



Future of LMS - Brihaspati

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What at IIT Kanpur?

- Brihaspati Learning management system – ongoing development
- Released as developed
- Every student, faculty and course in IIT Kanpur is being provided account
- Leave it to faculty – use the way they like



URLs

- <http://sourceforge.net/projects/brihaspati>
- <http://brihaspati.sourceforge.net/>
- <http://brihaspati.iitk.ernet.in/>



Support

- E-learning division, DIT
- IIT Kanpur – infrastructure and servers for local installations
- Ernet – connectivity
- Sourceforge.net – code distribution



Current situation

- Two initiatives running in parallel
 - Brihaspati LMS
 - Brihaspati_sync live lecture delivery tool



Brihaspati LMS

- Web portal system
- After due authentication, users participate as
 - Student, Instructor, or Author
- Student and instructor are mutually exclusively roles
- Admin – separate login (as in Linux)



Salient features

- Content management (in any form)
- Interaction mechanism – chat, white-board, mail, discussion board, news
- Task, time management, content repository, repository access control, glossary management, search engine



Salient feature (contd.)

- GUI in multiple languages – Hindi, English, Marathi, Bangla, Urdu
- Remote course functionality
- Student management for instructor, admin
- Course management for instructor
- Extensive admin functionalities



Problems in existing mechanism

- Have same problem as any web portal system
- As number of users grow, server farms, more bandwidth required
- Backups need to be maintained



Another solution which can coexist

- Peer-to-peer network based
- Content storage distributed over p2p network
- Main server – only authentication and authorisation
- Backup of content at central server



Advantage

- The content is distributed across peers, server need not be high end machine, low bandwidth connectivity to server
- Distributed storage – means reliability



Challenges in such system

- P2p agent need to be installed by each user -Maintenance of codebase for multiple platforms
- Content security – access to authorized persons only
- Backward compatibility with all earlier releases
 - various client versions working on network



Current approach

- Integrating bittorrent protocol in existing Brihaspati
- Users need to install bittorrent client in their machines
- Brihaspati_sync client evolving to provide p2p Brihaspati functionality also.



Issues to be resolved

- Tracking of learning behaviour of learners
- Collection of p2p brihaspati client analysing the learners' behaviour
- Optimization of content presentation, content propagation across network based on learners' characteristics
- Resilience to failure of nodes