# GleSYS Delivers Cloud Computing Solutions While Reducing Effect on the Environment

*Supermicro Servers Enable Extremely Low PUE for GleSYS Data Centers*



## Introduction

GleSYS – a leader in Cloud and IT Infrastructure as a Service in the Nordics – is headquartered in Falkenberg, Sweden. GleSYS owns and operates three data centers in Falkenberg, Stockholm, and Oulu, and offers cloud services in Oslo, Amsterdam, and London. Besides being a leading internet service provider (ISP) with an extensive European fiber network, GleSYS also offers energy-efficient co-location services with the latest cooling and heat removal technologies.

GleSYS has been able to use innovative methods to reuse the heat generated by the dense compute servers and reduce the effect on the environment. First, GleSYS uses only green-certified energy sources. The in-row coolers contain cold water within the data center, which is then heated up with the warm exhaust from the systems. The resulting warm water is then sent to the city's district heating system in the local town. The excess heat goes out to the municipal district heating system (Falkenberg Energi is the municipal energy company). It is used to generate warm air, which is delivered to customers as heating capacity and hot water for businesses and homes in the area. Compared to almost all other data centers globally, this lowers the amount of energy the local district must purchase and reduces the effect on the environment of a large, always-on data center.

## Challenges

GleSYS services thousands of customers whose increasing server requirements require GleSYS to investigate new and more powerful servers. The numbers of customers and the workloads were growing, and GleSYS needed to accommodate the move to their cloud and maintain agreed-upon SLAs. While not just needing to improve the performance of actively running applications, the setup of a new virtual machine for specific workloads was also necessary. In addition, as the GleSYS cloud continues to expand, additional servers are required, complementing the existing infrastructure.

GleSYS had many years of experience using a range of Intel processors and wished to remain using servers based on Intel Xeon processors. The IT architects determined that

high core count Intel CPUs would be the best choice for the workloads that were being used in the GleSYS cloud.

As data center use has grown, the effect on the environment has also increased. GleSYS is determined to reduce and work towards the goal of eliminating the environmental impact of additional computing capacity. The new systems from Supermicro were an expansion of the existing cluster.

## Solution

The first decision that GleSYS made towards increasing data center capacity and reducing the environmental impact of new servers was to acquire energy-efficient servers from Supermicro, which include the Supermicro WIO and the Supermicro Twin product lines. Due to their mechanical design, these servers reduce energy consumption, lowering OPEX. These systems enable GleSYS to act as the cornerstones for their public cloud customers. In addition, GleSYS offers a flexible cloud environment, where specific customers can use systems in a virtualized environment or as bare metal servers.

GleSYS decided the CPUs from Intel would be ideal for their application mix and would produce results consistent with Service Level Agreements (SLAs) with minimal effect on the environment. Additionally, using Supermicro servers, specifically the Supermicro WIO based systems, GleSYS reduced power consumption.
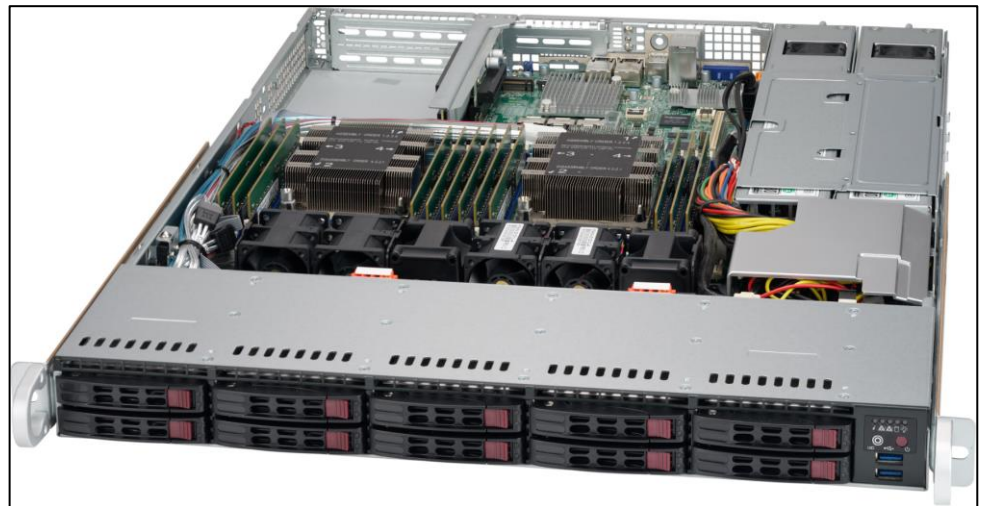


*Image 1 - SuperServer SYS-1029P-WTRT*

| | SuperServer SYS-1029P-WTRT |
|---|---|
| CPUs | 2x Intel Xeon 6226R |
| Memory | 768GB |
| Storage | 2x240GB SSD boot, 2x 6.4TB NVME data / VMs |
| Network | 4 x 25Gbps SFP28 |

*Table 1 - SYS-2019P-WTRT Specifications*

GleSYS runs several VMware software suites, including ESXi and vCloud, and a homegrown flavor of KVM. This software allows GleSYS to offer a range of services to its customers that suit their different requirements. For example, customers may request bare metal servers or share a server through a virtualization layer. The newer Intel CPUs also contained more cores at higher GHz and faster communication to peripherals. In addition, significantly larger amounts of memory were part of the servers, allowing more complex simulations to be run.


*Image 2  - Supermicro Servers at GleSYS*

## Benefits

GleSYS immediately saw a lowering of power used for each of the servers compared to their previous generation of servers. In addition, the more efficient servers produced results faster and used less electricity even while running at full speed. This is due to the innovative mechanical design of the Supermicro servers, which allow more direct airflow to cool the critical electronic components.

GleSYS also realized that the time to get the servers up and running was reduced using Supermicro servers compared to other vendors. In addition, the systems arrived ready to be plugged in and connected, reducing time spent unpacking components and installing disk drivers.

*Image 3 - Transfer of Data Center Excess Heat to the Municipal District Heating System*

## Summary

GleSYS is experiencing dramatic growth in its business, services a wide range of enterprises and research institutions that require very fast response times for different applications. New servers and storage systems from Supermicro have enabled GleSYS to offer new services and respond to increasing workloads from the additional customers. In addition, GleSYS has worked closely with the nearby town, Falkenberg, to use the warm exhaust air from the servers to warm municipal buildings and other uses. This dramatically eliminates carbon emissions that may be associated with Falkenberg heating systems.

"GleSYS is very excited to work with Supermicro on current and future generations of servers. Our experience with Supermicro has been extraordinary. Not only did the systems work right out of the box, but we were also given direct access to program managers and service experts when needed." - Jonas Törning, Purchasing Manager, GleSYS