

# Safeguard mission-critical SAP data to minimize business risk

*With non-disruptive backup and highly efficient recovery solutions for IBM DB2 for z/OS*



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## Highlights

- Reduces the risk of revenue loss and reputational damage
- Protects mission-critical operations with continuous business data protection
- Takes non-disruptive system-level DB2 backups of huge SAP databases in seconds
- Recovers SAP databases at system or table level to any prior point in time
- Enables consistent federated recoveries of independent DB2 systems used by multiple SAP systems that span business processes
- Creates online clone of SAP and DB2 systems based on existing backup
- Helps companies meet legal and regulatory requirements around data security

Integrates seamlessly with disaster recovery solution for IBM z Systems hardware, providing ultimate shield

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In order to be competitive, organizations all over the world demand 24x7 availability of mission-critical ERP applications such as SAP, which provide an integrated view of business processes involving everything from finance and accounting to extended supply chain operations. Enjoying uninterrupted access to accurate, up-to-the-minute business information is vital to the success of global enterprises. Companies invest considerable resources in ensuring application uptime to mitigate the business risk of system failure.

## Importance of business continuity

SAP applications rely on databases to provide the core data management services underlying the software. Application unavailability caused by data loss or corruption can result in significant business liabilities. For example, banking payments exist purely as data records; if these are lost or corrupted, serious regulatory, financial and reputational consequences will ensue. If the missing data can only be recovered slowly, then there may be a prolonged delay before full operations can be resumed; in banking, for example, clients may be unable to withdraw cash from ATMs or view account balances.

To reduce the risk of lost revenues and reputational damage, global enterprises must maintain business continuity and high levels of data security, and ensure that their operating companies meet strict governance and compliance requirements around data security. Companies must frequently back up data using reliable equipment and regularly test backup systems to maintain high levels of data security.

Enterprises relying on SAP software need to back up the databases supporting their SAP applications rapidly, frequently and reliably, and with the smallest possible impact on production systems. Businesses can increase operational resilience by enabling protection of mission-critical SAP business data through advanced backup and recovery processes.



If data is physically lost due to failures or if business data is logically corrupted by application or operator errors, it is important to recover data quickly and easily to a recent, defined earlier point in time at which the systems were functioning correctly. Ideally, the solution should provide the flexibility to recover data at the appropriate granularity, such as system-level, table-level, table partition-level or record level, depending on circumstances.

Safeguarding database resilience is a key factor in achieving true business continuity, yet at the SAP application level, permitting even short interruptions for administrative tasks such as data backup may not be acceptable.

### Reliable backup solutions

The most common operational task is enterprise-wide backup, which ensures that a full, valid system copy is available should data corruption or disaster occur. Regular,

frequent or even continuous backup ensures that system downtime can be minimized, enabling very fast data recovery to help reduce the cost and reputational impact of failure.

IBM offers advanced backup and recovery solutions for the IBM® z Systems® platform and for IBM DB2® for z/OS® in order to help customers avoid system downtime. Tight processing windows require powerful backup solutions to ensure that backups are completed within the allotted time.

The DB2 BACKUP SYSTEM utility leverages IBM FlashCopy® technology and the z/OS Data Facility Storage Management Subsystem (DFSMS) fast replication feature to create database backups seamlessly and efficiently.

The BACKUP SYSTEM is non-disruptive and runs concurrently with the application workload that reads and changes data in DB2 tables. This solution takes backups in a matter of seconds, helping companies avoid the risk of overrunning backup windows. Many companies choose to take incremental FlashCopy backups to minimize the physical copying required in the disk system. As another advantage of FlashCopy technology, the DB2 REORG utility can also leverage it for the inline image copies that it creates, thus increasing data availability.

Similarly, creating a copy – or “cloning” – an entire SAP system landscape is frequently used to provide test or training environments, and sometimes to allow investigation of data corruption and other errors. Unlike a backup, when the copied data is transferred to a storage device, a system clone is enabled as a fully functioning, duplicated solution. Cloning processes, too, need to take place with the least possible disruption to production systems.

To enable online cloning of DB2 systems and to help simplify and accelerate cloning functions, the IBM DB2 Cloning Tool for z/OS allows customers to clone entire DB2 systems automatically and efficiently using an online backup created by the DB2 BACKUP SYSTEM utility, so it does not affect the SAP production system. The tool reduces the cost of refreshing data across the SAP landscape. It also automates and facilitates the cloning of DB2 systems across Sysplexes as well as cloning based on backups that reside on tape.

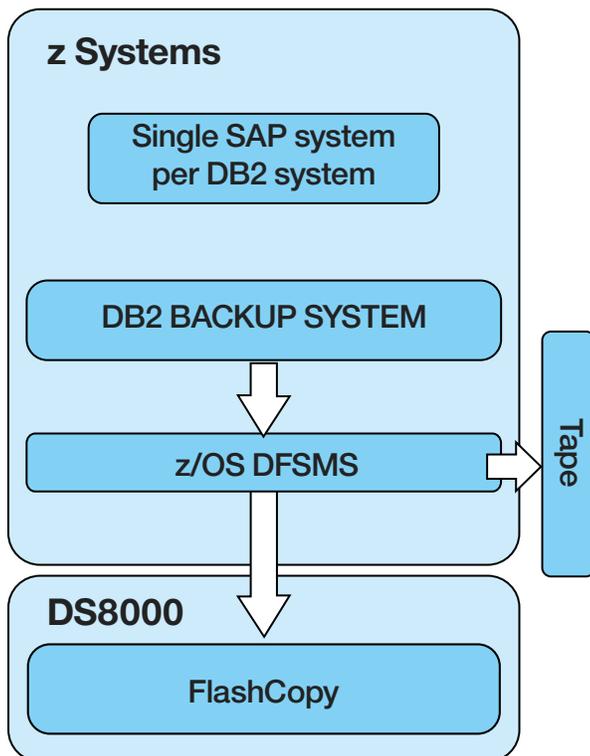


Figure 1: Reliable backup solutions for IBM DB2 for z/OS

### Advanced recovery solutions

In the event of data-related failure, exploring the database, identifying the root causes and correcting the errors can be taxing, resource-intensive tasks.

The DB2 RESTORE SYSTEM and DB2 RECOVER utilities can consistently reset an entire DB2 system, a table, or even a partition, to a prior point in time, giving users granular control over data restores. Using a fast log apply mechanism and highly concurrent processes, the application of the log records is highly optimized to minimize overall elapsed time of a recovery.

DB2 Recovery Expert for z/OS can augment the DB2 recovery solution, enabling companies to recover SAP databases more easily. The IBM tool intelligently analyzes modified, incorrect

or missing database assets such as tables and data, and can automatically rebuild these assets to a specified point in time to maintain the transactional integrity of the system, often without taking the database or business operations offline. Furthermore, the automation of backup and recovery processes in DB2 Recovery Expert for z/OS reduces the risk of human error and saves time on system administration.

DB2 Recovery Expert provides granular control over SAP database restoration, enabling different tables to be restored to different points in time. In an event where a particular table has become corrupted, this allows the restoration of the most recent uncorrupted version of that table, rather than requiring the recovery of the entire database – minimizing the Recovery Time Objective (the length of downtime considered to be commercially acceptable). The solution works hand in hand with advanced IBM business continuity solutions such as IBM Geographically Dispersed Parallel Sysplex™ (GDPS®), IBM Metro Mirror and related technologies.

These solutions for the z/OS platform enable secondary mainframe environments to take over workloads in the event of failure at the primary site, providing real-time and near-real-time failover capabilities.

For large global enterprises with multiple, possibly independent, SAP applications and systems at many locations, managing recovery operations can be a complex task. If SAP business transactions span several database systems, that data must be recovered at the same system-wide point-in-time to safeguard against data loss and maintain transactional integrity. Ensuring that the correct transaction states are recovered can prove problematic, and many solutions require that the entire system is frozen as the necessary copies are processed.

The z/OS environment enables optimal recovery operations for business transactions even for geographically dispersed SAP environments running on separate systems. The IBM Parallel Sysplex® for IBM z Systems technology includes a Server Time Protocol that helps multiple servers maintain time synchronization and ensure complete transactional integrity, helping to simplify data recovery and reduce the time and effort required.

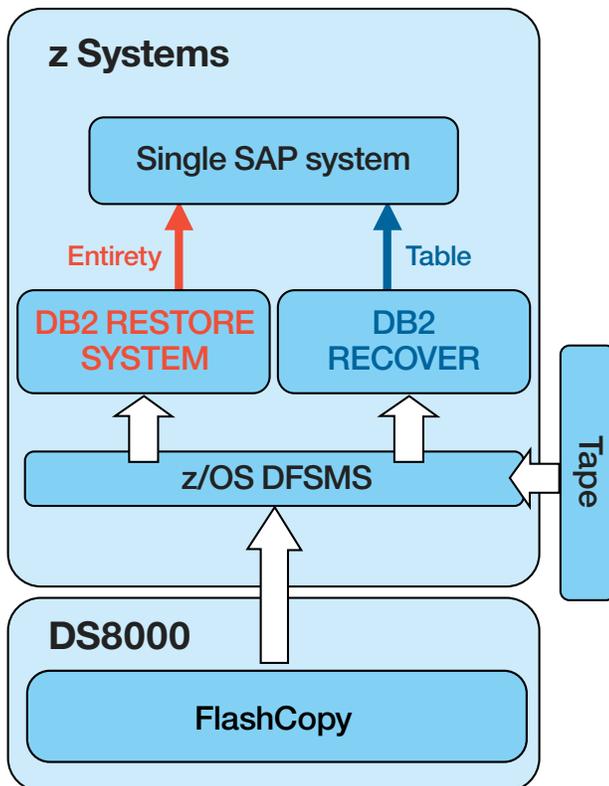


Figure 2: Advanced recovery solutions for IBM DB2 for z/OS

## Maintaining continuous business operations

Maintaining business continuity enables global enterprises to reduce the risk of lost revenues and reputational damage caused by SAP application downtime. For all enterprises operating mission-critical SAP solutions, the IBM z Systems platform makes economic, technical and business sense.

IBM and SAP are constantly working together to improve the backup and recovery solutions available for DB2 for z/OS, ensuring that customers can enjoy complete peace of mind when it comes to safeguarding the continuity of vital operations.

### For more information

To learn more about running SAP applications on IBM z Systems, contact your IBM sales representative or IBM Business Partner, or visit us at:  
[ibm.com/systems/z/solutions/editions/sap-applications.html](http://ibm.com/systems/z/solutions/editions/sap-applications.html)  
or [ibm.com/services/us/en/sap/solutions/systemz.html](http://ibm.com/services/us/en/sap/solutions/systemz.html).

Share with other users and experts in the SAP on IBM z Systems Community at: [ibm.biz/BdHmpM](http://ibm.biz/BdHmpM).

To read a casebook on DB2 backup, recovery and cloning for SAP environments, please visit:  
<https://www.sap.com/documents/2017/02/ee0a2b94-a77c-0010-82c7-eda71af511fa.html>.



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