends

By 2029, as reported by IDC in their Worldwide Quarterly AI Infrastructure Tracker, the global AI Infrastructure market to poised to be **\$758 billion**¹. In second quarter of 2025, compute and storage hardware infrastructure spending for AI deployments grew 166% year-over-year. AI adoption continues to grow at a remarkable pace as hyper scalers, cloud and digital service provider, enterprises, and governments around the world are increasingly prioritizing AI.

As AI adoption matures, the market is turning toward the practical realities of deploying and managing these workloads across complex enterprise environments. That shift drives greater demand for infrastructure models that can support data-intensive applications across private and public clouds, integrate more easily with modern cloud-native architectures, and give organizations more consistent control over performance, cost, and operations. [82% of organizations report that their current on-premises infrastructure is not yet fully ready to support AI workloads](#). In turn, enterprises are placing a higher premium on flexible, software-defined environments that can support AI growth without adding unnecessary complexity.

Recent key market trends include:

AI as a Growth Engine

AI-driven insights transforming decision-making and customer experiences.

Hybrid and Multi-Cloud AI

Enterprises leveraging flexible cloud architectures for scalability and resilience.

Sovereign AI Infrastructure

Aligning AI capabilities with relevant requirements for data governance, privacy, and infrastructure geography.

Responsible AI

Compliance and ethical considerations are shaping AI governance strategies.

AI Democratization

Pre-built models and automation tools are enabling faster adoption across business units.

Enterprise AI Challenges

Organizations are under real pressure to show quick returns from their AI investments, but making AI work in practice isn't easy. Integrating it into existing systems takes time, strong data foundations, and close coordination, which often slows momentum and creates doubt about its value. Talent shortages make things harder, as finding or building skills in AI, data, and governance is costly and slow. At the same time, infrastructure and operational costs can quickly exceed expectations, especially in hybrid environments, while stricter data privacy regulations raise the stakes even further. When IT and business teams aren't aligned, these challenges only grow, causing promising AI initiatives to stall before they deliver meaningful impact.

Key Challenges

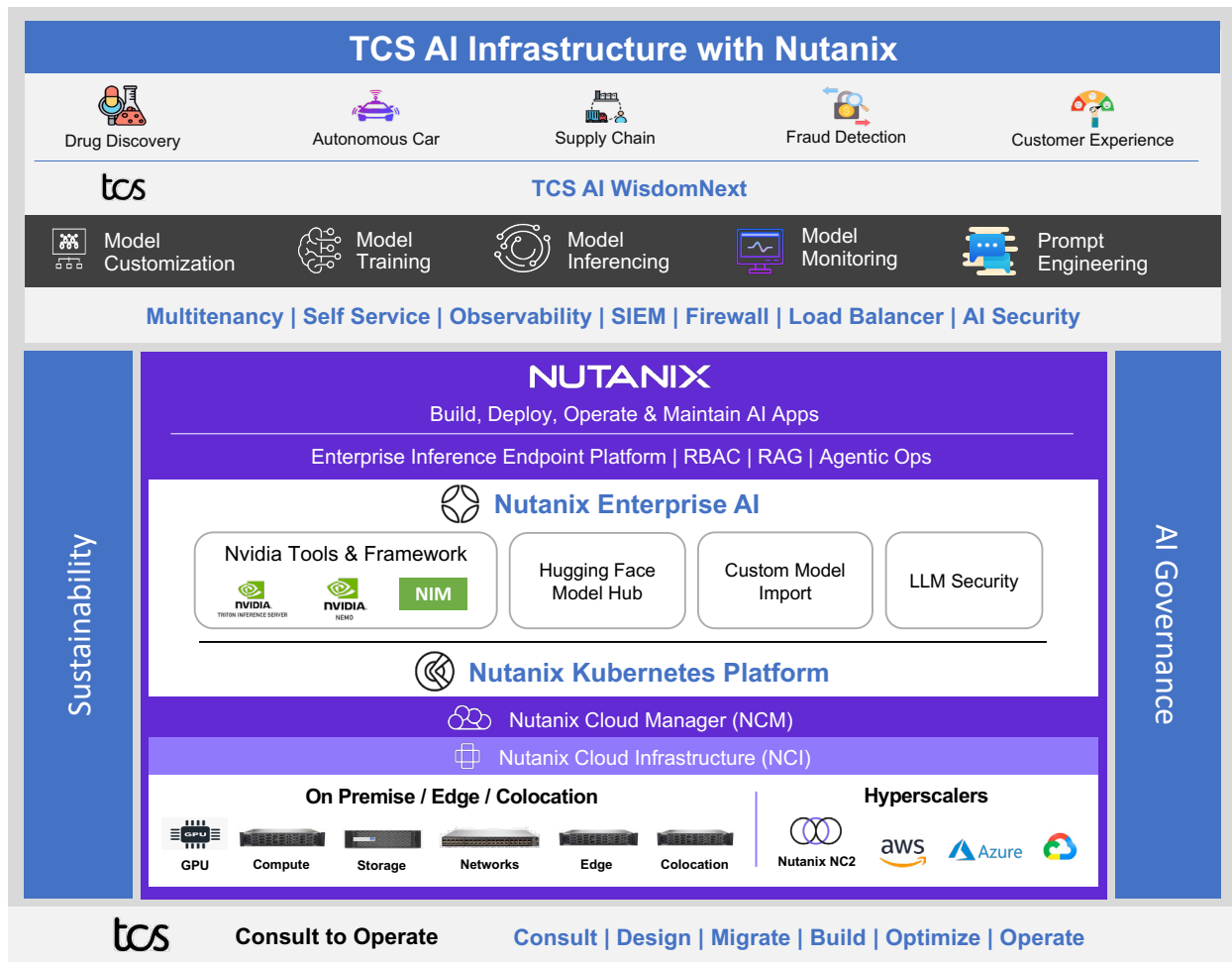
- **Time-to-Value Pressure:** Long development cycles delay ROI.
- **Skill Set Gaps:** Scarcity of AI talent hampers execution.
- **Escalating Costs:** Infrastructure and operational expenses often exceed forecasts.
- **Data and Privacy Concerns:** Regulatory compliance and secure data handling remain top priorities.
- **Lack of Clarity and Communication:** Misalignment between IT and business slows progress.

¹ IDC Press Release (<https://my.idc.com/getdoc.jsp?containerId=prUS53894425>, Oct 2025)

An AI Strategy Built to Solve Enterprise Adoption Challenges

TCS and Nutanix combine a proven AI Infrastructure architecture with an enterprise platform designed to scale AI workloads with operational consistency, governance, and cost control. This includes establishing a clear financial roadmap for AI workloads, paired with managed services that support day-to-day operations as AI usage expands across teams and environments. The TCS and Nutanix stack is designed to operationalize AI as a continuous, enterprise capability rather than a sequence of disconnected initiatives. At its core is the **TCS AI Infrastructure**, a structured delivery and operating model that governs how AI solutions are designed, deployed, scaled, and optimized over time.

The TCS AI Infrastructure offering aggregates multiple AI services into a single interface, enabling firms to rapidly adopt next-gen technologies at scale, lower costs, and stay compliant with relevant regulatory frameworks.



This solution stack comprises GPU-accelerated hardware and software stacks designed to provide faster deployment, end-to-end life cycle management services covering platform, orchestration & integration layers, MLOps, LLMOps, Security and Governance. The overall stack covers the Infrastructure, Deployment, Model, Platform, Application & Services Layer, which is required for running modern AI workloads. Enterprises are looking for support in consulting, designing, sizing, building, and providing solutions to accelerate their journey of deploying their use cases and elevating their GenAI journey. The right sizing of infrastructure, multi cloud integrations, right orchestration tools for MLOps, LLMOps, and finally the AI Governance for LLM security and guard railing plays a pivotal role. Implementing AI use cases requires training of huge datasets, and that demands considerations for data privacy and security.

As a hybrid multicloud platform, Nutanix gives organizations a consistent way to run, manage, and scale workloads across diverse enterprise environments. The Nutanix Cloud Platform limits operational fragmentation as AI adoption expands, enabling simpler deployment, standardized Kubernetes-based delivery, and clear control over workload placement decisions. [Nutanix Enterprise AI](#) (NAI) builds on this foundation as the AI operations layer, enabling enterprises to deploy, operate, monitor, and adapt AI models with enterprise-grade resiliency, security, and day-2 operational controls in a way that remains consistent with broader cloud-native application and infrastructure practices.

- ▶ **Unified AI operations and management:** A single control plane to deploy, secure, and manage enterprise AI workloads, including inference, agents, and RAG, reducing operational fragmentation as usage scales.
- ▶ **Private, secure deployment across hybrid environments:** Run AI wherever you run Kubernetes, with enterprise-grade security and privacy controls, including support for restricted and disconnected environments.
- ▶ **Hardware flexibility across accelerator ecosystems:** Support for major accelerator options (NVIDIA, AMD, Intel) so enterprises can align AI infrastructure to their preferred hardware strategy and avoid vendor lock-in.
- ▶ **Agentic AI Solution:** A full-stack solution that reduces operational complexity, delivers optimized performance and security, and is designed to enable lower, predictable token costs. This is an AI PaaS and Kubernetes native software layer that consists of:
 - **An Advanced AI Gateway and Inference Services:** The latest release of Nutanix Enterprise AI (NAI) includes an AI Gateway service for unified policy control over cloud-hosted and private LLMs. New support for the Model Context Protocol (MCP) server and Fine Tuning extends its existing robust MaaS (Model as a Service) capabilities to enable agents to securely connect to enterprise tools and data sources.
 - **An Open Kubernetes Platform with a Rich AI Catalog:** Nutanix simplifies the path to Agentic AI by extending its CNCF-compliant Nutanix Kubernetes Platform (NKP) with a rich catalog of pre-built open source AI developer tools including Notebooks, Vector Databases, MLOps workflow engines, and Agentic frameworks.

NAI with NKP enables customers with dynamic, multi-user AI environments to build, run, and securely protect agentic AI applications using a full suite of infrastructure orchestration and security software.



TCS supports the AI Infrastructure through a service portfolio that addresses the practical requirements enterprises face as they scale AI. TCS AI WisdomNext™, a future-ready service platform to achieve greater deployment velocity when placing AI and Gen AI models into production environments. TCS AI WisdomNext is a unique AI platform that aggregates multiple GenAI services into a single interface and empowers organizations to rapidly adopt AI and GenAI technologies at scale, at lower costs, and in compliance with regulatory guardrails. The platform offers a comprehensive suite of modular, reusable components and industry-specific, prefabricated solution blueprints that are easy to use and enable faster business value realization.

Also, TCS AI Infrastructure provides accelerators along with a comprehensive, enterprise-grade framework to design, build, deploy, and operate AI solutions at scale.

Enterprise services and solutions available through the TCS AI Infrastructure include:

- **AI Advisory (Consult-to-Operate):** TCS provides AI Advisory Services anchored in well-defined AI Target Roadmaps and a clear future state vision, ROI-enabled by the systematic identification of the right AI business use cases, rightsizing of AI platforms, and comprehensive cost optimization across AI infrastructure, operations, and enterprise AI ecosystems.
- **Design & Build Services:** Helps customers to build and design their AI stack and integration with their existing tools covering On-prem, Private/Hybrid Cloud or Sovereign AI deployment models.
- **AI Managed Services:** End-to-end support of AI Infra covering hardware, platform and software components including GPU, Compute, Storage, Network, Cluster management and Kubernetes layers with fully automated Agentic AI solutions.

TCS has industry verticals AI use cases which are processed locally at the Edge, through Nutanix Enterprise AI.

TCS and Nutanix Collaboration for AI Enabled Enterprises

This joint offering empowers organizations to **accelerate AI adoption**, reduce operational complexity, and achieve strategic outcomes with confidence. By combining TCS's proven delivery expertise with Nutanix Enterprise AI and Nutanix Kubernetes Platform, along with a deep partner ecosystem for both hardware and software, enterprises can unlock innovation at scale while maintaining control and cost efficiency.

Key Benefits for Business Leaders



End-to-End Pre-Integrated Infrastructure

Faster operationalization of Enterprise AI Infrastructure, enabling rapid deployment and faster time-to-value.



Accelerated AI Productivity

Harness the power of TCS accelerators and Nutanix AI, along with partner ecosystems, to operationalize AI workloads smoothly across private, hybrid cloud and edge environments.



Enterprise-Grade Confidence and Control

A single control plane simplifies provisioning, orchestration, management, and monitoring across your private cloud and the hybrid landscape it operates within.



Potential Cost Savings

Optimize GenAI workloads through rightsizing, rebalancing, and intelligent resource allocation, enabling cost savings without compromising performance.

Unlock the full potential of AI with TCS and Nutanix

Contact us at TCS@nutanix.com to explore how our joint solution can accelerate your AI journey while delivering measurable business benefits. TCS and Nutanix offer qualified respondents with an AI infrastructure strategy, assessment and planning workshop aimed to help accelerate AI initiatives.

About Nutanix

Nutanix is a hybrid cloud computing leader, offering organizations a unified software platform for running applications and AI and managing data anywhere. With Nutanix, organizations can simplify operations for traditional and modern applications, freeing them to focus on business goals. Trusted by more than 29,000 customers worldwide, Nutanix helps empower organizations to transform digitally and power hybrid multicloud environments consistently, simply, and cost-effectively. Learn more at www.nutanix.com or follow us on social media.

About Tata Consultancy Services (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that has been partnering with many of the world's largest businesses in their transformation journeys for over 56 years. Its consulting-led, cognitive powered, portfolio of business, technology and engineering services and solutions is delivered through its unique Location Independent Agile™ delivery model, recognized as a benchmark of excellence in software development.

A part of the Tata group, India's largest multinational business group, TCS has over 607,000 of the world's best-trained consultants in 55 countries. The company generated consolidated revenues of US \$29 billion in the fiscal year ended March 31, 2024, and is listed on the BSE and the NSE in India. TCS' proactive stance on climate change and award winning work with communities across the world have earned it a place in leading sustainability indices such as the MSCI Global Sustainability Index and the FTSE4Good Emerging Index. For more information, visit www.tcs.com



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