

IntelliMagic

Storage Intelligence

The IntelliMagic Suite

Storage Performance Management for higher service levels at a lower cost

Enterprise storage environments are quickly growing in size, cost, and complexity as a result of pervasive computing, regulation, consolidation and virtualization. The processes used to manage the performance of enterprise storage have not matured accordingly.

Consequently, organizations have to consistently overspend on storage hardware to reduce the risk caused by lack of insight. At the same time they are still liable to painful I/O service time impacts that disrupt business application users, since even over-configured storage can contain bottlenecks that are almost invisible. This creates a dependency on storage hardware vendors for both problem resolution and storage sizing.

Most organizations use a Storage Resource Management (SRM) product, but the primary focus of these tools is to manage storage space. Any performance reporting that SRM tools include is typically at the symptom, not the root cause level, and does not include early warning or predictive modeling insight.

IntelliMagic's Storage Performance Management (SPM) suite on the other hand, provides a new level of visibility to efficiently manage storage performance. This ensures that business applications receive the required performance service levels without overspending on storage hardware. Should performance problems arise, the root cause can be quickly identified and addressed. This visibility into current and future I/O performance enabled by the IntelliMagic suite provides significant financial benefits.

An example of these financial benefits was reported to us by one of our customers, a large US bank:

"Using IntelliMagic products we planned a migration to

a new storage technology level. The products gained us insight, and allowed us to discuss the possible configurations with our vendor, which we could not do previously. The process resulted in a consolidation that equated to a 34% reduction in hardware compared to what we initially planned."

The IntelliMagic Storage Performance Management products are in use by some of the largest sites around the world as well as by various storage vendors. The intuitive way the products work and our long standing experience make sure your organization can immediately start reaping the benefits without having to go through a long implementation project. We offer our customers continuous access to our expertise by providing extensive support, product training, and storage performance education.

The IntelliMagic products require no programming, no external licenses, are easy to use and are continuously updated to support the newest storage features.

Use the IntelliMagic suite to:

- ▶ **Reduce risk of business disruption by controlling storage health**
- ▶ **Save money by using hard facts instead of performance rules of thumb**
- ▶ **Prevent problems with total visibility into storage system performance**
- ▶ **Reduce dependency on storage vendors**

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Storage Performance Management from IntelliMagic

The IntelliMagic software suite consists of three products: IntelliMagic Vision, IntelliMagic Balance, and IntelliMagic Direction. Together these products enable mature storage performance management processes, allowing organizations to realize the associated performance, financial, and infrastructure management benefits.

IntelliMagic Vision is the foundation product in the suite that provides automated, daily visibility into all components of enterprise storage systems where performance bottlenecks can occur. This provides benefits such as early warning, quick root cause analysis, vendor independence, and historical trending of key storage workload metrics.

IntelliMagic Balance uses the data provided by IntelliMagic Vision to recommend an optimally balanced layout of I/O workloads across storage hardware resources, for single- or multi-tier environments. It can be used when moving to new storage hardware, and for eliminating hotspots on current hardware with a minimum number of moves.

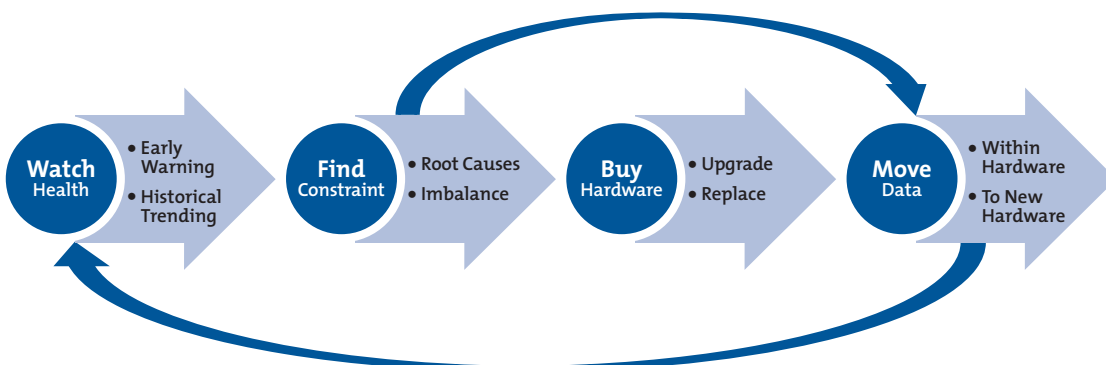
IntelliMagic Direction is the modeling product that evaluates upgrade scenarios for your disk storage systems. Its predictive modeling also shows the growth potential for current or future configurations. This product saves money because it enables you to find the most efficient hardware options, which may be different than what your hardware vendor recommends.

► Using IntelliMagic to improve SPM processes

Managing the performance of enterprise storage consists of four distinct processes that often touch multiple disciplines within an enterprise, such as the performance team, the storage team, the storage architecture/engineering team, and the capacity planning and replication teams.

Having a storage management solution like IntelliMagic's that incorporates automation and deep storage performance intelligence will greatly impact all these areas. It is necessary to use SPM across all four of the processes in order to achieve the full service level and financial benefits. The following sections provide an overview of the value IntelliMagic adds in each of these four areas.

▼ Storage Performance Management Process Steps



Benefits of Storage Performance Management

▼ SPM Maturity Matrix

The most important benefits of robust storage performance management (SPM) are described by the maturity matrix below. Sites that have implemented mature proactive and predictive SPM processes will have significantly fewer fires to fight. In addition, mature sites spend less on storage hardware because they buy and maintain the most effective configurations.

	Reactive	Proactive	Predictive
Watch Health Problem Identification	End-user identified	Automatic with early warning	Growth modeling
Find Constraint Problem Resolution	Lengthy, may require vendor	Quick, vendor independent	Future focused
Buy Hardware Storage Sizing	Vendor configured	Estimate from historical data	Model exact configurations
Move Data Volume Placement	Randomly placed	Manual optimization	Intelligent balancing
Service Level Attainment	Lowest	High	Highest
Storage Hardware Costs	Highest	Low	Lowest

► Risk Reduction Benefits

The vast majority of storage performance problems can be avoided before they ever affect production users by using IntelliMagic's daily health assessment of the storage infrastructure. IntelliMagic's product suite identifies when critical system components are approaching dangerous utilization levels. This early warning provides the time necessary to address the risk before additional workload growth triggers rapid degradation in response times. The deep visibility also significantly speeds up problem resolution.

► Cost Efficiency Benefits

Companies spend a lot of money on storage hardware. IntelliMagic's predictive modeling capabilities can significantly reduce the hardware costs by selecting the most efficient storage hardware and layout that provides the necessary throughput and performance. IntelliMagic's product suite facilitates more workload growth on existing hardware through balancing of data across hardware resources. This way, you can improve your service levels and reduce complexity while at the same time reducing overall costs.

Watch Health



enables a site to move from reacting to performance problems to avoiding them.

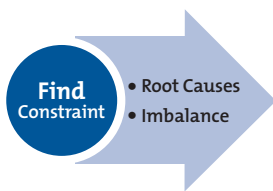
IntelliMagic Vision provides this visibility by performing a deep health check of every enterprise storage system every day. It correlates the performance measurements of your workloads to the capabilities of the hardware so that performance bottlenecks can be easily identified

The foundation of a mature SPM implementation is proactive monitoring of the storage environment with daily, automated visibility into the right metrics for your enterprise storage systems. This enables

before they disrupt production applications. The **IntelliMagic Vision** daily dashboard view enables a daily risk assessment on the health of large, geographically dispersed storage environments in only a few minutes. The right performance metrics are computed for each level in the storage system. These show how the various hardware components are performing. Having the right metrics is also essential for successful Find, Buy, and Move processes.

IntelliMagic Vision automatically stores the metrics in a historical database so that trend reports on your application workloads can be easily viewed over time and used for predictive modeling scenarios.

Find Constraint



to attempt to resolve problems on the basis of assumptions.

IntelliMagic Vision plays a critical role in gaining the ability to quickly identify and understand the root cause(s) of any constraints, and determine whether workloads can be rebalanced or whether additional hardware is really required.

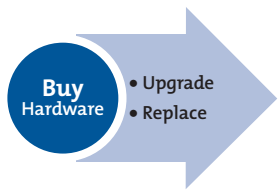
Resolution speed and accuracy are essential when a problem occurs on a critical part of the IT infrastructure. The proper functioning of storage is too important to wait for external analysis or

The **IntelliMagic Vision** database allows the performance data to be viewed in every relevant dimension for quick problem isolation. Intelligence is also incorporated into the product to assist in recognizing root causes.

IntelliMagic Direction can show the utilization percentage of all internal components of the storage system, like front-end ports and back-end adapters.

The heat maps provided by **IntelliMagic Balance** will quickly and easily show which incremental moves of data will eliminate hot spots in the environment.

Buy Hardware



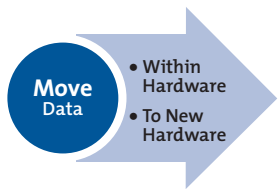
If the existing hardware is no longer sufficient for the required workload, the IntelliMagic suite provides the knowledge to optimally select and configure a hardware upgrade or replacement.

for high access density data and Fibre or SATA drives are used for the remaining data.

IntelliMagic Direction can be used to model a complete storage system configuration from all enterprise storage vendors. It predicts the response times and utilization levels of all components within the storage system. By showing the benefits of different hardware options you can select the most cost-effective configuration that meets your workload performance requirements.

IntelliMagic Balance can be used in a hardware planning stage to assess the feasibility of various hard disk device types. Significant savings can be realized by configuring storage systems with larger drives, but these introduce additional performance risks. IntelliMagic Balance quantifies these risks and can create multi-tier solutions where for instance Solid State Drives are used

Move Data



Data placement on storage hardware has a significant effect on the throughput and hence lifespan of the hardware. **IntelliMagic Balance** is unique in its ability to create a placement plan that significantly

such as the back-end array groups, are all doing as close to the same amount of work as possible.

The resulting data migration plan can be used with your existing migration tools when moving to new hardware. A migration plan can also be generated for moving to larger volume sizes without incurring the risk of creating new hot spots.

cantly increases the useful lifespan of the storage system.

The 'best moves' feature of **IntelliMagic Balance** is the easiest way for sites to address hot spots in their existing hardware configurations and increase the overall throughput capacity of the hardware by moving only a small set of volumes within the existing hardware.

Balance is the key to storage hardware efficiency because peaks caused by uneven distribution artificially limit the capabilities. **IntelliMagic Balance** analyzes every volume's workload for a week's worth of data and calculates a layout such so that the key hardware resources,



About IntelliMagic

IntelliMagic is known for its expertise in Storage Performance Management. Our suite of software products enables proactive performance management for complex storage configurations for z/OS mainframes as well as open systems environments.

The IntelliMagic product suite enables you to use your storage hardware efficiently, save cost, and increase application user satisfaction.

The IntelliMagic product suite uses advanced algorithms for data analysis and performance prediction, in combination with a flexible and intuitive user interface. The products are easy to use and do not require time-consuming implementation projects.

With the IntelliMagic product suite, truly proactive Storage Performance Management is possible, both through early warning of potential problems, as well as by being able to select storage options in a way that maximizes the benefit-cost ratio.

IntelliMagic Direction was formerly known as Disk Magic. IntelliMagic Vision supersedes RMF Magic. IntelliMagic Vision still contains the z/OS functionality from RMF Magic, but now supports enterprise storage attached to any server platform.

As a company, we strive towards long-term relationships with our customers. Responsiveness to questions and a customer-first mentality are very important to us.

Contact us ▼

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