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Claes-Henrik Unger
 Storage Architect, IT Infrastructure
 VPS



VPS: The Norwegian Central Securities Depository

INDUSTRY Banking and Finance: Services

SOLUTIONS *Business Continuity, Virtualization*

Hardware — Hitachi Universal Storage Platform® V (2) and Hitachi Adaptable Modular Storage 2300 (2)

Software — Hitachi TrueCopy® Synchronous/Extended Distance, Hitachi In-System Replication software bundle

Norwegian Central Securities Depository (VPS) Secures Continuous Operations with Hitachi Enterprise Storage

In total, Norway's VPS stores information from 1300 different registered companies. All transactions, clearings and deposits linked to their respective owners are stored, processed and handled by the VPS data center. Statistics shows that VPS has handled more than 220,000 transactions daily with values over 195 billion NOK. To ensure continuous availability and delivery of vital data 24/7, VPS turned to Hitachi Data Systems for a virtualization solution built on Hitachi enterprise and modular storage.

VPS ASA was established by law as Norway's sole central securities depository (CSD). VPS provides a full range of depository services to issuers and investors in the Norwegian securities market. VPS customers are brokers, banks and portfolio and investment managers.

Legislation passed in 2003 allowed other authorized depositories into the market. High availability of transaction data, customer records and portfolio data are key in serving VPS customer in a very competitive market. In order to ensure this high availability of high volumes of data, VPS

has upgraded their storage platform and deployed two Hitachi Adaptable Modular Storage 2300 (AMS 2300) systems, in addition to the installed Hitachi Universal Storage Platform® V (USP V), ensuring secure and continuous delivery of business critical information. The total storage platform supports a number of virtual machines, creating an IT infrastructure that runs 24/7. A high degree of automation makes today's systems easier to manage, and puts VPS in a position where they can offer comprehensive services with extreme security; loss of data could lead to significant financial consequences, possibly even on a national level.

"The securities market is the meeting place for companies with long-term capital requirements and investors seeking good investment opportunities. VPS's job is to pave the way and enable the securities market to function as well as possible," explains VPS Storage Architect Claes-Henrik Unger.

The Hitachi Choice

VPS has been a Hitachi Data Systems customer since 1988. When the Hitachi Thunder 9570V™ systems finally came to their end of life and needed to be replaced, the decision for VPS Storage Architect Claes-Henrik Unger, to continue with Hitachi Data Systems, was an easy one. Since VPS first bought their first storage CPUs and their first solid state disk (SSD) with 188MB in 1988, which, at that time, halved the response time, the IT organization has been a dedicated Hitachi technology user.

"We have never experienced unplanned downtime with our production systems, and we are extremely security minded; mirroring mainframes and storage systems continuously gives us the 100 percent uptime we require in our operations. We have rarely experienced unplanned downtime, due to synchronous mirroring with the TrueCopy solution [Hitachi TrueCopy® Synchronous] from HDS," says Claes-Henrik Unger.



"We are totally dependent on fast access to all our data, good backup and quick restore. We are in a very competitive situation and rely heavily on the trust of the market. Hitachi storage systems allow us to keep that trust."

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Storage Architect, IT Infrastructure
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Infrastructure and IT Environment

VPS has two data centers on two different sites. Site one runs on mainframe IBM® System z® with USP V as main storage and AMS 2300 models as secondary storage operating systems. The environment is partly with UNIX, Red Hat (server) and Microsoft® Windows® (clients) and is paralleled on site two using LUNs from both systems.

While the solution virtualizes data from AMS 2300 systems to USP V, it also (to a large extent) moves data between SAS and SATA disks in order to save costs. Today’s solution offers efficient and easy movement of data to cheaper disks and will be more and more common in the future since disk costs are being slashed constantly. This enables better use of the high-end disks for more important data,

and thus efficient tiering of data. This, over the last three years has increased storage capacity by 197 percent and reduced storage costs by 6.9 percent.

Part of the storage solution supports the mainframe environment and the rest supports the open platform. Disaster recovery software (including TrueCopy Synchronous mirroring) is used between the sites.

On the USP V, VPS is running mail, office functions and applications plus multiple virtual storage (MVS) core systems with databases and Internet. On the Hitachi AMS 2300 systems they run file servers, logs and backups. VPS operates with three categories of data, which can be run and moved manually as well. After implementing Microsoft SharePoint® and Outlook®, IBM Lotus Notes was moved to tier three. This is lifecycle management in

practice. The most important and highly classified data are stored on the most high cost disk with a guaranteed 100 percent availability. Data with lower classification are stored on less expensive disks and part of a virtual solution.

VPS is at the very forefront in today’s market, offering comprehensive services at optimal prices. The organization is operating in a highly competitive market. However, it has found a good balance between security at the highest level and cost-efficiency due to highly automated and tested processes in their storage routines as a result of the Hitachi storage infrastructure.

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