AQM Solutions discusses the Automated Application Performance Management process implemented at LVM Insurance

LVM headquarters in Munster, Germany

TRILOGexpert, parent of US-based AQM Solutions, has worked closely with LVM Insurance for more than 10 years, supporting their highly successful Automated Application Quality Management (AQM) practice. Through this successful partnership and with TRILOGexpert's Automated AQM solution, LVM has realized substantial reductions in mainframe CPU utilization and the Automated AQM practice has become a key success factor for a company known throughout the German business community for innovative approaches to IT management.

About LVM Insurances

LVM Insurance is one of Germany's largest full-service insurers providing Life, Health, and Auto coverage. The company has 2,700 employees at their Munster, Germany headquarters with another 6,500 personnel spread across a network of 2,500 independent LVM agencies. The company counts nearly 3 million customers and 9 million policies. To support this large employee and client base, their computing infrastructure includes a massive IBM mainframe complex as well as more than 9,000 network-connected workstations.

Insurance companies have numerous challenges today: increasing competition, new technologies and more stringent regulatory requirements. Long-term data security, instantaneous access (local and remote), and rapid time-to-market for new products are crucial factors for achieving business success. Firms like LVM must contend with all these issues while simultaneously delivering a fast and reliable computer processing service that satisfies the needs of such a massive network of clients and internal users.

A New Approach to Controlling Application Resource Consumption

LVM adopted TRILOGexpert's Automated Application Quality Management strategy and began working with the Automated AQM product suite in 1996. The solution is comprised of two core software technologies: APC for TriTune™, a technology that scans production processing to detect performance problems and inefficient resource consumption; and a second component, TriTune®, which drills deep into the various layers of an application to identify the root-source of processing inefficiencies. Combined, these technologies enable IT teams to address application efficiency across their entire legacy complex both proactively and on a scale well beyond what the traditional manual approach can accommodate. Because Automated AQM eliminates most of the labor-intensive tasks involved with typical performance optimization projects, it helps overcome the staff limitations and scarcity of technical expertise that all IT organizations struggle with.

For LVM, three high priority IT objectives led to their consideration and eventual adoption of Automated AQM. Batch-window Optimization, Improved Online Response, and Optimized Performance of LVM's customer-centric Agency System.

In the following interview, **Mr. Jürgen Falk,** LVM's Lead Performance Specialist, describes the circumstances that drove LVM's selection of Automated AQM and details some of the results their Automated Application Performance program has produced.

AQM: Mr. Falk, please describe the IT infrastructure at LVM and the volume and type of jobs processed by your organization's mainframe environment.

Mr Falk: We have 2 z/OS machines and 90 Unix/Linux servers. We manage between 29,000 and 44,000 daily batch jobs and between 5.5 million and 7 million IMS transactions. IT plays a very big role in our organization, ensuring almost 100% system availability of all applications to our agencies, partners and customers.

AQM: From an IT service and availability perspective, what are the main challenges?

Mr Falk: We continuously focus on two primary service/availability issues:

- Ensuring the nightly batch window completes by 6:30 am every day to avoid delays to the start-up of IMS online regions; and,
- Ensuring online transaction response times are adequate to service the daily business. Our internal goal for IMS transaction response is 0.3 seconds or less.

AQM: How are you using Automated AQM to meet these challenges?

Mr. Falk: Trilog's APC for TriTune™ (APC) is the automation engine that drives the "discovery" side of our performance tuning process. APC has eased the burden on our Performance Engineering staff by automatically identifying the processes that need to be investigated in detail. The TriTune® component measures specific batch jobs and online regions and enables our analysts to drill down into the application to isolate where and how the application wastes CPU, I/O or database resources.

AQM: What was the compelling event that led LVM to implement Automated AQM?

Mr. Falk: Yes, there were several compelling events that forced us to reconsider our approach to application performance management. Let me give you a short background on our history of using this solution.

Batch Performance

- In 1996, a performance project was initiated to reduce the nightly batch cycle from a 6pm - 10am window down to a 8pm - 6:30am window. To achieve this goal, we knew tens of thousands of batch jobs had to be reviewed and analyzed – an enormous undertaking which could not be accomplished given the small team we had assigned to the project and the manual utilities we had in place at the time. We needed to automate as much of the discovery and analysis as possible. This was when we first discovered Trilog's APC product and incorporated it into our process. Then in 2002, due to expanded system availability requirements of our agencies, we had to reduce the batch window even further. The daily cycle could not begin until 10pm. With the increased scalability afforded by Automated AQM, our small team of performance specialists again conducted a focused performance optimization project, and further compressed the daily batch cycle to an 11pm - 6am window, exceeding our intended goal. The real-time detection capability of APC for TriTune™ (called APC Server) proved to be instrumental in helping us capture and identify a number of tuning opportunities we otherwise would have missed. APC Server kicks-off measurements in real-time when average runtime metrics are exceeded. This enables our analysts to react very quickly to runtime changes and abnormalities that we ordinarily would not have learned of until days, or sometimes even weeks, later.

Online Performance

- In 2002 and 2003, we introduced a new version of LVM's agency system that delivered enhanced functionality to our 2,500 agencies. The new system changed the orientation of the interface from a policy-centric view to a customer-centric view. One of the outcomes of this change was a substantial increase in the volume of data-retrieval per transaction and this generated much greater load demand on our systems. So when we brought the new system into production at the end of 2002, priority was given to benchmarking and optimizing online performance. Our initial analysis confirmed that CPU consumption for IMS transactions had increased considerably so our performance team turned its attention to optimizing IMS transaction response. The APC for IMS facility helped us identify a number of inefficient statements inside the transactions, in SQL, PL/1 and so on. It automatically triggers measurements at set times and exposes the most poorly performing transactions across all our IMS regions.

AQM: What features have been of most value to you and what tangible benefits have you realized so far?

Mr. Falk: We incorporated Automated AQM as a permanent part of our production support and resource optimization process. Through our daily review of the alerts generated by APC, we isolate runaways immediately and catch programs as soon as their performance degrades as opposed to discovering poor performers only after they become serious problems. The automation has become an indispensable addition to our process. Without it, our resource optimization projects would require us to set-up 200-400 individual measurement sessions per day manually which simply is not feasible.

The integration between APC and TriTune makes it much easier for us to uncover our CPU / wait consumers across the entire workload.

And, unfortunately, our user-acceptance and QA testing is only moderately effective for catching performance defects. Given the differences between our test and production systems, especially differences in database size and system configuration, we believe only a fraction of the most serious inefficiencies can be detected prior to production. A continuous and proactive performance management process is thus the only reliable way to catch performance flaws as quickly as possible before they can have a substantial impact on production. Using Automated AQM is the most effective APM solution to support our business.

By optimising its IMS transactions, LVM has been able to free up hours of mainframe time every day. The figures in this chart are based on a sample number of transactions processed.

Transaction Type	Example daily volume	Original processing time	Optimised processing time	Overall time saved per day (in minutes)
Customer bank account details	72,000	0.075	0.02	66
Motor insurance data	76,000	0.03	0.015	19
Specialities	8,400	0.4	0.05	49
Customer addresses	212,000	0.08	0.05	106
Customer contracts	216,000	0.23	0.17	216
Total time saved:				**7 hours 36 minutes**

There were 810 different IMS transactions running. Total CPU usage for z/OS went down from 100 % before our tuning initiative to 80 % after completing the project. It took 3 weeks to bring the changes to production.

By optimizing the performance of mainframe applications, we are able to provide a higher level of service to our customers at a lower cost, which is key to maintaining the company's competitive advantage. It now takes half the time to source motor insurance data and a third of the time to access customers' bank details".

AQM: Thank you, Mr. Falk, for the interview and the information provided!

Biography Jürgen Falk, Performance Management Specialist, LVM Insurances

After completing his education in 1979, Mr. Falk started his professional experience as an applications developer, first with a manufacturing company, and later in public administration. He later joined a major German financial institution working in data center support before moving to LVM Insurance.
At LVM, he initially returned to Application Development, before moving into the IT organization's Methods and Tools department and later led the company's Y2K and Euro-conversion projects.
Since December 2002, Mr. Falk has been working in the Production and Performance Management group. He has been with LVM for over 20 years.

If you would like to learn more about Automated AQM, please contact us!

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