

# Putting the needs of library users first

HP installed an integrated Internet access service and printing solution aimed at helping the National Library Board of Singapore boost user satisfaction.



National Library Board  
Singapore

The National Library Board of Singapore manages the National Library and a network of public and client libraries in the country. It introduced the concept of a multimedia station to serve as a gateway through which digital content such as information databases, e-books, audio-visual resources and the Internet can be accessed by patrons at National Library Board libraries. As demand for the new multimedia stations grew over the years, the National Library Board felt the need to implement a new Internet access and printing solution with greater performance and availability. Following a tender process, the National Library Board awarded HP with the project.

**HP customer case study:** An integrated solution from HP improves the performance and availability of the National Library Board of Singapore's multimedia stations.

**Industry:**  
Public sector

## Objective

- Revamp the legacy multimedia stations to improve performance, availability, and reliability
- Improve architectural resilience and reliability
- Enhance printing services

## Approach

- A centralised deployment solution
- Low maintenance, easily deployable, and reliable workstations
- A proven print management system
- Decentralised Internet access control and management architecture

## IT improvements

- Reduced downtime
- Reduced operational costs
- Reduced support costs
- Improved reliability

## Business outcomes

### Accelerate business growth

- Higher availability and reliability have improved user satisfaction

### Lower costs

- Operational efficiency has been enhanced
- Running costs have been lowered

### Mitigate risks

- Increased availability through the elimination of single-points-of-failure
- The risk of an outage or downtime has been reduced
- Robust and stable charging system

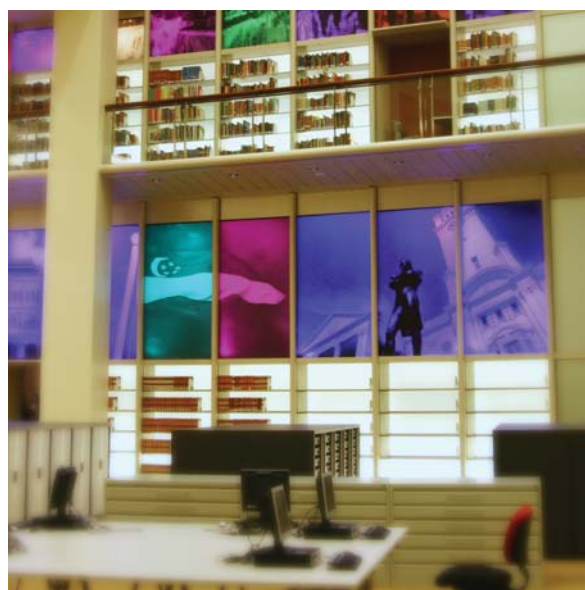


Image courtesy of the National Library Board of Singapore

## Putting information at the fingertips of all Singaporeans

In September 1995, the National Library Board (NLB) of Singapore was established and guided by a vision to expand the learning capacity of the nation and to deliver services that would be convenient, accessible and useful to Singaporeans. NLB was set up to not only manage all public libraries in the island state, but to also bridge the gap between traditional paper-based and borderless library services as part of its mission to provide a trusted, accessible and globally-connected library and information service. By incorporating technology into its operations and information services, continually expanding its wealth of printed and non-printed resources, and by linking its libraries with those outside the country through a seamless information-sharing network, NLB actively promotes a knowledge-based society for a vibrant and creative Singapore.

NLB currently oversees the National Library, three regional libraries, 20 community libraries and a network of client libraries. As of the 2005 fiscal year, the number of library members stood at over 1,960,000.



Image courtesy of the National Library Board of Singapore

### **The need for a robust, reliable solution**

As part of its drive to encourage the development of a knowledgeable and connected society, NLB offers extensive multimedia services to its patrons. At multimedia stations located at all NLB library branches, patrons can access digital audio-visual content, local and overseas information databases, and browse the Internet for a very affordable fee. These stations consist of PCs linked to a central server that manages Internet access, and a print server that handles all print jobs.

Over the years, NLB's multimedia stations had proven to be exceedingly popular with patrons, with usage growing year by year. This surge in demand placed a strain on the existing architecture, which was not equipped to cope with the increasing loads. As a result, NLB patrons would encounter performance issues with the stations as well as the occasional service outage and longer processing times for printing than usual.

In addition, the legacy system faced increasing difficulty in meeting current demands. Each multimedia station had to be installed and configured manually, incurring high costs. Printing services were provided by a centralised server using custom-developed print drivers, and this often resulted in printing errors. In addition, the print system could not cope well when demand was high.

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*"HP Services was able to conceptualise an appropriate solution, develop it to our satisfaction, and integrate a number of disparate technologies to successfully roll out new multimedia stations for our libraries."*

Mr. Ramachandran Narayanan  
Assistant Director, InfoComm  
The National Library Board of Singapore

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### **Improving performance and stability with an integrated suite of solutions**

To improve the multimedia stations' stability, availability, and performance, HP submitted a proposal that integrated NLB's IT needs with their business objectives. HP's recommendations were to:

**1. Introduce a customised fee-processing application.**

A custom tailored application handling the multimedia stations' time-based fee access would help simplify administration and reduce accounting errors.

**2. Replace legacy multimedia station PCs with HP Thin Clients.**

HP Thin Clients offer industry-leading flexibility in a robust, compact design that is both virus-resistant and easily deployable from a centralised location. In addition, these systems run Microsoft Windows XP Embedded so that users cannot write onto the system area. This not only prevents unauthorised tampering but also eliminates the threat of a virus infection.

**3. Implement a new deployment system.**

Integrated with the HP Thin Clients is a highly automated system for deploying upgrades, patches, and new applications. This simplifies management and minimises operational costs because configuration changes can be made from the centralised deployment server, which will then automatically transmit these changes to all HP Thin Clients that are linked to it.

**4. Install an integrated print management system.**

To improve the performance and reliability of print jobs, HP implemented a Print Management and Payment system called JetAnywhere. To simplify administrative tasks and improve service levels, a remote printer monitoring system, HP WebJetAdmin, was installed, allowing librarians to monitor the status of the printers and consumables without leaving their stations.

HP deployed a total of 23 HP ProLiant DL380 Servers at various NLB library branches. Another six HP ProLiant Servers were deployed in load-balanced and clustered configurations, as well as HP StorageWorks 500 Modular Smart Array, a RAID storage solution for clustered server environment. 300 HP T5720 Thin Clients were installed throughout NLB library branches.

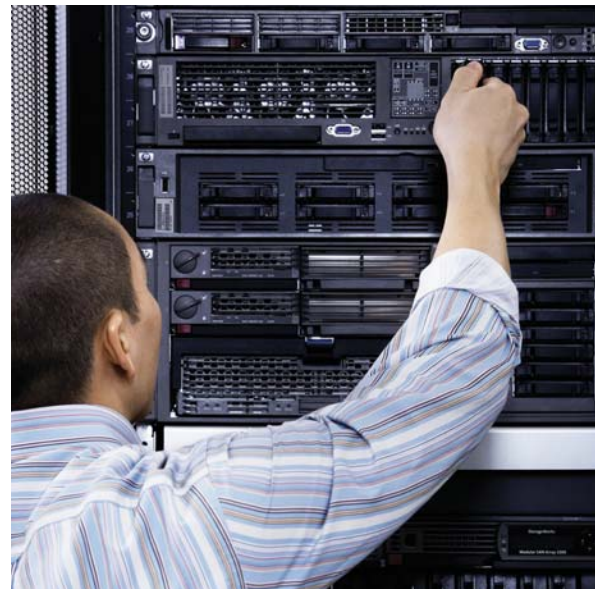
Where the legacy architecture was dependent on a central server to render print jobs, HP's new solution stresses decentralisation to improve stability and performance. Missing print jobs and printing errors have been eliminated and the solution at the same time provides NLB with the option to enhance the services provided.

In addition to hardware and software enhancements, HP also introduced a comprehensive support service plan to maximise performance and reduce downtime. With HP 24x7 Hardware Support Services, NLB IT staff benefit from round the clock technical help and cost-saving updates. Product and support information can also be accessed online any time.

### **Empowering NLB to better serve the public**

The migration and implementation of the new multimedia stations went smoothly, with the libraries experiencing no downtime or service interruptions throughout the undertaking.

The solution addressed all of NLB's concerns, from redundancy to performance to flexibility and scalability. The customised fee-processing application has simplified administration and accounting activities, while the new multimedia stations along with the new deployment strategy effectively meet growing demands in a robust and reliable manner. Indeed, recovery mechanisms have also been put into place to ensure that if and when an outage is encountered, interruption to the multimedia services will be minimised. As a result, the multimedia stations are more stable than ever, with minimal downtime. Future needs too can be accommodated, as the new system was designed to scale up without impacting performance. This ensures that patrons will continue to enjoy the high level of service they've come to expect at the multimedia stations.



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*"Printing services at all our multimedia stations have seen improvements in performance and reliability. The new printing solution has eliminated the centralised virtual printer with a standard print driver. This significantly reduces the time needed for the pages to be correctly rendered and printed. With HP WebJetAdmin, librarians can monitor the status of the printers and consumables without leaving their stations. This has resulted in increased productivity and improved service levels to our patrons."*

Mr. Ramachandran Narayanan

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The solution has been, from the very beginning, focused on improving the overall user experience at NLB's multimedia stations. Numerous IT processes of these stations and their servers have been fine-tuned so that the needs of library patrons always come first. NLB saw a dramatic reduction in user complaints. The HP Thin Clients are proving more reliable than their predecessors. Printing is now faster because print jobs are no longer routed to a centralised server for rendering. And since service outages have been minimised, library patrons can enjoy the multimedia station service without being affected by system downtime. With library patrons satisfied with the high level of service at these new multimedia stations, NLB's relationship with its patrons continues to strengthen day by day.

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*"The new HP Thin Client multimedia stations are now more secure. Management has been simplified too, as new applications and patches can be applied throughout all multimedia stations from the deployment server."*

Mr. Ramachandran Narayanan

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