

# Municipality Replaces Outdated Network with Cisco Infrastructure



Frederiksberg Kommune becomes largest Cisco TrustSec® customer in Denmark with complete LAN and security refresh.

## EXECUTIVE SUMMARY

**Customer Name:** Frederiksberg Kommune  
**Industry:** Government-local  
**Location:** Frederiksberg Kommune, Denmark  
**Number of Users:** Approximately 2000 PCs on the government administration side and 2100 PCs supporting students in local schools

### BUSINESS CHALLENGE

- Provide efficient government service with fiscal responsibility in mind, while improving citizen access to vital services
- Resolve security and stability problems that resulted in denial of service issues, virus outbreaks, and unreliable wireless access
- Implement solution quickly at schools during short summer break

### NETWORK SOLUTION

- Deploy a unified Cisco® switching solution for both wired and wireless environments to support citizen and administration needs with greater stability and wider wireless coverage
- Integrate security features for content filtering and access control

### BUSINESS RESULTS

- Reduced IT help desk incidents by 90 percent with the new network's stability and reliability
- Increased efficiency of IT staff, and freed up IT resources to focus on more strategic priorities
- Expanded wireless coverage, and enhanced the ability of government staff to respond quickly and efficiently to citizen demands

### INTEGRATOR PARTNER

- NetDesign A/S, a Cisco Gold Partner

## Challenge

Frederiksberg Kommune is one of the largest municipalities in Denmark, and is densely populated with 92,000 residents within its nine square kilometers. Adjacent to Denmark's capital city, it is home to the Copenhagen Zoo and Copenhagen Business School. The city government supports essential social services including day care centers, schools, elder care, housing, employment guidance, and libraries. In the midst of numerous urban renewal projects, the city prides itself on incorporating environmentally friendly features into its developments and programs.

The city strives to maintain a high level of efficient citizen services, all of which are increasingly reliant on Frederiksberg Kommune's technology infrastructure. Antiquated IT equipment, however, was hindering services in education and other areas, and also increasing the city's IT administration costs as busy staff continually had to troubleshoot network service issues.

For instance, at the city's 12 primary, lower, and upper secondary schools, faculty and students alike were challenged by a network in which some switching and server components were over 15 years old. As a result, the schools lacked reliable network coverage and the wireless networks were not functioning properly. To meet the city's goal of delivering richer, more engaging educational programs, students needed access to higher-bandwidth applications and higher-performing network services overall. Realizing that its aging

technology infrastructure couldn't deliver on this goal, the IT staff investigated smarter systems to support more dynamic learning.

The city needed to work quickly, as network stability, virus outbreaks, and security issues were creating hundreds of help desk tickets at the IT department. Teachers were threatening to strike amid public outcry and demonstrations over ailing networks. The department chief took action with a special appropriation request, which was approved with the mandate to refresh the network on an accelerated timeline within the school summer break, in order to launch improved services in time for the new school year.

## Solution

Eskild Nejsum, manager of the infrastructure group at the municipality, evaluated several proposals and selected the solution presented by systems integrator NetDesign for a 100 percent Cisco environment. Other proposals patched together a mix of different vendors and technologies, and did not meet the demands of the request for proposal (RFP) for performance, security, reliability, maintenance, and swift implementation. Cisco's worldwide resources, with a strong base of support in Denmark, were a critical factor.



“The Cisco network is delivering real returns, with its outstanding reliability and security. We’ve eliminated access, bandwidth, and availability issues and have peace of mind that Cisco can support our needs to deliver more services to constituents.”

— Eskild Nejsum, Service Manager Infrastructure

The government agencies welcomed the opportunity to improve citizen services with a unified solution featuring Borderless Networks, a Cisco architecture to bring interactions closer to municipal employees and the city's constituents. Like many parts of the world, Frederiksberg Kommune has seen a proliferation of technology devices among its citizens. The new Cisco environment is designed to connect anyone, anywhere, using any device, to any resource securely, reliably, and seamlessly.

To address the challenges in the local schools, the city adopted Cisco Catalyst® 6500 Series Switches for the core, along with Cisco Catalyst 2960-S and 3750-E Series Switches across the access and aggregation layers, based off of a Catalyst 6500 Switch. The environment provides a unified solution for reliable wired and wireless access, supporting 12 campuses city-wide. The solution includes Cisco TrustSec secure access features integrated into the network infrastructure such as 802.1x authentication, policed by a Cisco Secure Access Control Server. To ensure a smooth transition, the city adopted the unique "Monitor Mode" to validate the deployment for several weeks before moving to the enforcement stage of the 802.1x rollout. This gentle approach provides a dry-run to minimize human and configuration error and boosts confidence before a large-scale rollout. Additional security was provided by the market-leading Cisco IronPort® Web Security Appliances.

Beyond the classrooms, the Cisco environment enhances Frederiksberg Kommune's ability to improve citizen-facing services across the board, making it faster and easier for staff to respond to constituent demands for better education, healthcare, and enhanced management of city resources such as parks and roads. In addition, as more public services move online, citizens can directly access the services they need without delay.

"The technology integrated nicely and worked well across our departments. With more powerful switches and the introduction of the new Cisco security features, we were able to see some of the access weaknesses we had before and then fix them. The upgrade proved to be extremely valuable," said Nejsun.

## PRODUCT LIST

### Routing and Switching

- Cisco Catalyst 2960-S Switches - 24 and 48 ports
- Cisco Catalyst 3750-E Switches
- Cisco Catalyst 3560 Switches
- Cisco Catalyst 6500 Series Switches
- Cisco Nexus® 5000 Switches
- Cisco Nexus 2000 Series Fabric Extenders
- Cisco 2901 Integrated Services Routers

### Wireless

- Cisco 5508 Wireless LAN Controllers
- Cisco Wireless Access Points

### Security and VPN

- Cisco IronPort Web Security Appliance S370
- Cisco ASA 5500 Series Adaptive Security Appliances
- Cisco IronPort Mail Security Appliance C360
- Cisco NAC Guest Server 3310 Appliance
- Cisco NAC Manager and Server 3355
- Cisco Secure Access Control System 5.2
- Cisco Dynamic Multipoint VPN software

## Results

With its Cisco refresh, Frederiksberg Kommune adopted an enterprise-class network to support increased demands from constituents. Since the solution was implemented, network stability issues have become a thing of the past and IT help desk incidents have declined 90 percent. As a result, IT staff can make more efficient use of their budget and staff can spend time focusing on more strategic initiatives to improve citizen service across departments.

For instance, students and teachers benefit with more expansive opportunities for dynamic learning. Now an entire class can use video streaming services on laptops simultaneously during lessons, whereas previously this could only be accomplished by a small number of PCs at a time. Schools have network coverage now in all teaching areas, with libraries and administration areas gaining improved access with ongoing rollout. Equally important, the new Cisco environment will make it possible for school administrators, faculty, and students to use their own devices to securely access the internet.

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The Roads and Parks Department can now operate more efficiently, collecting revenue from city street parking permits, using an online self-service portal that residents and workers can reliably and conveniently access without interruption. With the improved IT infrastructure, the city can now look at expanding the range of services available through its website and help make routine transactions faster and easier for its citizens.

“Our comprehensive Cisco network is delivering real returns, with its outstanding reliability and security. We’ve eliminated previous network access, bandwidth, and availability issues and have the peace of mind that Cisco can support the needs of our municipality as we look to deliver more powerful 21<sup>st</sup> century services to our constituents,” said Nejsun.

With Cisco TrustSec security features, IT management benefits from tremendous oversight of who and what devices are on the network, whether wired or wireless. IT can also better control the risks associated with that access for some 2000 administration computers plus 2100 computers serving students at local schools, and PCs at the libraries. The Cisco IronPort Web Security Appliance protects users from accessing malicious websites and prevents malware and virus infections. IT administrators can now control access to online web applications and securely allow students and staff to use social networking sites and other Web 2.0 sites for collaboration.

The prevalence of excellent local expertise for Cisco technology, including the skilled consulting and deployment provided by NetDesign, allowed the IT department to achieve a swift, easier-than-expected implementation within the critical summer timeframe. The city can take full advantage of these local resources and the robust features of its new network to stay on track with new technologies as they emerge for years to come.

## Next Steps

With its network transformation, Frederiksberg Kommune now has an efficient IT infrastructure that aligns to government initiatives to deliver beneficial, highly secure, and cost-effective service to its citizens. The IT organization is well positioned to meet future demands for new educational web applications and self-service portals across government agencies. Now the IT department can proceed with plans to support laptops and other devices that workers and students want to bring into the environment for richer engagement between government and the community.

## For More Information

To find out more about the Cisco Catalyst Switches, visit:

[http://www.cisco.com/en/US/products/ps5718/Products\\_Sub\\_Category\\_Home.html](http://www.cisco.com/en/US/products/ps5718/Products_Sub_Category_Home.html)

To learn more about Frederiksberg Kommune, visit: <http://www.frederiksberg.dk/English.aspx>



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