

SAP Customer Success Story Oil and Gas – Industrial and Medical Gases



“I can definitely say [SAP LoadRunner] was a total success, because we really had no problems with performance when we went live.”

Thomas Steinich, Manager, Customer Competence Center,
Linde Gas AG

AT A GLANCE

Company

- Name: Linde Gas AG
- Location: Pullach, Germany
- Industry: Oil and gas
- Products and services: Industrial and medical gases
- Revenue: €11.9 billion (projected for 2006)
- Employees: More than 17,000
- Web site: www.linde-gas.com
- Partners: Hewlett-Packard and SAP® Consulting

Challenge and Opportunity

Implement portal for online sales

Objective

Demonstrate new portal component is capable of handling anticipated loads

SAP Solutions and Services

- SAP LoadRunner application by HP
- SAP NetWeaver® Portal component

Implementation Highlights

- Comprised multiple trial runs to reveal bottlenecks
- Included a successful parallel implementation of SAP NetWeaver Portal
- Comprised a scalability demonstration

Why SAP

Allows SAP Consulting to analyze results of load testing

Benefits

- Resulted in a 1,700% improvement in system performance
- Afforded risk avoidance

Existing Environment

- SAP® ERP application
- SAP Strategic Enterprise Management application
- SAP NetWeaver Business Intelligence component

Third-Party Integration

- Database: Oracle
- Hardware: IBM
- Operating system: IBM AIX, Microsoft Windows XP, Microsoft Windows Server 2003

LINDE GAS

SAP® LoadRunner by HP Detects Portal Bottlenecks, Averting Significant Problems

“If you don’t run it, you will run a big risk later on when you face reality.”

Thomas Steinich, manager of the customer competence center for Pullach, Germany–based Linde Gas AG, is talking about the SAP® LoadRunner application by HP, and he speaks with considerable conviction. The first time his team ran the SAP LoadRunner application, the system under test crashed far sooner than anyone anticipated. But since it was only a prerollout test, there was no harm done. Steinich and his team corrected the problems and rolled out a nearly flawless product, in this case the SAP NetWeaver® Portal component. So where SAP LoadRunner is concerned, Steinich is a believer.

No Portal Availability Means Big Problems

In 2005 Steinich was preparing to roll out a new portal to augment his company’s sales channel. Linde Gas AG, a part of Linde AG, is one of the largest producers of industrial gas in Europe. Gases from Linde are used in the metal processing, chemical, food, environmental, hydrogen technology, and medical industries. In Germany alone, the company uses its production and distribution network to supply more than 210,000 customers. With a presence in more than 70 countries, Linde Gas projects revenue for 2006 of €11.9 billion.

Linde Gas sells its products through third-party distributors called depots. In 2003 the company decided to connect the resellers directly to its sales and distribution system via the Internet. “This is a really business-critical application,” says Steinich. “If our resellers cannot sell our product, we will lose customers and damage our business. And if something harms the sales channel by not having the right performance or, even worse, not having the portal available, then we would have big, big problems.”

In 2003 Linde Gas had progressed to the ramp-up phase of the SAP NetWeaver Portal component and the Web Dynpro development environment before anyone thought about performance validation. Says Steinich, “We were unaware, and nobody told us,

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that you have to think about load testing. During the process, when we came to the point of pain, we had to think about how we could test the software. We expected some 1,200 users should be able to work with that program.”

Proof of Concept

SAP Consulting developed a proof of concept using SAP LoadRunner for performance validation of SAP NetWeaver Portal. With the rigorous load-testing functionalities of SAP LoadRunner,

organizations can better deliver high-performing business processes and can execute, upgrade, or modify existing processes securely. The application enables organizations to test processes

“The average transaction response time . . . started at 29 seconds. After everybody was finished with the tuning engagement, it was 2.5 seconds.”

Ralph Killenberger, Project Manager, Hewlett-Packard

before go-live and helps project teams make necessary corrections – and then retest – before the processes are delivered to end users. At Linde Gas, the goal of the proof of concept was to determine if SAP LoadRunner could provide a detailed analysis of Linde’s application structure, which included its Web client, its browser, the Citrix servers, SAP NetWeaver Portal, SAP Web Application Server (functionality now found in the SAP NetWeaver Application Server component), and the entire SAP software landscape.

Performance Optimization Service

“At the time, I was project manager, so I was responsible for delivering the performance optimization service, otherwise known as the tuning engagement,” recalls Ralph Killenberger, developer of SAP LoadRunner at Hewlett-Packard. “The first phase of our task was to implement a performance validation.”

Killenberger and his team developed scripts that corresponded to the business transactions. Then they described scenarios representing concurrently running loads different users had created. Finally they established the monitoring regimen required to determine where the fault lies if the system breaks under load.

Shocking System Failure

“With SAP LoadRunner, you’re simulating exactly what normal users are doing,” says Killenberger. “We start with one user and ramp up to, say, 100 users. The goal of our first test at Linde Gas was 250 users or so. And we failed at 27 users. This was a clear indication of a really big problem. Everybody was quite shocked, because everybody had already invested a lot of time in getting each part of the system right. And it failed with just a bit more than 10% of the expected load.”

“We were really shocked,” echoes Steinich. “What had we built? Did we use the wrong technology? You start thinking, ‘Gee, we invested so much money, we should be finished at this point.’”

Instead it was back to the drawing board. For the second test, the test team added more monitoring. “At that point,” says Killenberger, “they uncovered quite a number of bottlenecks – with the infrastructure, the configuration, the scripting – even the portal application itself had to be tuned.”

1,700% Improvement

After multiple additional sessions, significant improvements were obtained. “Ultimately we delivered a performance improvement on average of about 1,700%,” says Killenberger. “So the average transaction response time – for example, the sales process, where you sell a bottle of oxygen – started at 29 seconds. After everybody was finished with the tuning engagement, it was 2.5 seconds.”

“It was a real benefit to have SAP LoadRunner, and the results we achieved when we used it were really fantastic,” says Steinich. “In the end I can definitely say it was a total success, because we

really had no problems with performance when we went live. We are now up and running with 800 depots, handling their business via SAP NetWeaver Portal. This is really a total success.”

An Additional 1,000 Depots, No Problem

Of course it’s always useful to know just what the capacity of your system is. “If you see the system is able to run with the target 250 concurrent users, you don’t just press SAP LoadRunner’s stop button,” says Killenberger. “You just let it go as long as it can, just to show the customer how scalable the solution is.”

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“By the end, we were able to run it with 600 concurrent users without any problems and with a really good response time,” says Steinich. “In reality, we have around 250 to 300 concurrent users now, so we can lean back and relax and continue our rollout. And even if we load up the portal with an additional 1,000 depots? No problem.”

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