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TATA COMMUNICATIONS

From Cloud To Edge: Accelerate Your AI Journey

MARCH 2025

Introduction

The meteoric rise of AI is ushering in a new generation of technological innovation, disrupting industries and fundamentally altering the way we live and work. The rapid digitisation and growing tech-savvy customers make AI adoption not just an advantage, but a necessity to stay competitive and drive growth.

Technology leaders are under increasing pressure from boards and senior management to rapidly implement AI solutions.

Cloud platforms are the unsung heroes of the AI revolution, providing a scalable and flexible infrastructure that empowers enterprises to harness the potential of AI. By offering access to vast computational resources, cloud enables enterprises to train and deploy AI models efficiently, accelerating the development and adoption of AI-powered solutions. The rapid advancements in AI Cloud architectures and the supporting ecosystem are transforming the way enterprises leverage AI and democratising the adoption of AI.

This eBook explores the advancements in AI Cloud services and their significant impact on the AI stakeholder ecosystem.

Figure 1: AI Takes Centre Stage: A Priority in Boardrooms

AI emerges as the second most discussed technology topic among global leaders.

N=790
Source: Ecosystm, 2024

AI Acceleration: The Role of Hyperconnected Ecosystems

AI is surging forward, fuelled by a data explosion and breakthroughs in machine learning techniques. The flood of data from diverse sources – such as social media, IoT sensors, digital transactions, healthcare systems, e-commerce platforms, and more – is powering the development of sophisticated AI models. Large language models (LLMs) like GPT-4 are revolutionising language understanding and generation, showcasing the incredible potential of Generative AI. This is reshaping content creation across text, images, video, and code, automating tasks once thought to be the exclusive domain of human creativity. This surge is amplified by a hyperconnected world, where high-speed internet, cloud, and interconnected devices facilitate seamless data exchange and collaboration, enabling AI models to learn and adapt in real time.

This hyperconnectedness is not only accelerating data flow but also enhancing the deployment and scalability of AI solutions across various platforms and industries.

Data Success: The Importance of Infrastructure for AI

The excitement surrounding AI is undeniable, but for many enterprises, the journey begins with a critical step: upgrading their data infrastructure. As data sources continue to boom, a robust data foundation is essential for unlocking the full potential of AI. By ensuring seamless access, interoperability, and effective data management, organisations can pave the way for innovation and tangible results.

The rapid advancements in AI hardware and software are fuelling the growth of AI applications. However, enterprises need to prioritise data quality and choose AI tools and infrastructure that can support both current and future workloads. This often requires robust compute resources, including high-performance GPUs, to handle the demanding computational requirements of advanced AI models.

↗ **Fortunately, the AI ecosystem is evolving rapidly, offering a wide range of options for organisations of all sizes. With the increasing availability of AI Cloud services and advanced tools, enterprises can now more easily integrate AI into their operations and drive transformation.**

Figure 2: Shaping the AI Roadmap in 2025

Enterprises are prioritising data infrastructure to unlock AI's potential.

40%

Building a data infrastructure to improve data quality, interoperability, & consistency

23%

Identifying, validating, & prioritising use cases

21%

Improving data governance and compliance

16%

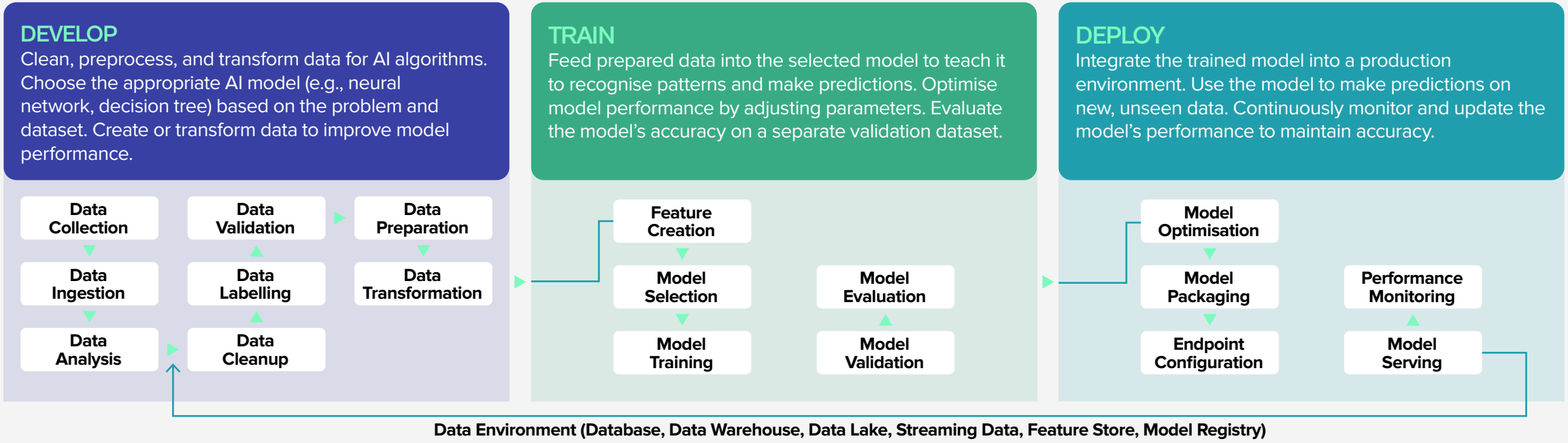
Creating an AI centre of excellence

N=790
Source: Ecosystm, 2024

Data to Decisions: The AI Lifecycle

The journey to effective AI implementation is built on three crucial steps: Develop, Train, and Deploy. Each step involves specific tasks that ensure the AI model is well-prepared, optimised, and functional in a real-world environment.

Figure 3: Data in Motion: The AI Journey



Source: Ecosystm, 2024

AI Cloud: Build for the Future

WHAT IS AI CLOUD?

An AI Cloud solution offers scalable infrastructure and platform capabilities that enable users to build, train, deploy, and manage AI models and applications. It provides on-demand access to powerful computing resources, AI tools, and services.

BEST PRACTICES:

Complement Existing Investments

Must integrate seamlessly with existing on-premises, hosted, or public cloud environments, supporting cloud-to-edge workloads where models learn in the cloud and infer at the edge.

Modular and Containerised Services

Should be modular, containerised, and designed for easy deployment without custom configuration, allowing organisations to deploy and pay only for the required services.

Efficiency and Resource Optimisation

Must optimise resource usage across hardware, software, and model selection, ensuring cost-effectiveness while delivering the desired outcomes.

Security as a Priority

Must be robust and secure, minimising risks and preventing any expansion of the organisation's attack surface.

AI Cloud will empower enterprises to address diverse use cases and adapt to changing requirements. By eliminating the need for significant upfront infrastructure investments, AI Cloud facilitates experimentation, development, and deployment of AI solutions wherever needed, driving innovation and agility.

The Best of Both Worlds: Cloud Training and Edge Inference

The rise of edge computing is transforming AI. While cloud-based AI has its benefits, the true power of AI often lies in processing data closer to the source – such as the customer, citizen, patient, or API. A hybrid approach, combining cloud-based development with edge inference, offers the best of both worlds: powerful AI tools and infrastructure with the low latency and security advantages of edge computing.

ADVANTAGES OF CLOUD-TO-EDGE INTEGRATION

- **Reduced Latency**
  Critical for applications requiring real-time responses, such as emergency services and industrial automation.
- **Bandwidth Optimisation**
  Minimises data transfer requirements by processing data locally, reducing costs and improving efficiency.
- **Enhanced Security**
  Sensitive data can be processed on-site, reducing exposure and mitigating cybersecurity risks.

THE INTELLIGENT EDGE: A NEW FRONTIER

The rise of 5G has revolutionised the way edge devices and cloud infrastructure interact. High-speed connectivity enables real-time data exchange and analysis, while optimised AI models deployed at the edge reduce latency and improve responsiveness. Hybrid architectures, combining the strengths of edge computing and cloud services, are emerging as a popular choice for enterprises seeking to optimise AI deployment for performance, scalability, and cost-effectiveness.

AI Cloud: Breaking Down Barriers

The availability of AI Cloud will enable enterprises to enhance their AI strategies and overcome many existing challenges.

Seamless access to a comprehensive range of AI infrastructure, architecture, models, and tools

While many enterprises have invested in parts of the AI stack, few possess a complete platform. A well-designed AI Cloud allows enterprises to integrate necessary components to fill gaps or adopt a full platform for those just beginning their AI journey.

24% of enterprises believe their technology and data infrastructure is optimised for AI – and only 6% feel they are fully equipped to support future AI advances.

SOURCE: ECOSYSTM, 2024

AI wherever it is needed

AI Cloud delivers AI infrastructure, tools, and applications wherever needed – whether integrated into an existing SaaS platform, within a company's data centre, or at the network edge, close to customers, partners, or employees. A one-size-fits-all approach is inadequate.

Only 15% of enterprises are confident that their AI solutions can be accessed where needed – irrespective of where the data is stored or trained.

SOURCE: ECOSYSTM, 2024

The pay-per-use model

Building certain components of the AI stack in-house can be costly. The flexibility of AI Cloud allows enterprises to scale up or down as needed, ensuring that costs remain aligned with outcomes.

47% of enterprises are discouraged by the high initial cost of AI programs.

SOURCE: ECOSYSTM, 2024

User-friendly AI tools

As AI moves beyond tech teams to empower business users and citizen coders, these tools must be easy to deploy and intuitive to use, with short learning curves, logical interfaces, and clear outcomes.

Only 10% of enterprises feel confident in their tech teams' AI expertise – and an additional 35% are investing in upskilling their workforce to meet the growing demands of AI.

SOURCE: ECOSYSTM, 2024

Secure and trusted AI

Trust in AI is crucial, as many knowledge workers are becoming wary of AI due to inaccuracies and hallucinated results. AI Cloud platforms provide robust security, governance, and observability to meet customer and business demands.

While 54% of enterprises have responsible and ethical AI guidelines, only 11% feel these guidelines are being met consistently.

SOURCE: ECOSYSTM, 2024

AI's Impact: Tailoring Strategies for your Enterprise

Essential Guidance for Enterprises, Governments, and Startups

The widespread adoption of AI requires a collaborative ecosystem that brings together enterprises, innovators, governments, educational institutions, and technology providers. AI Cloud platforms can play a pivotal role in fostering this collaboration by offering a scalable, accessible, and cost-effective infrastructure for the entire AI lifecycle.

AI Cloud: Empowering Enterprises for Long-Term AI Success

AI Cloud empowers enterprises to enhance existing AI investments and accelerate new initiatives. By adopting a modular approach to AI platforms, enterprises can select components that deliver the most significant impact, enabling rapid deployment and improved outcomes for customers, employees, and stakeholders.

CONSIDER THE FOLLOWING STEPS IN BUILDING YOUR AI FUTURE:

Assess AI Deployment Needs

Identify where AI will operate and develop capabilities accordingly. If edge computing is required, determine if training or just inference is necessary. Explore how low-latency cloud-to-edge AI services can optimise architecture, reduce costs, and meet customer service expectations.

Avoid Vendor Lock-in

The AI landscape evolves rapidly; models are continually advancing, and new hardware enables better results. Choose an AI platform and cloud provider that allows flexibility in selecting, changing, or bringing your own models.

Explore Use Cases and Train Staff

Continuously identify potential AI use cases and equip employees to recognise opportunities for AI enhancement. With countless possibilities across the enterprise, ensure your team can swiftly pilot and execute promising use cases as they arise.

Level the Playing Field: AI Cloud for Startups

AI Cloud services enable startups to swiftly develop new products and enhance existing ones while effectively managing costs. By starting small and scaling as needed, startups can access advanced capabilities usually reserved for larger enterprises, empowering them to establish their brands and disrupt legacy competitors.

Both tech and non-tech startups can harness AI to build intelligent, customer-focused enterprises. However, AI can be costly and may distract from core objectives, so it's essential to stay focused on how AI can enhance the business now and in the future:

1. **Leverage Cloud Economics** — Focus on model training and inference, which can be costly to build in-house. Use AI Cloud services to keep overheads low and maintain operational agility without heavy infrastructure investments.
2. **Explore Startup AI Ecosystems** — Many AI Cloud providers offer lower-cost services or free credits to attract startups. However, be cautious of vendor lock-in once the credits expire; ensure flexibility to switch providers and secure competitive long-term pricing.
3. **Prioritise Data Privacy and Security** — While collaborating with other tech startups can be tempting, ensure their services comply with data privacy and security regulations in your industry. Protecting customer data and your business must remain a priority.

11% of enterprises are exploring partnerships with startups to bridge AI gaps. This trend is expected to grow.

SOURCE: ECOSYSTM, 2024

AI Cloud: A Government's Toolkit for the Future

AI Cloud will enable public sector and government agencies to save taxpayer money and utlise it for better services and innovation by enhancing productivity and improving citizen outcomes. By leveraging AI Cloud, these entities can accelerate intelligent investments in key areas such as healthcare, education, and public safety.

Governments must adopt AI to improve efficiency, public services, and economic growth. They also need to create an environment that fosters the development and adoption of safe, trusted AI technologies nationwide.

- **Driving AI Opportunities Across Businesses and Citizens.** Leading governments are beginning to invest in national AI infrastructure and research initiatives to create business-friendly policies to encourage safe AI investment. The challenge will be in striking the right balance in developing regulations to protect citizens without stifling innovation, to ensure AI-driven economic growth over the next 20 years.

- **Internal AI Initiatives for Government Agencies.** Apart from the external opportunities to drive economic growth, there are many internal use cases for AI within government agencies. Government agencies will have the opportunity to train their own models with the vast amounts of citizen and business data they handle. This will require timely access to robust, secure, and sovereign AI infrastructure. Implementing both real-time and batch inferencing is crucial; real-time for matters such as public safety and traffic management, batch for tasks like tax planning. AI Cloud to edge services empower governments to innovate in AI solutions for citizens.

40% of enterprises seek government funding for AI upskilling initiatives within their operations.

SOURCE: ECOSYSTM, 2024

ECOSYSTM OPINION

Harnessing AI Cloud for Innovation and Success

The AI revolution offers immense potential for organisations across all industries. The evolution of AI Cloud architectures gives businesses the opportunity to accelerate their digital transformation, foster innovation, and maintain a competitive edge in today's rapidly evolving market. AI Cloud enables data-driven decision-making at the point of generation, ensuring that insights are actionable and timely.

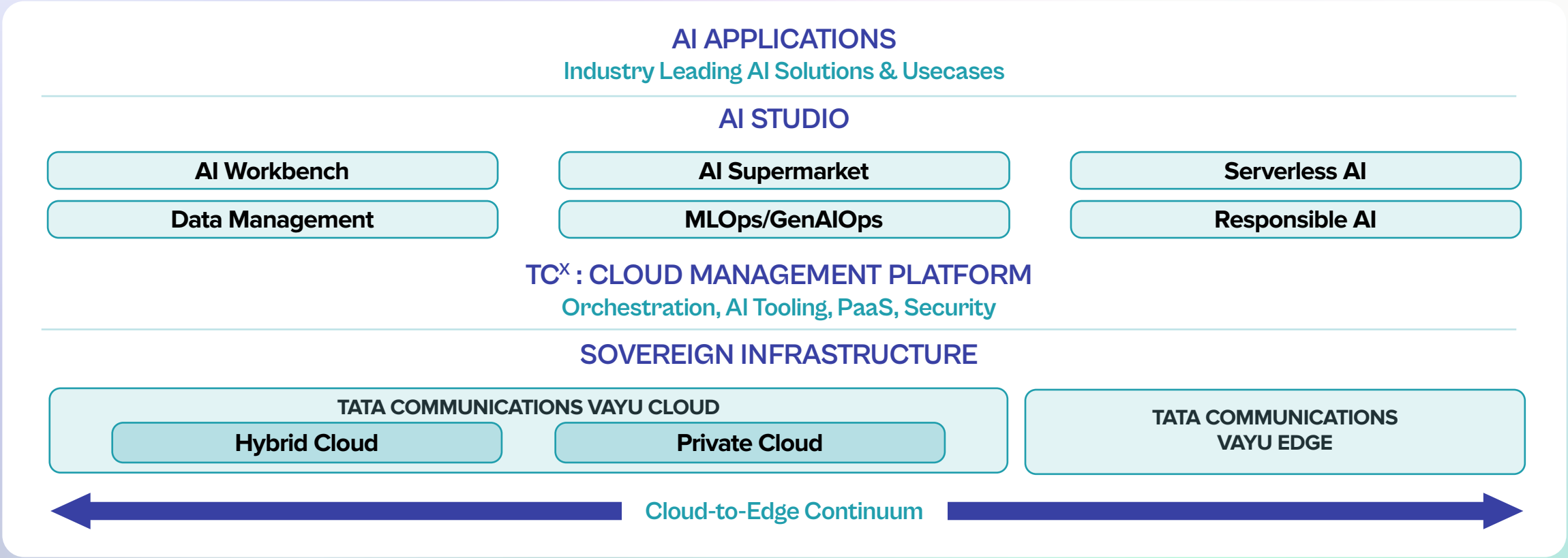
While challenges such as security concerns, skill gaps, and integration complexities may arise, enterprises can successfully navigate the complexities of the AI landscape through strategic planning and informed decision-making. It is imperative to address these challenges proactively and invest in the necessary infrastructure, talent, and ecosystems to support sustainable growth and innovation.

The time to act is now. Organisations must seize the opportunities presented by the evolution of AI and take a proactive approach to integrating AI into their operations.

The Tata Communications Vayu AI Cloud

With Tata Communications Vayu AI Cloud, you have the power to build your own AI super factory, unlocking the full potential of artificial intelligence. It offers scalable GPU resources and a comprehensive platform empowering you to develop, train, and deploy AI models at a scale.

Gain access to popular AI frameworks, advanced data management tools, and a dynamic AI ecosystem spanning the cloud-to-edge continuum, fostering innovation and collaboration.



What Sets Tata Communications Vayu AI Cloud Apart?

TATA COMMUNICATIONS vayu AI Cloud

CAPABILITIES NEEDED					
Data aggregation across geographies, continuously or on-demand	**Need to manage multiple tools**	**Need for high-performance GPUs & data access for large-scale AI models**	**User-friendly AI development**	**Need for robust security & responsible AI measures**	**Optimised inference for cloud and edge environments**
TATA COMMUNICATIONS VALUE PROPOSITION: UNIFIED. EFFORTLESS. TRUSTED					
• On-prem data management with pre-built connectors to streamline development and reduce operational overhead. • Move only relevant data to the cloud, ensuring compliance and cost savings. • Pre-packaged AI offerings with optimised compute, network, and AI components for hassle-free operations.	• Offering a wide range of enterprise solutions with streamlined orchestration and support. • Leveraging open-source technology for cutting-edge features and cost-effective solutions.	• Optimised for large-scale AI training with integrated compute, network, and storage. • Streamlined AI training experience with an intuitive console. • Reasonable operational costs for GPU compute.	• Tailored workflows for training and fine-tuning AI models. • Access to cutting-edge tools, models, and APIs with managed services. • Real-time performance metrics for AI models. • Catering to various skill levels, from beginners to experts.	• Integrated data, model, and prompt security with zero-trust policies and trusted governance. • Data catalogue, sandboxed environments, and more. • Social guardrails for responsible AI usage. • Integrated tools for understanding AI model decisions.	• Tailored solutions for specific models and hardware. • Comprehensive infrastructure for edge inference. • Live model evaluation and observability. • End-to-end support for running AI models at scale.

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Tim Sheedy is the VP of Research at Ecosystm - a digitally native technology research and advisory firm. Tim brings more than 20 years of experience in designing and implementing cloud, IoT, AI and automation strategies to the Ecosystm network, to support businesses in their IT decisions. In his role he sets the research strategy for Ecosystm, and works with the advisor and analyst community to deliver a future vision for the technology sector.

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