

建置典範校園綠能機房及雲端化運算管理之研究

執行單位

國立成功大學
計算機與網路中心

計畫主持人

蔣榮先

- 本中心未來將與成大人文社會科學中心持續合作，提供雲端桌面以便合作單位的學伴們在此平台上進行遠距教學與相關活動，不僅提升教學品質，更可減輕電腦教室管理人員的負擔。

- 本計畫主要以節能機房改善與虛擬化技術兩面向執行，已達本計畫集中管理節能減碳之成效。
- 目前無相關專利產出。



● 技術簡介:

1. 建置機櫃空調冷卻系統，縮短熱氣流路徑，提升冷卻效率。
2. 加強機房建築隔熱，減少如日曬因素所導致之建築熱量。
3. 採用模組化**UPS**系統，提升轉換效率並降低損耗，以達機房節能之效果。
4. 建置雲端桌面架構與主機雲端化服務，集中管理資源，節省電腦設備維護成本，並可降低電力能源消耗。

● 發展現況:

1. 與台南市多所中小學、國際扶輪社、國立成功大學人文與社會科學中心、外國語文學系等單位合作，將各使用單位之電腦教室雲端化。
2. 與人社中心偏鄉英語遠距學伴教學計畫合作。
3. 為了讓雲端遠距教學主機可互相分流及備援，國際扶輪社向教育部資訊及科技教育司申請將系統建置在成功大學教育雲南部IDC，可配合本計畫後續之發展。

Building A Green Campus Computer Center and Cloud Computing Facility in NCKU

Execution Unit

NCKU Computer & Network Center

Project Director

Jung-Hsien Chiang

- In the future, NCKU Computer & Network Center will keep cooperating with the Research Center for Humanities and Social Sciences. The VDI provided for education purpose may improve the quality of teaching and training, as well as reduce the administration burden of distance learning.

- The project is mainly implemented with the technologies of energy conservation & computer virtualization.
- The goal of conserving energy to reduce carbon emission has been achieved.
- Currently no patent is filed.



● Implementation Brief:

1. Cabinet air conditioning systems are installed to shorten the path of hot airflow in order to increase the cooling efficiency.
2. Heat insulation of the computer server room is enhanced to reduce the heat from environment, such as the heat due to direct sunlight.
3. Modular UPS system is deployed to reduce the power loss and increase the efficiency of energy conversion, thus the goal of conserving energy to reduce carbon emission can be realized.
4. Set up VDI and Cloud servers to achieve centralized resource management and cost reduction. Also, the total power consumption can be reduced.

● Current status:

1. A number of elementary and junior high schools in Tainan area, the Rotary International, the Research Center for Humanities and Social Sciences, Foreign Languages and Literature Department in NCKU joined the project to deploy cloud servers for their classrooms.
2. The project is collaborating with MOE-sponsored Service Learning Project.
3. Rotary International requested to set up their JoinNet server in the IDC of Teaching and Learning Resource Center in Tainan for their distance learning project. The Cloud servers can share network flow and back up each other.