Hosting Provider Expects to Save $9.4 Million with Move to Windows Server 2012, Hyper-V

Overview

Country or Region: Turkey
Industry: Professional services—IT services

Customer Profile
KoçSistem, based in Istanbul and with offices throughout Turkey, provides a full spectrum of IT services and solutions. It has 1,200 employees.

Business Situation
To support continued business growth, KoçSistem wanted to increase the scalability and performance of its cloud-hosting platform and reduce high costs.

Solution
After attempting one virtualization solution, the company switched to the Windows Server 2012 operating system with Hyper-V, and Microsoft System Center 2012.

Benefits
- Achieves density of 200:1, three times that of other solutions
- Expects to reduce hardware costs by US$9.4 million
- Expects to reduce software licensing cost by $1.3 million
- Expects to boost IT productivity by 25 percent
- Expects to gain robust business continuity for virtual machines

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KoçSistem, a Turkish provider of cloud hosting and other IT services and solutions, came to question the cost and performance of the software it used for virtualization. To do better, KoçSistem migrated to a virtualization solution based on Windows Server 2012 with Hyper-V, and Microsoft System Center 2012. The company expects to gain virtual machine density that is three times that of its previous environment. As a result, it will run more virtual machines on fewer physical hosts. The increased density will reduce capital costs by an estimated US$9.4 million. Furthermore, streamlined and automated management will increase IT productivity by an estimated 25 percent, reducing operating expenses. KoçSistem plans to use the new technology for a robust business-continuity solution that increases reliability, customer support, and the company's own competitive advantage.

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Situation

At a typical company, if the IT infrastructure fails, the manager responsible for that infrastructure is going to hear plenty about it from his or her boss. If the IT infrastructure were ever to fail at KoçSistem, Unit Manager Murat Akin Irmak could hear about it from more than 200 "bosses"—his own, plus each of the corporate customers for the company's cloud-hosting services.

Irmak is responsible for the KoçSistem Technology Group, which provides cloud-hosting and other IT services to banks, oil companies, manufacturers, and other major companies throughout its native Turkey and beyond. These customers rely on KoçSistem and its data centers to run everything from SAP enterprise resource planning systems, to Microsoft enterprise solutions, to custom and line-of-business applications, and to support operating systems including both Windows Server and Linux.

To serve these customers successfully, KoçSistem must ensure that its hosting hardware, which now includes more than 100 servers, runs with the highest levels of availability and reliability it can achieve. To do this, the company's server maintenance staff of 20 people needs tools to manage those systems as quickly, easily, and effectively as possible. Systems need to scale to support increases in load—even sudden, significant increases. If a disruption should occur, the systems must be able to minimize the impact with a robust business-continuity solution. And, KoçSistem must minimize the capital and operating costs of the infrastructure so it can offer its customers competitive pricing.

A couple of years ago, to address this sweeping challenge, KoçSistem adopted virtualization technology. It saw servers running as virtual machines on physical hosts as a way to decrease costs. In theory, managing fewer hardware servers would make it possible for KoçSistem to manage those servers more efficiently and effectively.

KoçSistem virtualized 60 percent of its workload, a move that encompassed 4,000 virtual machines on more than 100 physical hosts, each running about 40 virtual machines. The capital investment came to about US$2.1 million.

Irmak and his colleagues say they soon found that they lacked the scalability they needed to meet customer needs and support continued growth. The management tools they used didn't provide the levels of automation and control that they wanted. Nor did the managers have a robust, comprehensive business-continuity solution for the virtualized systems.

"We didn't have the agility to respond to customer requests or load changes as quickly as we wanted to," says Irmak. "For example, we found the automated provisioning capability to be poor, taking both time and personnel that we could have used elsewhere."

Cost was another concern. "The licensing model was based on VMs [virtual machines] per host, so that limited the number of VMs we could cost-effectively put on each host," says Irmak. "The licensing model became increasingly unaffordable as we grew."

Solution

At about the same time that KoçSistem was developing its doubts about its virtualization technology, it approached Microsoft about an unrelated solution for its data center. Microsoft was a natural choice for KoçSistem because most of its environment ran on Microsoft operating

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system server and desktop software, and on enterprise applications including Microsoft Exchange Server 2010, Lync Server 2010, and SharePoint Server 2010.

The two companies discussed data center operations, infrastructure needs, and the concerns KoçSistem had with its virtualization technology. Microsoft proposed an alternative: the Hyper-V virtualization technology in Windows Server 2012, together with Microsoft System Center 2012 for data center management.

"We saw Hyper-V as a way to increase virtual machine density, streamline and automate management, and reduce costs," says Irmak. "But we saw the Microsoft solution as more than just a better hypervisor. We saw it as our way to move toward an agile, highly effective private cloud."

The enthusiasm KoçSistem had for the Microsoft solution led it to join a select group of early adopters for Windows Server 2012 and System Center 2012. The company has put the Microsoft virtualization solution into internal production and into production with external customers. The first phase of its migration to Hyper-V included a 16-node, 64-processor, 6 terabyte failover cluster running Windows Server 2012. The cluster supports 200 virtual machines and, according to KoçSistem's tests, has the capacity to support 3,200 virtual machines (at a density of 200 virtual machines per physical host). The cluster runs on Dell PowerEdge M620 blade servers in a Dell PowerEdge M1000e enclosure.

"In every procurement process, we ask hardware vendors to meet our needs for increased capacity and performance at the lowest possible price, and then select the make and model most suitable for the task

at hand," says Irmak. "Dell was best able to meet our requirements at the lowest price."

KoçSistem is using Windows Server 2012 and Hyper-V features to both facilitate and take advantage of its new, higher virtual machine density. Key among them are:

- **"Shared nothing" live migration.** As KoçSistem builds multiple clusters, it uses Windows Server 2012 to migrate virtual machines not only within a cluster, but across clusters, even those that share no storage and have only a common gigabit Ethernet connection, giving the company greater flexibility to manage an expanding number of virtual machines with maximum efficiency.
- **Hyper-V Network Virtualization.** Increased density means that KoçSistem can support more customers on fewer physical hosts; however, customers want to know that multitenancy arrangements won't pose a security risk to their proprietary data and processes. With Network Virtualization, KoçSistem can isolate customer networks without having to adopt complex and costly virtual local area networks.
- **Resource Metering and Quality of Service.** KoçSistem plans to use these features to track each customer's use of virtual machines, and then use the information for more accurate capacity planning and invoicing, and to help meet service level agreements.
- **Hyper-V Replica.** As it runs more virtual machines on fewer servers, it is more important than ever for KoçSistem to have a robust business-continuity solution. It plans to build one using Hyper-V Replica. It will use the technology to replicate virtual machines to secondary locations without the need for proprietary hardware.

The company will use System Center 2012 to monitor and manage the Hyper-V

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environment—for example, to rapidly create and decommission virtual machines, to apply memory and other resources where needed, and to automate management processes.

KoçSistem can also use System Center 2012 to give its customers the ability to create and decommission virtual machines on their own. KoçSistem is considering the use of System Center 2012 to manage the remains of its earlier virtualization environment, which would simplify management by eliminating the need for separate tools, maintenance, and training for each technology.

KoçSistem first migrated its test and development and web servers to the new platform. It followed this with the migration of virtualized instances of its mission-critical Exchange Server and Lync Server workloads. Then, KoçSistem offered Microsoft-based cloud hosting to new and existing customers.

"We can tell our customers to rely on Windows Server 2012 with Hyper-V because we rely on it ourselves," says Irmak. "Is there a better endorsement than that?"

Benefits

KoçSistem is using Windows Server 2012 with Hyper-V to increase virtual machine density, reduce the capital costs of hardware and software, reduce operating costs, and provide robust business continuity.

Achieves Density of 200:1, Three Times that of Other Solutions

KoçSistem wanted greater scalability to meet customer needs. That's what Irmak says the company has with the Microsoft solution. The 200 to 1 density that it has achieved in tests on its own hardware is

three times the capacity of the previous hypervisor on that same hardware. (In tests on larger hardware, Microsoft has achieved densities of up to 1,024 Hyper-V virtual machines per host.)

With Hyper-V also supporting 64 nodes in a cluster (more than twice as much as the previous technology) and virtual disks up to 64 terabytes in size (32 times the limit for the previous technology) KoçSistem has far more of the scalability it needs to handle sudden spikes in traffic and new and expanding customer workloads.

"We get great scalability with Windows Server with Hyper-V, and we're putting that scalability to great use" says Hasan Çolpan, Senior Consultant at KoçSistem.

Expects to Reduce Hardware Costs by $9.4 Million

KoçSistem wanted to increase the scalability of its virtual environment while decreasing its costs. It expects to achieve that goal, too, with Windows Server 2012.

Capital costs, for example, will decline markedly. Because of the greater density it gets with Hyper-V, KoçSistem will support the same load as its previous environment with one-third the hardware. That's a savings of about $9.4 million over the course of the company's five-year hardware-replacement cycle. As the workload increases in response to business growth, KoçSistem can accommodate it while avoiding most of the previous, incremental cost of hardware.

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Expects to Reduce Software Licensing Cost by $1.3 Million

Another capital cost is software licensing, where KoçSistem also anticipates major cost reductions. The company's previous licenses were based in part on the number of virtual machines it ran per processor. Irmak says he saw that as a financial disincentive or penalty for the increased density that KoçSistem sought. Windows Server 2012 Datacenter, which KoçSistem has adopted, is licensed with unlimited virtual machines per socket.

"Because of the densities we were running, we'll reduce our licensing fees by 65 percent as we move workloads to Hyper-V," says Irmak. "And, as we build up higher densities on Hyper-V, we can support those additional virtual machines essentially 'license-free.'"

When KoçSistem wishes to scale up memory to 1 terabyte per virtual machine, it will see further licensing savings by avoiding the licensing and memory entitlements (known in the industry as "taxes") required by other solutions, which currently cost more than $3,500 per processor.

Expects to Boost IT Productivity by 25 Percent

Capital costs aren't the only expenses that KoçSistem hoped to contain with its move to Windows Server 2012. Unit operating expenses are expected to be lower, too, in part because of the streamlined processes and automated tools that the company will use to manage the Hyper-V environment. Those new processes and tools will boost the productivity of the IT staff by an estimated 25 percent. KoçSistem will use that gain to support a similar, anticipated increase in business volume without the need for additional personnel.

In addition, unit operating costs will shrink as KoçSistem uses less power and cooling, and even needs less office space, to support the smaller footprint of the Hyper-V environment. All this will contribute to higher margins.

Expects to Gain Robust Business Continuity for Virtual Machines

The management tools and processes uniquely available for Windows Server 2012 will also boost the reliability of the environment by giving KoçSistem greater agility to respond to immediate and changing needs. That, in turn, will lead to better support for customers and a competitive advantage for KoçSistem.

One of the big gains for KoçSistem will be its ability to create the comprehensive business-continuity solution that it lacked before. "We expect to see greater availability with Hyper-V and, should disruptions occur, we'll be in a better position to recover from them," says Irmak.

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