

The Age of AI Has Begun: Are Your Enterprises Ready?

您的企業準備好迎接如火如荼的 AI 時代嗎？

Multibyte Info Technology Limited | 博元訊息科技有限公司

Introduction

In the past year, there has been a continuous buzz around large language models (LLM) and AI in general. This excitement started with the groundbreaking release of ChatGPT, which showcased the power of generative AI to millions for the first time. Since then, we have seen the launch of an enterprise version of ChatGPT by Generative AI, along with new AI toolsets from well-known companies like Microsoft, Google, and Alibaba, among others. Enterprises are racing to leverage these solutions, and for good reason: It's evident that the companies that embrace AI early and fully harness its potential will gain a competitive advantage in the years ahead.

Innovation in the Telecom Industry

In recent years, the telecommunications industry has witnessed significant changes and a shift towards innovation, with artificial intelligence (AI) playing a central role. This shift is crucial for staying competitive and meeting the evolving needs of mobile operators and their customers.

Previously, telecommunications companies primarily offered basic telephone, internet, and mobile network services. However, today's telecoms are

介紹

在過去一年裡，圍繞大型語言模型和 AI 的熱潮持續不斷。這股熱潮始於 ChatGPT 的突破性發佈，首次向全球展示了生成式 AI 的力量。自那以後，我們看到了生成式 AI 推出的企業版 ChatGPT，以及來自微軟、谷歌和阿里巴巴等知名公司的新 AI 工具集。企業正在互相利用 AI 解決方案，希望為公司在未來幾年獲得競爭優勢以及提早學習運用 AI。

電信行業的創新

近年電信行業經歷了重大變革和創新，AI 扮演了關鍵角色。這些轉變對於滿足移動運營商及其客戶不斷變化的需求至關重要。過去電訊公司角色主要是提供基本的電話、互聯網和移動網絡服務。如今的電訊公司為了保持競爭力，已積極整合多種雲平台服務、產品和解決方案，並針對特定消費者群體提供卓越的客戶。在競爭激烈的市場中，電訊公司必須付出巨大努力才能滿足

tasked with providing and managing a wide range of services, products, and solutions while targeting specific consumer segments and delivering exceptional customer service. In an increasingly competitive market, telecoms must exert great effort to meet customer and enterprise expectations, as numerous alternative service providers are available to consumers.

To ensure that telecoms are meeting customers' service delivery and experience needs, we have turned to use Generative AI technologies. These technologies are being used to gain critical insights into every aspect of the telecom business, from operations to network quality to customer behavior, and the list goes on.

The Impact of AI in the MVNO Industry

When analyzing the advantages and disadvantages of AI business in Mobile Network Operators (MNOs) and Mobile Virtual Network Operators (MVNOs), it is more important to consider how AI applications can provide a better service experience for the audience. As an MVNO in Asia, we have the advantage of being a startup with "small scale and quick response." Rapid prototyping of products (such as SIM cards and IoT integration) and iterative development to adapt to market demands are crucial. Multibyte Info Technology Limited ("MB") is building its infrastructure beyond traditional mobile services to a Cloud-based PaaS platform (i.e. Switch), enabling connectivity and providing a suite of mobile applications to individuals and enterprise customers. AI automation can reduce operational costs through in-house development using low-code and no-code tools. The importance of enabling swift adaptation with an agile framework and how high-quality service delivery focused on customer experience will create differentiation in offerings. By creating AI-powered network solutions, telecoms can reduce network congestion and improve network quality and customer experience, vital in reducing customer churn and increasing revenue. Additionally, we expect to see the following trends coming to the forefront of the industry:

- **Resource Optimization:**

AI algorithms can optimize the use of resources, including energy consumption in telecom networks, leading to more sustainable and environmentally friendly operations

- **Dynamic Resource Management:**

AI can play a crucial role in optimizing the deployment and management of 5G networks. This includes dynamic resource allocation, efficient network usage, and intelligent traffic steering.

- **Edge Computing and AI:**

The combination of AI and edge computing is essential for low-latency applications like augmented reality (AR), virtual reality (VR), and Internet of Things (IoT) devices, enhancing user experiences.

- **Customer Service Chatbots:**

AI-powered chatbots are increasingly being used in the telecom industry to provide automated customer support. These chatbots can handle customer queries, troubleshoot common issues. As well as analyze customer data to offer personalized recommendations and services, improving customer satisfaction and loyalty.

- **Collaboration with Other Industries:**

Telecom operators can collaborate with other industries, leveraging AI to contribute to developing smart cities and industries through improved connectivity and data exchange. MB has a vision – "Anyone can be an MVNO" – Switch enables any MVNOs and enterprise customers by

客戶和企業的期望，因為現今消費者有許多電信以外的替代服務供應商可供選擇。為了確保電訊公司能夠滿足客戶的服務交付和體驗需求，各大營運商紛紛轉向使用生成式 AI 技術，從運營到網絡質量，再到客戶行為等各個方面進行發展。

人工智慧 (AI) 在 MVNO 行業的趨勢

在分析 AI 業務在移動網絡運營商 (MNO) 和移動虛擬網絡運營商 (MVNO) 的優劣時，更需要考慮 AI 應用如何提升受眾的服務體驗。作為一家亞洲的 MVNO，我們擁有初創企業「規模小，反應快」的優勢，快速原型化產品（如 SIM 卡、物聯網對接）並根據市場需求進行迭代開發至關重要。博元訊息 (MB) 正通過其平台即服務 (PaaS / Switch 平台) 重塑行業，這個雲平台託管服務提供微服務、API 對接和雲原生託管服務。我們的合作夥伴（如應用開發公司 / 系統整合商）可以快速設置解決方案，更快進入市場來滿足終端客戶需要。通過使用 AI 驅動的代碼和無代碼工具進行開發，我們能降低運營成本，提高客戶體驗和高品質的服務交付。另外通過創建 AI 驅動的網絡解決方案，我們可以減少網絡擁塞並改善網絡質量和客戶體驗，這對於減少客戶流失和增加收入至關重要。此外，我們預計行業將出現以下趨勢：

- **資源優化：**

AI 演算法可以優化資源的使用，包括電信網絡中的能耗，從而實現更可持續和環保的運營。

- **動態資源管理：**

AI 在優化 5G 網絡的部署和管理中可以發揮關鍵作用，這包括動態資源分配、高效網絡使用和智能化流量引導。

- **邊緣計算與 AI：**

AI 和邊緣計算的結合對於增強現實 (AR)、虛擬現實 (VR) 和物聯網 (IoT) 設備等低延遲應用至關重要，提升用戶體驗。

- **客戶服務聊天機器人：**

AI 驅動的聊天機器人在電信行業中越來越多地被用於提供自動化客戶支持。這些聊天機器人可以處理客戶查詢、解決常見問題，並分析客戶數據，提供個性化建議和服務，提升客戶滿意度和忠誠度。

- **與其他行業的合作：**

電信運營商可以與其他行業合作，利用 AI 通過改善連接性和數據交換來促進智慧城市和智慧產業的發展。

providing mobile & managed services without the need for knowledge and ownership of mobile technologies. Our Full-MVNO infrastructure allows us to form partnerships with players in different sectors, including solution developers and technology providers, within a short period. Our cross-network solution can support a multi-operator environment for the benefit of the technical partners. With our multi-IMSI technology, connectivity is available in 80 countries worldwide, including 5G service. Through our fixed IP network layer technology, we address the increasing awareness of network security among enterprises due to rising hacking cases in recent years. We offer comprehensive support in cybersecurity from the network-provider level (independent APN), router level (Layer 2 RAES128+AES256 and CHACHA20), to the application level (IP whitelist).

Successful Launched at Various Public Outdoor Projects

Our cross-network solutions have already been implemented in government projects, where the 5G + LTE dual-carrier ensures network connectivity for High Availability clusters.

The "AI-in-the-box" product we offer with our partners has been officially deployed in government projects and commercial applications, such as traffic control and monitoring systems, speed detection systems, and crowd management for outdoor events. It has received technical recognition for its support in networking, technology, and promotion.

博元訊息 (MB) 的願景是「任何人都可以成為 MVNO 的一份子」。Switch 平台能為企業客戶提供移動和管理服務，即使客戶沒有移動技術人才，也能利用我們的基礎設施來部署業務。透過 MVNO 的獨特優勢，我們的客戶可以輕鬆與任何 MNO 移動網絡運營商或第三方供應商進行集成連接。一套完善的移動應用程序能快速幫助解決方案開發者和技術提供商建立合作關係。此外我們的跨網絡解決方案（跳台 SIM）支持多運營商環境，為技術合作夥伴提供便利。通過我們的多 IMSI 技術，可以在包括 5G 服務在內的全球 80 個國家實現連接。另外應對企業因近年來黑客事件增加而對網絡安全日益關注的需求，我們的安全網絡層技術方案，提供從網絡層（固定 IP，獨立 APN）、路由器層（RAES128+AES256 和 CHACHA20 等加密算法）到應用層（IP 白名單）的全面網絡安全支持。

公共戶外項目成功分享

我們的跨網絡解決方案已經在政府項目中應用，其中 5G + LTE 雙載波確保了高可用性（High Availability）集群的網絡連接。我們與合作夥伴提供的 "AI-in-the-box" 產品，已在政府項目和商業用途中正式落地，例如：交通控制和監控系統、速度檢測系統以及群眾管理等戶外活動，並在網絡、技術和推廣支持方面獲得技術認可。





Traffic Control and Surveillance Systems 交通控制和監控系統

Speed Detection System

“AI-in-the-box” has also successfully deployed in major outdoor project such as: “Urban Mid-Autumn Lantern Display (Victoria Park)” and “Kowloon City Songkran Festival 2024” etc., The AI algorithms within edge computing provide real-time data processing, offering a robust set of computer vision and machine learning tools for effective management and monitoring without relying on centralized cloud infrastructure. Additionally, the mobile solution provides a highly mobile device for real-time monitoring, backend data analysis, and potential crisis warning. The advantages of cross-network solutions include:

• Enhanced Mobility

Its all-in-one design enables easy setup and real-time monitoring anywhere, eliminating the need for a fixed infrastructure and providing flexibility in deployment – “One Click Go Live”

• Load Balancing and Redundancy

Our solution can intelligently distribute network traffic between the multi- operators, optimizing performance and preventing network congestion. In the event of network downtime or issues with one operator, the router can automatically switch to another operators, providing seamless connectivity and minimizing downtime.

• Multi- Operator Connectivity

By withstanding harsh environmental conditions, the IP67-rated 5G router maintains “Dual ISP Active-Active Configuration” and uninterrupted connectivity in remote or outdoor locations where traditional routers may struggle. This reliability is crucial for critical applications such as remote monitoring, surveillance, or automation systems that require constant and dependable network connectivity.

• Data Transmission Reliability

The network connection solution for High Availability (HA) clusters improves data transmission reliability by triggering a parallel transmission mechanism through the sending of compensatory messages when there are changes in the underlying network quality.

• High- Security Encryption Levels

Our partner's IPfiber solution supports encryption algorithms such as RAES128+AES256 and CHACHA20, combined with certificate authentication to maximize network security.

Our plan is to continue driving the adoption of Edge AI by offering a comprehensive management platform. We strive to simplify the deployment process, provide seamless integration, and equip businesses with our stable connectivity solution. This will sharpen HK's completeness as an innovative city, while boosting efficiency for various industries and enhancing quality of life for the general public. 🦋

速度檢測系統

我們的“AI-in-the-box”產品也已成功應用於多個重大戶外項目，如“城市中秋燈展（維多利亞公園）”和“九龍城潑水節 2024”等。邊緣計算中的 AI 算法提供即時數據處理，提供了一套強大的計算機視覺和機器學習工具，實現有效的管理和監控，而不依賴於集中式雲基礎設施。此外，移動解決方案提供了一個高度便攜的設備，用於即時監控、後端數據分析和潛在危機預警。跨網絡解決方案的優點包括：

• 增強流動性

提供靈活的部署，我們的“一鍵在線”設計理念使產品能在任何地方輕鬆設置並進行實時監控，減少客戶在網絡建設上的成本及網絡連接基礎的認知。

• 負載均衡和冗餘

我們的解決方案可以智能地分配多運營商之間的網絡流量，優化性能並防止網絡擁塞。在網絡停機或某個運營商出現問題時，路由器可以自動切換到另一個運營商，提供無縫連接並將停機時間降到最低。

• 多網絡連接

面對惡劣環境條件，IP67 級別的 5G 路由器配置雙 ISP 故障切換，可以在偏遠或戶外地區保持穩定和不間斷的連接，這在傳統路由器可能會遇到困難的地方尤為重要。這種可靠性對於需要持續和可靠網絡連接的關鍵應用（如遠程監控、監視或自動化系統）至關重要。

• 數據傳輸可靠性

高可用性（High Availability）集群的網絡連接解決方案通過在基礎網絡質量變化時發送補償消息來觸發並行傳輸機制，以提高數據傳輸的可靠性。

• 高安全性加密級別

我們夥伴的 IPfiber 解決方案支持 RAES128+AES256 和 CHACHA20 等加密算法，結合證書認證，以最大化網絡安全性。

我們努力簡化部署過程，提供無縫集成，並向企業繼續推動邊緣計算的 AI 應用。透過穩定的連接解決方案和全面的管理平台，將提升香港作為創新城市的完整性，同時提高各行業的效率，改善公眾的生活質量。 🦋