

# Safeguarding the Status of Europe's Largest Port City



Rotterdam insures that its data centers reliably and cost effectively deliver city services for the foreseeable future with FlexPod

## EXECUTIVE SUMMARY

**Customer Name:** Government of Rotterdam

**Industry:** Public sector

**Location:** Netherlands

**Number of Employees:** 12,000

### Challenge

- Assure future delivery of local government and port-based services
- Reduce costs and improve efficiency

### Solution

- FlexPod architecture, integrating Cisco Nexus data center switches and Cisco Unified Computing System servers with NetApp storage, for an easy-to-manage environment with plug-and-play computing

### Results

- Improved ability to support a mushrooming population of diverse applications
- Overall IT spend lowered by €165,000 in 2012; maintenance costs reduced by €105,000 over next three years
- Server provisioning cut from days to hours; restarting servers simultaneously is saving four man-hours per week

## Challenge

Rotterdam, the second-largest city in the Netherlands, is also notable as the largest port in Europe, with an annual shipping throughput of 430 million tons. Such an important trading gateway poses formidable challenges for the Government of Rotterdam. Not only does it have to deliver the services expected by more than 617,000 citizens, but also it needs to support a great number of port-related functions without which the city's lifeblood would cease to flow. For Rotterdam Services ICT Institute, the organization tasked with providing the technology underpinning those services, this meant a growing number of IT applications.

Alfons Carlebur, senior project adviser with the Rotterdam Services ICT Institute, says: "Five years ago we had around 500 different IT applications, but this has now increased to over 2000. Our data center was increasingly unable to support those requirements, of which the need for a new passport system was just one." The Institute decided to review its data center technologies and standardize on a platform that would meet its current requirements while providing the flexibility to grow and adapt for the future.

## Solution

The city's legacy server estate, bought in 2008 and nearing end-of-life status, was compared with the FlexPod architecture from Cisco and NetApp. "The existing platforms were going to be costly to replace," says Carlebur. "You got more capacity than you needed, which meant you paid more than you wanted. So we had to look for a more viable option." Moreover, the need for additional blade servers from the existing vendor meant the data center network would have had to be expanded.

Providing a pre-designed and pre-validated base data center configuration, FlexPod is built on Cisco Unified Computing System™ (UCS®), Cisco Nexus® data center switches, NetApp FAS storage components, and a range of software options.

Following a presentation organized by NetApp, FlexPod was evaluated. The fact that additional servers could simply be plugged into the existing data center network fabric was a considerable plus point and a much more efficient solution. "When you move to a new platform you have to learn how to use it, which costs money," says Carlebur. "Even taking that into account, we still decided it would be cheaper to switch to FlexPod."



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Alfons Carlebur  
Senior Project Adviser  
ICT Institute  
Rotterdam Services

Cisco offered Rotterdam a FlexPod solution based on eight Cisco® UCS B200 M2 Blade Servers and a Cisco UCS 6120XP 20-port Fabric Interconnect on a three-month try-and-buy basis. Within five months, the decision was made to standardize on FlexPod. Besides the try-and-buy equipment, which Rotterdam retained, the Institute has purchased eight additional UCS B200 M2 and 112 UCS B200 M3 Blade Servers across its two data centers.

The whole server estate will be gradually migrated to FlexPod as the previous servers reach end-of-life, with Dutch systems integrator, Centric, taking care of deployment. The Cisco UCS B200 M2 Blade Servers use Intel® Xeon® 5600 series multicore processors to adjust server performance according to application needs, while the B200 M3 Blade Servers harness the power of the Intel Xeon E5-2600 processor product family.

Rotterdam’s two data centers have an active-active configuration for disaster recovery. The Cisco infrastructure features two types of fabric interconnect: 6120 Series for testing and development, and 6248 Series for production environments. It also includes Nexus® 5596UP and Catalyst® 6500 Series Switches along with Nexus 2248TP Fabric Extenders connecting the blades remaining from the previous vendor.

Finally, Rotterdam uses Cisco MDS 9500 Series Multilayer Directors for SAN switching and Citrix XenApp and VMware for virtualization. Although a few web-based services are aimed at citizens, most of the applications hosted in the data center are for Rotterdam government employees and are concerned with processes as diverse as taxation and traffic management, delivered using Windows Server 2003 OS.

### Results

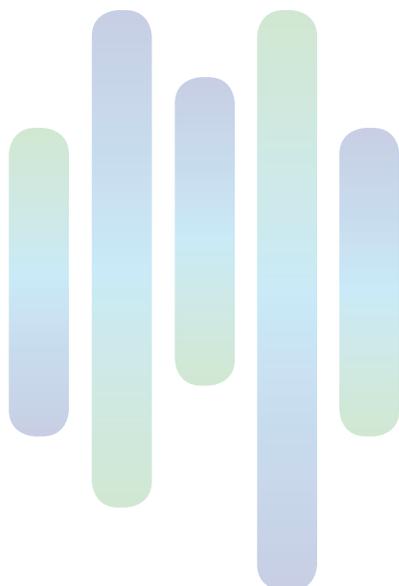
Rotterdam estimates that tighter integration and greater server utilization could lower IT investments in 2012 by as much as €800,000. IT spend was cut by €165,000 in 2012. Maintenance costs are also expected to reduce by €105,000 over the next three years.

In addition to reduced capital expenditure and improved return on investment, Rotterdam is enjoying a number of other advantages. One of those is reduced administration effort. “FlexPod makes it easy to add servers,” Carlebur says. “In the past we’ve had all kinds of migrations, and the effort was huge. But we’ve saved a lot of time by using UCS, because we did not have to get infrastructure teams involved in growing the environment.”

Provisioning times have been cut from days to hours. It is estimated that deploying a new enclosure using the old server system used to take a whole day, simply because of the amount of cabling required. This time cost has been practically eradicated with Cisco UCS. Similarly, all the blade drivers required by UCS are already on the FlexPod system, which makes blade deployment as good as plug-and-play. Previously a technician had to make sure the right drivers were loaded to be sure a server would work.

A further improvement is enhanced ability to handle problems created by some of the older applications. These caused memory leakage, which required a Citrix shutdown and reboot on a regular basis. To minimize downtime, the city had traditionally restarted several servers simultaneously from a single stored golden image, but the interfaces on its previous server platforms limited the number of copies that could be generated at the same time. With Cisco UCS FlexPod, however, the city can now restart up to 16 servers simultaneously, in the process saving an estimated four man-hours per week.

The FlexPod architecture is helping Rotterdam to be more energy efficient. Its superior performance will also allow the government to launch new applications, such as virtualized AutoCAD computer-aided design packages, which were not possible before. But perhaps the main benefit is that Rotterdam now has a flexible and efficient data center infrastructure that will allow the city to remain at the forefront of global logistics for the foreseeable future.



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### Next Steps

Rotterdam is planning to migrate its Active Directory and Oracle database systems onto FlexPod. Alongside this, it is likely Rotterdam will be able to use the capabilities of UCS to improve the levels of automation and orchestration in the data center, optimizing server workloads and utilization rates as it progresses towards the development of a private cloud environment. Carlebur says: “We’re eager to get approval to deploy Citrix XenDesktop for desktop virtualization.” A pilot project has already demonstrated a capability to host up to 60 users on each physical UCS server.

### For More Information

To learn more about the Cisco architectures and solutions featured in this case study, please go to:

[www.cisco.com/go/ucs](http://www.cisco.com/go/ucs)

### Product List

#### Data Center

- FlexPod
  - Cisco Unified Computing System B200 M2 and M3 Blade Servers

#### Routing and Switching

- Cisco Nexus 5000 Series Switches
- Cisco Nexus 2248TP Series Fabric Extenders
- Cisco MDS 9500 Series Multilayer Directors
- Cisco Catalyst 6500 Series Switches

#### Fabric Interconnects

- Cisco UCS 6120XP Series Fabric Interconnects
- Cisco UCS 6248 Series Fabric Interconnects

#### Security

- Cisco Catalyst 6500 Series Firewall Services Module

#### Processors

- Intel Xeon 5600 Processors
- Intel Xeon E5-2600 Processors

#### Storage

- NetApp MetroCluster and other Netapp configurations
- HP EVA 8000 series

#### Software

- Microsoft Windows Server 2003
- Citrix XenApp
- Autocad
- Oracle
- MS Office 2003, MS Project, MS Visio, MS SQL
- About 2000 specific applications



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