EPI-USE LABS
value through innovation

Landscape Management challenges

A White paper written by Charles Wheeler

Introduction

Most organizations, moving at the speed of business, have added to their SAP infrastructure over time. However, due to the necessity to respond rapidly to the needs of business, most organizations rarely step back and take an aggregate view of their SAP landscapes. Your organization can reap tremendous benefits by revisiting and re-evaluating its SAP landscape practices and proactively addressing some of its less- efficient and problematic processes.

With the benefits of virtualization, the cloud, and other innovations, it is imperative that you no longer look at your SAP environment as an unwieldy monolithic system, or as a large, heterogeneous collection of difficult-to-manage components. Rather, you should veiw the components in your SAP environment as building blocks that you can adapt and extend without disrupting the stability of your SAP environment as a whole.

We will explore some solutions and recommendations for common data and system management challenges faced by organizations that run SAP. These tend to fall into three main categories:

- Savings
- Quality
- Risk Reduction

Savings

The improvement or eradication of inefficient processes can result in a tremendous return-on-investment for your organization. However, any investment in technology that will help you achieve these ends usually requires a clear quantifiable and substantiated demonstration of business benefits. Your Finance team may even require a payback period of less than twelve months for any technology investment of this nature. Therefore, it is critical that return-on-investment be thoroughly substantiated. Most organizations can achieve this simply through the reduction of the amount of data storage required for all of the SAP non-production systems in each of their landscapes. However, there are many other areas where tremendous benefit can be realized – especially if your organization has deployed HANA. System builds, data refreshes, data copies, 'self-service' ad-hoc data copies, and many other specific tasks can be made more efficient - resulting in significant value to your organization. Some of these areas are detailed below.

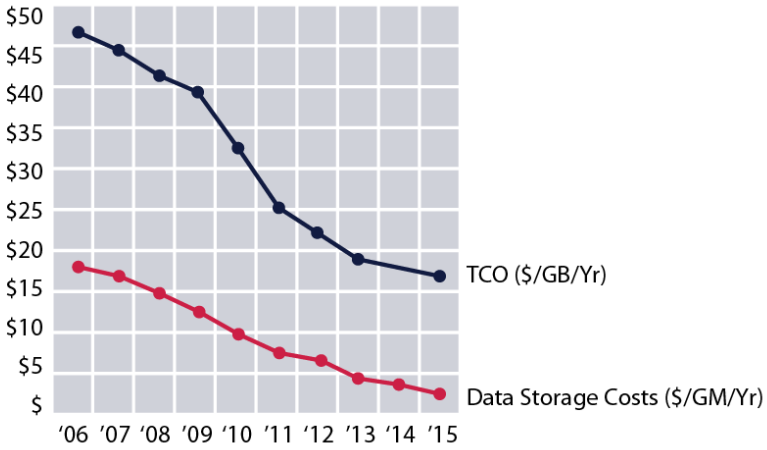
Rapid Data Growth

The Total Managed Storage Cost (TMSC) of data storage includes more than just the disk space required for production systems. TMSC must take into consideration all

expenses associated with disk storage, such as: power, staff salaries, rack space, back-up disk, tape libraries and drives, SAN controllers, floor space and more. Often, the cost of the tiered disk storage devices themselves are only a small percentage of the overall TMSC. While many observe that storage hardware costs are getting progressively cheaper, most industry analysts argue that overall TMSC remains a very considerable portion of an organization's SAP budget – again, particularly with HANA. In any case, the rapid growth in the volume of SAP data, for most organizations, tends to offset any potential reductions realized in the area of TMSC.

Industry analysts estimate that the physical storage hardware itself is usually only about one third of the total storage costs. For instance, the Data Center Journal recently estimated that data center floor space was $450/year per square foot for Tier two storage and $600/year per square foot for Tier one storage.

If you are like most organizations, your SAP systems are growing larger and more unwieldy daily. This growth, especially when multiplied by the number of instances in each landscape, can become an increasingly significant drain on your SAP budget.



The most effective way to reduce storage costs is to create non-production systems (QA, Pre-production, Development) that have only a subset of the production data, rather than a full copy of all application data. However, these smaller footprint systems must be fully-functional, consistent and have complete data integrity. Another way to reduce your company's total storage costs is to move some or all of your SAP landscapes to the cloud.

Recommendation: Create 'lean' non-production system copies instead of full production system copies.

Inefficient Data Refreshes

Your users require relevant, up-to-date data in their non-production systems for proper development, testing and problem solving. However, just days after a refresh, a non-production system can already be missing critical data needed for resolving a production issue, or for development or testing. For this reason, users want and need data refreshes more often than can reasonably or commercially be provided. Unfortunately, refreshes aren't easy. No matter what data refresh method you employ, there are still extensive post-processing steps (i.e. BDLS) that are required before the created system can be used. A continual, delicate balance must be maintained to ensure that you are minimizing the refresh demand on your limited Basis resources, while also ensuring that your users are able to do their jobs effectively.

Your organization should automate its refreshes and eliminate the need for manual and tedious post-processing steps, thereby freeing up your Basis resources to turn their attention toward their many other responsibilities. Furthermore, it is essential that your users of non-production systems be enabled to get up-to-the-minute, relevant data from production, or any other source system, on-demand, between full data refreshes.

Recommendation: Enable users to get the data to non-production systems on-demand between refreshes and automate the refresh process across less-frequent cycles.

Barriers to Creating New Systems

From time to time your organization needs to create new SAP systems, not merely refresh existing system data. This can be for a special project or perhaps a parallel system for an upgrade/update. However, the creation of a new SAP system is not a trivial task. Most organizations accomplish it by doing a full copy of the source system then deleting the application data. This requires enough initial storage space to be allocated for a full copy of the SAP data. After this, it will often require significant work in the database to regain that space once it is freed up from the application data deletion. Other approaches, such as a heterogeneous system copy, have their drawbacks as well. Organizations, faced with these daunting tasks, quite often decide to do without the new system, despite its potential benefit.

Your organization needs to be able to commission and decommission SAP systems as business demands dictate. Due to the difficulties involved, many organizations opt to forego the creation of new systems that would be beneficial to the business, but a better strategy would be to work to overcome these challenges so that they can respond with new systems quickly and effectively when the business demands it. Further, given the infrastructural limitations that most organizations face, an

organization needs to be able to create, populate, mask and decommission SAP systems in a virtual cloud environment when required.

Recommendation: Institute processes and technology to ensure that you can respond to business needs and create new systems when required, even in the cloud.

Demands on Basis Team

Your Basis team is very often required to do more with less. They are often spread thinly and are unable to accommodate all the demands placed on them. This problem grows as the amount of data and the breadth of SAP solutions in the enterprise grow. This often results in the hiring of Basis contractors to pick up some of the slack, long hours and subsequent low morale and higher turnover of Basis personnel, the delay in important projects, and many other problems.

This problem is exacerbated by a shortage of available Basis team members in the job market. A recent search of one of the top technical job sites in the United States found 10,197 job openings for Basis personnel, but only 1,474 Basis-trained individuals available to fill the positions.

You need to look at all of the routine functions of the Basis team and evaluate which tasks and processes can be automated, improved. For instance, it can take up to a full week of Basis work just to refresh the data of one non-production system. Multiplied by the number of non-production systems across the organization, this can be a considerable amount of Basis time that can be re-purposed toward other activities. Basis team members should be able to accommodate all of the most important organizational priorities without expensive contracting help, or working the long hours and weekends that are so often part of the norm.

Recommendation: The routine functions of Basis need to be automated and improved, so that your organizational priorities are not delayed.

Time Consuming Manual Data Entry

The consumers of the data in your non-production SAP systems are developers, testers/quality assurance, functional super users, trainers, etc. These user constituencies require relevant, up-to-date data to do their jobs effectively. However, between refreshes, they often are required to do a significant amount of manual data entry. In the case of testing, your users might have to spend more than 80% of their time manipulating data and only the remaining 20% or less actually running tests.

These users need to be able to get the ad-hoc data that they need, while ensuring data integrity and client consistency on the target system, and without hands-on assistance from the Basis team. In addition, the ability to 'clone' data (copy a set of data and replicate it many times) for purposes of running test scripts, etc., is a significant time saver.

Recommendation: Employ technology that will allow your users to copy subsets of data to non-production systems, while maintaining full data integrity and client consistency.

Quality

Quality can be a nebulous term. Everyone understands the concept, but, in practice the value and meaning of quality – as it relates to SAP systems – is difficult to measure. Nonetheless, there are some significant benefits that can be realized. Your organization wants its production SAP environment to be accurate, responsive and as easy to use as possible. Great pains are taken to ensure that the production system is of the highest possible quality. Unfortunately, the same cannot always be said for the non-production systems. Often, they suffer in terms of data and infrastructural quality. These quality challenges in the non-production systems can have a profoundly negative impact on your organization, so they are well worth addressing.

Out-of-Date, Stale Data

As discussed in 2.5 above, your users of non-production SAP systems have a need for high quality, accurate data to perform their functions properly, whether that function is development, training, or testing. In addition, there should be 100% consistency of data across the systems in the production transport path. Without high quality data and consistency across systems, your dev-test cycles will be inefficient, resulting in re-transports and re-work for both developers and testers. The quality of data has a direct correlation to the quality of the work that results.

Some organizations have attempted to address this with SQL or similar routines that will copy data from one system to another. However, these methods are plagued by data integrity and client consistency issues. Non-production system users need up-to-date, relevant data at all times – even between refreshes. Not only will this enable users to be more productive and increase overall quality of work, but it will also enable your organization to do less frequent data refreshes.

Recommendation: Employ technology that will allow your users to copy (as well as 'clone') subsets of data to non-production systems, while maintaining full data integrity and client consistency.

Production Issues

Issues with your SAP production environment demand immediate and urgent attention. They must be fixed as quickly as possible. However, reproducing a problem that occurred in production in a non-production environment so that you can begin to understand and fix the problem can be extremely difficult. Although very few organizations will admit to fixing problems directly in the production environment, the fact is that it does happen at times out of necessity.

Data related to the production system problem must be quickly, accurately, and completely replicated in a non-production system for analysis and remediation. This ensures that any required development and testing follows your standard migration.

Recommendation: Implement a solution to quickly, completely and accurately replicate data from production, into non-production systems, to solve production issues.

Configuration Inconsistency

Configuration inconsistencies between the systems in your transport path can be very problematic for your organization. Often these inconsistencies come from the frequent 'glitches' in the Change and Transport System (CTS). Due to these inconsistencies, a business process may work in one system but not in another. It is very frustrating to try and fix a production problem in a Development or QA system, without being able to duplicate the problem! Inconsistent configurations make the entire Dev-Test cycle very inefficient and often result in extra work and repeated transports.

Having a transport path with consistent system configuration throughout is critical for high quality, efficient operation of your SAP environment. It has significant impact on daily operations, but is absolutely critical when there is a production problem that must be solved quickly.

Recommendation: The systems in your transport path must have the same configuration. Any other systems, such as sandbox or parallel systems must also be consistent with production.

Lack of Data Integrity Across Applications

Chances are, your organization now has more than one SAP application. The average organization that runs SAP has three different applications, with the install base for the BW and CRM applications rapidly expanding. Most organizations have all of the proper mechanisms in place to ensure that proper linkages exist between applications in production, with data integrity issues being quite infrequent. However, the opposite is true for the non-production systems. As users manually enter data in one application, or copy data from one system to another, inconsistencies are created and it is impossible to develop and test end-to-end processes properly in non-production systems when SAP object inconsistencies exist.

The same diligence that is in place for maintaining data integrity across SAP applications in production needs to exist for the non-production systems as well. As data is copied from one non-production system to another in between refreshes, or as data is masked in a non-production system in one SAP application, those same changes need to take place in related SAP applications. Without some sort of mechanism to keep these applications consistent, serious inefficiency and risk is introduced to your SAP operations.

Recommendation: Use technology that will ensure that cross-application data consistency is maintained, even as users copy, ad-hoc data or mask sensitive data.

Risk Reduction

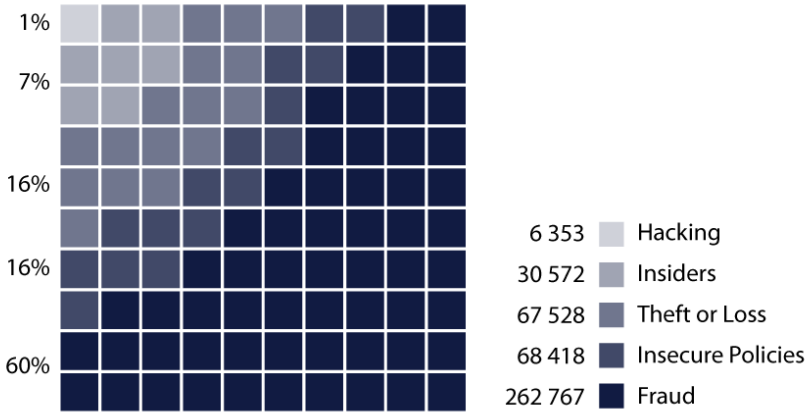
SAP is the backbone of your organization's operations. Your SAP systems need to be as agile as possible so that they can conform to the demands of the business, while at the same time being secure and stable. Maintaining stability and flexibility throughout updates, support packs, and other changes is a constant battle. Even the slightest production problem with your SAP systems could have catastrophic impact on your business.

Data Vulnerability

Most organizations have their production SAP system well secured and locked down. However, this same level of diligence is often not propagated to the non-production systems such as Development or QA. These systems can contain sensitive information that is supposed to conform to internal governance guidelines and external compliance regulations. Sensitive data can be breached internally or externally by a contractor, hosting partner or others.

According the Open Security Foundation (OSF), within the last month as of the writing of this whitepaper, there were ten major data breaches in large corporations, compromising well over 23,000,000 data records. These breaches are not all from hackers or other nefarious outside threats. The OSF also calculated that of all of the identities exposed in a recent year, only about 60% of the records compromised were from hacking. The other 40% were from insiders, theft or loss, insecure policies or fraud. Non-production systems are often very vulnerable to such inside data compromises. It is essential that your organization mitigate this risk.

The Leading Causes of Security Incidents



Your organizations needs to have consistent and demonstrable processes in place to ensure that sensitive and personally identifiable Information (PII) is masked and safe. These processes need to be centrally administered and rule-based to ensure consistent masking and application. There needs to be a mechanism in place that always obfuscates data as it is copied into non-production systems, whether an entire system is copied or just a small subset.

Recommendation: Centrally administered, comprehensive data masking needs to be in place to ensure the security of your non-production systems.

Support Packs Updates

Support packs and upgrades are an ongoing challenge for any organization, especially those running SAP HCM environments, due to frequent regulatory and compliance updates. It is important that your organization stay as current as possible at all times. Support Packs need to be implemented and thoroughly tested to ensure the seamless operation of your SAP system. Often, these support packs disrupt systems and important projects. For this reason, many organizations struggle with applying these updates, or simply don't stay as current as they should.

There can easily be over 100 SAP support packs in any given year – not including the HCM application, which can have well over 100 in a year itself. Often, one specific support pack has dependencies on other issued ones, requiring multiple support packs to be implemented at one time. There is also no way around the proper testing required before a support pack is formally deployed to production. Often, unit testing, functional testing, integration testing and performance testing will all be required. This is a tremendous amount of effort.

Organizations need a proven and repeatable methodology for applying support packs. This methodology needs to provide the means to thoroughly test support packs before transporting it through to the production system. It also needs to make the process as easy and efficient as possible, so that these support packs can be applied with minimal disruption to the organization. For more significant updates, such as an enhancement packs, the ability to quickly spin up a new system for parallel testing might also be required.

Recommendation: Support packs should be applied as quickly and efficiently as possible using a proven and repeatable methodology.

Business Alignment

Business leaders expect their SAP teams to react quickly to new requirements. The complexity and criticality of SAP systems, however, don't lend themselves well to changes, especially radical ones. Nevertheless, your organization and SAP landscapes must be agile enough to take advantage of innovations and opportunities. Whatever the need or opportunity, your organization should move toward a more dynamic and less static SAP landscape model.

Perhaps there is a compelling case to 'carve out' your HCM system into its own landscape so that support packs (which are much more frequent for HCM) can be applied without risk to the broader ERP operation. Or perhaps your organization wishes to move some systems into the cloud, or to a hybrid on-premise/cloud model. In either case, you need to have processes and technologies in place to allow for these things to happen with minimal risk, disruption or expense.

Recommendation: Embrace technologies such as virtualization and the cloud to create non-monolithic SAP environments that are more agile and adaptable.

Summary

Your SAP systems are an integral part of your company's day-to-day operations and your use of SAP is likely to expand further into the enterprise. It is also likely that your data volumes will continue to grow. All the while, new developments and trends, such as HANA and expansion into the cloud, will continue to demand more of your organization.

The challenge for most organizations that run SAP is to enable greater flexibility and adaptability amidst all of these changes and growth. Through the use of comprehensive SAP Landscape Management solutions like EPI-USE Labs' Data Sync Manager suite and best practices, organizations should proactively re-evaluate and potentially re-engineer their SAP strategies, processes and procedures. Best practices should be adopted and replicated throughout your operations and inefficiencies and less-optimal practices eradicated.

Those organizations that do not refine their SAP operational procedures will find that they are on the 'critical path' for business change and responsiveness, thereby limiting opportunities for their company. It is crucial to be able to adapt quickly to the demands of market opportunities and economic, competitive, political and regulatory pressures. Your SAP systems need to be designed to maximize flexibility and agility. Products such as Data Sync Manager enable exactly this.

About EPI-USE Labs

Our passion at EPI-USE Labs is to innovate and create products and services to boost the performance and management of SAP landscapes and data. Over the last thirty years hundreds of companies across the globe have discovered the difference our solutions make to their day-to-day operations. Our solutions are primarily aimed at Client and Data Copying, Masking, Reporting, Variance analysis, Time, Payroll and Tax.