

校園資訊服務節能計畫

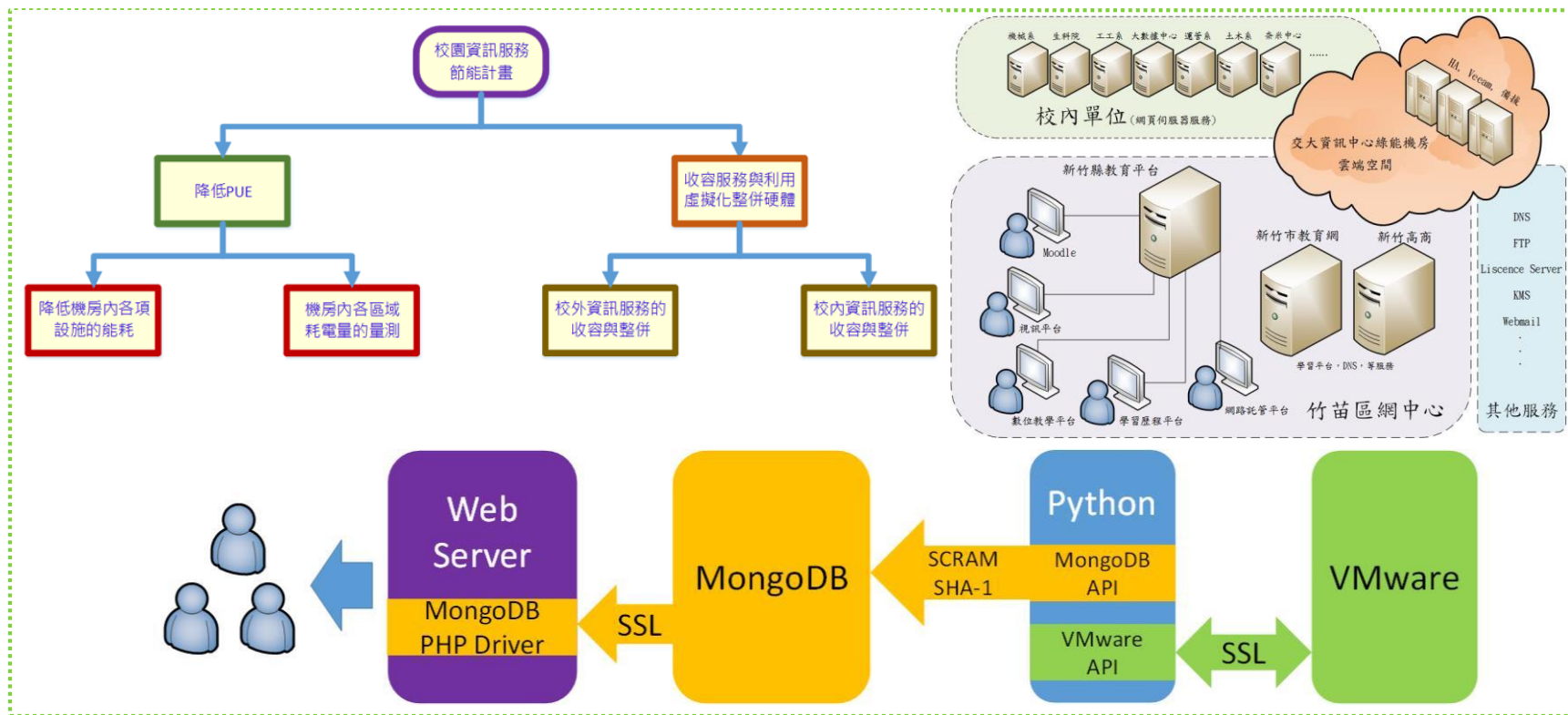
執行單位

國立交通大學資訊中心

計畫主持人

蔡錫鈞

- 本計畫提出新的資訊機房服務架構，透過採用先進綠能機房技術，搭配利用雲端虛擬化技術，將各單位資訊設備集中化管理，提供學校各單位資訊設備適當之資通安全防護，以期改善傳統機房相對耗能以及管理成本偏高等問題。



- **(一) 虛擬化技術**：透過虛擬化技術，可將實體主機轉換成虛擬機器高密度收容，有效管理維運，以提高電力使用效率，以及單位主機服務密度。
- **(二) 安全性技術**：綜合多項防火牆等安全性技術，搭配伺服器資料備份以及高可用的技術，可大幅改善一般非專業伺服器管理最欠缺的資訊安全性。
- **(三) 自建高速儲存設備**：配合雲端服務中需要高速運算的服務，如VDI等，本中心提供自組建之SSD storage提升服務的流暢度與穩定度，以達到更高品質的服務。

- **成果(一)**：由本計畫之經費建置的41實體機，目前虛擬機收容數為759台，共計915項服務。
- **成果(二)**：研討會最佳論文獎: TANET2017- 台灣網際網路研討會論文乙篇(主題:「綠能通訊與綠能機房」，論文題目:資訊機房智慧型空調變頻模組技術研究與應用)。

Campus Green IT Service

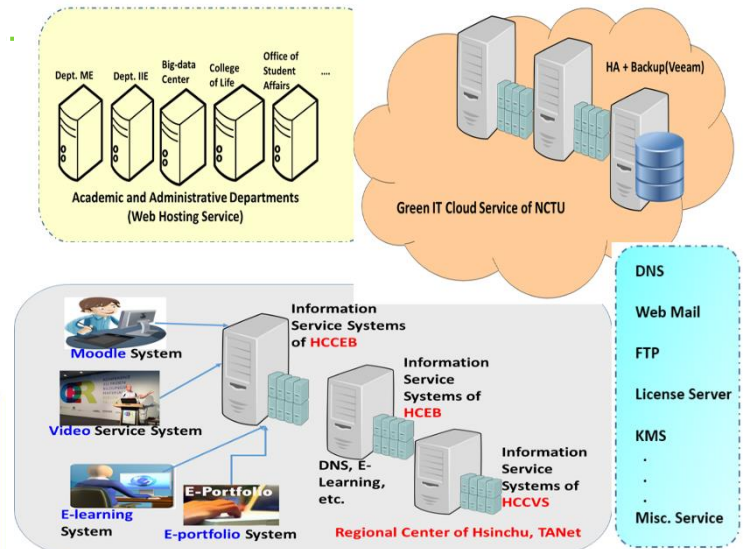
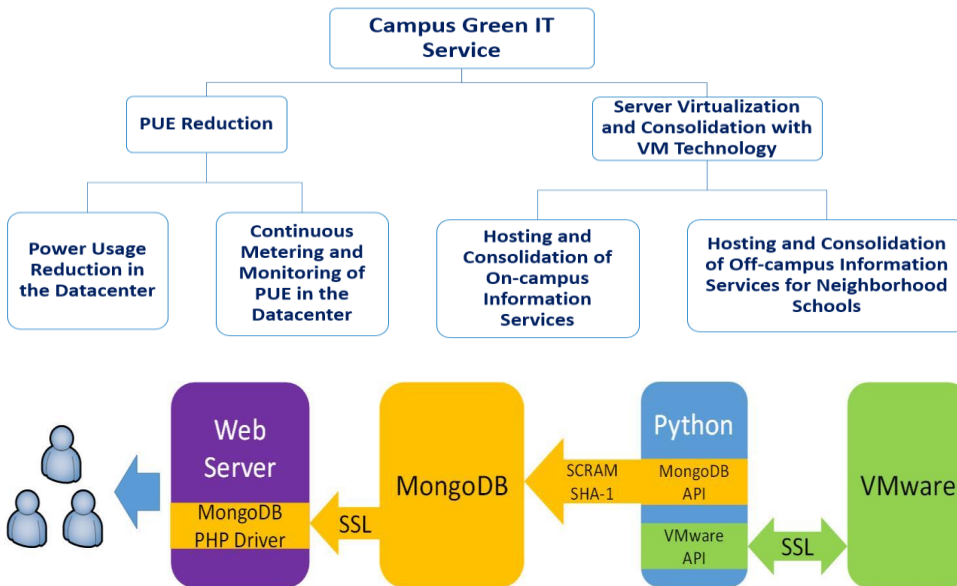
Execution Unit

National Chiao Tung University Information Technology Service Center

Project Director

Shi-Chun Tsai

- In this project, we applied green IT technologies(e.g., VM, cloud computing, smart air conditioning) to enhance and integrate the computing facilities of different buildings on campus, improve the PUE value and resolve the IT security issues more effectively and efficiently.



- (A) Virtualization Technology: Using virtualization technology, the physical hosts of a data center can be configured to provide many groups of high-density virtual machines with effective management schemes and to improve the total efficiency of their power usages, as well as the service density in a host.
- (B) Security Technology: By combining a number of security technologies such as firewalls, server data backup, and highly available technologies, we could provide a modern data center to greatly improve the information security, generally lacking in non-professional management of servers.
- (C) Self-built high-speed storage: We had provided a suite of self-constructed SSD storage to facilitate high-speed computing services (such as VDI and other cloud services) for enhancing their performance and stability and achieving higher quality.
- Achievement (A): In this project, we had built 759 VMware virtual machines on 41 physical machines to provide a total of 915 networking services.
- Achievement (B): Best Paper Award of TANET2017 (2017 Taiwan Internet Conference, Topic: "Green Communications and Green Data Center", Paper Title: "A Study of the Convertible Frequency Module Technology and its Application to Smart Air Conditioners in a Data Center").