

# Case Study:

## The country's most exciting school network?

**Kunde**  
Bærum kommune

**Bransje**  
Offentlig sektor

**Leveranse**

**Gevinst**  
TBC

**Sitat**  
– Ved hjelp av Multiframe kan vi gjøre om en gammel utrangert PC til en tynn klient på under fem minutter. Dette gjør at vi kan tilby kommunens elever en PC-tetthet langt over gjennomsnittet.

*Tristan Dobson,  
Bærum kommune.*



### *Public sector saves money with green IT*

Bærum municipality has one of the country's largest school IT networks. The IT solution for the schools connects together 15,000 pupils, 1,200 teachers and 39 schools. The municipality's solution is a cross-platform for both Windows and Linux computers.

On average, every fifth machine is connected to a terminal server. The pupils have a personal desktop and storage space on the server, which is accessible when they log in on a user machine. Multiframe from Redpill Linpro is used as a strategic tool for converting older, discarded PCs into thin clients, and for managing these clients.

The IT division of Bærum municipality is showing the way. Creative solutions to national challenges have provided better, cheaper and greener IT. Recycling and Open Source software make an important contribution.

*redpill-linpro.no*

“Running all applications from the server simplifies operation, improves stability, reduces the demand for local output, and makes administration more flexible,” says Tristan Dobson from the municipality’s internal operations service provider.

“On one occasion we ran a terminal server for 439 days without restarting. This is great in a school environment. I doubt that other solutions could match this inside the same cost frames,” says Dobson.

### **Solving the licence challenge**

Bærum has solved the challenge of high licence costs by finding solutions that offer more for less. In this respect Linux is an ideal starting point, offering the pupils access to more useful software. The solution is based on a Novell platform.

“There is a rational reason for our support of Open Source software. Quite simply, Linux has an incredible number of advantages and exciting possibilities,” he says.

“At the same time we are not ‘religious’ in our approach to the software debate. Our model ensures that we can select what we want from Open Source and proprietary software.”



### **Environmental focus**

The IT department has acted as innovators on many occasions. Other municipalities have followed ‘the Bærum model’ with interest.

“We assist the municipality and IT network in minimizing their impact on the surroundings. Recycling is a natural part of this. Many of the steps we have taken lead to significant environmental advantages and cost savings,” says Tristan Dobson of Bærum municipality.

Managing the increased density of PCs in Norwegian schools is a well-known challenge. One way of solving this is Bærum’s focus on recycling existing equipment and using Multiframe to convert old PCs into thin clients.

### **Less CO<sub>2</sub>**

Multiframe by Redpill Linpro and provides simpler administration of thin client solutions, considerable savings, and a more practical operating environment. The software is particularly effective in environments with multiple hardware or operating system platforms.

**Green IT:**  
Bærum municipality has one of the country’s most advanced IT networks for its schools. Smart choices lead to environmental consideration, cost savings and rich potentials, according to Tristan Dobson.

The municipality's recycling scheme collects older and discarded PCs both from the municipality's public services and from trade and industry. The recycling department ensures that data is erased so that the computers can be set up by the schools themselves.

"This recycling scheme has very positive environmental impacts. There is less pollution because the new PCs do not need to be produced and transported; whilst at the same time fewer PCs end up on rubbish dumps. Our solution means that fewer computers must be disposed of with the consequent environmental load," he says.

In 2003 there were 20 pupils and 3 teachers per PC. Today the situation has markedly improved with one PC per teacher and fewer than five pupils per machine.

### **Thin in 1-2-3**

Once Bærum municipality has obtained a discarded PC, Multiframe can be used to turn it into a thin client in a matter of minutes.

"Converting a PC into a thin client is very simple. You connect a PC to an active network port, insert a CD and boot the computer. We can also do this centrally via the network. When the computer is restarted, it becomes thin. All in less than five minutes," explains Dobson.

"In addition the procedure ensures simple administration of the IT environment. We can administer all the clients in the schools from a centrally located unit. This saves time for us and not least for the IT technicians. Using this method they have more time to focus on educational needs rather than technical ones," he adds.

*"We can administer all the clients in the schools from a centrally located unit. This saves time for us and not least for the IT technicians."*

Tristan Dobson, Bærum municipality

### **Greater endurance**

Few IT environments are as exposed to wear and tear and tough treatment as in schools. The machines are 'ravaged' at times. Since so many people use the same machines, the load is often higher than the machines were originally designed to withstand.

"Our solution eliminates this risk. All the data are safely stored on the server regardless, and thin clients have longer durability and less vulnerability for 'fiddling' by semi-advanced users. It is easier to maintain an approved security level on the terminal servers, to which the thin clients are connected.

#### **The challenge**

Norwegian schools struggle with providing pupils and teachers with good enough IT tools even when this is an authority requirement. Resources do not stretch far enough and the necessary solutions are often very expensive to purchase.

#### **The solution**

With the aid of Open Source software, Bærum municipality has introduced a terminal server solution that provides simple operation, flexible administration, increased security and cost savings. The pupils obtain more opportunities and high PC density. The municipality's recycling scheme ensures that old PCs are recycled in schools. The counterpart of the municipality's machines is on a Microsoft platform. Multiframe and terminal servers are a supplementary tool and enrich the existing operating environment. Multiframe can turn an old, discarded PC into a thin client in less than five minutes. This is used on the thin client side of the ICT solution for teaching. Professional support and consultancy services are directly provided from Redpill Linpro or via collaborating partner Umoe IKT. Second line support is supplied by the municipality's operations department, whilst suppliers are brought in for special requirements.

#### **The result**

Bærum municipality has a PC density of four to five pupils per computer. All teachers use a dedicated PC. Using Multiframe, the municipality has reduced its load on the environment and the budget can be used for far more important tasks than purchasing PCs. In addition, operation and administration is very simple for one of the largest networks in Norway.

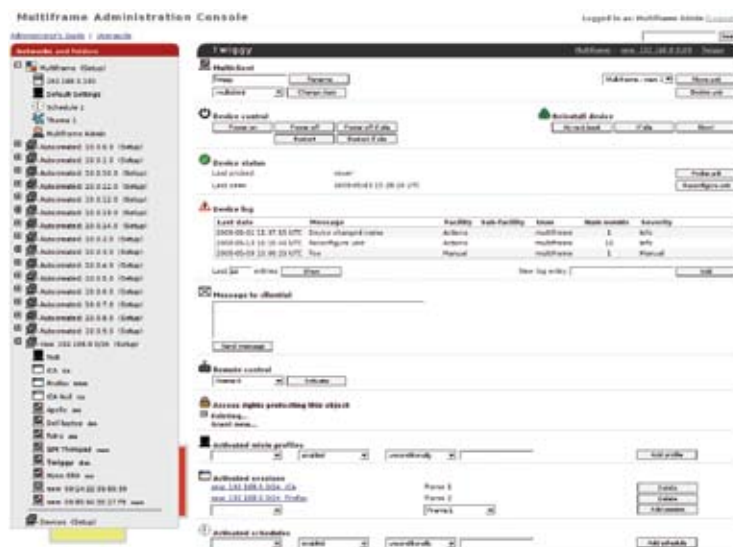
### About Bærum municipality

Bærum municipality has an area of 191.3 square kilometres and is the nearest neighbour to the country's capital. Sandvika is the municipality's administrative centre. Bærum is one of the country's most populated municipalities, with a little over 100,000 inhabitants. The municipality has almost 6,000 employees. The head of schools has responsibility for over 40 schools, 1,200 teachers and 15,000 pupils.

### About Redpill Linpro

Redpill Linpro is the leading provider of Professional Open Source services and products in the Nordic region. We provide consulting, development services, training, support, application management and IT operations for Open Source products.

Our offices in Stockholm, Oslo, Copenhagen, Helsinki, Karlstad, Gothenburg and Stavanger work together to ensure that our customers are offered the best services irrespective of location.



### Green Multifram:

“With the aid of Multifram we can turn an old, discarded PC into a thin client in less than five minutes. This means that we can provide the municipality's pupils with a PC density that far exceeds the average”, says Tristan Dobson.

### Be free

“There is no dispute that without Multifram and Open Source software our costs would increase and the pupils would have access to fewer PCs. It is a classic ‘win-win’ situation for the environment and all others involved,” he says.

Redpill Linpro is used as an expert resource for the municipality when upgrading, and Dobson is very satisfied with the follow-up. He is also very satisfied that Redpill Linpro has now released the source code for Multifram (under a GPL licence):

“With Redpill Linpro’s decision to make the source code freely available, Multifram will become an even better tool. Many people will work on developing it further, experiences will increase and the knowledge base will become far richer,” he concludes.