



## InMage for Microsoft SQL

### Disaster Recovery, Backup Elimination, and High Availability

- A single solution which combines remote disaster recovery, backup elimination, and application failover/failback for SQL and associated applications on a single, secure platform
- Enables the rapid, reliable restoration of SQL applications to any previous point in time, relying on disk-based recovery capabilities
- Supports comprehensive and automated recovery of entire SQL servers, providing faster, more reliable recovery than that provided by log shipping-based approaches
- Provides for the rapid cloning of entire SQL servers that represent the latest data states to enable administrative operations that do not impact production environments in any way

For many organizations, Microsoft SQL provides the database foundation for one or more mission-critical applications, making SQL availability a critical concern. Contingency plans must be put in place not only to address data recovery, but also application recovery requirements. Organizations must provide the means to quickly and reliably recover SQL data and application services locally, while at the same time supporting remote recovery for disaster recovery (DR) purposes. Log shipping is a common approach to providing DR, but does not support fully automated recovery operations at the remote site(s). Various updates in the database server systems configuration information, SQL database schemas, and security settings are not captured with log shipping and must be performed by hand when recoveries are required, leading to lengthy recovery times that are inherently riskier than more automated approaches.

Conventional data protection approaches can impose impacts on business operations, degrading the performance and/or availability of SQL databases during backup activities. Backups also take up administrative time, and often do not meet requirements to provide rapid, reliable recovery while minimizing data loss. As SQL use becomes increasingly mission-critical, administrators must plan to meet a more stringent set of recovery requirements.

#### InMage: Recovery That Meets the Needs of Both DBAs and Storage Administrators

InMage provides a software-based solution that leverages the advantages of disk-based data protection to provide comprehensive recovery capabilities for SQL environments while eliminating backup impacts. Automated recovery of SQL can be configured to meet either remote or local requirements, going above and beyond the protection offered by conventional backup, log shipping, file-based replication, and clustering products.

#### Scalable, Cost-Effective DR

InMage for SQL supports automated SQL application recovery.

InMage for SQL enables the implementation of cost-effective DR configurations that leverage asynchronous, IP-based replication to support long distance DR solutions. All replication is performed at the block-level, capturing all changes on a SQL server and replicating them to one or more defined recovery server targets.

This results in a fully functional, exact replica of the source SQL server on the target side – unlike approaches based on log shipping – that requires no manual updating, supports fully automated SQL application recovery (leading to much shorter RTOs) and allows the target database to be used to meet other requirements besides just recovery. SQL databases can be mounted to support business intelligence, reporting, test and development operations at the target locations, fully off-loading these administrative operations from production environments while still leveraging the most recent copies of production data.

Comprehensive recovery capabilities include the ability to fail over the SQL database server to a remote site at the push of a button, updating AD and DNS entries as the

failover occurs. This allows dependent applications to continue to operate transparently after the failover. This fully automated recovery capability not only speeds the recovery of SQL services when it is required, but can also be used to simplify DR testing by providing non-disruptive, one-button SQL database migration. Failover/failback can be defined at the database server or SQL named instance level, providing additional flexibility in accommodating existing configurations.

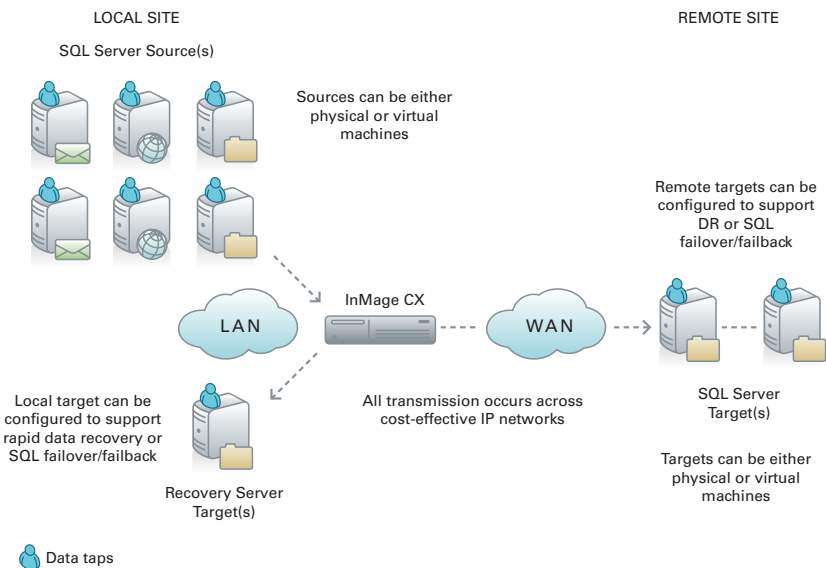
## Eliminate Backup Windows. Improve Recovery Granularity

Using continuous data protection technology, InMage for SQL captures changes to SQL databases continuously as they occur, completely moving away from the “periodic” nature of conventional backup. InMage doesn’t shorten the backup window, it completely eliminates it.

As InMage captures SQL data, it tracks it so that administrators can retroactively select AppShots – application-consistent recovery points – from which to base recovery operations. Because InMage for SQL uses the Windows Volume Shadowcopy Services (VSS) API to mark AppShots, it supports rapid, reliable recovery. SQL is often an important component of other enterprise applications, and AppShot-based recovery can recover these applications quickly and reliably without requiring additional software. When a recovery is required, an administrator may view the entire continuum of available recovery points and select the most appropriate point to meet recovery requirements. Because they represent application-consistent points in time, AppShots will support the fastest recovery times, but all other points (each of which represents crash-consistent points in time that support reliable recovery) are available as well and may provide value to administrators performing root cause analysis against failures.

## Application Awareness Supports Fast, Reliable, and Comprehensive Recoveries

InMage for SQL includes SQL-specific functionality that speeds deployment and enables recovery capabilities that are tailored for SQL environments but managed



**Figure 1.** Data is granularly collected from a SQL server and sent to a local CX, which can then store the data locally and/or remotely (using InMage’s asynchronous replication). If bi-directional and/or one-button application failover is desired at the remote site, an optional second CX could be deployed there.

through the centralized InMage management paradigm. SQL-specific functionality includes installation templates, AppShot creation and usage, and automated SQL failover/failback processes.

Data taps on each SQL database server can stream changes to one or more targets using a shared CX. As the data streams are collected, markers can be inserted into the data stream to mark various business process events. InMage for SQL can use VSS to mark SQL AppShots automatically through established policies, but DBAs may also choose to manually insert these markers to mark business process events, such as pre- or post-patch states, a re-indexing of the database, or a quarterly close, to make it easy to restore the database to these points. To recover SQL to one of these marked points, simply select it to create a disk-based image of what the database looked like at that point in time. That recovery point can be mounted on a recovery server target for recovery purposes. In providing the data recovery foundation, the key advantage InMage for SQL offers is its ability to retroactively choose the optimum point from which to start immediate and reliable recovery operations.

## Unique Hybrid Recovery Technology

InMage accommodates heterogeneous servers and all storage architectures.

InMage’s unique hybrid recovery technology lends itself to cost-effective, low end configurations that scale well to support more named instances, more SQL servers, and higher storage capacities. Our unique design, combined with the fact that we are collecting data at the block (instead of the file) level, uses much less overhead than conventional file-based host replication products. InMage for SQL minimizes the amount of data that needs to be sent across networks to enable DR or backup through the use of capacity optimization techniques like sending only data changes, bandwidth-shaping, WAN acceleration, and delta differencing on resync (during failover from a DR site back to the primary site). This design supports the use of heterogeneous servers and storage, as well as the mixed use of physical/virtual server environments in setting up source/target pairs. InMage for SQL supports SQL 2000 and later versions, including SQL 2008.