

UbuntuNet CONNECT | 2019

Contribution ID: 34

Type: **Presentation**

Overcoming Barriers: Enhancing Cyber Security Education and Awareness Through Cloud Based Cyber Security Competitions

Friday 1 November 2019 11:50 (20 minutes)

The Namibia National Cyber Security Competition (NNCSC) is a yearly event that began in October 2015. The competition is run on an attack-and-defend basis using client server architecture. Teams are assigned an industry based computer system/network scenario which they service and defend. Before the competition the participants are trained on attack and defense procedures and two weeks before the competition they are given specific details about that year's competition. Since NNCSC's inception the winning team has been invited to participate at the International Collegiate Cyber Defense Invitational (ICCDI) hosted by Highline College in Seattle, USA. Namibia University of Science and Technology cyber security team won the first and second NNCSC and travelled to Seattle in June 2016 and 2017. Other participating teams from other nations and from within the USA (from other states) failed to make it to Seattle because of the high travelling funds required. The excessive amounts required for travelling and accommodation brought into life the idea of co-hosting the competition on the cloud from two centers and each participating team would have to choose the location it wants to participate at. Virtualization technology is used for both the students' computer systems that they are defending and for the attacking teams' access into the competition arena. In addition, zoom and slack technologies are used to enable collaboration between the participating student teams. This paper highlights how the use of cloud computing, virtualization, zoom, slack and remote desktop access have enabled the continuation of ICCDI which promotes the growth of cyber security skills. These technologies have facilitated and improved the ICCDI competition platform and enhanced the level of virtual collaboration between educational institutions involved, government and civil society. Thus, enabling the goals of the competition to be achieved. The goals of which are to: sensitize industry, academia, government agencies and other stakeholders on the exposure risks associated with cyber systems and to suggest and implement solutions to mitigate these risks

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Session Classification: UbuntuNet-Connect 2019