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ARKIVIO auto-stor Makes The Most Out Of Storage

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Management Summary

Everybody wants to make the most of things. *Seize the day. Stretch those dollars further. Spend quality time with family. Squeeze the last bit of toothpaste out of the bottle. And so on.* **Our resources are finite, so it is natural that we want to make the most of them.** On the other hand, slackness, inefficiency, and waste represent lost opportunities – something that could have been better.

This same idea is driving innovation in the information storage industry because, frankly, there is a lot of inefficiency in the way storage is used and administered today. It is underutilized – too much unused capacity sits idle. It requires too much time and skilled labor to administer. Too much money is spent on it. At the same time, storage is a necessity. Enterprises require more and more of it because information continues to grow and become more central to running a business in the Information Age.

So there is a need to make storage more efficient, and Arkivio, Inc. of Mountain View, California, has developed a clever way to do it. The *ARKIVIO auto-stor* software solution automatically migrates data between tiered storage classes to maximize storage utilization and optimize costs. It operates across an enterprise's storage infrastructure, whether SAN, NAS and/or DAS, and makes intelligent distinctions between both data and storage resources based on policy. It then moves data around seamlessly, matching classes of data and storage. For instance, critical files require high-speed, robust storage, while less-important files will find a lower storage quality of service (QoS) to be adequate – at a correspondingly lower cost. ARKIVIO auto-stor offers several benefits:

- **Fast payback by freeing up capacity** – First, it eliminates wasted space and defers future purchases by improving storage utilization. Second, many larger enterprises will find their storage is weighted toward the high end. By moving less-critical data to less-costly storage, ARKIVIO auto-stor liberates space at the high end and effectively saves the cost difference between the storage tiers.

- **Lower future storage acquisition costs** – It allows an enterprise to purchase a less-expensive mix of storage devices, decreasing the average cost of future storage purchases.

- **Lower storage management costs** – Like an autopilot for storage, policy-based automation saves labor and lowers operating costs – the largest part of storage TCO. ARKIVIO auto-stor is also relatively easy to use and installs onto existing infrastructure.

Arkivio has a solid story. Its solution enables storage to be more efficient and cost-effective. **And because ARKIVIO auto-stor can deliver a rapid return on investment, it should appeal even to tight-fisted budgeters in these cautious economic times.** Read on for more details.

ARKIVIO auto-stor: How It Works

The ARKIVIO auto-stor software solution consists of a central management server, as well as agents that run on all participating host/application servers. These components are installed within the existing infrastructure and, therefore, do not require reconfiguration. It is a relatively non-invasive approach.

The management server:

- Monitors the storage environment,
- Collects historical meta-data,
- Generates reports, and
- Performs policy-based management.

It monitors both *storage resources* and *data.* Storage resources include SAN[1], NAS[2], and DAS[3]. ARKIVIO auto-stor classifies storage resources based on characteristics such as device type, capacity, performance, cost per MB, manufacturer, and model. It monitors data at the file level, and relevant information includes file type (e.g., video, spreadsheet, document), age, size, owner, and usage patterns.

After an initial discovery process, the ARKIVIO auto-stor management server automatically organizes the data and storage resources into logical groups. **The IT administrator then sets and fine-tunes the policies for maximizing utilization and optimizing costs, according to the needs and priorities of the enterprise.** ARKIVIO auto-stor can use any of the monitored characteristics for making determinations, setting thresholds, and taking actions. For instance, a spreadsheet that the finance department frequently accesses might be assigned to a volume with high QoS (i.e. performance, availability), while an MPEG video file from engineering might be relegated to a low-cost, lower-QoS volume. Files with similar policies can be applied to a tier or logical group of storage.[4]

Taking orders from the management server, the ARKIVIO auto-stor agents on the host/servers then execute the policies. (The agents use a modest amount of system resources.) They classify data in real-time and, if necessary, move it to another class of storage or to another volume within a class to balance capacity. The agents work together so that if a storage device is accessible by one server, it becomes accessible by all – within limitations set by policy. **In this way, ARKIVIO auto-stor effectively knits together all storage devices into a single, fluid pool in which data ebbs and flows according to policy.** If the value of data changes over time, or if the QoS of a storage device changes, the agents automatically move the data to ensure ongoing conformance. **The net effect is automatic and dynamic matching of storage resources and data as well as higher capacity utilization.** If the management server were to become unavailable, the agents would continue to execute on the policies in place at the time of the interruption. Such an event would not cause downtime for the host servers.

Furthermore, ARKIVIO auto-stor performs other storage resource and data management functions. It can migrate and replicate data, which is useful for business continuance as well as upgrading from DAS to SAN or NAS. Administrators can use the reporting and trend analysis features for planning and to determine the effectiveness of policies. It also supports event threshold alerts that enable benefits like just-in-time storage procurement.

The ARKIVIO auto-stor management server runs on a *Windows 2000* platform and is administered through a Web interface. The agents currently supports *Windows NT/2000* platforms and *Windows SAK*-based NAS devices, and future enhancements will

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[1] Storage area network – usually Fibre Channel, though iSCSI and IP are also supported.
[2] Network attached storage – usually connected to an IP network.
[3] Direct attach storage – directly connected to a host server.

[4] For a more detailed discussion about tiered storage classes, see *Tiered Storage Classes Save Money – Getting The Most Out Of Your Storage Infrastructure* in **The Clipper Group Explorer** dated August 29, 2002, at http://www.clipper.com/publications.htm.

include support for *Unix, Linux*, application and database integration, and other advanced features. Prices start at about $35,000 to manage 1 TB of storage capacity.

Benefits to the Bottom Line

ARKIVIO auto-stor takes a costly but indispensable asset – storage – and makes it more efficient. **Efficiency translates to ongoing cost savings, which ultimately helps the bottom line.** This *is* business, after all. These efficiencies occur in several ways:

- **Freeing up storage capacity to deliver a fast payback** – Consider the following scenario that is illustrated with general, though realistic, figures. XYZ Company has 10 TB of storage capacity that cost $1 million, but it only uses 50% of the capacity because it is segregated into "islands of information" and not dynamically managed. Deploying ARKIVIO auto-stor paves the way for 75% utilization and immediately liberates $250,000 worth of storage. This also defers the next storage purchase, which saves company's internal cost of capital of 10% per year. Moreover, after classifying its data, XYZ decides to migrate 2 TB of less-important data to storage that costs 80% less, saving the difference of $160,000. These represent the immediate returns.

- **Lowering the cost of all future storage purchases** – Continuing with the scenario, the deferral lowers the price paid for the next storage purchase because hard drive prices drop about 20% per year. Furthermore, XYZ's storage resources were weighted toward the high end after being sold "only the best" by storage vendors and assuming all data requires the same high QoS. After classifying and matching its storage and data through policy-based automation, XYZ finds that the price of future storage purchases drops by 30% because it can use a much higher ratio of inexpensive storage. Therefore, savings accrue every time storage is purchased in the future.

- **Lowering the cost of storage administration** – XYZ pays $800,000 per year to administer the 10 TB of storage (unfortunately, also a realistic figure). Through policy-based automation and reporting, ARKIVIO auto-stor enables smarter management and eliminates many repetitive, time-consuming tasks that would otherwise require human intervention. Saving a percentage of the $800,000 would certainly benefit the bottom line. As storage capacities grow in the future, the benefits of higher operating efficiencies will grow, as well.

The net effect is a continuum of savings that begins when the solution is installed and stretches indefinitely into the future.

Conclusion

Making smart distinctions between the relative value of data and storage resources can have a major effect on the cost of storage ownership. **By acting on these distinctions through dynamic, policy-based automation, Arkivio offers an elegant solution for helping enterprises get the most out of their storage.** The allure of immediate *and* ongoing savings also makes a solid case to executives looking for fast, tangible returns on their IT investments. **For enterprises looking to squeeze greater efficiencies out of their storage infrastructure, Arkivio auto-stor stands out as one to consider.**

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About the Author

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