



Amersfoort's local authority improves performance and simplifies network management by standardising on Intel® Gigabit Ethernet Products

By implementing Intel® Gigabit Ethernet connections on its 100 application servers, the Dutch local authority benefits from improved user access to business-critical applications, greater network redundancy and simplified systems maintenance.

Case Highlights

Profiled Organisation	Gemeente Amersfoort (the local authority for Amersfoort in the Netherlands).
The Challenge	As part of a major programme to replace its ageing IT infrastructure, Amersfoort local authority wanted to upgrade its existing network to Gigabit Ethernet technology in order to provide its users with much higher performance through faster, more reliable connectivity.
The Solution	In response to the requirement for Gigabit performance in the local authority's tender document, Unisys, the successful winner of the contract, proposed the implementation of dual Intel® Gigabit Ethernet Adapter cards in Amersfoort's 100 Windows-based servers.
Benefits	By standardising on Intel® Gigabit Ethernet PRO/1000 Server Adapter cards in every server, network management and maintenance have become far more straightforward because IT staff now have to deal with only one type of product. Amersfoort now provides its users with much faster, more reliable connectivity to its servers and will not need to replace network components for several years to come. The Intel solution also affords the local authority a higher degree of redundancy in its mission-critical communications network.

Summary

The local authority for Amersfoort in the Netherlands provides its population of 130,000 inhabitants with a wide range of public services. The 1100 staff who deliver these services to the town's citizens on a daily basis require fast, reliable access to business-critical applications held on the organisation's servers.

When overhauling its ageing IT infrastructure, the authority decided to replace its existing network with the Gigabit Ethernet standard and thereby provide its users with considerably higher performance connectivity. The solution was to install two Intel® Gigabit Ethernet Server Adapter cards in each of its Microsoft Windows-based server population, comprising 100 Dell* PowerEdge devices.

As a result of implementing the Intel solution, Amersfoort now has a robust network that offers the greatly improved throughput and higher performance necessary to support the heavy demand placed on its servers. Furthermore, by standardising on Intel Gigabit Ethernet adapter cards in every machine, systems management and maintenance have become much more straightforward, because IT staff now have only one type of product with which to contend. The Intel solution provides far greater redundancy in the network and enables Amersfoort to deliver faster, more reliable connectivity to business-critical applications held on the servers.

Challenge: Insistence on Gigabit connectivity

Amersfoort's progressive municipal authority wished to offer its citizens a more modern service that would enable them to use the Internet to source information and communicate with local government departments online. It therefore needed a more flexible network with the capacity to handle e-government applications, and an infrastructure that would provide both civil servants and its citizens with safe and reliable electronic access to information.

In 2001, Amersfoort therefore issued a European tender for the replacement of its entire IT infrastructure, including the communications network, which was based on 10/100 Mbps switches and many 10 Mbps hubs linked to ageing PCs. The sole stipulation within the tender document concerning functionality was the authority's insistence on Gigabit Ethernet connectivity in the organisation's fibre-based backbone network, switches and servers.

After assessing some 43 responses to the tender, the Amersfoort authority awarded a 7.5 million contract to Unisys to provide the necessary IT infrastructure and network components for the town hall, including desktop computers, central systems, storage devices, contingency planning and maintenance services.

Heimen Huisman, Head of IT for the Amersfoort authority, says that as part of the project, he and his IT team were keen to standardise the constituent parts of the new network. He believes Gigabit Ethernet was a vital component in helping achieve this at the same time as meeting the authority's future growth requirements.

"The 100 Mbps controllers on the servers linked to our fibre-based backbone network were no longer adequate to provide the necessary throughput to the organisation's 1100 PCs," he says. "Not surprisingly, at busy times, particularly at the beginning of each day, our users regularly complained about slow connectivity and poor response times," he adds.

Process: Scalability, availability and redundancy

For the purposes of scalability and for easier central management of workstations, Huisman and his team favoured a move to server-based computing incorporating thin-client flat display terminals and Microsoft Windows 2000 servers, running Citrix Metaframe application server software. In order to achieve 99.9% availability, Unisys proposed a clustered server environment based on UnixWare from Santa Cruz Operations (SCO) and Unisys Reliant HA interconnection software. UNIX was chosen as the operating environment because it offered access to packaged software that was unavailable under proprietary fault-tolerant systems.

To protect the local authority against disaster, the server clusters were interconnected to a redundant backup system in a nearby disaster centre, with high-speed interconnection provided by replicated fibre-optic connections. When idle, this backup system provides an environment for system testing, data backup and data warehousing. In addition, six Aquanta servers—Symmetric Multi-processing (SMP) devices using Intel Pentium Pro processors—provide the foundation for the authority's Oracle database and application services.

Solution: Improved performance and simplified management

Under the terms of the contract, Unisys installed a core network comprising Cisco components and based on fibre, behind which sits the second backup network. Each server is equipped with two Intel Gigabit Ethernet controllers—one connected to the core backbone, the other to the backup network. Using Intel software, each pair of network cards is configured as a team to guarantee fault tolerance.

“This means that, in the event of the backbone connection being lost, for example, we can fall back on the connection via the second network. In this way, we always have a connection,” says Heimen Huisman. “In order to test the fault tolerance of the network during the implementation phase, we pulled out one core router in the network and we didn’t lose any functionality whatsoever,” he says.

Following the installation of the new solution, every switch is now connected via the Gigabit backbone to around 50 workstations, which means Amersfoort no longer has any problems with throughput. Huisman says he and his team no longer have to worry about the network itself. “Because our Dell PowerEdge servers all come with onboard Intel Gigabit controller ports, Unisys advised us to standardise on Intel® Gigabit Ethernet PRO/1000 Server Adapter cards for every machine,” he says. The recommendation proved a sound one.

Future: No need to replace network components for years to come

Huisman says that in the past, whenever there were problems with the network, it was often difficult to isolate the cause. The architecture was old and components had been added piecemeal, making it difficult to maintain. “Now that we have implemented the Gigabit solution, whenever we have a problem, we don’t even bother looking at the network because the fault invariably lies somewhere else,” he says. “Having standardised on Intel® Gigabit Ethernet and on other network components, we are able to pinpoint problems very quickly. Users are impressed by the improved speed and performance of the network because response times have been reduced from minutes to seconds,” he adds.

“I believe the Intel Gigabit Ethernet solution has helped to future-proof Amersfoort’s network for the next three to four years, which means we will not need to replace any network components for the foreseeable future,” says Heimen Huisman. “Our users are much happier and it has certainly made our infrastructure far easier to manage,” he concludes.

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