e-Granthalaya - Transforming Traditional Library to e-Library with Automation and Networking of Government Libraries

E-Granthalaya is a library management software facilitating automation of in-house activities of library as well as member services. This web-based and cloud-ready application is used online by the member libraries for data entry, return of issues and other key member services. The Software is hosted on NIC Cloud as SaaS model in cluster mode with centralized database for group of libraries.

Libraries are social institutions that play a vital role in the over-all development of a society. Libraries form the major source of information services to the citizens. In the modern education system, libraries have become an integral aspect to support learning and research activities. Currently, almost all of the government organizations have their library, which functions as the resource centre for improving efficiency of employees’ duty.

It is estimated that, out of over a lakh libraries in our country, only few are fully automated. Most of the libraries are either partially automated or yet to start the automation process. National Informatics Centre (NIC) has thus taken an important step to computerize government libraries by developing e-Granthalaya software and implementing nation-wide. This helps the citizens to access library resources in public domain using the power of latest technologies.

**E-GRANTHALAYA PROJECT**

Under the e-Granthalaya project of NIC, the following two applications were developed:

1. **E-GRANTHALAYA**
   - e-Granthalaya is an integrated library management software, which has been implemented in 4500 libraries successfully.

2. **EGLIBNET**
   - Union catalog of government libraries hosted on NIC Cloud and accessible at [http://eglibnet.gov.in](http://eglibnet.gov.in) - In this, over 54.41 Lakh copy catalogs of 558+ Government Libraries are hosted.

- **e-Granthalaya** is a Library Management Software that facilitates automation of in-house activities of the library as well as member services. The Current version, e-Granthalaya Ver.4.0 - is a web-based, cloud ready application and is used online by the member libraries for data entry, issue-return and other member services. e-Granthalaya Ver.4.0 is hosted on NIC Cloud as SaaS model in cluster mode with centralized database for group of libraries. Advantages of this version are; non-requirement of installation of the application locally and maintenance free at user end as both the application as well as database are hosted on NIC Cloud.

**OPEN API INTEGRATED**
- RFID
- ISBN Downloader
- News API
- ILL API

<table>
<thead>
<tr>
<th>Ver.</th>
<th>Release Year</th>
<th>Technology / Platform</th>
<th>DBMS</th>
<th>Edition</th>
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<tbody>
<tr>
<td>1.0</td>
<td>2003</td>
<td>VB6 / ASP/ Non-UNICODE</td>
<td>SQL Server 7</td>
<td>Public Libraries Edition</td>
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<td>3.0</td>
<td>2007</td>
<td>VB.NET/ ASP.NET 2.0 / UNICODE</td>
<td>SQL Server 2005</td>
<td>Network Edition</td>
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<td>4.0</td>
<td>2015</td>
<td>ASP.NET 4.0 / JQUERY / AJAX / UNICODE</td>
<td>PostgreSQL 9.4</td>
<td>Enterprise Edition/ Web Based/ Cloud Ready App</td>
</tr>
</tbody>
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**Figure-1**
Originally, e-Granthalaya was developed using proprietary technologies, however, keeping in view of the usefulness, economy and popularity of Open Source technology, efforts are being made to migrate the application to Open Source in phased manner. In the first phase, the back-end database of the application has been migrated from MS SQL Server to PostgreSQL – an Open Source DBMS running at LINUX platform.

The front-end of the application will also be migrated to open source platform in the near future. Presently, the front end of the application is developed in ASP.NET 4.0 and running in Windows environment over .NET Framework 4.0.
TECHNOLOGY USED

- Front-End in ASP.NET 4.0 (Front end can connect to any type of DBMS – PostgreSQL/ SQL Server)
- Back-end in PostgreSQL 9.3/ 9.4 with auto backup implementation
- Interface is based on latest www technology such as CSS/ JavaScript/ JQuery with AJAX enabled controls, etc.

CLOUD RESOURCES

- Two web servers (Windows VM) with Load Balancer (LB)
- Two database servers (LINUX VMs) – RHL
- One file server (Windows)

STATUS

- Four versions have been released during the last 15 years
- Software has been implemented successfully in 4,500 libraries
- 154 Training programs conducted in the country, trained over 4000 librarians
- 820 Libraries are on Cloud, generated 42 Lakh holdings record belonging to 26 lakh books catalog records
- In Union Catalog – 54 lakh catalog records generated which belong to 551 libraries, accessible in public domain with Inter-Library Loan API

STRENGTH OF THE APPLICATION

- Government ownership
- Product stability as four versions have been released during last 15 years
- Standard tool for library automation
- Built-in data migration service from old version to new version
- Training and technical support by professionals
- First cloud based implementation in the Country
- Shared cataloging
- Union Catalog as a by-product
- Most used application for library automation
- Roll out services available from NIC/ NICSI empanelled agencies

SUMMARY

With the passage of time, e-Granthalaya has become a valuable service from NIC for Government libraries. With the adoption of e-Granthalaya in government libraries, a network of automated libraries may be enabled to develop a well an integrated “single window access system” in the Country, another valuable service from National Informatics Centre.

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