Executive Summary

The Business & Environmental Benefits of Software Thin Clients

Fraunhofer UMSICHT

IGEL TECHNOLOGY

Foreword

For businesses and public sector organisations struggling to manage with old PCs on their desktops, this study is a revelation. By using a simple piece of software to convert these devices to a thin client, organisations can save significant costs, management time and help reduce their greenhouse gas emissions. In addition, this conversion of old PCs is the first simple step to moving to a virtual cloud or server-based computing infrastructure, which is much more flexible and easier to manage moving forward.

Most businesses are used to replacing their old PCs with new ones every 3-5 years but this latest research shows that organisations can help save the planet and money by converting them to thin clients - and the savings are substantial. Businesses can cut their desktop management costs by up to 47% and reduce global warming potential by up to 60%.

Those new to the benefits of thin clients and software thin clients, I encourage you to review your desktop strategy in the light of these finding – for the benefit of both your organisation and future generations.

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Executive Summary

Objective

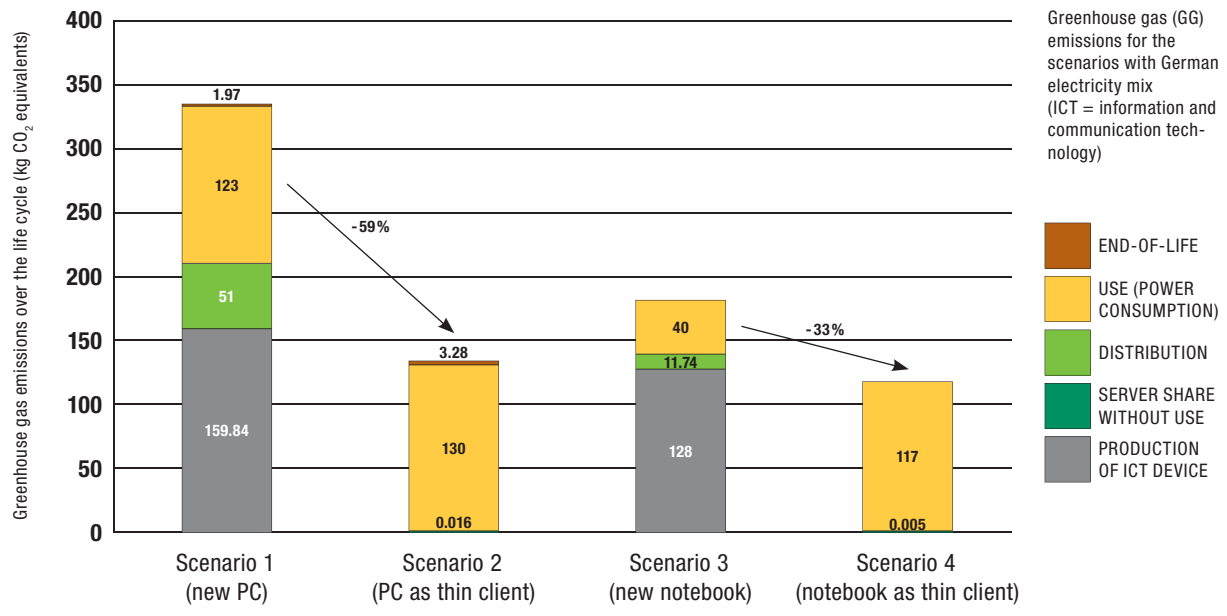
The study focuses on the operating models of various workstation computers and, in particular, software thin clients. This term refers to a software solution which allows existing workstation computers (desktop PCs or notebooks) to be converted into logical thin clients in order to extend the devices' operating lives. The devices are put to secondary use as clients in server-based computing infrastructures.
The comparison is made as part of a complete environmental analysis which assesses the entire life cycle including production, manufacturing, distribution, operation and recycling/disposal.
The impact category GWP (global warming potential measured in kilograms of CO_2 equivalents [kg CO_2e]) is used in the final assessment.
In a further step, the use of the various solutions is also examined from an economic point of view for companies of different sizes.

Summary of Results

The analysis of the entire life cycle shows that a significant proportion of CO_2e emissions can be attributed to the production of the devices. This means that, conversely, the reuse of old devices as thin clients avoids or postpones the production of new devices and has a positive impact on the environment.
If a newly purchased, modern PC model (scenario 1) is directly compared with an older PC which continues to be used as a software thin client (scenario 2), it becomes apparent that the software thin client reduces emissions in relative terms by approx. **59 %** over the entire three-year evaluation period[1].
In absolute terms, this equates to a reduction of **198.8 kg CO_2e** per workstation.

If, in an ideal scenario, all workstations at a company were converted into thin clients, the saving for 100 workstations would amount to **19.88 t CO_2e**.
For a larger company with 600 workstations, this figure would accordingly be **119.3 t CO_2e** and for a very large company with 15,000 workstations, **2,982 t CO_2e** could be avoided. The following graphic visualizes the results. In scenarios 3 and 4, the end-of-life phase is so small that it is not shown.

FIG. 1-1: GC EMISSIONS FOR VARIOUS ICT DEVICES OVER THE LIFE CYCLE 3 YEARS' USE IN GERMANY



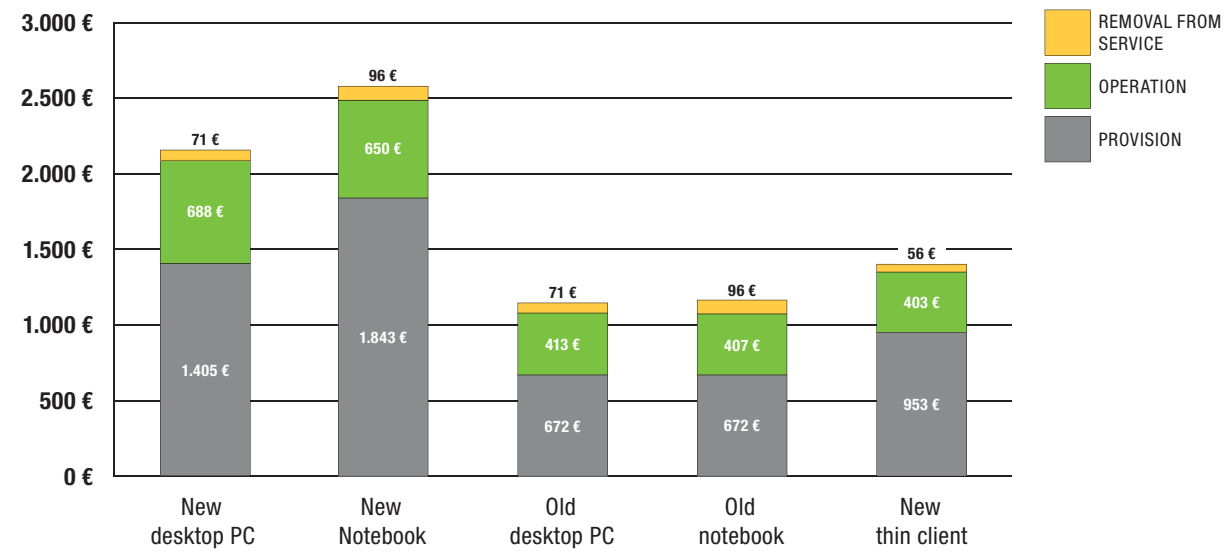
Source: Fraunhofer Institut UMSICHT

[1] The difference between scenarios 3 and 4 corresponds approximately to a relative saving of 33 %.

The use of software thin clients appears to makes sense from an economic point of view too. For the desktop PC in a scenario with 100 clients, costs of approx. **£1,547** are incurred. For the notebook, this figure is approx. **£1,850**. In contrast, an older desktop PC operating as a logical thin client costs approx. **£826**, a notebook operating as a logical thin client approx. **£840** and a hardware thin client **£1,009**.

If a new PC is compared directly with an old PC operating as a software thin client, a **saving of 47 %**, i.e. **£720** could be made by using the software thin client. In an ideal scenario where all existing old devices are converted into logical thin clients and no new devices are purchased, the company could therefore save over **£72,000**.

FIG. 1-2: TOTAL COSTS PER CLIENT (WITH A TOTAL OF 100 CLIENTS)



Source: Fraunhofer Institut UMSICHT

In the case of larger companies, economies of scale result in falling costs per workstation and affect the differences between the various solutions in relation to one another. For the very large company with 15,000 IT workstations, the costs are reduced to approx. **£1,118** for the desktop PC and approx. **£1,359** for the notebook. In contrast, an older desktop PC operating as a logical thin client costs approx. **£680**, a notebook operating as a logical thin client approx. **£696** and a hardware thin client **£819**.
While the costs are reduced in all cases observed, if the new desktop PC is compared directly with an older PC that is converted into a logical thin client, a saving of 39 %, i.e. **£437** per workstation is possible. In an ideal scenario where all workstations are converted into software thin clients, savings of over **£6,557,143** would be possible.

Conclusion

The investigations and their results show that when it comes to greenhouse gas emissions and cost-effectiveness, the use of software thin clients offers benefits compared to conventional desktop PCs.Decision-makers and IT purchasers within companies are therefore advised to think about the needs of each end user when determining which end device with which oper-ating model is most suitable.

In this context, software thin clients provide an ideal introduction to the strategic use of server-based computing. Since the old devices that are converted into logical thin clients are already available within the company, there is no need to invest in new hardware and only moderate costs are incurred as a result of procuring and commissioning the thin client software and, if necessary, setting up further terminal servers to support these clients.
Software thin clients therefore offer an economical way of achieving gentle migration towards a strategic thin client concept. The logical next step on this route is to replace the old devices with hardware thin clients once the old devices reach the end of their extended life cycle.

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