



A SOLIX WHITEPAPER

# MANAGING DATA GROWTH WITH DATABASE ARCHIVING AND APPLICATION RETIREMENT

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## Data Growth Crisis

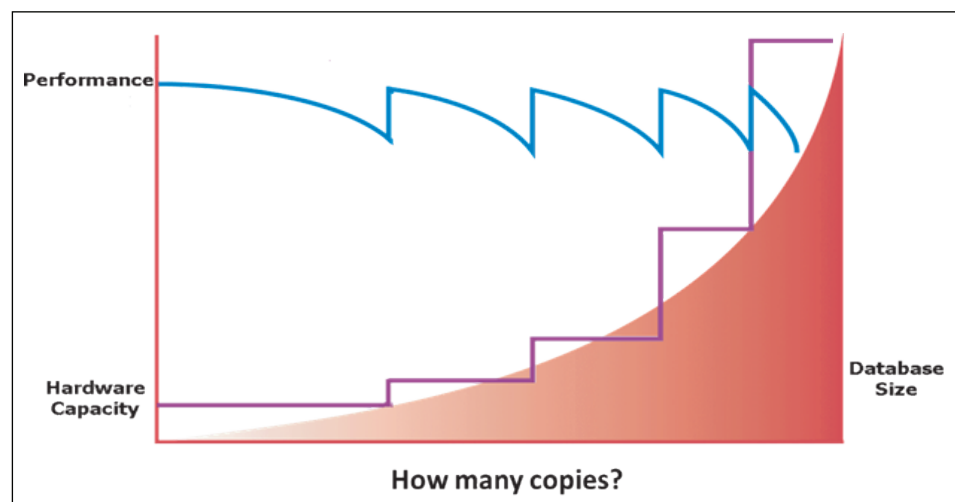
The world is drowning in data. It is estimated that over 15 petabytes of new information is created every day or eight times more than the information in all the libraries in the United States. This year the amount of digital information generated is expected to reach 988 exabytes. This is equivalent to the amount of information if books were stacked from the Sun to Pluto and back.<sup>1</sup>

And the data growth crisis impacts IT organizations. According to a recent survey by the Gartner Group, data growth is the leading data center infrastructure challenge. Forty-seven percent of the Gartner Group survey respondents ranked data growth as their number one challenge, followed by system performance and scalability at 37 percent. Consequently, sixty-two percent of the Gartner Group survey responded that they will be investing in database archiving or application retirement to address their data growth challenges.<sup>2</sup>

“While all the top data center hardware infrastructure challenges impact cost to some degree, data growth is particularly associated with increased costs relative to hardware, software, associated maintenance, administration and services,” said April Adams, research director at Gartner.<sup>3</sup>

Business and compliance objectives are demanding access and control to more and more information, but at the same time data growth is stripping entire data centers of cooling and power capacity. System availability is impacted as data piles up and batch processes start missing scheduled completion times. Mission critical applications may even face outage windows as the time required to convert data during upgrade cycles grows from hours to days. How should enterprises cope?

One solution is to archive and retire inactive data to free up capacity and extend existing infrastructure. Backup, data replication, and batch processes execute faster because data sets are reduced. ERP and CRM upgrade outage windows shorten as less data needs to be converted. Less data means not only higher availability, it also means higher performance across the existing infrastructure.



## Information Life Cycle Management

Data is the life blood of any organization, and Information Lifecycle Management (ILM) is the recognized best practice for managing data across the enterprise. Too much data slows application performance and taxes IT resources. Lack of data leads to poor decision making and missed business results. It is the job of ILM to manage data growth as well as provide a framework for data governance and compliance.

Experts agree that as much as 80% of production data in enterprise applications such as ERP, CRM, and other custom mission critical applications, may not be in active use. Moreover, this amount of data slows application performance by as much as 50%. Much of this data needs to be retained for compliance and business reasons such as decision support and trend analysis. Organizations managing rapid data growth face few options beyond spending scarce capital on larger servers and more storage.

Every day more and more data is processed and stored in the databases of enterprise applications. As databases grow, system performance is impacted. Choked by excessive processing volumes, application availability degrades, screen response times slow, and batch processes fail to complete within scheduled time windows. Additional infrastructure with more power may be applied, but such a brute force approach addresses only the effect (too much data) versus the cause (no active archive).

ILM solutions deliver business value to enterprise applications such as ERP and CRM by:

- Managing the cost and performance impact of data growth
- Aligning system performance and service levels to business goals
- Establishing retention and compliance policies for enterprise data
- Minimizing outage windows caused by data conversions during application upgrade cycles
- Enabling the proper retirement and decommissioning of obsolete enterprise applications and data

Effective ILM programs feature database archiving and application retirement solutions to manage data growth. But archiving is not just a matter of chopping off all data before a specific date, copying it to tape, and deleting it from the production database. Data divorced from its metadata context often becomes meaningless, particularly with complex data models such as CRM and ERP. And even though data may not be in daily use, it still needs to be accessible.

ILM also provides a management framework to deploy storage in tiers, including non-powered tiers such as tape. Tiered storage solutions delegate the management of less frequently accessed data to lower cost storage platforms. With a goal to set a balance between cost and performance, tier 2 and tier 3 WORM storage devices offer mass storage at lower cost. But such storage cost reduction strategies come at the price of reduced performance and availability. For mission critical users who demand fast query performance and high availability, tiered storage solutions may not meet business objectives.

## Solix Cloud

Solix Cloud provides database archiving, application retirement, and an ILM framework for small, medium and large enterprises to manage the complexity and the risk of storing vital information. For these organizations cloud archiving represents an on demand approach to data growth challenges.

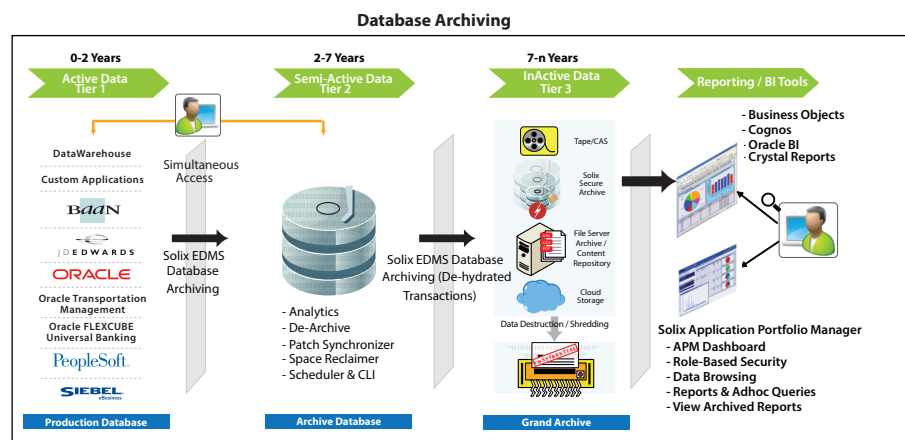
Many IT organizations have already embraced the cloud as an overall strategy, and for them archiving to the cloud is just another way to reduce IT complexity. Brandon Gage, senior vice president of technology at Newport Beach, California based United Capital Financial Advisors, LLC agrees. "We sat back one day and said, 'Why do we have all this complexity?' Every server you have, you have to maintain patches and pay for licensing."<sup>4</sup> And of course, every server moved to the cloud is one less server to manage.

As IT organizations utilize the cloud to reduce cost and complexity, ILM applications such as database archiving and application retirement are emerging as top choices for cloud deployment.

## Solix Cloud Database Archiving

Active archiving helps IT organizations meet SLAs, reduce costs, and improve the performance of enterprise applications. Maintenance and overhead costs are reduced, and IT organizations are better able to leverage their existing investments in database technology and storage.

The database archiving process itself is about capturing complete business objects which represent snapshots of business transactions. Complete business objects include not only transaction level details, but also metadata or "information about the information." For example, an invoice must not only include line items, but also customer name, account number and payment terms. Solix Cloud Database Archiving not only extracts complete business objects, it manages policy conditions. For instance, all archived invoices must be 18 months old, posted and remitted in full. It is only thru capturing complete business objects that related reference and master information can be archived together.



Solix Cloud Database Archiving is policy based and features an “application aware” framework for leading enterprise applications. By ensuring that each piece of information archived is part of a complete business object, archives gain proper context for each transaction to better meet business objectives. This application awareness framework is also extensible to custom applications and data warehouses. Solix Cloud Database Archiving “application aware” support is available for many leading business applications including:

- Oracle E-Business Suite
- PeopleSoft Enterprise Applications
- Siebel
- JD Edwards
- BaaN

## Solix Cloud Application Retirement

Obsolete, duplicate, and unused applications that remain running in many data centers are a big drain on IT budgets, and retiring these applications can pay tremendous dividends by freeing staff, reducing license and maintenance fees, and lowering power cost. Many data center consolidation projects have been launched as a result. Gartner estimates that 10% of applications running in an un-optimized portfolio are candidates for retirement and an additional one-third should be migrated or rationalized.

Furthermore, as enterprise applications are migrated to the cloud, an important consideration is, “what happens to the old system?” Solix Cloud Application Retirement decommissions applications and retires data while maintaining universal access and availability to the data archive. What’s more, the expenses of licensing, managing and supporting the legacy application is reduced or eliminated.

Candidates for application retirement are not hard to find. The most obvious are obsolete applications that are no longer delivering business value or have been replaced, but not yet shut down. Applications with duplicate functionality on boarded through mergers and acquisitions are also good candidates for decommissioning. Obviously, retiring these legacy applications creates a major savings opportunity for tight IT operating budgets.

But shutting down applications is more complex than it might first appear. One issue is that the data is often stored in non-standard formats, and it must be preserved both for internal business uses and compliance reasons. This data also presents three related problems:

- How will the data be migrated to storage tiers while preserving the vital metadata and application context without which much of the information is lost?
- Can the data be compressed to further save on storage media costs without losing the context?
- How will users access the data once the original application is shut down?

Solix Cloud Application Retirement preserves the full metadata context in complete business objects, automatically de-duplicates the data, compresses it as much as 90%, and then stores it in an immutable format that can be viewed, searched, and imported into reports. At the same time the original data is available unchanged to meet compliance requirements.

Once deployed, Solix Cloud Application Retirement processes are repeatable for other application retirement projects across the enterprise. Solix Cloud Application Retirement deployments are able to replace multiple servers, applications and entire landscapes of storage infrastructure. Costs are significantly reduced, and significant operational efficiencies may be achieved.

## Universal Data Access

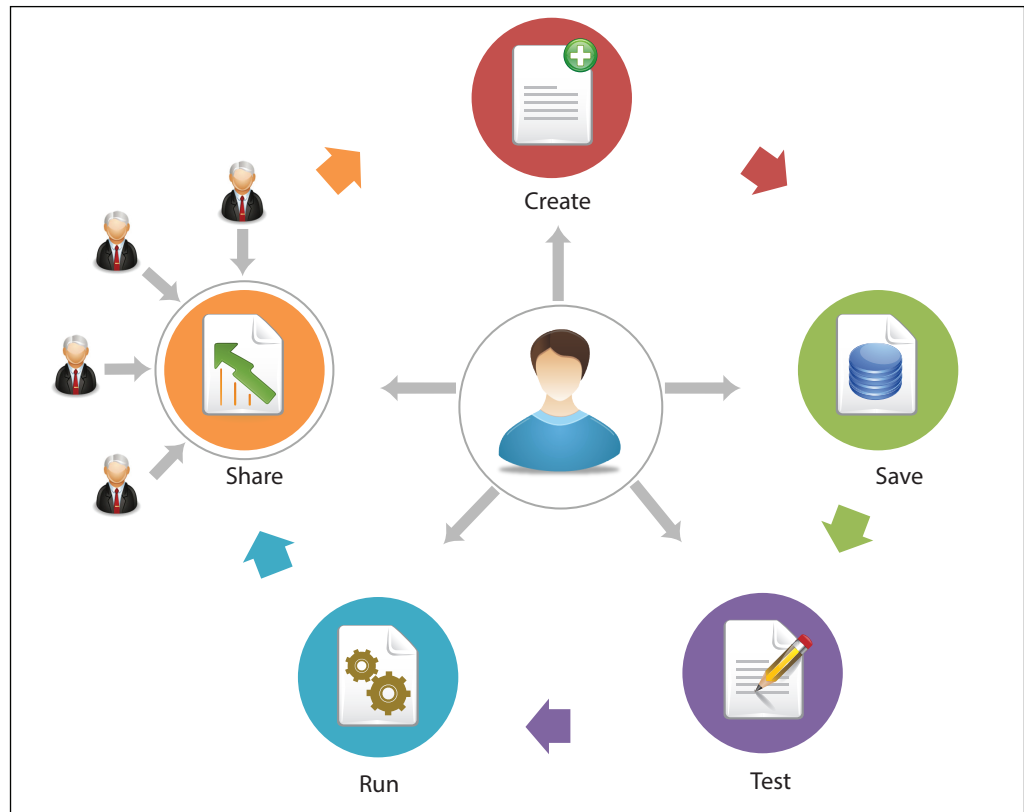
Access to archived data in the Solix Cloud is managed either natively thru the application itself or thru universal access offered by the Solix Application Portfolio Manager (APM). Native access is attractive because end users are able to access archived data through the original application interface, and run the same reports and queries used to process live data. But when the native application is finally retired, functionally changed through an upgrade cycle or not available for any reason, native access to the archive may no longer be possible.

Universal access, on the other hand, is application independent and ensures access to archived data even after the native application is decommissioned or unavailable for any reason. Many users implement universal access from the outset to ensure they will always have consistent access to archived data, even after the native application is retired. In addition Solix APM provides a universal access path to all applications in the archive portfolio, eliminating the need to maintain native tool sets for each application. By providing universal access across an entire enterprise application portfolio, Solix APM offers a flexible alternative which supports the entire data life cycle.

Solix APM also offers a comprehensive reporting dashboard, retention management and legal holds functionality for either active data or data stored in long term archives. And a visual query builder is available to create adhoc queries and reports on the fly. To provide secure access control Solix APM is provisioned with role based security, and utilizes LDAP or Active Directory to integrate with existing enterprise identity management infrastructure.

Solix APM can also register and launch 3rd party reporting and analytic tools such as SAP Business Objects, Crystal Reports or ODBC/JDBC. This collaborative model enables power users to create, save, test, run and eventually share the queries and reports with end-users.

**Universal Access enables Collaboration.**



## Reduced Cost thru Pay-As-You-Go

Solix Cloud pricing is elastic, pay-as-you-go and offers important cost advantages over on premise archive solutions. By not paying up front for software licenses and hardware, overall costs are aligned with consumption and demand.

But when evaluating costs associated with the cloud, the measurement criteria may not always be the same as traditional on premise models. Hardware, project costs, time to value, and software licensing represent traditional cost drivers, but the cloud introduces new savings criteria. For example software-as-a-service (SaaS) applications are always current and generally do not require project upgrades. Software upgrades represent a major expense and disruption whereas cloud-based applications update automatically without disrupting workflow.

Scalability is another consideration. Just like on premise applications, the cost of operating cloud based applications increases as a company grows and consumes more. But unlike on premise solutions, the cost of cloud based applications can also be dialed down as project priorities or business conditions change. Price elasticity means that cost and capacity are aligned and scale up or down to meet business needs. Sunk costs are almost always recovered since customers only pay for service and value which is actually delivered.



Thru on demand, elastic pricing, Solix Cloud offers dramatic cost reduction. Users are charged a flat monthly service fee in addition to a per gigabyte charge to archive data. Side by side comparisons show that Solix Cloud Database Archiving is able to reduce enterprise archiving costs by as much as one half over on premise solutions. Not only are the high upfront costs of perpetual licenses eliminated, customers are only charged for the service that is delivered.

## High Performance Archive with Flash

Who declared that tier 2 and tier 3 degraded storage performance is a good thing? Cost advantages exist, but no mission critical application user ever wants a query to run slower. Tiered storage is effective reducing storage costs, but it may also reduce end user productivity or compromise business objectives when high availability or high performance access is a requirement. While some ILM strategies assign less importance to high performance access to business archives, Google may not have succeeded without it!

Solix Cloud turns the tiered storage ILM model on its head by deploying a “cloud tier” which utilizes high performance tier 1 storage arrays and flash solid state disk (SSD) technology to archive and retrieve data. By storing archived data on tier 1 media all the time, and by augmenting performance with flash storage technology, Solix Cloud delivers faster performance and improved access compared to traditional tiered storage models. Read latency is significantly improved because more of the working data set is cached in faster storage media such as SSD. Flash SSD speeds access to data through awareness of recently read user data. No setup or ongoing administration is needed, although tuning parameters are possible. With flash SSD end users may expect significant performance gains.

## Security and Compliance

For organizations evaluating cloud computing alternatives, security is often cited as the number one reason NOT to move forward. Data must always be properly secured, and security policy may also designate certain data as sensitive to compliance mandates such as PCI, HIPPA, FISMA or SAS 70 Type II. When information is deemed sensitive, ILM and compliance policies mandate that data must be properly secured and accessible only thru proper access control procedures.

But let’s be specific on the critical issue of security. Why should an organization be more or less comfortable storing data in the cloud versus on premise? Perhaps the best way to assess the security posture of a cloud provider is to compare their capabilities against the on premise alternative. Solix Cloud is designed with best practices in mind to ensure the highest levels of physical, operational and system security.

Physical security includes locking down and logging all physical access to servers. Solix Cloud physical security measures include:

- Data center access limited to data center technicians.
- Biometric scanning for controlled data center access
- Security camera monitoring at all data center locations
- 24x7 onsite security staff provides additional protection against unauthorized entry
- Unmarked facilities to help maintain low profile
- Physical security audited by an independent firm

Operational security involves creating business processes that follow security best practices to limit access to confidential information and maintain tight security over time. Solix Cloud operational security measures include:

- Full AES-256 encryption
- Digital fingerprinting to guarantee integrity over the lifetime of the file
- Automated, policy-based archiving, migration, retention
- Data immutability
- Full access audit trail
- File level data de-duplication
- Secure file deletion / crypto-shredding
- ISO17799-based policies and procedures, regularly reviewed as part of our SAS70 Type II audit process
- All employees trained on documented information security and privacy procedures
- Access to confidential information restricted to authorized personnel only, according to documented processes
- Systems access logged and tracked for auditing purposes
- Fully documented change-management procedures
- Independently audited disaster recovery and business continuity plans
- Best practices used in the random generation of initial passwords
- All passwords encrypted during transmission and while in storage at Solix Cloud
- Secure media handling and destruction procedures for all customer data
- Support-ticket history available for review
- System logging to create an audit trail

System security involves locking down customer systems from the inside, starting with hardened operating systems and up-to-date patching. Solix Cloud offers a full range of options to take system security to the next level..

- System installation using hardened, patched operating systems
- System patching to provide ongoing protection from exploits
- Dedicated firewall and VPN services to help block unauthorized system access
- Data protection with managed backup solutions
- Optional, dedicated intrusion detection devices to provide an additional layer of protection against unauthorized system access
- Distributed Denial of Service (DDoS) mitigation
- Risk assessment and security consultation by professional services teams

## Summary

As Gartner Group reports, data growth has emerged as the biggest data center and hardware infrastructure challenge, and data growth is “particularly associated with increased costs relative to hardware, software, associated maintenance, administration and services.”<sup>5</sup> As more and more data is processed and stored in the databases of enterprise applications, these databases grow and system performance is impacted.

Mission critical ERP and CRM applications represent a substantial corporate investment. These applications are the heartbeat of every business, and the data they manage represents the transactional history of the entire organization. Organizations tasked to manage these enterprise applications throughout their entire lifecycles are responsible for an invaluable business asset.

Database archiving and application retirement are best practices for managing data growth and Solix Cloud costs less, reduces complexity, offers higher performance, and operates within a security best practice framework. Through Solix Cloud Database Archiving and Solix Cloud Application Retirement, organizations are able to achieve improved ILM results.

## Footnotes:

1. <http://www.enterprisestorageforum.com/management/features/article.php/3911686/CIOS-Struggling-With-Data-Growth>
2. <http://www.gartner.com/it/page.jsp?id=1460213>
3. <http://www.gartner.com/it/page.jsp?id=1460213>
4. [http://searchcloudstorage.techtarget.com/feature/File-sharing-in-the-cloud-enables-users-to-ditch-file-servers-VPNs?utm\\_content=nl1&asrc=EM\\_MDN\\_16432850&mo=1&Offer=mn\\_eh022112CSTRUTTS\\_nl1&](http://searchcloudstorage.techtarget.com/feature/File-sharing-in-the-cloud-enables-users-to-ditch-file-servers-VPNs?utm_content=nl1&asrc=EM_MDN_16432850&mo=1&Offer=mn_eh022112CSTRUTTS_nl1&)
5. <http://www.gartner.com/it/page.jsp?id=1460213>



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