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The thesis supervisor review of diploma thesis, for:
Roman Smetana

Next generation of Second-Screen, Realtime application MyICPC

The work aims to improve existing production-level real time application from multiple perspectives, such as, scalability, or multi-tier contest support for various annual contests. The scope of the existing system was limited to a single competition, per application instance with significant performance bottleneck for real time information sharing. Next limitation was placed to the architectural perspective following a master-slave hierarchy that required heterogeneous deployment of the environment.

The thesis introduces the existing system and puts up its objectives and elaborates proposal to solve it. The initial part gives a roadmap to the terminology and expected functionality.

The design and implementation part of the thesis give details on internal domain model, as well as to above business and presentation layer. Important argument compare to previous system is raised regards to transaction processing, where old system uses Open Session In View pattern, while new removes it dues to performance degradation.

From the architectural perspective two significant changes are provided. First, the system is modularizes to logical modules. Next, the master slave hierarchy is removed and replaces by singleton service that scales up to cloud environment.

Large amount of technologies is applied to the implemented solution, where integration requires advanced knowledge. Required functionality was implemented based on the requested assignments.

Testing automation is considered from deep details to the middleware layers, while noted that user interface testing does not have automated testing, on the other hand the application maturity reached production level and was provided to community for three regional and local contest for their use. Significant attention was placed performance testing, especially in comparison with the legacy system and the results are excellent. Community gave similar experience regarding to responsiveness.

Production deploy at regional contest allowed us to find multiple errors, which were fixed in the latest version provided with this thesis.

This thesis and project presents the best outcome on production-level software application that I was supervising in my past 6 years.

The strongest part of the project is the achieved performance optimization as well as its evaluation not only in local environment but also in production.

Among the limitations is that the work is not tested at pace environment at the World Finals in programming at ACM ICPC.

Questions:
1. Do you plan to deploy and the new MyICPC in Wolrd Finals of ACM-ICPC?
2. If so how many users do you expect it to handle?
3. Can you demonstrate the application in use, such as running scoreboard, different views, and timeline to the jury (video screencast is suggested)

I suggest this exceptional thesis for grade:

A (Excellent)

Tomáš Černý, Ph.D.
Thesis supervisor

In Prague 26. 1. 2016