Offering a service hosted in the US in compliance with the European general data protection regulation

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1. SUMMARY

In the context of the digitization of teaching, universities are increasingly interested in new flexible teaching formats. One of the current trends are Massive Open Online Courses (MOOCs). RWTH Aachen University has been a partner of the MOOC platform edX for two years. The courses provided there are available free of charge and independent of time and place.

In selected MOOCs, students of the RWTH Aachen can earn ECTS credits if they take an on-site examination at the RWTH Aachen University at the end of the course. Until now, it was necessary for students to register regularly on edX. This has the disadvantage that user data is stored on edX servers in the USA, which leads to problems with data protection. For this reason, RWTH Aachen University and edX have developed a solution in which only anonymous data is transmitted to edX.

2. MOTIVATION

In general, MOOC's offer students access to a wide range of content that can be used anywhere and at any time. For universities, they provide the opportunity to address previously inaccessible audiences, gather information on the effectiveness and efficiency of learning content and present themselves as a modern university worldwide. In order to achieve these goals, it is important to offer your own MOOCs on a widespread university platform such as edX.

The new European general data protection regulation poses considerable challenges. The handling of personal data has been revised and is clearly structured. In principle, personal data is only allowed to be transmitted to countries outside of the EU with the user's voluntary authorization. With the coming to force of the general data protection regulation in mid-2018, this would otherwise violate applicable law.

Students who do not authorize the disclosure of their personal data cannot access the learning content offered on edX and therefore have a disadvantage. From the point of view of data protection, such authorization is no longer voluntary and is therefore not recognized.

In order to meet the requirements of European data protection, RWTH Aachen University and edX have initiated a project whose results are transferable to all European universities. The aim of the project is to provide a technical solution that allows students to participate in edX courses without passing on any personal data of the users.

3. SOLUTION

The login to edX is realized via Shibboleth authentication, the university acts as identity provider and edX as service provider. This ensures that neither the user's password nor the local user ID is transmitted to edX.

edX also requires a valid email address to send notifications to students. This e-mail address must have the domain @rwth, so that edX can assign the users of the corresponding university. Unfortunately, RWTH's e-mail addresses have the pattern firstname.surename@rwth-aachen.de and is thus not suitable for data protection reasons. In order to solve this problem, an anonymous e-mail alias is set up automatically for the students of RWTH Aachen University and connected to the students @RWTH e-mail account and is then delivered to the edx platform via Shibboleth.

The necessary edX aliases are generated in the e-learning infrastructure, then passed on to identity management via a web service, assigned to the corresponding identities and attached to their e-mail accounts. Once the alias is known in Identity Management, students can register with edX. The aliases are checked daily, if a person loses his or her status as a student, the associated alias is deleted via a web service in Identity Management. It is then no longer possible to register with edX via Shibboleth.

During his first visit to edX, the user goes through a registration workflow. In the native setup he is asked to provide various information about himself. But this query of this information is prevented by the fact that the corresponding data fields are preset via Shibboleth in the adjusted workflow. Attributes with the fixed default value "anonymous" are configured in the Identity Provider for all fields, which are then mapped to the corresponding data fields.

This means that a user only has to accept the terms of service when he first visits the platform without giving any personal information. Nevertheless, he can add the corresponding personal data to his profile at any time, as this cannot be switched off in edX. The RWTH Aachen University advises the user to refrain from submitting any personal data.

For the technical implementation, four new attributes are defined in the Shibboleth Identity Provider of the RWTH Aachen University: edx_anonymous, edx_username and edx_email and edx_residence.

The attribute edx_anonymous is assigned the static value "anonymous" in the Shibboleth Identity Provider and is mapped to all profile fields on pages of edX. The edx_email attribute is filled with the generated e-mail alias and edx_username is assigned the part before the @ of the e-mail alias. The edx_residence attribute is statically assigned the value "Germany". This means that all required attributes and their values can be delivered to edX to ensure full service access without violation of data protection regulation.

4. Lessons learned and future ideas

The described solution has been evaluated in a pilot course in the winter term 17/18. The students reported no problems accessing their course on edX. Also, the lecturers did not report any problems regarding the connection to edX.

For the summer term 2018 it is planned that two further courses with about 1000 students each will use the solution. The next technical step will be the utilization of the API offered by edX. This allows some of the steps that were carried out manually in the pilot phase to be automated.

5. AUTHORS' BIOGRAPHIES

Dipl.-Inform. Bernd Decker has been deputy head of the IT process support department at the IT Center of RWTH Aachen University since 2011. He graduated from RWTH Aachen University with a degree in computer science. From 2006 to 2009, he worked as a software developer in the IT Center and has been head of the development team since 2009. His work focuses on IT solutions for processes in the area of e-learning, e-services and campus management systems.

Marius Politze, M.Sc. is research associate at the IT Center RWTH Aachen University since 2012. His research is focused on service oriented architectures supporting university processes. He received his M.Sc. cum laude in Artificial Intelligence from Maastricht University in 2012. In 2011, he finished his B.Sc. studies in Scientific Programming at FH Aachen University of Applied Sciences. From 2008 until 2011, he worked at IT Center as a software developer and later as a teacher for scripting and programming languages.

Sarah Grzemski, M.A. studied Economic Geography, Economics and Geography. She received her Master's degree from RWTH Aachen University in 2002. Until 2007, she worked as a research assistant in the Department of Economic Geography of Services. Her main research focus were employees in call and service centers. Since 2007 she has been working for the IT Center of RWTH Aachen University. Initially, she worked for the division of Process IT Support. In 2010 she was made division head of the IT-ServiceDesk. She was appointed to the position of chief communication officer in October 2017 and is responsible for the internal and external communication of the IT Center.