



Under the 'environmental' hood: Thin clients versus regular PCs.



When it comes to the environment, thin clients provide an ecologically advantageous alternative to the classic PC. A world class leader in the thin client industry, IGEL Technology shows how its devices are environmentally safe and user friendly.

Because of shorter product cycles, PCs are becoming poisonous, electronic garbage only a few years after their initial purchase. In Germany alone, 280,000 tons of computer garbage containing heavy metal is accumulated every year. As a United Nations research group reported, the weight of raw material consumed in manufacture of a typical desktop PC resembles the weight of an average sports car – even before the computer has left the factory. In today's client/server deployments, we face an extremely poor utilization of capacity and life cycles, increasing the expense of materials and supplies. Usual network operations using office applications only marginally tax a commercial PC. The largest part is allotted to hardware sporadically charged to capacity or to resource hungry operating systems and applications. This increased discrepancy between expenditure and actual use of the PC favors the increased trend of migration to Server Based Computing architectures with cost-efficient thin clients.

Millions of tons of electronic garbage

With the electrical and electronics equipment law (ElektroG) in effect, Germany will be one of the first European Union members to implement the two guidelines crucial to the IT industry. The new law regulates the disposal of old electrical and electronics devices (WEEE = Waste of Electrical and Electronics Equipment) as well as the use of certain dangerous materials in new equipment (RoHS = Restriction of Hazardous Substances). The fact, that more than 90 percent of old devices in Europe end up in landfills is showing the importance of these two regulatory changes: Six millions tons annually! Such quantities speak for the increased deployment of thin clients. Thin clients are substantially more compact, weighing roughly a third of a PC and therefore account only for approximately a tenth of the garbage.

Comparative overview: TC versus PC

	TC	PC
Weight	2.2 – 7.7 lbs	22 – 33 lbs
Volume	1.5 – 3 dm ³	30 – 35 dm ³
Packing material	2.2 – 4.4 lbs	3 – 5 kg
Power consumption (incl. monitor)	20 – 50 watt	300 – 400 watt
Heat rejection	5 – 35 watt	85 – 115 watt
Noise level	0 dbA	50 – 60 dbA

Source: IGEL Technology, June 2006

According to data gathered by the environmental organization, Basel Action Network (BAN), a pile of 500 PCs contains 717 kilograms of lead, 1.36 kilograms of cadmium and 287 grams of mercury. With the RoHS guideline becoming effective on July 1, 2006, manufacturers need to follow new guidelines for certain pollutants. Prohibited ones include lead, mercury, cadmium, hexavalent chrome and bromine flame (biphenyle polybromine or polybromine diphenylether). Four months prior to the official RoHS deadline, the thin client industry was already a registered convert. The fifth biggest manufacturer, IGEL Technology, was reported the first to deliver an all new generation of thin client models without harmful materials in March 2006.

Material deployment and current consumption

The lower amount of materials used and the lower emissions of the devices become immediately apparent with energy consumption. Compared with conventional PCs, IGEL thin clients need between 50 to 70 percent fewer consumption and resources depending upon the model. For example, the devices function with a substantially lower power capacity ranging from 20 to 50 Watts maximum. On the other hand, nowadays a full PC needs at least a 350 watt power supply around all components including CPU, graphics card and local drives. For an enterprise with 1,000 workers, its savings result in a range of five to six-digit kilowatt hours per year – depending upon user behavior.

Calculation of electricity costs:

	TC	PC	Ersparnis
Power consumption	50 W	300 W	250 W
x 8 hours a day	400 W	3.200 W	2.800 W
x 220 working days a year	88 kWh	704 kWh	610 kWh
Costs a year for			
- 1 workplace	13,20	105,60	92,40
- 10 workplaces	132	1.056	924
- 100 workplaces	1.320	10.560	9240
- 1.000 workplaces	13.200	105.600	92.000

Ergonomics on the job

One continues to realize somewhat the concept of the environmental compatibility of electronics besides production materials, energy balance and disposal along with the weight of ergonomic aspects. PC exhaust and other mechanical components deteriorate the workspace environment and impede the concentration of users not only in the office but also in training class rooms. In such cases, the no emission and energy-saving thin clients are a viable alternative. Furthermore, the 'silent' terminals are found to also strengthen adoption in libraries, schools and universities. Further ergonomic advantages over the classic PC include smaller space requirements and lower weight (see table). Thin clients can thus be positioned more flexibly at the work place and serviced more easily and/or exchanged.

Consolidation of different devices

To avoid future electrical garbage buildup, thin clients contribute by having the ability to consolidate terminals and pass functionalities to central administration. Thin clients work because their firmware includes integrated terminal emulations for mainframes and/or host systems as well as desktop 'emulation' within the Server Based Computing model. Moreover, hardware conservation helps further the print server function, with the local printer freeing up vital network resources as well as Voice over IP functionality: with a headset equipped, the TCs make a usable cost-saving communications model within the firm's network, without having to purchase additional electronics or terminals.

The thin client life cycle

The typical PC problem of short product cycles does not worry thin client users. Due to the small amount of hardware problems because of the minimized number of mechanical and/or mobile components, the slim terminals can remain problem-free for six to eight years. They are supported by long-term and free upgrades, which are provided in order to keep the hardware up to date. On the other hand, a PC is usually technically outdated after three to four years. Thanks to their longer service life, thin clients are already making an important environmental contribution today with a better utilization of resources, more efficient energy consumption and ergonomic advantages.

Professional and convenient disposal

The IGEL Example

In compliance with the EU-law enacted on August 15, 2005 for the disposal of old electrical devices, IGEL is considered to be an industry leader. In 2005, the global provider with its head office in Bremen began a certified disposal service for its customers. Thin clients bought after the deadline will carry the appropriate "WEEE" disposal seal. IGEL has made the return process simple. Old devices for collection are submitted via a form online on the IGEL homepage. Following that, a service partner then coordinates the necessary date with the customer, arranges for disposal and takes possession of the devices.

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