

The **Kennisnet** Foundation Creates Knowledge Network for Virtual Learning Across the Netherlands

Customer View

“The flexibility of the online learning environment is very important. It allows students to become the center of their own learning. The future will require technology skills, far more so than we face today. I can’t imagine a child growing up without information and communication technology skills and experience.”

Toine Maes

Director of the Kennisnet Foundation

High school students dissect frogs without the smell of formaldehyde, workers in remote towns pick up new job skills at the local library, retired people discover the joys of learning from the comfort of home, and elementary and high school students work at school in a secure learning environment with high-speed Internet access. This is all thanks to the Netherlands new education domain, called Kennisnet or Knowledge Network, which offers broadband Internet access to more than 11,000 schools and cultural institutions and connects 2.5 million users across the country.

Background

Bordering the North Sea between Belgium and Germany, the Netherlands boasts one of the best educational systems in Europe. Governed as a constitutional monarchy, The Kingdom of the Netherlands has a prosperous and open economy that depends heavily on foreign trade. The economy is noted for stable industrial relations, moderate inflation, and an important role as a European transportation hub.

Challenge

Realizing that education is a key driver of economic viability, federal and local government leaders took a look at the country’s education system in the late nineties and felt that, despite its leading status, there was still room for improvement.

“We discovered that the education system was not on par with other businesses and industries in the realm of technology,”

recalls Pierre Heijnen, vice manager, City of The Hague. “At that time a European-wide ambition was emerging to connect all schools in Europe to the Internet, and we decided to become part of that effort.”

Although the Dutch government typically allows educators to choose what is in the best interest of their students, faculties, and communities, technology built in silos without a guiding strategy is a costly and ineffective approach. To set direction, the government created the goal of building a “knowledge network” and the concept for Kennisnet was born. The challenge: to make it a reality.

Solution

Recognizing the initiative would require orchestration and guidance of both public and private entities, the Ministry of

Education, Culture and Science established the Kennisnet Foundation in late 2001 as a networked virtual organization dedicated to providing:

- The technology infrastructure to enable equal access to education via the Internet across the Netherlands.
- A portal to gather and disseminate educational content and serve as a networking platform for teachers, students, and parents.

Partnering Was Key

According to Toine Maes, director of the Kennisnet Foundation, the initial phase of the Kennisnet project was dedicated to laying the foundation, establishing standards, designing a filtering process for content, and providing a technical support system for educators. To do this, the Foundation created partnerships with technology vendors, including nl.tree, a joint-venture of the Dutch cable companies, and Cisco Systems, Inc.

“We outtasked the initial ISP (Internet Service Provider) contract to nl.tree to give us a quick, effective start,” Maes says. “As of 2004, when we have the infrastructure solidly in place, we will decentralize funding to schools so they can select any ISP they want.”

“That fits within the political structure of the Netherlands,” says Erik Zegwaart, CEO of nl.tree. “When the Dutch government wants to stimulate something, they act as a launching customer. As soon as the service is in place, the individual can choose.”

Teachers and Students Create the Content

High on the Dutch government’s priority list was to ensure that the initiative closely connected with its stakeholders. Cisco played an important role in shaping the Kennisnet project by sharing experiences from its own Networking Academies, as well as lessons learned from helping other customers.

“We worked with nl.tree on the idea of a consumer/producer model,” says Simon Willis, Cisco Internet Business Solutions Group vertical manager. “The idea was to get teachers and students to create the content, rather than looking to traditional content providers. We wanted them to regard content as dynamic, as we do inside Cisco.”

“Our intent is to make the Internet a practical instrument,” says Toine Maes. “If a teacher types in ‘culture’ on a search engine there would probably be 136,000 research results. People do not have the time to analyze that amount of information. We ask teachers across the Netherlands to send us valuable links; that way another teacher using Kennisnet knows a resource has been recommended by

colleagues. We are in the business of packaging information, that’s the way we make the Internet a useful instrument for the education sector.”

Connecting Rural Schools

nl.tree worked with Cisco to develop a robust foundation to enable movement to higher levels of services and applications through integrated infrastructure such as fiber, telephony, and cable. “We are using mobile connectivity for more rural schools, to ensure students have Internet connectivity no matter where they are,” Zegwaart says.

Cisco also provided advanced technologies to deliver the all-important security necessary for any effort touching school children.

“We manage network security centrally with Cisco firewalls,” Maes explains. “For content filtering, we developed a virtual marketplace with a special portal providing access. We publish the specific characteristics of each supplier, including pricing, and then schools can select independently from a set of approved suppliers.”

Results

To date, Kennisnet has connected more than 11,000 schools and more than 2.5 million users, delivering such results as:

- A standardized national networking infrastructure that provides empowering Internet connectivity to all learning institutions in the Netherlands.
- Standardization that yields economies of scale—costs are two to three times less expensive than if each school had organized its own service and technology initiative.
- Self-learning enabled by technology that encourages students to learn at their own pace.

Although too early to measure long-term academic progress related to Kennisnet, biology teacher Peter Molenaar sees an increase in both speed of learning and motivation to learn.

“Students are absolutely learning more quickly, we can measure this and compare our students to others across the country who do not use the network in their methods” Molenaar says. “It’s more efficient and effective for teachers, as well, since we don’t have to manage the classroom as a single group. In the traditional way of learning, students often have to wait for others before moving on, but this technology allows us to act as coaches, helping students learn at their own pace.”

Molenaar finds that students are more motivated because the technological capabilities make learning fun. "I teach biology and we are doing virtual experiments online that would be impossible to conduct in the classroom. We are able to see the results much more quickly than in actual experiments where it takes a long time to see the effects. For example, we can observe the lifecycle of plants and fish and how various things affect them in a compressed time period. The Internet is a powerful tool and a great revolution in teaching."

The network also creates an unexpected bonus for teachers. "In the past, communication among teachers happened only in our own neighborhood," Molenaar says. "Now we have a community that includes the entire country."

"The goal of the Ministry of Education, Culture and Science is to shape a very rich learning environment, not only while in school, but lifelong," Maes says. "Kennisset is part of the toolbox that should accompany a child through life. The ambition of the Dutch government is that a child should consider it a ticket to knowledge and, anytime, anywhere they need educational information, Kennisset is always there."

For More Information

For further information on Internet business solutions, visit:

<http://www.cisco.com/go/ibsg>



Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
Capital Tower
168 Robinson Road
#22-01 to #29-01
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the **Cisco Web site at www.cisco.com/go/offices**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia
Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland
Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland
Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden
Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

All contents are Copyright © 1992-2003 Cisco Systems, Inc. All rights reserved. Cisco, Cisco Systems, and the Cisco Systems logo are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and certain other countries.

All other trademarks mentioned in this document or Web site are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0304R) SW/LW4806 1003