

Building on experience:
**T-Systems consolidates
Amsterdam data center
for Shell**

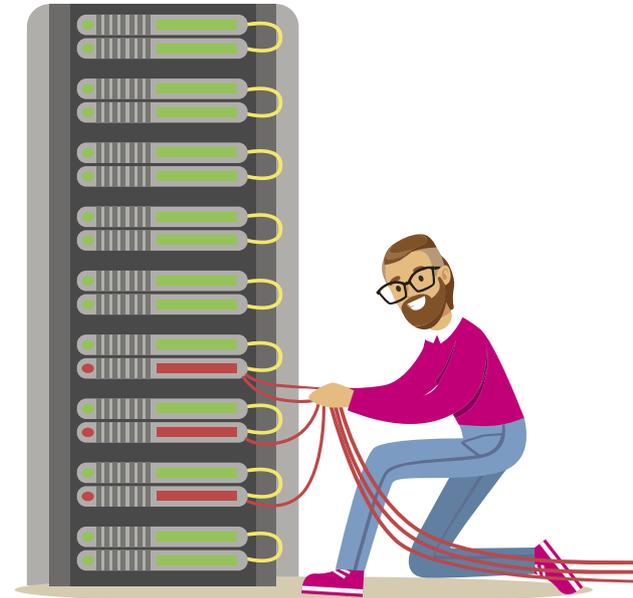
Monumental consolidation and modernization project supports Shell future proofing the company's IT services.



3
DATA CENTER
HALLS

were consolidated into

1
DATA CENTER
HALL



COPY — Thorsten Rack

Talk about a special beginning: an English importer of sea shells and a Dutch purveyor of lamp kerosene came together to form what is now the world's second largest oil and gas company¹. Today, Shell employs 92,000 employees², consists of four key business: Upstream, Integrated Gas and New Energies, Downstream, and Projects & Technology³, and is highly committed to putting technology and innovation at the core of all it does. Clearly, any organization this advanced requires stable and compliant IT services to run its daily operations. And that is where T-Systems comes in. For over nine years, Deutsche Telekom's corporate customer arm has been supplying Shell with worldwide data center services. And although its contract was not yet due to expire, Shell decided at the end of 2016 to extend T-Systems' contract until 2022. Under it, the IT provider is responsible for not only delivering market solutions with a high level of automation and agility, but also for operating data centers in Munich (Germany), Houston (USA), Cyberjaya (Malaysia) and Amsterdam (The Netherlands).

And it is Amsterdam, the Dutch city of canals, tulips and bicycles, located over 60 kilometers from Shell's headquarters in The Hague, that recently played host to a massive data center consolidation and modernization project. "The task was to consolidate the hardware and software from three different data center halls into one single hall at Amsterdam Data Center 1, and install a new platform for dynamic computing services (DCS)," said Jo Brobbel, T-Systems Delivery Manager responsible for Infrastructure services. What ensued was an unparalleled race against the clock that started in December 2015. As Brobbel explained, "The scope was even bigger than that of the Houston IC data center exit project two years earlier, at the time

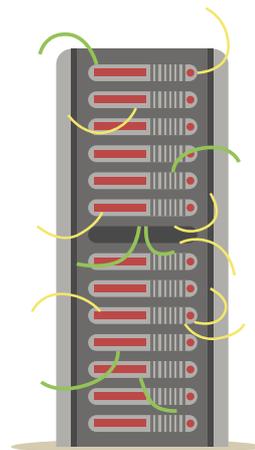
150,000
METERS OF CABLING
were re-installed

the largest data center relocation in our history. This time, we had to relocate twice as many devices and services in less than half the time."

MIGRATING 12,000 TERABYTES OF CORPORATE DATA

All in all, T-Systems' team of roughly 200 people transported or disposed of 6,500 servers, storage devices, network appliances and other hardware components – including 1,000 complete server racks. Team members laid 150 kilometers of new cabling, migrated over 1,500 virtual servers, and transferred nearly 12 petabytes – or 12,000 terabytes – of corporate data. From the beginning, Shell made its expectations very clear to its longstanding ICT supplier: no unplanned interruptions or system failures during the relocation. The servers, after all, hold countless mission-critical applications and sophisticated IT environments, including Shell's Exadata platform with more than 120 databases or applications supporting the corporation's oil production, energy trading and financial management activities.

"Besides the ambitious schedule – a complete relocation in only 15 months – we faced two other big challenges. First, in scope management, we had to identify our core tasks and the best way to conduct them to make the migration successful. And with some of the IT changes, we didn't always have a pat solution to hand, particularly in the begin-



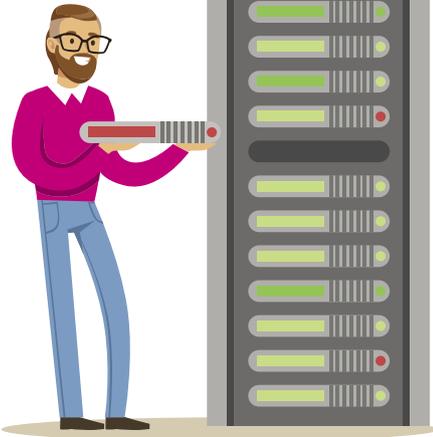
40,000
NETWORK
CONNECTIONS
were eliminated

Illustrations: Shutterstock (3)

¹ <https://www.forbes.com/global2000/list/#tab.overall> ² <https://www.shell.com/about-us/who-we-are.html> ³ <https://www.shell.com/about-us/what-we-do.html>

6,500

HARDWARE COMPONENTS
were relocated or disposed of

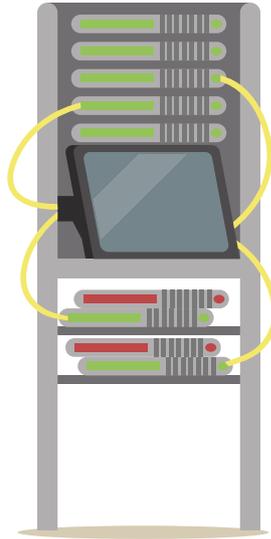


ning,” explained Khalid Id-Lahcen, T-Systems Program Manager. The Amsterdam data center’s power requirements also put the team’s talents to the test. As Id-Lahcen explained, “We had to optimize the storage elements prior to consolidation since the bundled hardware would otherwise have consumed too much energy.”

LEVERAGING LESSONS FROM HOUSTON

Despite these challenges, the T-Systems team led by Brobbel and Id-Lahcen didn’t stumble. After twelve months, in December 2016, the hardware and software moved from Data Center Hall 2 to Hall 1 without a major malfunction. Three short months later, in March 2017, the relocation of Hall 3 to Hall 1 finished on schedule and the sparkling clean buildings were handed back over to the landlord on June 6, 2017. The project built on experience and methods developed during the Houston IC data center exit project. For example, the team relied once again on Cisco Overlay Transport Virtualization. This network technology made it possible to migrate 1,500 virtual servers running dynamic cloud services without having to change IP addresses. That significantly lowered the overall administrative effort.

“Other key success factors included careful planning and close collaboration among all participating teams,” said Brobbel. “We worked hand-in-hand with AT&T, Hewlett Packard Enterprise and other technology partners and set up SWAT teams around the globe. Our teamwork with Shell’s departments was smooth and we highly appreciate the level of teamwork we experienced from all parties involved.” Harry de Grijns, Vice President & CIO IT Services and Operations at Shell, concurred: “I’d like to thank the entire team,



12,000

TERABYTES OF DATA
were migrated

the people from the other internal IT units and the employees of T-Systems and other technology partners who helped make this project a success. Our careful preparations paid off, and I am thrilled with the end result.”

NEXT UP: THE UPDATE TO THE STATE-OF-THE-ART CLOUD PLATFORM

This key strategic project was not over when the three data center halls were successfully consolidated into one, however. Shell’s private cloud platform for dynamic computing services also required to be updated from DCS 2.0/2.5 to DCS 3.0, T-Systems’ largest and most advanced platform. “We transformed the current system, a blend of customized hosting and storage services, into a model of market-driven solutions with a high degree of automation,” stated Id-Lahcen. The Exadata databases will run on this platform in the future, too.

With all said and done, the consolidation and modernization project delivered two key benefits for Shell. First, it slashed the cost of operating its data centers. Second, the project future-proofed the company’s IT services. Not only will DCS 3.0 enable many business applications to run with more extensive automation, but the platform will also support enhancements and improvements for an extensive period of time. “Our mission is to add measurable value to our company’s core business,” said Harry de Grijns, “and that requires flexible, high-quality services.” Now that its data centers have been modernized and migrated to T-Systems’ latest platform, it is poised to deliver on that mission.

“Our mission is to add measurable value to our company’s core business.”

HARRY DE GRIJNS,

Vice President & CIO IT Services & Operations, Shell

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