LAKESIDE CASE STUDY

Lakeside SysTrack

aibel

One of the largest oil and gas engineering firms uses SysTrack analytics to size and plan desktop virtualisation for their 3D application workstations with NVIDIA GRID graphics virtualisation cards

"Leveraging SysTrack's insight into our workstation estate, NVIDIA's GRID technology and the expertise of our partner Firstpoint we have made great progress towards virtualising one of the toughest user groups we have left to transform."

Terje Vaksdal – Infrastructure architect, Aibel AS

INDUSTRY

Engineering (oil, gas, and renewable energy)

LOCATION

Headquarters in Norway with offices in Denmark, Thailand and Singapore

KEY CHALLENGES

- Large amount of data needed to be replicated across the WAN
- Struggling to virtualise 3D applications and users
- No visibility of graphics app workloads and usage
- No way to accurately size datacentre requirements

SOLUTION

SysTrack used as a discovery and sizing tool to understand application usage profile and workload to be able to scope NVIDIA GRID virtualisation capability in order to virtualise graphics intensive users.

Aibel is an industrial pioneer with a history dating back more than a century. With around 5,500 employees worldwide the company is a leading supplier of engineering services related to oil, gas and renewable energy.

Background

Aibel is a huge user of desktop virtualisation technology and is currently delivering virtual desktops to around 4,500 users. The challenge was to work out what to do with the remaining 1500 CAD/CAM workstations where graphics intensive modelling of 3D designs tied them to powerful physical workstations.

With projects occurring at the eight Aibel locations in Norway as well as at the Aibel offices in Thailand and Singapore the amount of data flowing across the WAN was increasing and becoming unwieldy. Large engineering models needed to be accessed on location and shared with engineers and designers in all Aibel office locations.

Virtualisation was seen as the solution to these issues but the challenge was how to virtualise graphics intensive workloads without impacting user experience or drive uneconomic datacentre specifications.

Partner Expertise

Firstpoint AS, a trusted Citrix Gold partner and virtualisation specialists, were brought in to advise Aibel on how to best virtualise this tricky user group.

They teamed up with Thomas Poppelgaard, an independent expert in virtualisation and GPU technologies and together they started an initial survey of Aibel's situation.

GPU Acceleration Approach

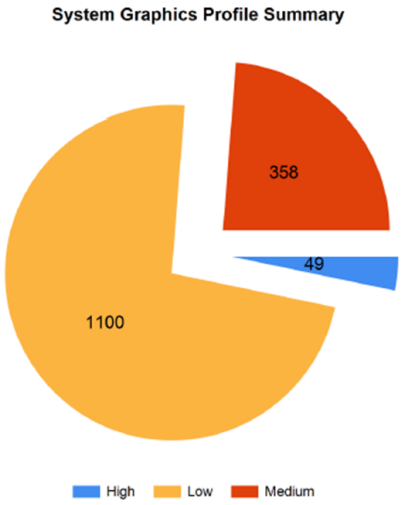
It became quickly clear that the only way to successfully virtualise the 3D graphics workstations in an economically viable fashion was to deploy GPU acceleration technology in the datacentre. NVIDIA's GRID cards would allow dedicated and shared GPU accelerators to be placed in the datacentre to be used by virtual desktops offloading server CPUs and removing user experience impact for other virtual desktop users.

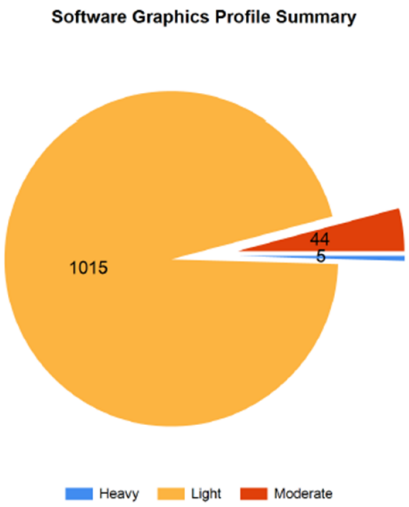
The Challenge

Having identified the technology approach the challenge now was to work out how to size the workload of these 1500 users and design a solution that would deliver user experience at least as good as their current physical desktop experience. In order to do that the team needed to work out:

- What graphics applications are in use today
- Who is using which applications and workstations
- What GPU processor power is being consumed today by application, user and workstation

They brought in Lakeside Software's SysTrack to do this job. Using SysTrack's granular data collection model they could model a complete picture of application and GPU workload across all the users and workstations in use at Aibel today.





Another benefit of leveraging SysTrack was the SysTrack MarketPlace report that had been co-authored by Lakeside and NVIDIA which allowed the team to convert all the data collected into accurate sizing of the number of NVIDIA GRID cards by model number required to offload the GPU workload.

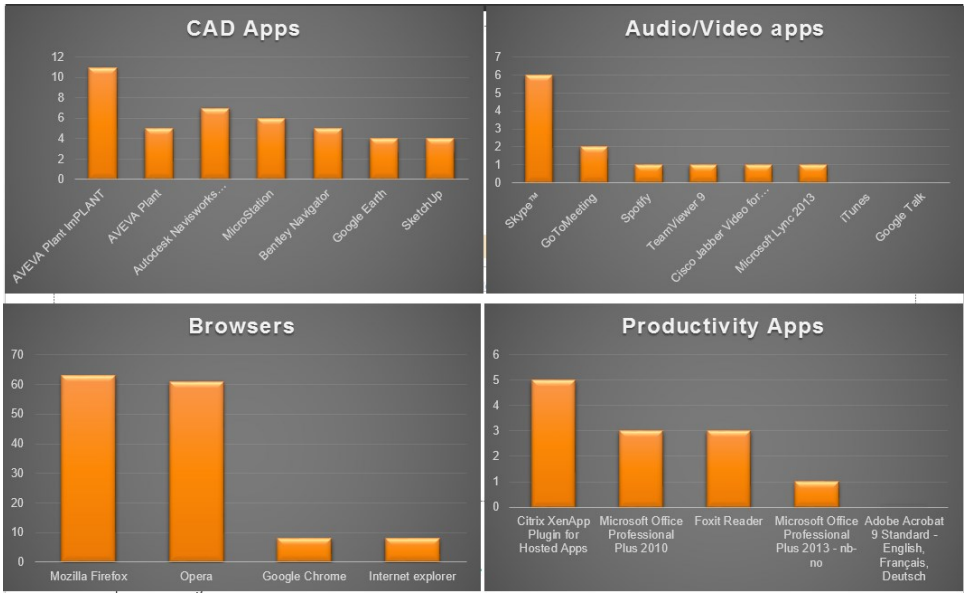
The Outcome

Using SysTrack the team has been able to build a complete inventory of the existing application and workstation estate and user behaviour. Using these analytics and SysTrack technologies a detailed specification and design for the future NVIDIA GRID based desktop virtualisation infrastructure has been created. Aibel is able to trust this design

as it is completely based on observed data captured from their existing estate and modelled using industry leading technologies from Lakeside and NVIDIA to create the optimal solution for Aibel's situation. Key in any design is to not over provision the solution and thereby inflate the cost of the solution. On the other hand under provisioning will lead to a poor user experience and potential project failure. SysTrack ensures the right data is used to make the right decision for the future estate.

The assessment was primarily executed to understand Aibel engineers CAD applications such as Aveva PDMS, Bentley Microstation, etc. Shown below is a summary of average GPU usage for 1500 physical machines which revealed surprisingly that internet browsers are very GPU intensive compared to other applications.

The output from SysTrack also showed how GPUs were being used across the existing estate and how hard they were being utilised. Using jointly authored Lakeside/NVIDIA reports this data was then used to calculate estimated vGPU profiles.



Projected Utilization per Profile

Profile Type	System	Card	Projected GPU Utilization	Projected Memory Utilization
⊞ NVS 4200M	5		6.69 %	17.99 %
⊞ Quadro FX 3800	72		11.40 %	24.49 %
⊞ Quadro 4000	266		33.08 %	31.28 %
⊞ Quadro 1000M	537		11.32 %	26.38 %
⊞ Quadro FX 880M	211		5.89 %	26.62 %
⊞ Quadro K1000M	118		37.67 %	32.03 %
⊞ Quadro FX 770M	28			17.54 %
⊞ NVS 3100M	3		1.86 %	16.02 %
⊞ NVS 5200M	2		8.15 %	30.57 %
⊞ Quadro 5000	189		50.03 %	26.05 %
⊞ Quadro FX 4800	41			21.46 %
⊞ Quadro 2000M	3		22.62 %	32.31 %

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