Professor Plum is about to start putting together the online course content for his Biology 101 course. He first logs into the course syllabus builder application which is available on the CSU Digital Marketplace. This application is designed to allow any faculty to create their course syllabus online and it will automatically retrieve and present various content options to them. There are several options that Professor Plum needs to consider before the syllabus builder can intelligently retrieve content from the Digital Marketplace learning object repositories. One of the choices is for the system to automatically check each content item for ADA 508 compliance. By doing this Professor Plum will know exactly the degree to which his course offering is compliant and what content items need to be reconsidered.

As he inputs the learning objectives for the course into the application and hits submit, several content object options are presented for each topic. He also has the ability to refine the search criteria to narrow down the number of content choices. He many want to request only peer reviewed content with 4 stars or more that are being used in no less than 5 other course offerings. As he views the list of candidate content he can also see if the content meets 508 standards by viewing the 508 compliance field for each item.

Once Professor Plum has completely assigned content to all areas of his course he then hits the 508 compliance checker button. The system then scans the meta data for all content items and produces a full report detailing which items are not compliant and what the total percentage of compliance is for the course at this point. The professor then has the ability to revisit all content items and can choose to select different items that do fit the compliance guidelines. There is a chance that there are no items that are compliant for a given learning objective so the professor will have to make special efforts to assist his students on these topics.

Once the course content is committed a report is generated and sent to the compliance office for archive and auditing purposes. Also a list of required assistive software or hardware is generated and included as part of the course description. Any assistive software or hardware that is required may be purchased as part of the Digital Marketplace services with links directly from the enrollment site of the campuses.

The following are very specific uses cases and requirements for students and faculty with disabilities. They come from the CSU Accessible Technology Department

1) A student with a visual disability needs to use a screen reading program (like JAWS) to navigate the web and access the contents of the page. Some of the requirements for this student is going to be an accessible web interface that the screen reader can navigate easily so the student can execute the functions that are needed. The content of the web needs to be also accessible so that the screen reader can read and make sense of the content.
2) As for digital content, as in e-books, the student above would need to be able to read the content with the screen reader such as a structured markup file that provides the

ability to search, navigate between headings , chapters, etc. In another words, this student should be able to do whatever a student that is not using the screen reader is able to do with the digital content.

3) A blind student may need to have the content converted to Braille (just as other students have the ability to print the content). In this case, we will need to be able to obtain the digital e-text, ensure that it is structured properly for Braille, and then run that file through a Braille translation program such as Duxbury.

4) This same student may choose to run the info through what is called a refreshable Braille display, a piece of connecting hardware that would translate Braille on the fly. Below is Wikipedia's description:
A refreshable Braille display is an electro-mechanical device for displaying Braille characters, usually by means of raising dots through holes in a flat surface. The display sits under the computer keyboard. It is used to present text to computer users who are blind and cannot use a normal computer monitor. Speech synthesizers are also commonly used for the same task, and a blind user may switch between the two systems depending on circumstances.

5) Low vision: The student can use either the operating system's accessibility features or, in most cases, students would use a tool like Zoomtext, which is a magnifier and reading system.
http://www.synapseadaptive.com/aisquared/zoomtext_9/zoomtext_9_magnifier_reader.htm

6) For a student who uses what we call reading systems that help them to track what they are reading onscreen while verbalizing the content through synthetic speech. The Kurzweil reading system is popular and used by many students in the CSU. This tool enables a student to access their materials in a variety of ways (according to how they best take in information). Mark, who uses Kurzweil for many of his students would be able to talk more about what the requirements would be for a student to use such an assistive technology tool.

7) A student may not be able to use the mouse on the computer, but rather needs to navigate and input using keyboard commands. Therefore, consistent keyboard commands and functionality will be needed. Also, some may need to use different input devices such as a head pointer rather than the keyboard and the mouse.

8) For students or instructors doing research online: search functions need to be accessible allowing commonly used assistive technology to access including voice input (via voice recognition systems), reading format of the returned content needs to be returned in an audio format or compatible with assistive technology that can read the content out loud

9) Students and faculty with disabilities often need a different time base for doing the tasks (taking a test, researching, reading). User interface needs to accommodate the

different needs of impaired response ability (perceptual, motor, visual, hearing). Self-paced controls for operating the user interface (ability to choose the rate at which they can accomplish the task).

10) Helpdesk for people using assistive technology to interface with the digital marketplace.

11) Alluded to above ... Faculty and staff with disabilities using a variety of assistive technology to either input (voice recognition software) require a different form of output (audio), refreshable braille display, braille, enlarged print

12) A faculty with a disability (i.e. can't use a mouse) needs to use the authoring tool provided by the DM to create content.

13) A faculty member or student wants to ascertain the accessibility of the digital object and the requirements for its use (i.e. graphic rich thus having implications on the ability to download)

14) A staff /faculty member/student wants to give input on the accessibility or usability of the digital object that is used in his course.

15) The system recognizes (from the sign on profile perhaps) that the student/faculty/staff has the need to use assistive technology. The system is able to deliver the assistive technology needed.

16) Option for students/faculty to access the system from home (take into account the slower speed of transmission)

17) DRM does not prevent the use of assistive technology on the product

18) Ability to link the Center for Accessible Media metadata to the DM for faculty who want to choose books that may already be converted to digital format (these specialized formats are only for use by students with disabilities per copyright law); and videos that are already captioned (which can be used by all)

19) Ability for the DM to serve as the clearinghouse for publishers of textbooks to send their e-files of print textbooks to one central place. For students with print disabilities, we will need to convert the print to digital and then to the various end user files as needed (audio, audio and e-text, Braille, tactile, or enlarged print)

20) Ability for publishers to register the accessibility of their products via a standard set of questions that must be answered