

# XWiki . Dev . P2PXWiki Functional Specs

## [Dev. P2PXWiki Functional Specs](#)

P2PXwiki will allow users to access xwiki articles while they are offline. It will also allow users to discover other peers, and synchronize with other peers when they come online.

### **Offline capabilities**

1. **Get document:** User will specify a document to be fetched from a centralized server. The document is retrieved and cached on the local machine. As an optimization, certain related documents (links from the page for example) can be retrieved in the background while the user is working.
2. **Cache document:** User can specify which documents he wants to have offline access to. By default, the documents that are viewed/edited by the user in the past are made available offline. Another approach is to make certain number of related documents available offline as well. As an initial prototype, the user gets to select which documents are made available offline. (see Replication Capabilities below)
3. **Edit & Save local copy of XWiki document:** User can continue editing local copies of the documents even when not connected to the network in a developer environment (eclipse). User can save the document without contacting any central server.
4. **Synchronizing documents with centralized server:** When the user comes online, the changes are sent to the central server.
5. **Resolve Conflicts:** All conflicts during synchronization are noted down and the user is given a chance to resolve conflicts.

### **Replication capabilities**

1. **Local Cache:** The local cache will have a maximum size which is configurable. The cache will maintain a copy of the documents the user has been working on, and also other related documents
2. **Cache Space maintenance/Replacement Strategy:** The cache will start off with some default documents, and will be filled up by the documents that the user uses more frequently as it gets used more often (A LRU (least recently used) cached replacement strategy)
3. This doesn't deal with server replications -- the P2P Replication component will deal with that.

### **P2P Discovery**

1. **generate\_key (document) :** Generate a unique key based on the document name. A global namespace is assumed where each document has a unique name. The unique name can start from a "virtual heirarchy", for instance, all documents created by "bikash" will have names starting from "http://virtual.p2pxwiki.com/bikash" and so on.
2. **locate\_peers (documentkey) :** Given a document name, locate peers that have the most recent version of that document. Returns a certain number of closest peers. The peer discovery protocol will determine how the requests are routed. Alternatives: A completely decentralized approach vs a central index.
3. **update\_peers :** Update the list of connected peers by continuous monitoring or on user request.

### **P2P Replication**

1. **send\_document (documentkey) :** Replicate the document among a subset of the connected peers. The replication strategy is tied to the protocol used for peer discovery.

### **P2P Presence**

1. **User interface integrations**
2. **peer search:** keyword based search of documents among the peer set.
3. **statistics:** such as number of peers online, list of peers with a particular version of a document.
4. **Peer group:** A user can be part of multiple peer groups which work on specific documents.

## [Dev. P2PXWiki Functional Specs](#) (en)

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