Coping with the COVID-19 challenges in a comprehensive university: learning tools and procedures adopted by Aristotle University of Thessaloniki

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Abstract

Nowadays, eLearning has become more than just a trend. Since the outbreak of the covid-19 pandemic, learning and teaching has gone digital and eLearning has been widely adopted for social and academic use. Aristotle University of Thessaloniki (AUTh) is one of the largest universities of Greece that are supporting online education through the Covid-19 era. This article describes the rapid massive transition to virtual distance learning using a combination of commercial and open source software tools (mainly Zoom and Moodle). Up until a few years ago the Moodle platform was used only as an educational repository, but now it offers a full blown synchronous and an asynchronous service both for teaching and assessment. The added functionality offered by the various plugins installed to meet the diverse range of pedagogical needs of our schools during the pandemic allowed AUTh to react to the COVID-19 in an efficient manner. The article also presents how we integrated Zoom Meetings solution to our institutional infrastructure using centralized account authentication specifically a single-sign-on (SSO) service for more than 2,500 teachers and more than 40,000 students. Furthermore, in the light of security, the article presents some valuable - helpful security practices and

case studies to protect Zoom Meetings from malicious activity inside and outside of the academic community. Finally, it presents the combination of tools and methods used to face the user's massive need for rapid training and support. As a conclusion, we present figures that depict and highlight the geometrical increase in the usage of our eLearning systems and tools and the outcomes of a first users survey that reveals an optimistic positive users opinion on how Aristotle University has gotten ahead with the pandemic until now.

Introduction

The 21st century has been marked by a world of digital transformation with a profound impact on activities and their application on daily life. More than a year into the Covid-19 pandemic this couldn't be truer. From work meetings to family gatherings, people are convening inside a digital world and education can not fall behind. University amphitheaters have now been transformed to virtual rooms and notebooks to online documents. With millions of students globally being forced suddenly to stay home to help stop the spread of COVID-19, many universities tried to implement quick and safe solutions to support the live distance education system, even more the examination system during exams period.

The case of emergency eLearning certainly does not provide the necessary time for institutions to design and implement appropriate educational policies, pedagogical principles, which should be based on modern learning theories. The shift to emergency remote teaching requires the adaptation of the appropriate and necessary technical infrastructure and the use of the already available resources. It is a multifactorial issue with technical and institutional characteristics, so it is very difficult to have a "proper" implementation and adaptation of all actively involved parties of AUTh, in a short period of time.

In Aristotle University of Thessaloniki, multidisciplinarity is the key factor of education. Providing a steady and common environment for all departments to flourish in this challenging era can be tricky. In this endeavor, Moodle has been the LMS platform that was implemented to support the efforts of the academic community on asynchronous teaching and learning, while Zoom has been rated the most used tool for synchronous teaching. It is essential to note that for these eLearning services quality management procedures are applied by a team of external evaluators in order to ensure that the electronic services meet a set of requirements.

In this paper, we present the use of both platforms to cover the needs of a vast academic community.

1 The way to an asynchronous classroom

Up until a few years ago Moodle was used as a repository for lecture presentations and very few dare to endeavour in an alternate form of teaching. The rapid change that the Covid-19 produced in order for education practices to be altered and adaptive to the new reality has a large claim on actions taken by the university to support the community.

These actions were directed towards the availability of appropriate educational online tools, the end-user training and support and the preparation of the platform for an unforeseen large-scale use. Each of these directions were analyzed and evaluated based on the positive effect on the day-to-day activities of AUTh and on the quality of information that is demanded between professors and students.

Identity validation was achieved through institutional SSO, while 'cheating' was addressed via controlled access and other Moodle plugins to support student examinations. Lectures were supported through document cameras and media platforms to share educational material and make online teaching

easier to succeed. Moreover, a large-scale installation was introduced in order to handle thousands of daily users and any form of online activity.

Despite the technology used to support the efforts of the community, it was also through methods of training and communicating between peers that Moodle was successfully integrated into AUTh. Forums for good practices and knowledge sharing were developed between professors and students, while guides and video tutorials were created from the administrators for training purposes.

2 Synchronous classroom with Zoom, safeguarding academic community's credentials using SSO integration based on SAML 2.0.

The evolution of ICT technology and the promotion of direct communication and social interaction with both the real and the virtual world has created the idea that the world we live in is shrinking, compressing and coming closer both temporally and geographically. At the same time, events that take place simultaneously in different locations can reach the observer's frame of reference with immediacy and break the spatial and temporal barriers of the physical world, resulting in increased productivity as well as learning.

The searches that shaped 2020 according to Google Trends Platform are announced recently and “Coronavirus was the No1 keyword in searches and “Zoom” was the No. 4 keyword globally. Zoom was one of many tools for distance education that Aristotle University extensively used and implemented according to its needs, during the 2020 year. At Aristotle University we use the well-known Single Sign-On (SSO) which is a session and user authentication service. The use of SSO is widely considered as secured service that permits a user to use one set of login credentials eg. username and password to access multiple applications inside and outside of the university. How SSO works in our university?

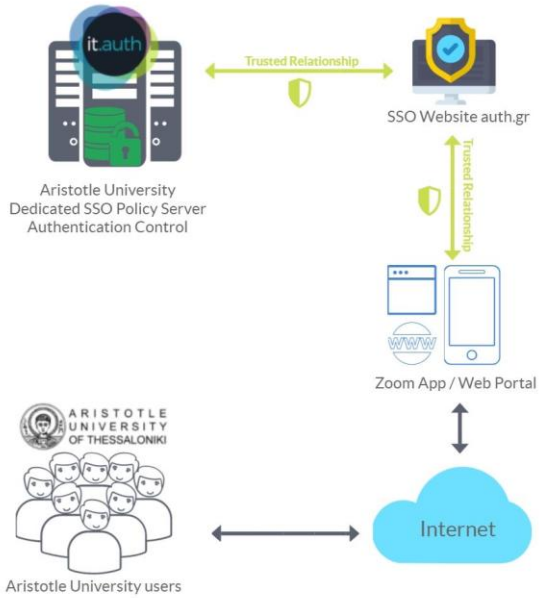

Figure 1 - SSO schema for Zoom use

In a basic scenario the web SSO service, actually is an agent module on the application server retrieves the specific authentication academic credentials for an individual academic user from our dedicated SSO policy server, while authenticating the user against a user repository, such as a Lightweight Directory Access Protocol (LDAP) directory.

As a result, the SSO service authenticates the academic user to log in once and access services without re-entering authentication factors. In other words, an academic user is authenticated for all the applications the student / Professor has been given rights to and eliminates future password prompts for individual SasS applications during the same session.

All sensitive credentials like academic email, username and password are not stored in Zoom's servers but in Aristotle's University data center. For that reason, SSO is much simpler, more convenient and secure for academic users. However, this may seem counterintuitive when we think how single-sign-on is better, instead of multiple sign-in times with multiple different passwords, be more secure in any use scenario. Here are some benefits.

- Better password policy enforcement
- Mitigate risk for access to 3rd-party sites. Academic credentials (email, user, passwords) are not stored or managed externally.
- Reduce password fatigue from different username and password combinations
- Reduce time spent re-entering passwords for the same identity
- Reduce IT costs and less time wasted on password recovery

3 Conclusion

As a conclusion, we present figures that depict and highlight the geometrical increase in the usage of our eLearning systems and tools. Although further work is needed with respect to pedagogical and technological aspects for the full exploitation of the benefits of this large-scale rapid adoption of eLearning, a survey conducted among our users reveals an optimistic positive users opinion on how the Aristotle University has gotten ahead with the pandemic until now.

4 Author biographies

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