



# Thin Clients in Transport and Logistics

High availability, low costs: Thin clients increase the competitiveness of transport and logistics companies and also establish a bridge from centralized and virtualized IT infrastructures over to cloud computing.



**In the transport and logistics sectors, information technology plays a critical role in maintaining competitiveness. The efforts to coordinate the processes in supply chains even more dynamically and exactly are promoting tighter, seamless integration of logistics and IT. At the same time, cost pressures are also constantly increasing, which means that IT infrastructures at service providers have to become even more flexible and efficient without sacrificing availability and security.**

### **Centralize, Virtualize, Outsource to the Cloud**

As “enabling technologies“ driving change, new IT developments are rapidly entering daily operations in the logistics sector. One of today’s hot topics is cloud computing: the real-time use of IT infrastructures, platforms and software (IaaS, PaaS and SaaS<sup>1</sup>), which are provided as leased, Internet-based services. According to the German Federal Association for Information Technology, Telecommunications and New Media (BITKOM), this current trend will have a lasting effect on business practices. According to a market study by the Fraunhofer Institute for Material Flow and Logistics (IML) investigating the acceptance of SaaS and cloud computing in the logistics sector, 64% of the decision-makers surveyed are fundamentally receptive to the idea of sourcing IT services for logistics from the cloud. In fact, as an interim step, many companies have already set up private clouds<sup>2</sup> as a means of delivering their applications from their own computing centers. Others now operate a hybrid cloud, which consists of both an internal, private cloud and externally hosted, outsourced cloud services. In this regard, the more efficient an internal IT infrastructure is, the greater the cost savings achievable through cloud computing are. To achieve this desired efficiency, both the application environment and the desktop infrastructure need to be standardized and virtualized.

### **Permanent Reductions in Desktop Costs**

Thin clients are the most cost-effective way to access cloud services. These energy-efficient, remotely manageable end-user devices offer fundamental advantages compared to PC-based desktops, especially at stationary workstations. In its study “Thin Clients 2011 – Ecological and Economical Aspects of Virtual Desktops“, the Fraunhofer Institute for Environmental, Safety and Energy Technology (Fraunhofer UMSICHT) compared the overall costs for a thin client environment with a centralized Citrix XenApp server farm with those for a conventional PC-based environment with locally installed applications. Even for a relatively short leasing period of only three years, the overall costs for the thin client scenario already end up being 36% less. Over a longer thin client service life of five or seven years the savings increase significantly, for then the more economical operating

costs including maintenance, support, licensing and power consumption have a greater positive impact. This particularly applies to Linux-based thin clients, whose operating systems use far less resources, are license-free and require no individual workstation licenses for firewalls and antivirus software.

### **Availability and Scalability**

In the dynamic business environment prevalent in the transport and logistics sectors, IT availability and scalability are particularly important considerations. In this respect, with no moving parts such as hard drives and cooling fans, thin clients are inherently less failure-prone than PCs. Even in dusty and dirty work conditions, such as those encountered in load transfer and storage facilities, thin clients usually have service lives of up to seven years – and even longer. What’s more, because business data is only stored on the central server and not on local devices, local hardware failure or even device theft does not mean data loss. If individual thin clients need to be replaced or rolled out, there is also no need for tedious, time-consuming installations of local operating systems and applications. After being physically connected to the network, thin clients automatically configure themselves based on their unique IP or MAC addresses by obtaining their settings profiles already stored on the management server. This means that thin client environments can readily adapt to organizational changes, such as those arising due to relocations, openings of new branch offices or mergers.



#### **AGILITY LOGISTICS**

- ▶ The German division of Agility Logistics, one of the world’s leading providers of logistics services with more than 25,000 employees and 550 offices in 100 countries, has been standardizing its thin client infrastructure by deploying thin clients. IGEL Universal Desktops access different IT environments in parallel, including IBM Mainframe, Citrix XenApp, VMware View and cloud services. By 2013, 550 of the total of 650 workstations at Agility are to be set up by delivering virtual desktops to thin clients. The profile-based configuration of an IGEL Universal Desktop takes no longer than five minutes. The device is sent to its intended location by UPS, where it is then hooked up by an office employee. Thanks to the IGEL Universal Management Suite (UMS) remote management solution included with IGEL devices, the support costs for thin client workstations have dropped by 80%.
- ▶ [www.agilitylogistics.com](http://www.agilitylogistics.com)

<sup>1</sup> IaaS: Infrastructure as a Service, PaaS: Platform as a Service, SaaS: Software as a Service

<sup>2</sup> A private cloud allows internal, Intranet-based access to shared IT infrastructure resources as a utility-like service within a single organization. A public cloud allows Internet-based access to shared IT infrastructure resources as a utility-like service outsourced by a service provider to the general public. The fees for this service depend on the actual amount of usage („pay-as-you-go“ model). A hybrid cloud is a need-based combination of access to shared IT resources sourced from both public and private clouds, which although linked together remain separate entities.

### Consolidation: Windows, IBM iSeries, AS/400, VoIP, etc.

One of the reasons that thin client solutions can safeguard investments is their exceptional connectivity, which makes them future-ready now. Unlike other devices known as “zero clients”, which are mostly locked into a proprietary server solution and cannot be updated or, if so, only to a limited extent, universal thin clients can access many types of centralized IT systems without relying on middleware. Their firmware can also be readily updated as needed. This approach is more economical and conserves server resources. Because many transport and logistics companies also operate, in parallel with Windows, mid-range systems such as the IBM AS/400 and its successors, thin client operating systems should also include terminal emulations or a native IBM client. In addition, an integrated Web browser also allows parallel, direct access to cloud services or the use of VoIP telephony by means of a softphone. Beyond this, to ensure a high degree of future-readiness, universal thin client solutions also include a selection of protocols and software clients for accessing virtualized Windows applications and desktops in order to support, as may be required, Citrix XenApp/XenDesktop, VMware View, Red Hat Enterprise Virtualization for Desktops and the Remote Desktop Services from Microsoft Windows Server, including RemoteFX.

### A Wide Range of Deployment Options

Whether in accounting, dispatching and warehousing offices or as mobile workstations – modern thin clients can now be deployed in all work areas, even on carts used in goods receiving and order picking as well as on pallet trucks and forklifts and for high-bay storage systems. Important criteria for selecting a thin client model are peripheral connections, wireless connectivity, weight and power consumption. In addition to USB ports for barcode and RFID scanners, serial and/or parallel ports may also still be needed. On the hardware side, dual-monitor workstations are usually created by splitting the DVI or display port by means of a Y-cable. On the software side, this configuration is supported by a windows management tool. Even industrial PCs are now available as thin clients, such as from FORSIS or DLog.

To permit secure connection of smaller offices, branch offices for dealers and agents as well as home-based workstations to a company network over the Internet, thin clients should also have VPN clients, such as Citrix Secure Access Gateway Client or VPN solutions from Cisco or NCP. Moreover, particularly high security standards can be met by using thin clients with smartcard readers; some devices are also available with on-board readers integrated in their housings.

### Standardized Remote Management

Desktop management can take a lot of time, especially when it extends across an international network of company offices. Standardized and centralized thin client management can reduce this workload and cut costs. Unlike with Windows PCs, which require lots of time and effort to install regular software patches and updates, the firmware for thin clients is only updated from time to time. With IGEL, this update process is triggered centrally; it is also automated and optimized for available bandwidth. Furthermore, a fail-safe update mechanism ensures smooth, reliable and error-free firmware updates. The entire remote management process for IGEL devices covers all models and is carried out with the IGEL Universal Management Suite (UMS) remote management solution, which comes standard with IGEL devices. In addition, the management of IGEL thin clients is encrypted and certificate-based. IGEL thin clients are configured by means of profiles for individual devices or device groups. Device settings for individual users, departments or entire locations can be remotely applied with just a few mouse clicks. These settings can include mouse configurations for left-hand use or special monitor configurations.



#### NIPPON EXPRESS

- ▶ Leading global logistics provider Nippon Express is increasing the efficiency of its desktop environment with the deployment of IGEL thin clients across its European operation. The Nippon Express IT team chose the UD2 with the Standard Feature Pack. Nippon Express runs an 18 server farm running Citrix XenDesktop, which supports a total workstation base of up to 700 from the warehouses to the finance department. Over the next 3 years, the IT team expects almost 100% conversion to IGEL thin clients. Each department within the organization has a tailored desktop image and the IT team rollout the thin clients using IGEL's Universal Management Suite. Desktop maintenance time has been greatly reduced. Another benefit is the remote thin client management capability, which allows the support team to shadow and take control of the user's thin client remotely. The organization no longer needs to buy branch servers and PCs at regular intervals. The IGEL thin client desktops last longer and are more reliable, with no moving parts.
- ▶ [www.nipponexpress.com](http://www.nipponexpress.com)



### Fast Rollouts and “Soft Migration“

IGEL’s system of profile-based remote management and related automated device configuration cuts the installation and setup time for a thin client down to about five minutes. To facilitate convenient, economical migrations for those organizations on limited budgets or still within ongoing investment cycles, some thin client manufacturers offer thin client conversion software. For instance, IGEL offers the option to convert PCs or certain thin clients from other manufacturers over to the IGEL Linux operating system, which has no licensing costs. After their logical, de facto conversion to thin clients, these standardized devices are more secure and can be remotely managed in a consistent way. In fact, a license for the IGEL Universal Desktop Converter (UDC) software, including the IGEL Universal Management Suite (UMS) remote management software, costs only about 10% of what an actual thin client does. During this interim period, organizations can put off pending investment costs while still enjoying the immediate benefits of sustained savings from standardized device management, maintenance and support. If legacy hardware converted in this way should fail, it can be quickly replaced by a new thin client, which automatically configures itself upon installation and is then immediately ready for use.

### Selection Criteria for Thin Client Solutions

To properly assess the potential for savings from thin clients and their degree of future-readiness, the following criteria should be observed: the sustainability of the hardware, software and support, the options for standardizing IT access and desktop

#### SHANGHAI ORIGIN

- ▶ This leading international logistics company deployed IGEL thin clients for improved Information Systems and Management. Staff now access and share data through terminals connected to the same server, and software applications are accessible through an easy-to-use interface. All the bad memories of a virus outbreak that almost crippled the network have been put to rest. Outsourced IT maintenance was cancelled and brought it in-house using IGEL’s Universal Management Suite. The remote management software makes equipment deployment and management more efficient and convenient, reducing the total cost of ownership. Installing a traditional PC with software and hardware used to take at least 2-3 hours, but with IGEL it now takes just 5 minutes. “Mobile office” is yet another critical advantage of IGEL’s thin client solution. Each employee can use their password to log on to each thin client wherever they are located.
- ▶ [www.origin-sh.com](http://www.origin-sh.com)

management as well as the level of universal applicability and technological openness that is required by the given IT environment. If the thin clients under consideration also support the coming cloud scenarios, they can reveal their full potential as technology enablers and permanent cost cutters, helping to strengthen the competitive position of the company concerned.

#### OVERVIEW 1: REASONS FOR DEPLOYING IGEL THIN CLIENTS IN THE TRANSPORT AND LOGISTICS SECTORS

1. COSTS & SUSTAINABILITY	2. SECURITY & AVAILABILITY	3. FLEXIBILITY & ERGONOMICS
Great savings in time, money and energy compared to PCs. Support costs: up to 80% less, overall costs: approx. 36% less, power costs: up to 88% less, environmental impact: 30% to 63% less	More secure, mobile access to applications over the Internet and VPN, such as for agents, dealers and telecommuters	Flexible connection options for barcode scanners, RFID readers and local printers; USB, serial and parallel ports, WLAN (optional)
Remote management: efficient, standardized and license-free for an entire network of company offices; centralized, scheduled updates, drag-and-drop assignment of user and group profiles	Numerous security features: including smartcard reader (optional on-board installation), USB eToken; anti-theft USB port in free-standing device base (optional)	DVI and VGA ports for dualview operation (high resolution display) in accounting and dispatching, including windows positioning management
Consolidation: access to many centralized IT environments, including virtual desktops and applications (Citrix, VMware, Microsoft, etc.), AS/400, SAP, VoIP and Web-based services	IT security: steps (and associated software licenses) to protect against cyber attacks only apply to servers; thin clients use encrypted communication, are inherently virus-resistant (read-only memory) and come standard with USB ports disabled	Soft migration of office and industrial PCs as well as thin clients from other companies by means of thin client conversion software, allowing investment costs to be delayed and desktop management to be standardized
Fast rollout: five minutes per device due to automatic self-configuration based on IP or MAC address; on-site connection does not require an IT specialist	High availability due to centralized location of data and applications; no cooling fans make devices also suitable for high-dust environments (cardboard packaging, etc.)	Flexible workstation availability with session roaming: fast, convenient logging in and out via keyboard or smartcard, ability to immediately continue work with all previous applications
Safeguarded investment: Service life of from six to eight years, low failure rate (no moving parts); free hardware warranty for up to five years; firmware continues to be updated for three years after model discontinuation	No local data storage; no security risk from theft, failure or loss of the hardware	Ergonomic: low space requirement (small footprint), VESA mounting kit, noiseless operation, low heat output

## IGEL'S UNIVERSAL DESKTOP CONCEPT

- ▶ Whether it is server-based computing, virtual desktops or cloud computing – IGEL's Universal Desktops work well together with the greatest variety of centralized IT infrastructures. In particular, their powerful hardware and excellent graphics performance, along with continuously developed firmware, provide future-readiness that safeguards this major investment. Thanks to different device designs, operating systems, alternative firmware features (tools, clients and protocols) and a wide range of hardware options, the selection of a suitable model can be tailored to meet the exact needs of the installation and ensure cost efficiency. Other but no less important considerations are that IGEL Universal Desktops use minimal energy, have long service lives and come standard with the IGEL Universal Management Suite, a proprietary remote management solution.



## FULL SUPPORT OF PERIPHERALS

- ▶ IGEL Universal Desktops can be integrated into a vast variety of peripheral-device environments. That is because several USB ports, audio inputs/outputs as well as at least one DVI-I interface all come as standard equipment. With an optional "Y" video cable, all models can even accommodate dualview monitor setups. They also support widescreen formats. Beyond all this, IGEL offers USB serial or parallel adapters, optional mounting bases, integrated smartcard readers and supports external security solutions. The optional bases with their WLAN capability and/or an additional integral serial or parallel port greatly enhance system connectivity. To conserve desktop space, VESA monitor mounting systems are available along with rubber bases allowing horizontal positioning of thin clients for an even smaller device footprint.



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