Lack of Proper Test Data Poses Bottleneck for Software Development

Solution: **Test Data Management**

UBS Hainer optimizes data management & relieves project teams

The world is in the midst of a digital revolution. Business models are increasingly based on software applications. IT is operating at a faster pace than ever before as it has become a vital component of modern business. As a result, the speed of application development is becoming a decisive factor for a company's success. To effectively work within this changing reality, implementing an optimized test data management (TDM) program can directly enhance the performance of application development. The effective procurement of test data can become a success factor for the entire software development effort, instead of the bottleneck it often is. Companies need to ask themselves, "Can we afford to forego optimization in this area? "

The status quo

For some time now, the economy has been undergoing a digital transformation - which is far from complete. The value creation of many companies is increasingly based on digital - i.e. software-driven - business models. This means that product promises and customer benefits depend to a large extent on smoothly functioning and user-friendly software. The market power of innovative companies with disruptive digital business models can be well demonstrated by countless examples. Even traditionally grown, large companies cannot survive today without digitizing their processes.

This means that IT already plays a central role in the market success of companies today. IT is the key technology for advancing digitization and will thus be increasingly linked to product development and marketing. This trend will continue, as every area of the business will need to be digitized in the future.

Demands on IT

The increasing digitization of business creates special challenges for IT. Due to the high dynamics of development, a software application can no longer be considered "finished". Rather, it is in a state of continuous development. Software - especially if it is an important part of value creation - must be continuously adapted to changing factors in order to maintain or improve the company's competitiveness. More and more frequently, software adaptations have to be made due to external changes, such as market developments, changes in consumer habits, social and legal developments, actions/attacks by competitors, technical innovations, reaction to current events, etc.

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No fault tolerance

Despite the increased demands on the quality and quantity of the applications, the newly developed modules must function without any failures or diminished functionality when they go-live. Otherwise, the costs incurred and the loss of image for the company would be too great. Furthermore, most applications rely on an increasingly complex set of requirements, such as in the context of regulatory compliance or even in terms of supporting different heterogeneous systems and platforms.

Externally: A perfectly functioning application is taken for granted by the (end) customer. If this is not guaranteed, it quickly leads to a loss of trust and uncertainty regarding the provider.

Internally: An application can also be a central component of a strategic project and, in the case of faulty development or delayed delivery, become a bottleneck for all of the development projects of the company.

Current and future challenge

Increasingly, applications need to be programmed, faster and faster. Couple this with resources that tend to become scarcer because finding suitable programmers is becoming more and more difficult due to the ever-increasing demand, and a serious problem arises. Therefore, software development today should always be viewed as a "work in progress". And thus, the focus should be on optimizing the associated components of the software development lifecycle. The constantly repeating action cycle of iterative software development consists of continuous integration, continuous delivery, continuous testing, and continuous deployment.

The optimization of these synergistically interlocking development factors ultimately determines the possible quality and speed of the development process and thus the competitiveness of a software-driven company. What approaches are there for optimization? It is well known that the overall performance of a system is determined by the weakest link. A limiting factor - no matter how small - can have an impact on system's performance and become a factor that blocks any further progress. If, on the other hand, it is optimized, the performance of the overall system benefits significantly and directly.
The question here is: Can we identify an effective point in this process where a relatively small investment of resources can deliver a major improvement in results? Is there a strategically relevant lever that is often overlooked, neglected or repeatedly postponed, but which has a direct impact on the performance of software development?

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UBS Hainer: Strategic approach to solutions with high leverage effect

Test data management (TDM) offers a strategic lever that can be deployed to bolster development speed and quality. Even though capable developers sometimes program under time pressure and achieve high-quality results, there is always a point where unnecessary delays occur that slow down the overall process. Unwanted delays cost time and tie up valuable resources.

Every application that accesses data must be tested again and again during development to ensure its functionality (continuous testing). A positive test result gives the "go ahead" for further programming. If testing does not take place or is unnecessarily delayed, programming progress is put on hold for the time being. Without successful testing, everything comes to a standstill.

In practice, however, it happens time and again that the procurement of suitable test data becomes a bottleneck. In many companies, the required test data is still collected manually or people work with in-house solutions that sooner or later reach their limits. What is missing in all these cases is systematic test data management (TDM).

UBS Hainer specializes in optimizing test data management. The experts at UBS Hainer offer a single source for test data optimization: from needs analysis, to test strategy and the implementation of customized test runs at the customer's site (proof of concept), to the actual implementation of the TDM software.

Optimizing test data management

Our goal is to fundamentally and sustainably solve the bottleneck of test data management up to and including support in setting up a TDM infrastructure. This turns an often annoying problem into an asset that demonstrably saves time, effort and costs. UBS Hainer's flagship product XDM automates the entire process of test data acquisition. In doing so, XDM can be optimally adapted to the specific environment and requirements of our clients, bringing together test data from a combination of different platforms (mainframe, server network, data center ...) and database management systems (Db2, IMS, VSAM, Oracle, PostgreSQL ...).

Ultimately, the test strategy determines which test data is required. Setup and structures of the test data are defined centrally for all projects by the test data manager and can be changed as required at any time. The testers and developers - regardless of whether they are dealing with 5 or 500 users - do not need to worry about anything and can receive their data at the push of a button.

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Optimizing test data management (continued)

XDM provides a comprehensive and understandable interface with individual order forms for customizing the test data needs and requests for all developers. This means that the required data is available to each individual tester directly and tailored to the quality of real production data whenever and wherever it's needed.

XDM supports exceptional quality assurance and significantly contributes to getting new releases into production more quickly. This brings the greatest possible independence for each individual developer because an optimal test bed of data is established for each data element required by the application. XDM makes it easy to procure and utilize test data across all phases of development from acceptance testing, through integration testing or unit testing, to regression testing.

Data protection is also a significant requirement when setting up your test data environment. And XDM provides functionality for finding and anonymizing data that must be protected due to data privacy laws and regulations. Industry and governmental regulations and data privacy laws place strict rules on the content and type of data that must be secured or anonymized. XDM delivers functionality for finding and masking data that must be protected across all systems, thereby helping to fulfill your regulatory mandates.

Our customer references include leading banks and insurance companies, as well as large industrial customers and multinational companies. They all have particularly high security requirements for their operational software and are constantly working to further integrate security measures for test data management within their own development department. In total, UBS Hainer has successfully implemented over 80 projects worldwide in recent years.

Starting a benefit spiral

By automating test data procurement, a benefit spiral can be set in motion:

- test data at the push of a button
- no delays in development
- no idle resources due to waiting times or time-consuming data acquisition
- higher quality of test data
- higher test quality through real live data
- higher security through demonstrable compliance with data privacy laws

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Starting a benefit spiral (continued)

- faster delivery of the application
- lower error rate
- faster adaptation speed of the modules
- better motivation and less frustration among the developers
- reduced workload for specialist departments and project teams
- faster availability for users
- faster response to external influences
- faster market adaptation cycles
- optimized development speed
- competitive advantage over slower competitors
- concentration of energy on improving other areas

A small but strategically important investment in test data management optimization can boost the performance of your project teams and can even bring immediate competitive advantages. If test data management is not yet optimized for your development environment, much benefit can be gained with relatively low costs. As speed and quality in application development become strategic, then test data procurement needs to be automated. The TDM experts at UBS Hainer are the people to contact for professional support for test data optimization.

Step by step to optimized test data

An important building block for optimizing development speed is the introduction of automated test data procurement. UBS Hainer's system can be managed by your company itself and can be continually adapted to current projects and changes. With UBS Hainer and XDM driving the optimization and availability of usable test data, your developers can achieve maximum independence and freedom.

UBS Hainer has developed a step-by-step approach to introduce or change an existing system in risk-free stages. In this way, an interested company can convince itself of the advantages of test data optimization in small steps or, if necessary, also opt out at any time.

Step 1 - An introductory webinar is aimed at decision-makers. It shows how automated test data procurement works and the strategic advantages it brings. Another webinar - for the IT

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Step by step to optimized test data (continued)

implementers - describes the technical details of the problem solution and the features of XDM.

Step 2 - Now comes an on-site quick check. This individual inventory is conducted in one day. It provides clarity on the initial situation, specific requirements, infrastructure, bottlenecks and opportunities. A report is produced summarizing the options and proposals.

Step 3 - In the next step, a concrete test strategy is developed for a clearly defined area. The target criteria are analyzed, and the most important key factors are identified. This is the basis for the introduction or optimization of test data management.

Step 4 - With this preliminary work, a test operation can now be started without any problems. A proof-of-concept application (POC) - a functional scenario implemented at the customer's site - enables the customer to experience the actual operational benefit TDM brings to their daily practices. In this way, the customer can evaluate the merits of XDM within their own business.

Step 5 - If the customer decides to purchase XDM, an implementation plan is created that includes a blueprint for installation, individual customization, and deployment. Implementation takes place successively during ongoing operations, either in a defined sub-area or for the entire application development environment.

Step 6 - After implementation, additional support activities are conducted including training of the test team, assistance with infrastructure modifications (if necessary), and training of a test data manager. The latter can then constructively fill the role as "Head of TDM" or, in the case of agile teams, as "Product Owner TDM".

Summary and conclusion

In times of digital transformation and the associated continuous software development, automated test data procurement becomes strategically important. Test data optimization can relieve the stress on the departments involved and significantly increase the performance of the entire application development effort. Increased development speed

Summary and conclusion (continued)

can result in competitive advantages for the entire company. As an expert in optimizing test data management (TDM), UBS Hainer offers a holistic solution for automated test data procurement with its XDM software.

Using a combination of different platforms and database management systems, XDM provides every developer with their individually required test data - in the quality of real production data - at the push of a button. The data structure can be flexibly adapted to the current projects in the customer's company. All requirements for data security, as well as for internal company security, can be always guaranteed. Thus, XDM provides the highest possible independence and freedom in test data procurement.

UBS Hainer has already successfully implemented over 80 projects worldwide - including numerous well-known reference customers from the financial, industrial, and retail sectors. To enable a risk-free entry into automated test data management, UBS Hainer has developed a simple and comprehensible methodology that can turn an annoying bottleneck into a valuable success factor - through the sustainable optimization of test data management.

Further information:

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