

cv_sharing_scenario

Scenario: Sharing Trustworthy Personal Data with Future Employers (Accepted)

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Throughout the entire period of studies, students fill in a portion of a larger database with their own personal data. Such data is often sensitive and of very high value. This includes information about attended modules and courses, obtained marks and comments, awarded certificates, and acquired skills. This data may change very often (e.g. exams marks are added on a daily basis in the exam period; coursework marks can be released to students many times during a single semester) while other data may change infrequently (e.g. language certificates are usually awarded once every few years).

In the modern, highly competitive, professional world it is necessary for students to be able to present themselves to their potential future employers from the very best perspective possible. Students, acting as job applicants, may want to list all the possessed skills, list all the modules and present all the good marks which may positively influence the way they are perceived during their job application process. Some of the information that future employers may require is of very high value and may result in two similar candidates being different in the eyes of an assessor.

The following scenario presents motivating circumstances in which sharing information hosted within HE institutions with future employers makes sense. In this scenario we focus on sharing a limited set of resources available as Web resources with unique URIs. Each URI represents a single Web resource created or composed by a student to expose some of its information, e.g.:

- List of modules: www.ncl.ac.uk/eportfolio/john.smith/modules
- CV: www.ncl.ac.uk/eportfolio/john.smith/CV
- Certificates: www.ncl.ac.uk/eportfolio/john.smith/certificates
- Marks: ness.cs.ncl.ac.uk/john.smith/marks
- Marks with comments: ness.cs.ncl.ac.uk/john.smith/marks/CSC2501

Problem Scenario

John is a full-time graduate student at Newcastle University and is currently doing his final year project in the School of Computing Science. He is preparing to write his final dissertation. However, he now focuses on doing well on the forthcoming exams he has to take. He has been attending four compulsory modules and he needs to pass them all with distinction to get a good overall mark. He also attends two additional modules in the Business School. He does not have to take exams from those modules but needs to submit reports at the end of semester.

John uses online systems provided by the University to manage his studies. He uses the **NESS** system (University's in-house Virtual Learning Environment) which has information about all modules that John is currently enrolled to. It allows John to submit his work in a digital form while staff can comment on such work, mark it online and comment on it. Additionally, NESS holds all the information about marks obtained by John and comments as received by module leaders, demonstrators or examiners.

The other system that John uses is the **ePortfolio** system. He can record progress of his research project and also document how his research is helping him to develop new skills that can be of great value to potential employers. It is through the recognition of these high-level competencies that he will be able to present the value of his qualification to future employers. In ePortfolio, John has an online version of his CV that is updated regularly based on courses that he takes and skills that he gains through his education at the University. ePortfolio allows professors to complement on John's research activities and to make comments on John's work.

John is a very active student. Apart from his taught programme, John also leads a small research group at his university. He managed to interest his friends in this project and they've been working on graphical passwords for some time now. They use a **shared file space** (accessible over the Web as **Web folders**) to share documents, presentations and data which they obtain from user surveys. They also use a shared code repository (**SVN**) for their innovative prototype of an authentication system. They have a private **Wiki** to discuss various research issues and a public one where they describe their project. The project team also has a blog where John and his friends discuss their progress.

John participates in various sport activities as well. He has joined the University's sports centre during his first year of studies. He is a member of a 5-a-side soccer team and plays in a regional league. His team plays really well and is often able to perform well during various tournaments. His team has been second during the last regional championships but has been awarded a prestigious award – Fair Play Award – from the organizers. John has an account on the online system (**CPRS** - Centre for Physical Recreation & Sports) that manages the league and has insight into all the statistics of his team and himself. The system lists all his achievements and awards.

John knows he needs to prepare in order to start his professional career after graduation. He has performed well over those three years of his BSc studies and he is sure he will be able to find a perfect job. However, John he is a little worried about competition as many of his friends were good as well. He knows he needs to articulate all his strengths and list all of his accomplishments perfectly in order to be distinguishable during the first process of recruitment - the employee application pre-screening.

Therefore, John decides to spend an entire week on preparing all the documents that may support him during job application process. John starts with his CV by updating the list of modules he has already attended and by listing skills he has gained during the project. He also creates a list of all the additional courses he has attended and identifies skills he has gained. He wants both lists to be trustworthy by potential employers so he sends them to his school's reception so that they can be certified. Because John attended modules from various schools it takes time before he can get both lists back. Moreover, he will be having some important exams from which he expects good marks and he is disappointed that it's too early to include them in those lists.

John also updates the list of publications he and his research group has already published. He traverses through the Wiki and his team's shared file space and composes a package of some of the more interesting materials. This includes PowerPoint presentations and reports he and his friends have produced over the last couple of months. Moreover, John packages the software he has developed with his colleagues as he wants to send it for review by potential employers. He attaches the license that code should be only used for review as it is considered confidential and under ongoing development. He's proud of the already developed functionality in this version – 0.9.8. However, he knows that the next release will be the first which is stable (1.0.0) and will have some major improvements which would make the software even more interesting. The code should be refactored as well which could probably influence how it is perceived by potential employers.

To further support his application, John asks for reference letters from two of his professors. He sends them emails and hopes to get letters as soon as possible. He knows one of the professors is away for the examination period but really counts on his letter. He has previously got very good comments on his coursework, exam and module in general. He wishes he could have shared this comment instead of having to wait for a letter.

Over nearly three years at the University, John has also successfully passed two language exams and has obtained language certificates. He knows that his marks from both exams are very good so he decides to include both certificates when applying for his dream job position. He logs into his ePortfolio system and goes to "Certificates" section. He sees the list of all his certificates and decides to download them. Unfortunately, both certificates get downloaded without required signatures so he prints them, asks his school's reception for signatures and scans them back. It's a pity he just cannot give access to interested parties to those certificates hosted by the ePortfolio system.

He knows that knowledge and university skills are not enough in order to get a good job position. He decides to show that he's a healthy young man and that he finds time for sport. He logs in to his online account at the regional 5-a-side soccer league system. Then he copies all his achievements from the website and produces a document out of that. It's a pity that he cannot give access to some of the information hosted by this system as this would be both more efficient and probably more trustworthy for the interested party. He notices that the current list does not include the recently obtained Fair Play award and his team being second during the tournament. Therefore, he adds that manually to the prepared document. He knows that information within this system is updated daily, including achievements and statistics, but he can't wait till the last day before applying for a job to get the most recent information.

At the end of the week, John is ready to start searching for the job and has the following documents in his "toolbox":

- CV
- Two signed lists: Core Modules + Additional Courses
- Two reference letters from his professors
- Two language certificates
- Packaged software version 0.9.8
- Document describing sport achievements
- Research project materials (presentations, reports)

With all the required documents, John searches through many popular "Job Searching" Web sites and looks for his dream job position. He decides to pursue only two of such websites – the MyCareerBuilder.com and SearchJobs.ac.uk.

MyCareerBuilder.com allows students and professionals to create their personal accounts where they can create their online CVs, list their skills and search through a vast amount of job positions. Once a suitable job position is found, application is also done through the MyCareerBuilder.com website. An applicant fills in a uniform application form and attaches other sources that may support their application (e.g. lists of modules and courses, packaged software projects, scanned versions of certificates, scanned reference letters).

John creates an account on the MyCareerBuilder.com website and provides all the required information. He then uploads all the documents he has prepared. He searches through many job offers and ticks those which are of his interest. Using his "Account Settings" page he agrees to allow "head hunters" to search through his profile and send him invitations for job interviews. He specifies what kind of offers are of his interest (i.e. IT sector only, based in UK) and applies rules which offers should be automatically rejected (i.e. offered salary below the specified threshold). He knows it may take even few months before he gets any information regarding a positive pre-screening process but he's sure he'll get a good offer some day.

SearchJobs.ac.uk, on the other hand, does not offer creating a custom account and only provides advertisements along with links to organisations and companies that wish to hire new employees. If an applicant wishes to apply for a job position then he must click on the provided link and is usually redirected to a Website where he may fill in all the details as required by a future employer (e.g. personal information) and upload necessary documents (e.g. CV, reference letters, etc.).

John searches through various job offers and follows those which sound very interesting. He finds dozens of them so he spends lots of time filling in various forms and uploading documents on many different websites. After few of advertisements he already loses track of the offers he decided to respond to. He knows, however, that the more offers he replies to the better the chances are of getting employed.

Desired Improvements

Future employers may need ways to be able to trust the information that they are presented with by applicants. A list of all the attended courses and modules now needs to be signed by an authoritative body from a HE institution. When a student attends various courses and is enrolled to many different courses either within distinct HE institutions or governed by different administrative bodies, then separate lists are required to be certified. Moreover, in

Following is the list of improvements that could be done in order to support John with the job application task:

- John provides a link to his already created CV hosted by the ePortfolio system at his university
 - John may only need to create a single CV and host it using a single system and does not have to worry about multiple (and possibly inconsistent) copies sent to support his job applications. The system may allow for multiple CV versions to be created in order to support applying for various job positions where different sets of skills are important (e.g. one CV to support his job application in System Administration sector and another CV to support his application in Software Development sector).
 - The ePortfolio system may have the option to certify information inserted in the CV (e.g. the list of attended modules, completed courses, degree etc.) is valid and acknowledged by the University. Future employers may consider such information more trustworthy.
- In many cases the job application process takes time (even months). It is possible that documents as submitted by John to his potential employers become easily outdated. In the provided scenario the list of modules and courses will change after the examination period with potentially important exams passed with excellent marks and comments. Software that has been submitted by John will have a major release soon so that John could allow potential employers to have access to their SVN account over the Web and be able to see introduced changes immediately. The document listing John's sport achievements changes rapidly with every tournament his team participates in. Allowing John to give access to some information from his online sports account would simplify the process of notifying interested parties about such changes.

- John needs to involve his professors in the job application process and ask them for reference letters. Such letters need to be signed. It is often the case that John cannot upload such letters but must rather provide email addresses of his professors so that potential employers can ask for references by themselves. This is because employers must be sure that opinion has been given by an authoritative person and has not been hand-made by the applicant. It might be better for University staff to host comments regarding students using existing e-learning systems and to allow students to publish some comments (and opinions) about themselves to interested parties (i.e. future employers). As such, the entire process of obtaining (and giving) reference letters would be significantly simplified.
- The ePortfolio system that John uses may allow him to compose a list of already completed courses along with marks that John got during his exam period. It may be up to John which modules and courses should be exposed and which marks should be revealed. If he received good comments (e.g. for his practicals) then John may want to expose such comments as well. He does not have to prepare a list of his courses by himself or using an electronic system and have it signed but he can do that online. Again, such list can be certified by the University to be valid and may be considered more trustworthy by future employers than other lists created and submitted by candidates in a traditional form.
- Could John give access to some sections of his research team internal Wiki and shared file space in order to share the important materials from the research project? In such case, he would make sure that interested parties always have access to the most recent copy. He would additionally keep track of who access what information regarding his project.

Solution Scenario

When John applies for a job he needs to make sure that all the information hosted by the systems that he uses is updated. This includes checking the NESS and ePortfolio system of Newcastle University and the sports system that he uses. Moreover, John would check where all the important information resides regarding his research project (be it the internal Wiki, blog or the shared file space). He would not have to spend too much time on that as all systems are meant to provide the most recent data about John (e.g. the list of modules or the list of obtained, etc.).

John would then list all the necessary links containing information that he wishes to use during his job application process. This would include links to information that he would previously hand over to potential employers in form of documents:

- CV:
 - www.ncl.ac.uk/eportfolio/john.smith/CV
- Two signed lists: Core Modules + Additional Courses
 - www.ncl.ac.uk/eportfolio/john.smith/modules
 - www.ncl.ac.uk/eportfolio/john.smith/courses
 - ness.cs.ncl.ac.uk/john.smith/marks
- Two reference letters from his professors
 - www.ncl.ac.uk/eportfolio/john.smith/references
- Two language certificates
 - www.ncl.ac.uk/eportfolio/john.smith/certificates
- Packaged software – latest version
 - svn.ncl.ac.uk/passresearch/trunk
- Document describing sport achievements
 - cprs.ncl.ac.uk/john.smith/public_profile
- Research project materials (presentations, reports)
 - webfolders.ncl.ac.uk/passresearch/public_materials

With the above mentioned list of links, John goes to two different “Job Search” websites: MyCareerBuilder.com and SearchJobs.ac.uk.

MyCareerBuilder.com allows students and professionals to create their personal accounts where they can create their online CVs, list their skills and search through a vast amount of job positions. Once a suitable job position is found, application is also done through the MyCareerBuilder.com website. An applicant fills in a uniform application form and provides links to other sources that may support the application process (e.g. links to lists of modules, links to software, links to certificates, links to reference letters).

John creates an account on the MyCareerBuilder.com website and provides all the required information. He then provides links to information he think might support his application (previously mentioned list of links). He then needs to authorize the MyCareerBuilder.com website to be able to access those resources. As such, the MyCareerBuilder.com website establishes a trust-relationship with Web services used by John (i.e. ePortfolio, NESS, SVN, CPRS system and Webfolders). John uses his university’s Authorization Manager for that purpose. He creates a relationship between the MyCareerBuilder.com and those systems. He defines terms that MyCareerBuilder.com must accept in order to access this information – i.e. John wants all the supplied resources to be used solely for the job application process. He also defines that MyCareerBuilder.com shall only present this information to interested parties who meet John’s requirements – i.e. only companies from the IT sector only and located within the UK which offer jobs with a salary above a certain threshold may access information about John.

John also goes to SearchJobs.ac.uk which does not offer creating a custom account and only provides advertisements along with links to organisations and companies that wish to hire new employees. He searches through all the relevant job positions and follows links to those which sound very promising. Even though he finds dozens of them, all systems provided by his future employers allow providing URLs only instead of actual resources. Therefore, filling in application forms for each employer can be done quickly with minimum effort. John only provides links to feeds of his data – CV, reference letters, etc. He establishes a relationship between each of employer’s HR system and his Web services that host John’s resources. He does that using his preferred Authorization Manager which he can use to manage those relationships easily.

John now does not have to worry if the application process takes days, weeks or months and if the potential employer will not be able to see John’s latest accomplishments. John gave access to feeds of his data which are the most recent one and are updated as necessary. As such, information that can support John’s application process resides in a single place and can be easily managed. John can audit how his information is being accessed by interesting parties.