IP-Only AB

Packing three times as many VMs into the same infrastructure thanks to IBM FlashSystem

Overview

The need

Hosting company IP-Only wanted to maximize the benefits of business growth by packing more virtual environments into the same physical infrastructure and delivering faster analytical insight.

The solution

Worked with IBM® Premier Business Partner Svensk IT Funktion to deploy an IBM FlashSystem™ 840 device behind an IBM Storwize® V5000 storage virtualization solution, plus a second tier of SAS disks.

The benefit

IP-Only can run three times more virtual machines on the same servers, improving profitability. A tenfold reduction in latency has helped one client accelerate report generation by over 99 percent.

IP-Only AB is a Swedish internet and telecoms operator that owns its own Nordic fiber infrastructure, metro area networks, data centers and infrastructure-as-a-service (IaaS) platform. Its customers include telecoms operators, communications-intensive companies, financial institutions and media companies.

Potential for growth

Recognizing that the enormous growth potential of its IaaS offering was being impeded by its existing data storage infrastructure, IP-Only decided to deploy a new generation of block storage.

Christian Pallinder, Senior Solutions Architect for IP-Only's hosting business, explains: "We are aiming to more than double the value of the IaaS side of our business; already in the last six months, the number of virtual machines has tripled. When you run large numbers of VMs, the main bottlenecks are storage latency, throughput and IOPS. A major issue was that many of our CPUs were often idle, doing nothing but waiting for data."

IBM FlashSystem helps IP-Only cut costs by reducing the need to deploy new physical servers as the virtual landscape grows. Says Christian Pallinder, Senior Solutions Architect, "The impact of FlashSystem exceeded our expectations, enabling us to run around three times more VMs per physical server. Effectively, the solution paid for itself immediately."

Solution components

Hardware
- IBM® FlashSystem™ 840
- IBM Storwize® V3700
- IBM Storwize V5000

Software
- IBM System Storage® Easy Tier®

Services
- IBM STG Lab Services

IBM Business Partner
- Svensk IT Funktion

To keep its hardware and operational costs low as its business grows, IP-Only must maximize the number of virtual machines (VMs) running on each physical server. In the business case for the new storage architecture, the company sought a tenfold reduction in latency, which would help it achieve a fourfold increase in VM density on its VMware ESX Server hosts.

"We had seen the benefits of adding SSDs to our previous architecture," says Pallinder, "but also their limitations, which stem largely from being treated just like normal disks by the controller. For the new architecture, we wanted a new approach that would enable us to get more out of the same physical footprint."

From concept to production

IBM STG Lab Services conducted a proof of concept of the IBM FlashSystem 840, taking just two hours to deploy the flash solution behind one of IP-Only's existing IBM Storwize disk virtualization solutions. The dramatic reduction in latency and improvement in throughput convinced IP-Only that FlashSystem was the answer to its VM consolidation challenge.

Working with IBM Premier Business Partner Svensk IT Funktion, IP-Only deployed a FlashSystem 840 with 8 TB of flash behind a new IBM Storwize V5000. The second tier of storage is a new IBM Storwize V3700 with 70 TB total capacity (using 4 TB SAS drives). IBM System Storage® Easy Tier® software on Storwize automatically migrates "cold" data from the high-performance flash tier to the more economical SAS tier.

"Every new block is written to FlashSystem first, then migrated to disk when the client no longer needs such rapid access to it," says Pallinder. "Easy Tier and full storage virtualization play a major role in the architecture, giving us software-defined storage that is very flexible to manage."

"FlashSystem helps business to get faster analytical insight and respond more quickly to new demands."

—Christian Pallinder, Senior Solutions Architect, IP-Only AB

Thanks to FlashSystem, which features IBM MicroLatency™ technology, the new storage architecture offers application response times as low as 0.7 milliseconds. Virtual CPUs now spend much less time waiting for data, freeing up resources and enabling IP-Only to run more VMs on each physical server.

Increasing performance for clients

One of IP-Only's clients, an energy company, was required to switch from monthly to daily reporting on its customers' energy consumption. Before migrating to IP-Only's IaaS platform, the monthly report took 26 hours to generate. By tweaking the VM configuration and, critically, moving all 200 GB of data to the flash tier, IP-Only cut the processing time to just 15 minutes—a more than 99 percent reduction.

"At first, our client thought the batch was failing to run properly: the performance improvement seemed impossibly good," recalls Pallinder. "This shows how FlashSystem helps business to get faster analytical insight and respond more quickly to new demands."

In another example, a company migrated a billing database from a physical server with 32 cores and 64 GB of RAM to an IP-Only VM. The VM has just four virtual cores and 16 GB of RAM, yet it runs three times faster. "We can drive the CPUs harder, so we use fewer of them to achieve the same or better performance for our clients," says Pallinder. "And as FlashSystem enables us to run three times more VMs per physical server, we can grow without necessarily needing to invest in new hardware—boosting our cost-efficiency."

For more information

To learn more about IBM flash storage solutions, contact your IBM representative or IBM Business Partner, or visit the following website: **ibm.com**/storage/flash

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