System Design Problem

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Purpose

The purpose of this document is to outline a system problem as basis for an architecture exercise. Given the outline below, the reader is free to use any methods, tools, software and infrastructure necessary to solve the problem. Once completed, document your solution and present it to the Passageways team.

Problem

A collaboration team using a software platform meet on a recurring basis to discuss important matters. Each member will contribute by adding documents to the platform. All documents must be compiled in real-time into a single PDF, known as the "Book". Provide an Architecture to support this functionality given the following requirements.

   I.   Members can, and will, continuously update documents in preparation for a meeting.
   II.   Members can use all Microsoft documents, pictures and other well accepted document types
   III.   Members need to embed audio/video presentations into the Book
   IV.   Members will have differing permissions regarding what content they can see within the Book
   V.   Books should be re-compiled when a new document is added, or an existing document updated
   VI.   Members should be notified with any update or change to the Book, with rich details
   VII.   Transmission and storage of all documents must follow strict security guidelines
   VIII.   Books can contain hundreds of documents and thousands of pages
   IX.   System must support 100K+ Book compilation activities, across data centers, each day
   X.   Books must have a table of contents, and allow custom pages such as cover page
   XI.   Books must support annotations
   XII.   Books must be searchable
   XIII.   Books must be downloadable
   XIV.   There is no tolerance for Book compilation failures. The system must be fault tolerant, and highly instrumented.