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How the “Lego Approach” Helped Norway Giant SpareBank 1 Create a Flexible Data Center

Oslo, the most populated city in Norway, is the hub of the country's governmental, economic, manufacturing and shipping industries. At its center is an alliance of banking, insurance and holding companies under the brand “SpareBank 1.”



With 15 independent banks and 6,300 employees, SpareBank 1 is Norway's second largest bank alliance. Amongst others, the banks collaborate within IT, which is handled through SpareBank 1 Gruppen AS (SpareBank 1 Group). At the SpareBank 1 Gruppens office building in Oslo, they plan, develop and support the deployment of their own IT operations systems and software processes for the entire organization. A few years ago, with business growing and the demand for data security and preservation on the rise, IT experts and executives at SpareBank 1 began the mission to improve the infrastructure of their data centers. It was in the spirit of their self-reliant



They used what they called the “Lego Approach.”

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Magnus Askautrud,
Business Development Manager for Coromatic



SpareBank 1's state-of-the-art data center gives them the flexibility to cool the equipment and maintain the continuity of operations.

approach to business that SpareBank 1 began the mission to upgrade their data center operations into state-of-the-art facilities that were tailored specifically to their organizational needs.

Planning for a Safe and Cool Data Center

Creating the best design to support the alliance, SpareBank 1's executives and IT experts planned for a two-year process that would include the design, development and implementation of their very own highly-tailored data center. The alliance had many options to consider when planning their new facility including the possibility of collateral risk. SpareBank 1's past approach to this risk involved splitting their system into two facilities which were separated by a single street.

The alliance reconsidered this measure when planning their new data facilities after a close call a few years earlier when in 2011, a car bomb set by a lone wolf terrorist group exploded in Oslo's government quarter. The blast was devastating, collapsing walls, shattering windows, starting fires and sending debris flying into important governmental and business

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centers. In addition to the shock, citizens and officials had to face the uncertainty of knowing that their vital data and records had been compromised and possibly even lost forever in the blast. Having narrowly missed a hit that would have likely taken out both data center facilities, the alliance determined that having both facilities within close-proximity would not provide sufficient back-up should a disaster occur.

Also on the minds of leaders at SpareBank 1 was the effect the increased IT demands were having on the stability of the aging data centers, particularly as it applied to the increasing heat loads. With IT demands only increasing, the alliance was looking for new ways to cool the equipment and maintain the continuity of operations. The alliance had three options to consider: upgrading one of their two existing data centers, contracting a colocation provider from the open market, or building a new data center location on-site.

As a first step in reducing risk, SpareBank 1 contracted a colocation site in 2011-2012. They determined that ownership of a data center in their own central location was crucial to their function as a banking hub, and established plans to move forward with building a new center on-site.

Coromatic and Chatsworth Products

The alliance began planning for the data center location in the existing office buildings in Oslo, by outlining the top criteria that they were looking for in vendors and core partners:

1. Quality
2. Functionality
3. Price
4. Company stability and structure



SpareBank 1 received five different tenders from data center solution companies. Negotiating with the top three parties, SpareBank 1 found Coromatic AS to be best suited for their needs. Coromatic had a solid history of quality solutions, skills and experience with projects whose demands would be similar to their own and in May of 2013, SpareBank 1 signed an agreement with the vendor. Construction then began in the summer of 2013.



Open Architecture design supports Hot Aisle Containment and allows for more equipment.

Finding Space and Utilizing It to the Fullest

It became clear during the design phase that one of the top challenges of the SpareBank 1 project was going to be finding an appropriately sized location for their data center. "We were very lucky to find the 84 meters of space to use for this purpose," said Nora Midtsund, IT Project Manager for SpareBank 1.

"It's always a challenge when you have to make adjustments in an existing building. We know you have to find solutions and compromise," said Magnus Askautrud, Business Development Manager for Coromatic. From a project management standpoint, developing and executing a project of this size in this unique space was, indeed, going to be quite the challenge. Here, Askautrud recalls the essence of the original customer request. "They said, 'Give us the best technical solution. We need 28 racks and better cooling to support the equipment.'"

“ We can use our knowledge to design and build the best data center suited for our client in their unique situation. All the way down to the racks, type of cooling and containment. ”

**Magnus Askautrud,
Business Development Manager for Coromatic**

However, Askautrud saw this project as not only an opportunity to create solutions that would work for SpareBank 1's specific challenges, but also as a chance to develop a better understanding of dealing with space and infrastructure obstacles. "This was an opportunity perfectly suited for Coromatic and the type of challenge we like to take on," he said. "We can use our knowledge to design and build the best data center suited for our client in their unique situation. All the way down to the racks, type of cooling and containment."

Open Architecture Allowed Them to Build It On the Spot and Get More Rows for Free

Coromatic teamed up with data center product manufacturer Chatsworth Products (CPI), and together the two companies faced the challenge of designing and constructing a large data center in a challenging environment. The team approached the project using an open architecture design to create a layout that would support Hot Aisle Containment while saving space. Once they determined that the infrastructure would fit into the area provided, they then faced planning a project where assembly was challenging because of space limitations. Coromatic and CPI determined that due to these limitations, a pre-configured system was not an option and that the data center would



Evolution® Cable Management, Four-Post QuadraRacks, Aisle Containment Door Systems and Brushed Grommets were used to build a flexible solution that could be assembled on site.

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Magnus Askautrud,
Business Development Manager for Coromatic

have to be assembled on the spot. They called this method the "Lego Approach" because it required each part to be taken in and assembled piece by piece like a Lego Set.

"If you have a cabinet that's 1,200 mm deep and you go down to 750 mm deep, after two rows, you get a row for free!" Magnus Lundberg, CPI's Regional Sales Manager for Northern Europe added as he explained the technical, and creative approach to this economical design.

By using CPI's Four-Post and Two-Post Racks, it was possible to eliminate the door typically used when a cabinet system is chosen and save space. While this concept is new in the European market, it has been utilized in North America for some time, and this approach can actually be a key asset in certain data center deployments. This space saving measure also allows for accessible cable management which is key to managing performance and function of data transfer and by eliminating the doors, equipment is more accessible and easy to work on as well.

Getting to a Desired PUE With Containment

SpareBank 1 needed a data center that could accommodate 200 kW of power and cooling, and seeking the most efficient data center possible, opted for Hot Aisle Containment (HAC) to achieve their desired Power Usage Effectiveness (PUE) goal of 1.3. Using the concept of CPI Passive Cooling®, the team was able to create a design that would make that possible. Coromatic and CPI created a layout that included high-quality CPI products such as Evolution® Cable Management, Four-Post QuadraRacks, Aisle Containment Door Systems and Brushed Grommets. This design approach not only met the needs of the customer, but also worked well within the limitations of the project.

“Changes were being done while we were building, so this solution gave us the flexibility to make adjustments as we went,” stated Askautrud. “For the design of the solution, I like the interoperability of CPI products. I can pick and choose and assemble a solution. I can choose from cable management products for inside and outside of the rack or cabinet. It gives me a lot of flexibility. It’s very fast finding different solutions such as blanking panels. Everything is specialized, that’s what I like about CPI. You can make a special solution for Coromatic, and some tenders demand that. No one else can do this in a small quantity for our particular needs,” he further stated.

Designing a room to accommodate many different manufacturers and functions like Cisco switches, HP servers, back-up systems and telecom equipment, options were needed that would adjust and flex with different systems.

“The challenge is planning with several different types of equipment. And when you have a room planned and designed, the server and switch manufacturers often come out with new product designs that can mess up your airflow. However, you can eliminate this problem because everything is possible when you work with a ducted system,” commented Lundberg.



Magnus Askautrud, Business Development Manager for Coromatic and Magnus Lundberg, CPI Sales Manager for Northern Europe review the options for the SpareBank 1 project.



SpareBank 1’s 1.9 million customers rely on this data center to support online banking and insurance systems.

Easy to Install and Work With

Customers at the alliance were especially pleased with the installation process and commented that the system not only offered a flexible design, but was easy to access and aesthetically pleasing as well.

“The CPI products look very nice and are very efficient when it comes to the space. The cable management products give us a lot of room for cabling in a situation when everything is very tight,” stated SpareBank 1’s Head of Network Department, Pål Blomkvist.

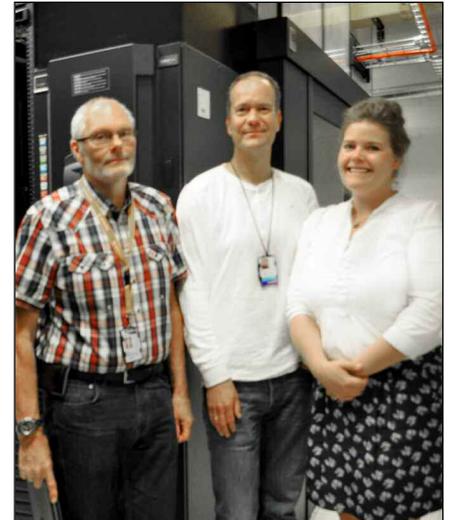
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After a careful design and logistics planning process, and an innovative construction and assembly period, SpareBank 1 now operates with an improved data center. This data center not only supports the 1,000 people located in the building, but also 6,300 employees at 352 additional SpareBank 1 branches across Norway. In addition to this, the data center also supports online banking and insurance systems for the alliance's 1.9 million customers. Through bringing together industry experts Coromatic, CPI, and SpareBank 1, a team was created that was able to collaborate, design and install their new energy efficient data center. This successful endeavor has allowed them to succeed in enhancing the quality and functionality of their IT systems, which has contributed to the stability, structure and success that continues to make SpareBank 1 an industry leader in its own right. 



Trond Thommessen, Operations Manager, Pål Blomkvist Head of Network Department and Nora Midtsund, IT Project Manager.

About Chatsworth Products

Chatsworth Products (CPI) is a global manufacturer providing voice, data and security products and service solutions that optimize, store and secure technology equipment. CPI Products offer innovation, configurability, quality and value with a breadth of integrated system components, covering virtually all physical layer needs. Unequaled customer service and technical support, as well as a global network of industry-leading distributors, assures customers that CPI is dedicated to delivering products and services designed to meet their needs. Headquartered in the US, CPI operates global offices within the US, Mexico, Canada, China, the Middle East and the United Kingdom. CPI's manufacturing facilities are located in the US, Asia and Europe.

CPI is listed with the General Services Administration (GSA) under Federal Supply Schedule IT 70. Products are also available through GSA Advantage and through Government Wide Acquisition Contracts (GWACs), including GSA Connections and NITAAC-ECS III. (www.chatsworth.com/gov).

About SpareBank 1

SpareBank 1 Gruppen is one of the largest providers of financial products and services in the Norwegian market. The banks in the SpareBank 1 Alliance distribute SpareBank 1 Gruppen's products and collaborate in key areas such as brands, work processes, expertise development, IT operations and system development.

SpareBank 1 Gruppen AS is a holding company that, through its subsidiaries, provides general and life insurance and fund management. SpareBank 1 Gruppen AS is owned by Sparebanken Hedmark (12%), SpareBank 1 Nord-Norge (19,5%), SpareBank 1 SMN (19,5%), SpareBank 1 SR-Bank (19,5%), Samarbeidende Sparebanker AS (19,5%) and the Norwegian Federation of Trade Unions (LO)/affiliated unions (10 %).

The SpareBank 1 Alliance's main goal is to ensure the individual bank's independence and regional foundation through strong competitiveness, profitability and financial soundness. At the same time, the SpareBank 1 Alliance is a satisfactory competitive alternative nationally and on a Nordic level.

The SpareBank 1 Alliance comprises approximately 350 offices and branches all over Norway. SpareBank 1 Gruppen's products are distributed through almost 350 offices that cover every county in Norway. In total, the Alliance has approximately 6,500 employees. 1,300 of these are employed by SpareBank 1 Gruppen AS and its subsidiaries.

SpareBank 1 Gruppen AS owns companies that provide general insurance, life insurance, fund management and other financial products and services to SpareBank 1 banks and their customers, as well as to members of the Norwegian Federation of Trade Unions. Accordingly, the distribution of these products mainly takes place through the SpareBank 1 banks and through agreements with the Norwegian Federation of Trade Unions and its affiliated unions.