Title: French medical students now take digital exams

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Presenter’s biography:
Jean-François Guezou is Director of Business Development and of Services Portfolio Development at RENATER, the French National Research and Education Network (NREN). He leads the team in charge of the users relationships and he is involved in several international projects and Partnerships as steering committee member or task leader.
Besides, he is the chairman of the Organizing Committee of JRES2017. The French academic network conference.

Abstract:
Every year medical students in France take a crucial exam, The National Classifying Exam (ECN), which determines their future, both professionally and even on a personal level. Their rank in this exam determines which specialisation they can undertake, whether it might be surgery, dermatology or ophthalmology, and where in France they are offered a place to work, with top ranking students offered a geographical location of their choice.

Critical infrastructure for digital exams

Now this exam has been modernised and digitized, and the French Education and Research Network, RENATER, is responsible for mission critical infrastructure. Understandably, the ENC is highly important, both for the candidates and for the National Management Centre (CNG) within the French Ministry of Health, the division responsible for administering the exam. Accordingly, the ECN has always been a huge logistic endeavour. Two years ago, for example, the exam attracted more than 9000 candidates across seven principal exam centres and involved approximately 400 medical professionals and professors in manual marking sessions lasting at least 3 weeks. The complexity of the process has increased every year and has cost around 4 million euros a year.
Following a trial period, the digitized version – the ECNi – was officially launched with the examinations conducted in June 2016, and the benefits are significant. At university examination centres within 34 faculties of medicine, the network architecture successfully allowed a real-time, simultaneous and secured composition for the 8572 medical students using ECNi-labelled tablets. Students completed the same exam simultaneously. Apart from saving time, reducing the work load of all parties involved and being more cost effective and faster
to administer, the digitized version is also designed to rank the students more precisely and better evaluate their capacity to conduct medical reasoning.

Security and virtual private networks

For the new digitized version of such a crucial exam, security is of the utmost importance. Security is checked at every step by a specialised company, certifying that the exam is compliant with the required confidentiality level specified in the Global Security Recommendation (published by the French Government) and also the privacy requirement specified by the National Commission on Informatics and Liberty. In term of the traffic matrix, the exam application traffic follows a client-server pattern from the exam centres up to the hub site where the application servers are located. This traffic considered as mission critical is conveyed within a secure and dedicated IP/MPLS layer 3 VPN (virtual private network) built on top of the high-speed French education and research network RENATER. RENATER has also managed a network study in cooperation with the universities, in order to identify any lack of resilience, and suggest improvements when needed. 4G / SDSL links have been set up to complement solution in record time

A success story in 2016

The first run in 2016 was successful and no fatal issues were experimented due especially to the resilient network deployed in the frame of the project. However, improvements could be investigated considering this first experience. After this world first in 2016, RENATER and the CNG are already engaged for the good success of the ECNi 2017.