



# Case Study

## IGEL Thin Clients Make Their Mark in Berlin

For some time now, almost all of the personnel at the law-enforcement agencies in Berlin, Germany have been working with thin clients from IGEL Technology. The strengths of the new desktop environment are clear: future-ready technology requiring only minimal system administration.

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Back in 2001, the Berliner Amts- und Staatsanwaltschaft (the local prosecutor's and district attorney's offices in Berlin, Germany) started a project to streamline administration. Since then, this effort has proven its worth many times over. The deployment of a server-based computing (SBC) infrastructure and the gradual, step-by-step installation of thin clients has not only increased the availability of the application environment, it has also allowed the crime-fighting authorities in Berlin to increase the number of monitor-equipped workstations within two years from 800 to 1,200 units – a 50 percent increase – without also having to increase the budget for system administration.

## Consolidating Many Kinds of End-User Devices

Today, thin clients from the German manufacturer IGEL Technology are the standard desktop units used in these law-enforcement agencies, with a total of 1,200 now in service, of which 600 are from the model series IGEL LX Compact (currently IGEL UD3) along with another 600 from two other model series IGEL LX Winestra and IGEL LX or XP Premium (currently: IGEL UD5). The plan was for IGEL thin clients to be primarily used to replace 300 Tandberg VT220 terminals and to provide an economical alternative to acquiring additional conventional PCs. "Since the thin clients have no moveable parts inside, they're completely silent and have a longer service life than PCs," explains Clemens-Maria Boehm, project supervisor in the IT department at the prosecutor's offices in Berlin. "In addition, the fact that they never have their own hard drives minimizes the danger of theft and virus infections. Thin clients are also very energy efficient. In fact, their power consumption, including their share of server usage, is essentially 50 percent less than that of a typical workstation PC. With a high number of clients in service, that's a significant potential for savings.

## Step-by-Step Migration

The installation of the terminal servers enabled the agency not only to fully modernize its existing monitor-equipped workstations but also to ensure the continuity of its other, already existing equipment. For instance, initially some 450 of the existing NT 4.0 workstation units were still being used in the new infrastructure as PC clients with Citrix ICA software. In the meantime, these devices have also been replaced by true thin clients and are functioning in an SBC environment largely based on Microsoft® Windows® Server 2003 Standard Edition and Citrix Presentation Server™ 4.0.

A contributing factor for deciding to go with thin clients from IGEL was the good connectivity of these end devices. In contrast to the terminals that were replaced, the IGEL thin clients also allow the system to go beyond the UNIX world. This means that in addition to the Linux/UNIX protocol X11R6 and the enhancement protocol NoMachine NX, IGEL models also come standard with ICA® and Microsoft® RDP as well as many additional digital services – local software clients and tools that enable direct access to centralized IT infrastructures.

## The Customer

- Agencies of the local prosecutor's and district attorney's offices in Berlin, Germany with a total of 1,300 employees
- Previous system configuration strongly based on UNIX/Linux
- Current system configuration stresses increased usage of open-source products

## Increased Deployment of Open-Source Products

These days, more than 60 applications and specialized processes are running on the total of 38 Citrix® servers in the computer center serving the prosecutor's offices. "The primary applications provided to our personnel include the office packages Microsoft® Office® 97 Professional and StarOffice 5.2," Boehm reports. "At this time, efforts are being made for future use of OpenOffice. In particular, this suite would then be used for creating the documents to be handled by a future document management system (DMS). This project has been under joint development since 2004



with the Austrian company Fabasoft® and is intended to replace older, legacy systems. As far as the database system goes, the open-source software MySQL® has really proven its worth, especially in supporting law-enforcement offices and service-fee clerks."Open Source-Software MySQL®."

#### The Challenge

- Expand the number of IT workstations without increasing administration costs
- Consolidate several kinds of end-user devices
- Achieve centralized administration, sufficient graphics performance and provide support for digital dictating machines

#### High Security and Scalability

In addition to the programs made available through Citrix®, agency users also have Internet access to online legal resources and applications relevant to their work. These include Juris, Beck Online, the official index of place names, the judicial directory as well as the Company Register. It is also possible to query the central registry of residents at the State Administration Authority in Berlin (Landesamt für Bürger- und Ordnungsangelegenheiten [LABO]). Direct access by means of thin clients and their inherent inability to store data locally is a powerful security argument in favor of server-based computing. Another major security factor is the fact that the stream of data exchanged between the servers and thin clients contains no files but only keyboard, mouse and monitor control/command data. "The actual computing load remains on the server, which automatically distributes it as needed. If necessary, the centralized computing capacity can be quickly and easily expanded by purchasing additional server hardware," explains Boehm. "This means that, compared to PC environments, deploying SBC with thin clients also represents a major consolidation step." The system provides about one terabyte of centralized storage space for its users. At this time, the associated file servers as well as the Citrix® servers and domain controllers are still running Windows® Server 2003 Standard Edition.

#### Centralized Administration Cuts Costs

With introduction and subsequent expansion of the thin client infrastructure, the law-enforcement authorities in Berlin were aiming at ultimately having fully centralized administration over all their desktop units. A big plus in favor of the thin clients from IGEL, the leader in the German market, was the high quality of the management solution that comes standard with all IGEL models. "We now have seven different IGEL models in use, which we can efficiently group and manage by means of the IGEL Universal Management Suite," notes Boehm. "Back when we still had the old setup, the support for each individual workstation was very time-consuming. Fortunately, that's all behind us now because due to their standardized configurations, all IGEL thin clients can be switched around as needed with little or no effort. Any firmware updates are conveniently distributed and installed over the network. The grouping of the units based on the Active Directory service, also supported by the IGEL management software, has greatly simplified administration. In this way, we get an exceptionally clear picture of the entire network. Furthermore, the user interfaces can be greatly simplified and specifically limited to provide only those applications actually needed in the given case."

#### The Solution

- A Citrix® server farm with 38 application servers (WindowsCitrix® Server 2003 and Citrix Presentation Server™ 4.0)
- 1,200 IGEL thin clients from model series LX Compact, LX Winestra, LX Premium and XP Premium
- Standardized administration and efficient management by means of the IGEL Universal Management Suite

#### Voice, Graphics and Printer Management

The focus of the current optimization projects is on enhancing the voice features and graphics performance. The latest generation of IGEL models features a DVI interface allowing a monitor resolution of 1920x1200 pixels. The practical effect of this improvement is that a large TFT display can ergonomically display two DIN A4 documents side by side so that they can be easily edited at the same time.

Beyond this, the use of digital dictation solutions within the thin client environment is to be further expanded. Similarly, the Berlin agency is also breaking new ground in printer management. The previously installed ThinPrint® software has been replaced by a solution based on Microsoft® Windows® Server 2008. Even so, the thin client infrastructure remains unaffected by this change because both the ThinPrint client as well as the Line Printer Remote (LPR) service used by the latest Windows® Server generation is supported by all IGEL thin clients as part of their standard configuration. The LPR service enables printers to serve the network. The tasks of the print server and the network printer management can be centrally monitored and controlled by means of a Microsoft printer management tool (Microsoft Management Console).

**Ready for the Future Right Now**

Today, 90 percent of the workstations at the local prosecutor’s and district attorney’s offices in Berlin are fitted with IGEL thin clients. Clemens-Maria Boehm remains satisfied with the progress achieved during the course of the long-term optimization process extending over quite a few years. “Introducing server-based computing with IGEL thin clients has been a complete success, ” says Boehm. “Nowadays, our IT personnel can support a much larger group of users, which has cut costs considerably. Furthermore, IGEL keeps safeguarding our investment by offering new options for further improvements and technical solutions.”

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