

National Library of France monitors its
digital archives and data preservation infrastructure
with the Hi-Stor StorSentry™ solution

**Hi-Stor StorSentry™ is a key software component
of the data preservation & distributed archiving system.
StorSentry™ monitors in real time the quality and the performance of
the tape storage infrastructure and ensures risks prevention.**

National Library of France (Bibliothèque Nationale de France - BnF) was created in the beginning of 1994, following a large project launched on July, 14th, 1988 by then French President, François Mitterrand. BnF inherited a six-century old tradition of conservation and safeguarding of French documents, including the first royal libraries until the creation of a National Library during the French revolution which was still in activity until the end of the 20th century (more information on the web site www.bnf.fr).

In the dawn of the 3rd millennium, new technologies are at the heart of the BnF development. BnF data preservation and distributed archiving system project (named SPAR) was created to manage the issues of the digitized inventory: Accelerated growth of storage volumes, and tougher conservation constraints. This system will contain all the digitized documents from the BnF, including:

- The printed documents (of which there are more than 13-Million) whose digitization time increases. From 95,000 documents already digitized up to speeds, as of 2008, of about 100,000 digitized documents each year. The legal deposit of French web sites (.fr) will further increase the storage volume demand.
- The entire audiovisual inventory.

The IT department plays a key role in driving these large projects. With about 3800 workstations, more than 300 servers (Windows & UNIX), and more than 400 network components spread across 7 geographical sites, BnF has an IT infrastructure matching its ambitions. We met with Adoté Chilloh, Deputy Manager to the CIO, who manages Operations & Support and is also in charge of Information Systems Security, as well as his colleague Lionel Micault, who is in charge of the archiving infrastructure.

The storage infrastructure relies on Sun Microsystems tape library robotics and matches BnF challenges with a multi-sites architecture (SAN & SCSI). They use more than 15 drives and 20,000 cartridges. This equals about 600 Terabytes for backup per site, increasing toward several Petabytes in the coming years as part of the SPAR project.

The SPAR project, launched in 2005, meets BnF's large volume challenges and demands, leading to a modular solution for its hardware and software information storage architecture. The first phase of this project is expected to be completed in 2009.

BnF chose the StorSentry™ solution in 2007, after a Request for Acquisition for a software solution to monitoring the quality of the long term tape storage system for the SPAR infrastructure. BnF was searching for a solution that harmoniously combined the operations' monitoring quality with risk prevention.

As a matter of fact, StorSentry™ met all of the needs for real time quality monitoring (proactive management of media degradation) and performance monitoring of the tape storage infrastructure, both for the future SPAR project and the current information backup system.

Both Adoté Chilloh and Lionel Micault agreed that the main reasons for their choice:

« *Hi-Stor with StorSentry™ fulfilled BnF's various needs for:*

- *An open solution on major standards, independent from hardware, media or software vendors(*)*
- *A clear discrimination of problems sources (media or drive...)*
- *The ability to trigger quality control alerts for seldom used media*
- *A global monitoring solution which informs the operations team in real time and automatically triggers migration requests for damaged media(with a customisable quality threshold)*
- *The availability of both a graphical interface (GUI) and an application interface (API) for the integration within the SPAR system»*

StorSentry™ was installed in the first half of 2007 and is operational on 2 sites (one for backup recovery). After one year of day-to-day use, Lionel Micault sums up the main benefits of the solution for BnF: *"The StorSentry™ solution provides us with centralized monitoring of our tape storage infrastructure. It detects errors which are not detected by our backup system, thus improving further our service quality. It has also helped us in optimizing our backups. StorSentry™ brings us a global view on the level of use on our drives, which allows for us to optimize their performance, and consequently our related investments. Its integration capability with our hypervisor system is another important asset of StorSentry™".*

Because it not only matches the objectives they had when selecting the solution, but also their future plans, BnF is completely satisfied with the StorSentry™ solution put in place with the help of the Hi-Stor service team. Through a competence centre led by Lionel Micault for the optimum usage of the solution, BnF will again take advantage of the Hi-Stor service team skills during 2008 for the use of StorSentry™ APIs for the integration within the SPAR project.

Hi-Stor has been able to demonstrate its expertise in storage management software solutions. With the flexibility of its StorSentry™ offering, and its ability to listen to the BnF requests, Hi-Stor delivered a solution fulfilling BnF's challenges for modularity and integration within her environment (APIs availability, SNMP function for integration with the operations hypervisor software). The StorSentry™ solution delivers the durability and robustness required by BnF for its short and mid term evolution.

In conclusion, Adoté Chilloh adds: *"Hi-Stor with StorSentry™ delivers us with an efficient solution to fulfil our expectations for a key software component of our infrastructure – the one which ensures the permanent check of the quality and performance of our tape storage hardware environment. StorSentry™ meets both our current and future needs through its wide openness and its large richness of information".*

(*) SPAR system software environment: Windows 2003, Solaris 10, NetBackup, Arcsys, NetCool, ACSLS, SamFS, StorSentry™