全球第一套 5G 核心網路開源軟體 free5GC 加入 Linux 基金會
# 推動全球 5G/6G 技術新里程碑

文／秘書處公共關係組

陽明交大資訊學院院長陳志成開發的 5G 核心網路開源軟體 free5GC，本周正式加入 Linux 基金會的開源平台。這一進展標誌著陽明交大在全球 5G 技術研發中的重要地位，並為未來 6G 技術的發展奠定了堅實基礎。

Linux 基金會是在 9 月 16 日於奧地利維也納的「歐洲開源高峰會」（Open Source Summit Europe）宣布此事。這是全球最具規模的開放原始碼軟硬體、標準及數據協作平台，有助於專家社群互相協作，進一步簡化 5G 技術在各各行各業的部署與全球推廣，甚至推動 6G 技術的研發與應用。

針對這項對世界的貢獻，陳志成院長說明，5G 與 6G 技術的高速、低延遲及高可靠特性，結合 AI 應用，將加速催生更多人類想像中的創新場景。透過 5G/6G 網路，智慧醫療如遠距手術、智慧診斷與個人化健康管理等技術，將能實時運行，提供精準且安全的醫療服務。更進一步，6G 技術的觸覺回饋與虛擬實境（VR）應用將能模擬更真實的觸感，甚至讓使用者在虛擬世界，如購物或遊戲中，體驗觸摸、嗅覺與味覺的真實感。

事實上，陳志成研究團隊早在 2019 年就已釋出 free5GC，當時是全世界第一套完全依照國際標準開發的 5G 核心網路開源軟體。
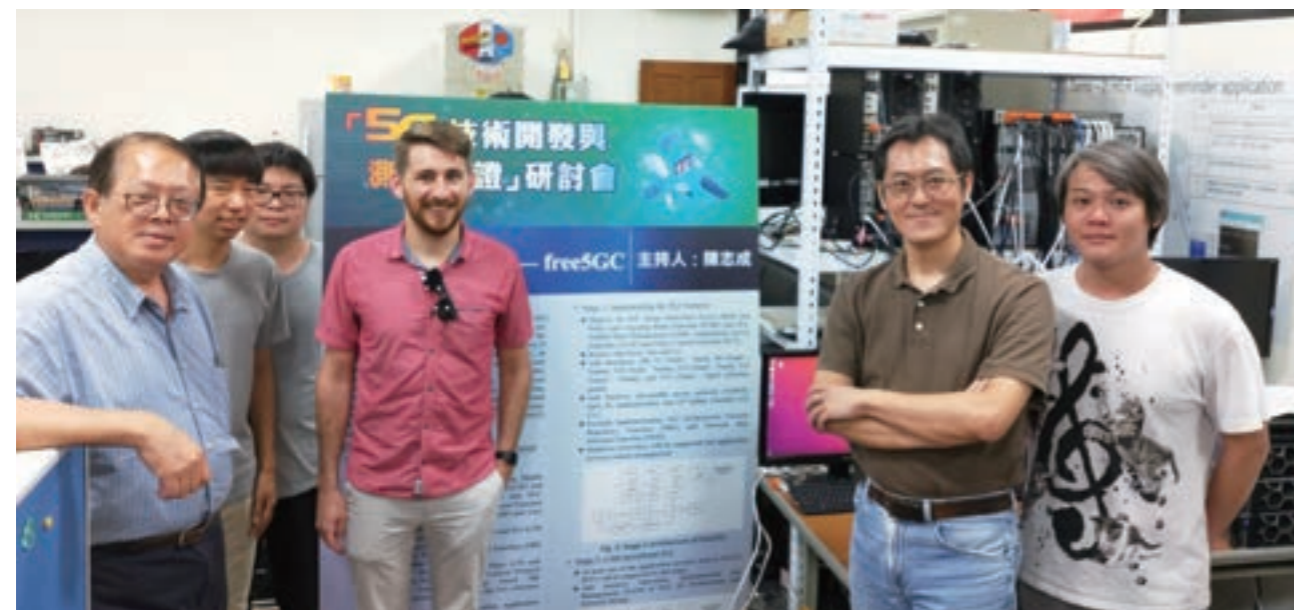
陳志成更進一步說明，在全球通訊產業發展的過去二十年間，台灣雖在手機和小型基地台方面有所突破，卻在通訊網路的核心網路領域缺乏影響力。核心網路是行動通訊的「大腦」，其技術門檻高且成本昂貴，阻礙了許多組織的創新和發展。為解決這一問題，他才會釋出作為開源軟體。該軟體已在全球的產品測試與概念驗證中廣泛應用，並因其開源特性，受到國際學術界與產業界的高度重視。

在維也納的高峰會上，Linux 基金會網路、邊緣和物聯網總經理 Arpit Joshipura 特別提及陽明交大陳志成院長的貢獻：「我們非常高興能夠歡迎 free5GC 加入 Linux 基金會，這標誌著我們在推動電信領域開源創新方面的一個重要里程碑。free5GC 帶來了一個強大且開源的 5G 核心網路解決方案，符合我們推動產業協作和標準化的使命。這次合作將使各組織能夠利用 5G 的變革潛力，提供一個透明、可擴展且具有成本效益的核心網路解決方案。」

free5GC 加入 Linux 基金會後，預期可透過 Linux 基金會強大的生態系統與廣泛的社群支持，讓 free5GC 更具影響力，成為未來全球 5G 與 6G 技術創新與演進的關鍵推動者。

World's Leading Open Source Mobile Core Network, free5GC, Moves to Linux Foundation to Advance a New Milestone in Global 5G/6G Technology

The open-source 5G mobile core network free5GC, developed by Dr. Jyh-Cheng Chen, Dean of the College of Computer Science at National Yang Ming Chiao Tung University (NYCU), has officially joined the Linux Foundation community this week. This milestone underscores the university's prominent role in global 5G technology research and development, while also establishing a strong foundation for the future progress of 6G technology.

The Linux Foundation made this announcement at the Open Source Summit Europe in Vienna, Austria, on September 16. As the world's leading platform for open-source software, hardware collaboration, and standards development, The Foundation plays an essential role in promoting collaboration among expert communities. This partnership will not only streamline the global deployment and adoption of 5G technology across industries but also accelerate the research, development, and application of 6G technology.

Regarding this contribution to the world, Dr. Chen explained that the high speed, low latency, and exceptional reliability of 5G and 6G technologies, when combined with AI applications, will drive the realization of innovative scenarios that were once only imagined. Through 5G/6G networks, smart healthcare technologies—including remote surgery, advanced diagnostics, and personalized health management—will operate in real-time, delivering precise and secure medical services. Moreover, the tactile feedback and virtual reality (VR) capabilities of 6G technology will enable a more lifelike sense of touch, allowing users to experience realistic sensations of touch, smell, and taste in virtual environments, such as during shopping or gaming experiences.

As early as 2019, Dr. Chen's research team launched free5GC, the world's first fully open-source 5G core network software developed in strict accordance with international standards.

Dr. Chen further explained that, over the past two decades of global telecommunications evolution, Taiwan has made significant advancements in mobile devices and small cell base stations. However, the country has had limited influence in the core network domain, a critical component of communication networks. The core network, often referred to as the "brain" of mobile communications, presents substantial technical challenges and incurs high costs, which has hindered innovation and development for many organizations. To address this challenge, he chose to release the software as open-source. Since then, it has been widely adopted in product testing and proof-of-concept projects worldwide. Its open-source nature has garnered considerable attention from both the international academic community and the telecommunications industry.

At the summit in Vienna, Arpit Joshipura, General Manager of Networking, Edge, and IoT at the Linux Foundation, emphasized the significant contributions of Dr. Jyh-Cheng Chen, Dean of the College of Computer Science at NYCU: "We are excited to welcome free5GC to the Linux Foundation. This represents a major milestone in our ongoing efforts to drive open-source innovation within the telecommunications industry. free5GC provides a robust, open-source 5G core network solution that aligns with our mission to promote industry collaboration and standardization. Through this collaboration, organizations will be empowered to harness the transformative potential of 5G, thereby delivering a transparent, scalable, and cost-effective core network solution.

With free5GC now under the Linux Foundation, its influence is expected to increase significantly, supported by the Foundation's strong ecosystem and extensive community backing. This will place free5GC in a pivotal role in the ongoing innovation and development of global 5G and 6G technologies.