



BUILDING FUTURE READY EDGE THROUGH TATA COMMUNICATIONS VAYU EDGE

ABSTRACT

The need for real-time data processing, low-latency applications, and intelligent decision-making is at an all-time high in today's hyperconnected business environment. The proliferation of data-intense applications across sectors demands data processing closer to where it is being generated - also known as edge computing. Leading this transformative shift, Tata Communications Vayu Edge offers a comprehensive infrastructure and cloud-agnostic, multi-access edge platform designed for diverse business requirements. From enabling real-time analytics for instant decision-making to ensuring secure, scalable deployment of edge applications, Tata Communications Vayu Edge unlocks possibilities at the edge that empower your business to thrive in a data-driven world.

Introduction

The exponential growth in data generation is a hallmark of the current technological evolution. **Data volumes are projected to surpass 180 zettabytes by 2025, nearly a three-fold increase from 64.2 zettabytes in 2020.** This expansion stems from an array of sources like, surveillance cameras, intricate sensors in stores, retail banking security systems, autonomous vehicles and more.

Now, imagine a scenario where every business decision is based on real-time insights; where any delay could mean missed opportunities and revenue. While traditional cloud computing has been instrumental in driving digital transformation, its centralised architecture poses the limitation of latency. Edge computing is a revolutionary solution to this. It shifts away from centralised processing to a distributed model that brings computing closer to the data source. While it indeed reduces latency, enabling lightning-fast responses for real-time applications, its significance extends much beyond speed.

Edge computing embodies agility granting businesses the ability to swiftly adapt to dynamic challenges. The ability to process data at the edge allows organisations to respond to queries and prompts instantly, without the need for data to travel back and forth to distant servers. Furthermore, it ensures connectivity even during a network disruption at the central or a nodal data centre. This provides the much-needed resilience for business continuity - a competitive advantage that cannot be emphasised enough. Critical operations can continue seamlessly, preserving customer satisfaction. Cost efficiency is another crucial aspect of edge computing.

Offloading processing tasks to the edge decreases bandwidth, backhaul, and infrastructure costs associated with transmitting data to centralised servers, thereby improving performance at a reduced cost. Most importantly, edge computing drives innovation by unleashing the full potential of emerging technologies - AI, machine learning, IoT, autonomous systems - allowing them to operate at the edge in real-time.

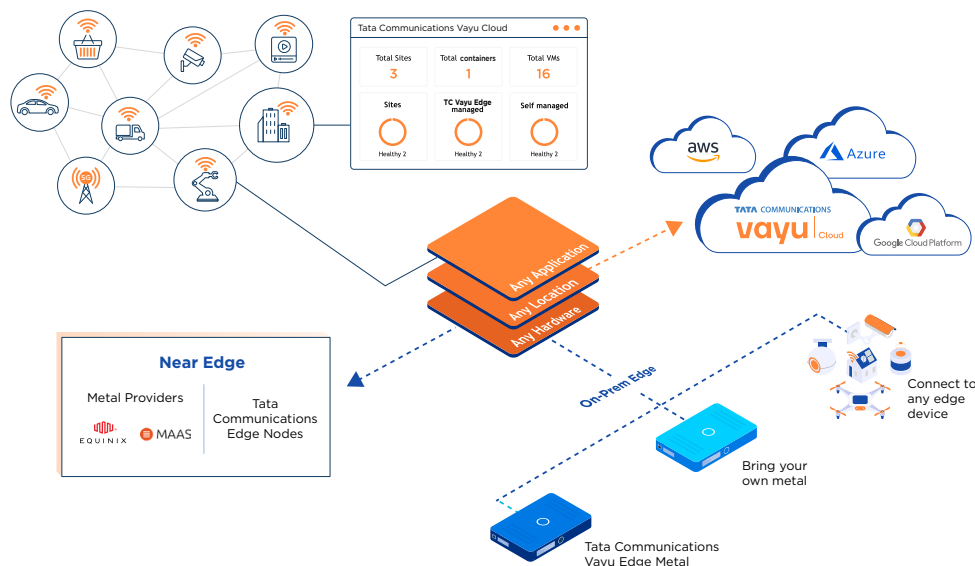
However, enterprises grapple with the challenges of a diverse technology landscape and heterogeneous environments, resulting in fragmented control, operations, and visualisation. Concerns around future-proofing investments are paramount. Especially, in assessing how edge investments will impact legacy equipment and workflows whilst ensuring secure data transmission for the transition from pilot to production. There's also a need to navigate the breadth of technologies with the right skill set needed in the ecosystem.

That's where Tata Communications Vayu Edge takes the baton. In a world where innovation, speed, agility, and resilience are critical, Vayu Edge serves not just as a solution but as a transformative force reshaping the landscape of business operations in the digital era.



One Platform. Boundless Possibilities@Edge.

Tata Communications Vayu Edge is an infrastructure and cloud-agnostic, multi-access edge platform tailored for driving industry-leading business use cases. It's an expertly managed platform that gives you the flexibility of securely deploying and managing any application anywhere at scale. It provides seamless edge orchestration and management across diverse hardware and locations, delivering operational efficiency.



Its 'solution-in-a-box' capability provides edge infrastructure, platform, network and managed services, all bundled into a unified offering designed to cater to specific industry and business needs. Tata Communications Vayu Edge stands as a groundbreaking edge solution meticulously designed to address the stringent demands of industries that require real-time data processing, low latency, operational efficiency, robust security, and compliance. It enables businesses to seamlessly optimise their existing environment with a centralised orchestration platform.

From bustling retail stores to advanced data centres, whether you're navigating the intricacies of a factory floor or cruising in a self-driving car, Tata Communications Vayu Edge can address your specific business needs and eliminate edge-related challenges.

Here are some of the diverse industry applications:

- **Consolidating fragmented systems into a single 'In-a-Box' solution**

Consider a scenario, where multiple servers and systems are running independently. This includes a billing server for processing transactions, a DVR server for security surveillance, a Wintel platform for print spooling, and an identity management system with a separate database. Each of these servers requires its hardware infrastructure, consumes power, occupies physical space in the store, and may require additional cooling and maintenance. Tata Communications Vayu Edge aims to consolidate these fragmented systems into a single, integrated platform, you can run multiple services and applications through a single box. It hosts virtualised instances of the billing server, DVR functionality, print spooler, identity management system, and associated databases, all running through a unified platform. This consolidation simplifies the IT infrastructure and saves on hardware costs, power consumption, space, and maintenance expenses.

- **Revolutionise operational efficiency and safety standards, paving the way for smarter, more secure workplaces**

Tata Communications Vayu Edge platform serves as a comprehensive solution designed to streamline operations across the manufacturing industry. Whether in manufacturing facilities, warehouses, or industrial plants, transforming manufacturing quality control involves real-time data analysis, anomaly detection, and immediate corrective actions. Advanced cameras and sensors instantly identify defects, enhancing product quality and efficiency.

Tata Communications Vayu Edge empowers various use cases around employee safety, preventive maintenance and collaboration, IT/OT integration, energy management, quality control, computer vision, fleet management, etc. It can orchestrate a complete ecosystem of network access technology, IIoT, Industry 4.0 and IT infrastructure application stack paving the way for smarter and secure workplaces.

- **Enhancing every aspect of retail experiences**

Consider a scenario where a customer steps into a retail store, and seamlessly connects to the store's app via Wi-Fi, powered by high-speed technologies such as SD-WAN or internet broadband. Instantly greeted with a personalised welcome message, the customer receives real-time product recommendations tailored to their preferences, enhancing their shopping experience with up-to-date product information, discounts, and reviews. Smart beacons, utilising Bluetooth Low Energy (BLE) and location tracking technologies, guide the customer to relevant aisles, crafting a tailored shopping journey. Meanwhile, behind the scenes, the store operator leverages advanced video analytics to optimise store operations. Queue management, product placement, and theft prevention are seamlessly executed through cutting-edge technologies like computer vision and AI. As the customer moves through the store, they encounter smart digital signage that detects their interests using vision technologies, providing personalised recommendations based on their demographic and past purchases. Continuing their exploration, the customer engages with the future of retail through a smart mirror, visualising different clothing items based on their preferences without the need for physical try-ons.

Solving business problems with flexible deployment options

Tata Communications Vayu Edge suite offers a range of edge deployment options designed to meet the varied requirements of businesses across industries. With its three distinct offerings - Tata Communications Vayu Edge Prime, Proximate, and Private - it provides scalable, secure, and flexible edge solutions that cater to solving unique business problems

- Tata Communications Vayu Edge Prime provides a fully managed SaaS platform to swiftly deploy your low-latency applications across multiple geographies within minutes.
- Tata Communications Vayu Edge Proximate provides an edge-in-a-box solution for on-premise, ultra-low-latency edge applications while addressing your compliance needs.

- Tata Communications Vayu Edge Private gives you the power to craft your customised edge solution whether it's near the edge, on-premises, or even on the edge metals you already have aligning with your specific business requirements.

Tata Communications Vayu Edge is a future-ready platform for growth that provides fast, responsive, and seamless edge experiences, frictionless orchestration, and management. It provides a unified customer experience through a single touchpoint for service assurance and managed services support.



Key highlights of Tata Communications Vayu Edge are:



Integrated solution

End-to-end solution encompassing edge infrastructure and platform, network, managed services and use cases, with near-zero downtime assurance.



Robust partner ecosystem

Excel with a wide range of industry-leading edge use cases tailored to specific business requirements, driving greater efficiency, agility, and value.



Extend cloud experience at the edge

Experience the seamless extension of cloud capabilities such as flexibility, scalability and agility, made accessible at the edge of your network with centralised orchestration.



Analytics at the edge

With 97% of business executives emphasising the importance of accessible data and analytics, Tata Communications Vayu Edge empowers businesses with advanced data processing capabilities. It provides GPU acceleration with seamless AI model management through MLOps. It enables you to harness the power of no-code data connectors, low-code extract, transform, load (ETL) pipelines with AI-based inferencing and auto scaling at the edge.



Future-proof investments

Diverse technology landscape and heterogeneous environments result in fragmented operations, control, and visualisation. Tata Communications Vayu Edge 'Solution-in-a-box' capability allows to add new software and hardware integrations as and when business needs evolve, thus future proofing investments.



End-to-end managed services

Tata Communications Vayu Edge managed services and cross-functional expertise offer not just cutting-edge technology but also expert guidance and support across edge infrastructure, network, and OS. This enables businesses to focus on their core competencies and objectives while leveraging the full potential of edge computing.



Built-in security

Amid escalating cyber threats and with cybercrime costs projected to hit USD 10.5 trillion by 2025, robust data security is more crucial than ever. Tata Communications Vayu Edge's built-in security features, including zero-trust architecture and strict policy enforcement, provide essential protection for sensitive data.

Carve Out the Edge of Tomorrow with Tata Communications Vayu Edge

The future of data generation undeniably lies at the edge. **As the global market for edge computing surges towards a projected USD 155.90 billion by 2030**, industries are actively embracing this transformative technology. This immense growth is fuelled by the ever-increasing volume of data generated at the network's periphery. Tata Communications Vayu Edge stands at the forefront of this revolution, offering businesses a robust platform to harness the full potential of edge computing. By leveraging this innovative platform, companies can unlock real-time analytics, reduce bandwidth costs and enhance data security, all while navigating the data deluge with unprecedented agility.

Know more about Vayu Edge, [click here](#) or contact us for an [expert consultation](#).

