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White Paper

Automic® Service Orchestration

Automating the SAP System Copy Process

Executive Summary

The system copy problem is getting worse. Why?

Challenge

Some SAP systems can take up to 10 days to complete a SAP system copy. That's 10 days of unproductive time. Why? SAP does not provide the necessary tools out-of-the-box to automate and handle the process efficiently. This means you must use highly skilled SAP BASIS staff to manage the process. Manual steps, along with hundreds of configuration settings, can take days to complete—and like many organizations, you have also experienced too many delays, causing non-production systems to be unavailable, which stalls development, testing, and training activities.

Opportunity

So you've concluded your SAP system copy process is hindering innovation and productivity. You're considering automating the process to ensure system copies are available for all environments on time, every time.

Benefits

What are the key capabilities you actually need to address SAP system copy inefficiency once and for all? To help you, we've collated the top requirements during the past 10 years from global enterprises that have successfully automated over 90 percent of their system copy process and are making system copies twice as fast—with 90 percent fewer resources. For them, system copies are available for all environments on time, every time, leaving testing and development work almost uninterrupted.

Automate the System Copy Process End-to-End

Pre-processing: Before the data on the target SAP system can be refreshed, it has to be prepared for receiving the system copy.

Copy: During this stage, data is copied from the source SAP system to the target SAP system.

Post-processing: The last stage of the process is the most complex, with many parameters being configured on the target system during this stage.

While many organizations already automate the copy stage using storage snapshot tools or backup/restore tools, the pre-processing and post-processing stages are typically performed manually, and in some cases with the aid of home-grown scripts. These stages are the most time-consuming, and it is during these stages that the system copy process is most exposed to errors and delays.

A simple example of the type of problem that can occur is when parameters will not work. For instance, the logical system name will reflect the source system—for example, PRSRV01—and the logical name must be changed to reflect the target system—QASRV01. Since SAP does not define the logical name in one location and then simply reference it, the entry has to be overwritten every single time. This process alone can take hours and exposes the system copy process to manual errors and delays.

The solution that is the most successful is the one that automates the most pre-processing and post-processing steps, eliminating most human intervention and freeing the process from manual errors.

Experience has shown the SAP system copy process cannot be fully automated by an out-of-the-box solution. But an out-of-the-box solution can achieve an automation level of 90 percent with the advanced business application programming (ABAP) and Java stack. It has been reported that some enterprises have been able to automate the remaining 10 percent of steps so the entire system process is fully automated, requiring no human intervention at all.

Systems can be available over 2x faster with an automated system copy.

Run Process Steps in Parallel to Eliminate Inefficiencies

In addition to going faster and eliminating manual errors, automating the system copy process also offers improvements in process efficiency.

Many opportunities exist for eliminating the inefficiencies of a sequential manual process. An automated system copy solution should not just automate the current set of sequential steps being used, but also offer best practices that optimize the process.

Here is just one example, relating to the previous logical system name problem. SAP systems contain an ABAP program called RBDLS used to identify the database tables in which the logical system name is stored. These references need to be converted to the logical system name for the source SAP system when performing a system copy.

In simplified terms, the process in SAP works as follows:

The report (RBDSL<CLIENT>) is generated and executed in SAP, or automatically in the BDLS transaction; that is, the report identifies and then sequentially processes all tables where conversion is needed when it is executed. This could be in the region of 800 tables and could take more than 52 hours. An ideal solution reads the tables to be converted out of the report and processes the table updates in parallel, reducing the time required for automatic post-processing to just a few hours.

Data Masking and Reduction

Effective system copies allow development work, testing and training under realistic conditions. This means providing production-quality data in a timely manner to all non-production systems.

This process introduces two problems:

- Data privacy and security are critical issues, as production data will contain both commercially sensitive and personal data such as financial and personal records.
- The sheer volume of data created by production systems would require an amount of storage that is impractical for non-production systems.

Data privacy and security require production data to be masked, so the data retains the necessary logic but cannot be unscrambled.

To ensure data privacy and security, the original production data cannot be used in development, test, and training systems. This creates a challenge, as unrealistic data compromises quality and introduces a security risk.

A solution is needed that allows SAP data in system copies to be masked and anonymous. Masking should scramble the data so that it retains the necessary logic but cannot be unmasked. The solution should be able to mask specified parts of data records, such as fields that contain names, and leave non-sensitive parts alone.

In addition, data needs to be sliced to significantly reduce its volume. Different teams in your organization have different data requirements. For example, test users may need data based on date, while training users could need data that supports specific scenarios. Data slicing is also an important requirement for cloud integration, since databases that are several terabytes in size can be difficult—even impossible—to transfer to cloud environments through the network or online.

To facilitate this, slicing should be able to scale down data in any number of ways—for example, by creating time slices, such as a previous year's financial data, or object-specific slices, such as according to product category. This flexibility allows only relevant data to be used in system copies.

Visibility and Control that Ensures System Copies are Delivered on Time, Every Time

Development, test, and training teams all rely on the timely delivery of system copies in order to do their work, meet deadlines, and deliver high-quality output. With system copies being on the critical path, any delays in their delivery can seriously derail development, test, and training teams' efforts.

To prevent unexpected delays, a solution is needed that guarantees service levels for system copies. The solution must be fully automated and provide service-level management without the need for additional tools. Without a fully automated system copy process, there is no possibility of proactively and automatically managing service levels, because fully controlling the end-to-end process is not possible. Complete visibility across the entire process is needed to allow operators and recipients to manage and monitor the process of system copies. Service levels can be set and real-time monitoring of processes and predictive capabilities should be used to identify potential SLA violations as and before they occur. It is not only necessary to have the ability to identify when service levels are at risk, it is just as critical to be able to act on this, notifying recipients and key stakeholders in a timely manner, allowing action to be taken promptly.

Conclusion

To significantly reduce the amount of unproductive time created by SAP system copies and free highly skilled BASIS staff from mundane tasks, you need to automate the SAP system copy process end-to-end. In doing so, you will be able to perform system copies twice as fast—with 90 percent fewer resources—and your SAP system copies will be available for all environments on time, every time, leaving testing and development work almost uninterrupted.

To attain these benefits, you must:

- Automate as much of the SAP system copy process as possible, from pre-copy tasks to post-copy tasks
- Run SAP system copy process steps in parallel where possible
- Automatically mask production data so sensitive and confidential data is not exposed in non-production environments
- Automatically slice production data to make it more manageable in non-production environments
- Gain visibility and control of SAP system copies as they execute so you can be confident your SAP system copies will deliver on time to development, test, and training teams

While there are many other factors that are also important to consider, only by ensuring that your solution encompasses the above key capabilities as a foundation can you be certain you will be able to meet the ever-increasing demands of the business.

For more information, please visit ca.com/automation.