Data Integration at Cooper State University

Cooper State University (CSU) has used a paper-and-pencil survey system to gather student feedback on instructors and courses for over two decades. Paper forms are passed out to students during a class period near the end of the semester. Class information and survey questions are preprinted on the forms and empty circles are provided for each answer. Students fill in one of the circles for each question with a pencil. Written comments can be provided on the back of the form. The forms are delivered to a processing service in Nebraska, which scans the forms, summarizes the responses, and produces printed reports that are sent back to CSU along with the survey forms. The reports and survey forms are distributed to department chairs who review them and then distribute them to instructors.
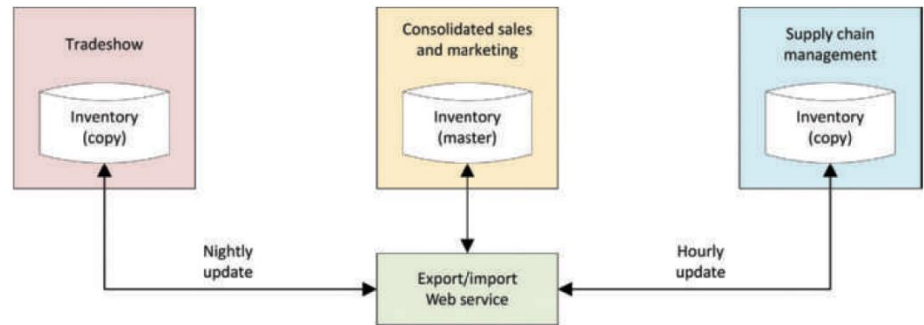
CSU wants to replace the existing system with a modern online survey system. Several vendors market such systems as SaaS Web-based applications. The systems all have similar data integration needs with existing CSU systems, including the following:

- Data about course sections, assigned instructor(s), and registered students must be imported from either CSU's online learning management system (LMS) or its student information system (SIS)—the same system that stores grades and transcripts.
- A survey for a specific student and course section must be accessible as a hyperlink from within the course section's Web page in CSU's online LMS. Instructors may configure the LMS to record whether a student has completed the survey in the grade book and provide points toward the course grade as a reward for completing the survey.
- Access to the survey system should be restricted to CSU instructors, staff, administrators, and students using the same user ID and password they use to access other CSU applications. CSU uses a Central

  Authentication Server (CAS) to store usernames and passwords. Other CSU systems interact with a CAS Web service when they need to authenticate a user trying to access the system.
- Students view their final course grades via a Web application that is part of the SIS. CSU wants to delay students' ability to view their final grades by one week unless that student has completed surveys for all courses in which they are registered.

Complete the following tasks:

1.   Draw a network diagram that summarizes the systems described above; devices used by administrators, staff, instructors, and students; and the network connections among them. Assume that the current survey system will be replaced by a new Web-based system. Assume further that each existing CSU system is hosted on its own server.

2.   Which systems need access to current data regarding course sections, their assigned instructors, and registered students? Select a system to be the system of record for that data and justify your decision. Draw a diagram similar to Figure to summarize all required synchronizations.