

Educational Resource Planning (EdRP) Mission

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01 March 2013
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- All systems should be multi-institutional, available as web portal to anyone in Indian academia.
- Single signon for all services, option for local authentication.
- Multilingual support – Indian languages preferably.

Key Objectives

- Development and integration of loosely coupled software systems as opensource EdRP
- Deployment and management of EdRP services for the educational institutes in India.
- mentoring development teams for opensource EdRP.
- Use collaborative efforts of multiple institutions
- Doing research and incorporating it in the EdRP development to keep them updated.

- All development – under opensource license
 - Allows reuse, modification, redistribution.
 - Expect other contributors also to donate their modifications and upgradations in the system to community – not a mandatory condition – more closer to Apache/AOSP license.

Open for anyone to contribute.

- Other educational institutes/ organizations
 - Can get involved in development.
 - Can make local installation for their use.
 - Can modify the existing codebase to incorporate local requirements – without breaking the existing functionalities.
- Mission partners provide help in terms of understanding, giving development guidelines
- All local developments can optionally be submitted as patches – for incorporation in main system.
- IITK team tests and merges the code in main distribution.
- What other contributing institutes get
 - Local know how of maintaining a system.
 - A customized system for local use.
- What we get
 - A more generic system – configurable to work with multiple different institutional processes.

What were the challenges?

- Institutes – can also add new modules if they have not been made already.
- Institutes – can make their localized variant and MAY not contributed back – permitted.
- No official permissions or agreements are needed – community based development process.
- Multilingual system – achieved partially.
- Design so that web service can support more than 30000 academic entities – scalability – still to be done.
- Critical – efficiency, reliability and redundancy of solution – still to be done.
- User feel – reliable single window solution at the desktop using NMEICT Network, NKN, ERNET or any other network – partially done.

Teams (current)

- Environmental friendly approach – secure p2p cloud instead of data center for synchronizing the multiple servers across the network – to be done.
- Acceptable security
 - Through servers spread all over India.

- IIT Kanpur
- DEI Agra
- AVV Kochi
- AMU Aligarh
- SMVDU Jammu
- IIT Roorkee
- JMI Delhi
- IGNOU Delhi
- NIT Hamirpur

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EdRP (Educational resource planning)

- Software system
 - To represent the various resources as data at different times and stages in a system.
 - To capture work flow and provide mechanism to update the data appropriately to represent different stages in work flow.
 - To provide mechanisms for execution of work flow at various stages by different kind of users.
 - To provide for mechanisms for viewing the summary, analysis, reports as per the authority of the user.

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What is a Resource?

- In an institute, these need to be defined as per the software module.
- Example - Brihaspati-3
 - Resources
 - Course contents
 - Messages, Notices, discussions, tweets
 - Marks
 - SCORM packager, player
- Access based on users' role in the group (U-G-R).

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Structure in all the system

- Users
 - Admin, guest
 - Users identified by email id.
- Functionalities – admin, guest, TA, author, student, instructor
 - Managing registration, adding removing users.
 - Delegation of rights.
 - Monitoring.

- Users - made member of a group with certain role.
- This defines the functionalities provisioned.
- Data is either user specific or group specific.
- Role identifies which data can be modified/added/deleted from the system.

Learning Management System – Brihaspati-3

- Enhancement of tweet functionality.
- Time table functionality
- Integration of online registration.
- Online examination system – upgradation as per the modified structures.
- Poll and survey to get feedback from learners.
- TA management.

Other Modules.

- P2P Brihaspati-4.
- Student behavior tracking and data visualization
- Library management system, asset management system, tracking system with APIs to interface tracking devices.

- Examination management system
- Student portfolio management system.
- Parent notification and interaction system.
- NFES – National Faculty Expertise System.
- Project management system
- Grant management system
- Payroll, taxation and accounting system.
- Purchase and inventory management.
- Election management system.
- Stock and asset verification system using PDAs with connectivity.
- Telephony services management system
- Brihaspati websites – Content management system.

Architecture

- Distributed cluster of servers for database, content, information – to begin with single server till load increases to a level, when distributed cluster needed.
- Connect on anyone of the servers using
 - Browser
 - Local client application
 - App on phone. (e.g., Android app).
- Content moves across the server depending on where it is used more.
- Exception to this – financial data.
 - Access only from home server.
- Other servers used only as encrypted storage – by institute admins choice – backend P2P cloud implementation for this pending.
- P2P synchronization between servers for redundancy and reliability – cloud model.
- At least few copies (five) to be maintained for reliability and redundancy.

Brihaspati-4

- Ultimately moving to pure P2P systems (Brihaspati-4)
- High end servers not required.
- Users' machines processing and storage - shared in P2P network.

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Working philosophy in such projects

- Release as early as you build
 - User community provides feedback early.
 - Users become part of design process.
 - User requirements gets nicely integrated
- Keep all the project related information – documentation – design, learning for developers, user manuals, source code etc available to user community.
- Critical feedback comes early.

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Task list based management

- Users also get trained.
 - workshops periodically to train users in using the system.
 - Taking there inputs for system development.
- Any reported bug – to be fixed first before any further development
 - Any bug delayed will be far more costly to fix later than now.
- In addition, periodic presentations by rotation in web-meetings and discussions over yahoogroup for this activity.

7/19/2013 – Synchronization and coordination between all stakeholders.

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- Bugzilla feature request and bug tracking system
- PMS build by DEI
 - Each individual at every partner site will be assigned tasks from here and its progress will also be tracked.
 - Users will put in bug reports and feature request into this system.
 - Developers will update the status in this system after completion of task.
- A similar system is available for support service and maintenance.

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Uniqueness about this ERP

- Services based architecture
- scalability to large number of institutes and users
- To evolve into P2P with limited server requirements.
- open source
- Can work on multiple operating systems

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URL's

- <http://sourceforge.net/projects/brihaspati>
- <http://brihwiki.iitk.ernet.in/WebApp/wiki>
- <http://brihsvn.iitk.ernet.in/repos/>
- <http://brihsvn.iitk.ernet.in/>
- <http://pms.iitk.ernet.in/>

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How users can contribute?

- Provide inputs to update the design and accommodate institute specific features.
- Using the released services at the earliest to ease the transition.
- Big institutes can contribute their extra servers to the cloud via the NMEICT, NKN, Ernet connectivity provided to them.

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Something extra

- <http://www.sakshat.ac.in>
- Working draft document for the project available at <http://brihsvn.iitk.ernet.in/> in open access course area ERP_mission.
- Open Group for discussions
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