Institute of Mathematics and Computer Science
University of Latvia

Dr.sc.comp. Sergejs Kozlovičs

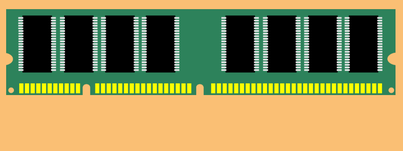
PostDoc Latvia

Model-Based Web Application Infrastructure with Cloud Technology Support

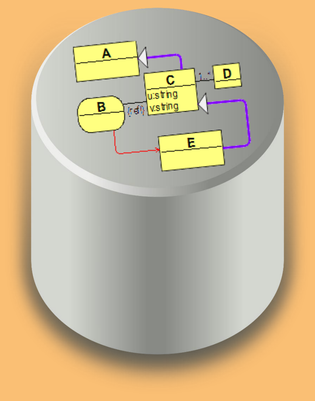
ERDF project #1.1.1.2/16/I/001, Application #1.1.1.2/VIAA/1/16/214

There is no silver bullet in software development. Web applications face additional difficulties (at least 2 network nodes, multiple users, security and privacy issues).
As a result, many existing web applications are of low quality and do not scale well. Some have security flaws.

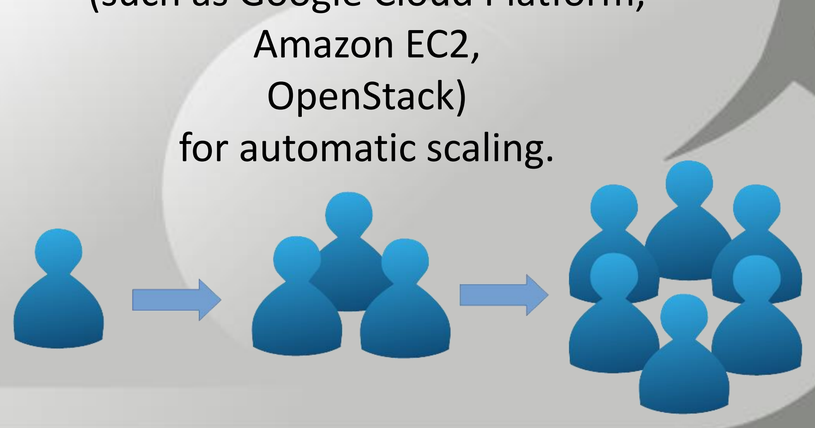
The solution is to factor out network-specific aspects and allow developers to think at a higher level of abstraction by assuming single PC as a target. We propose a model-based web application infrastructure for that. It acts as an operating system analog for web applications. We call it *webAppOS*.



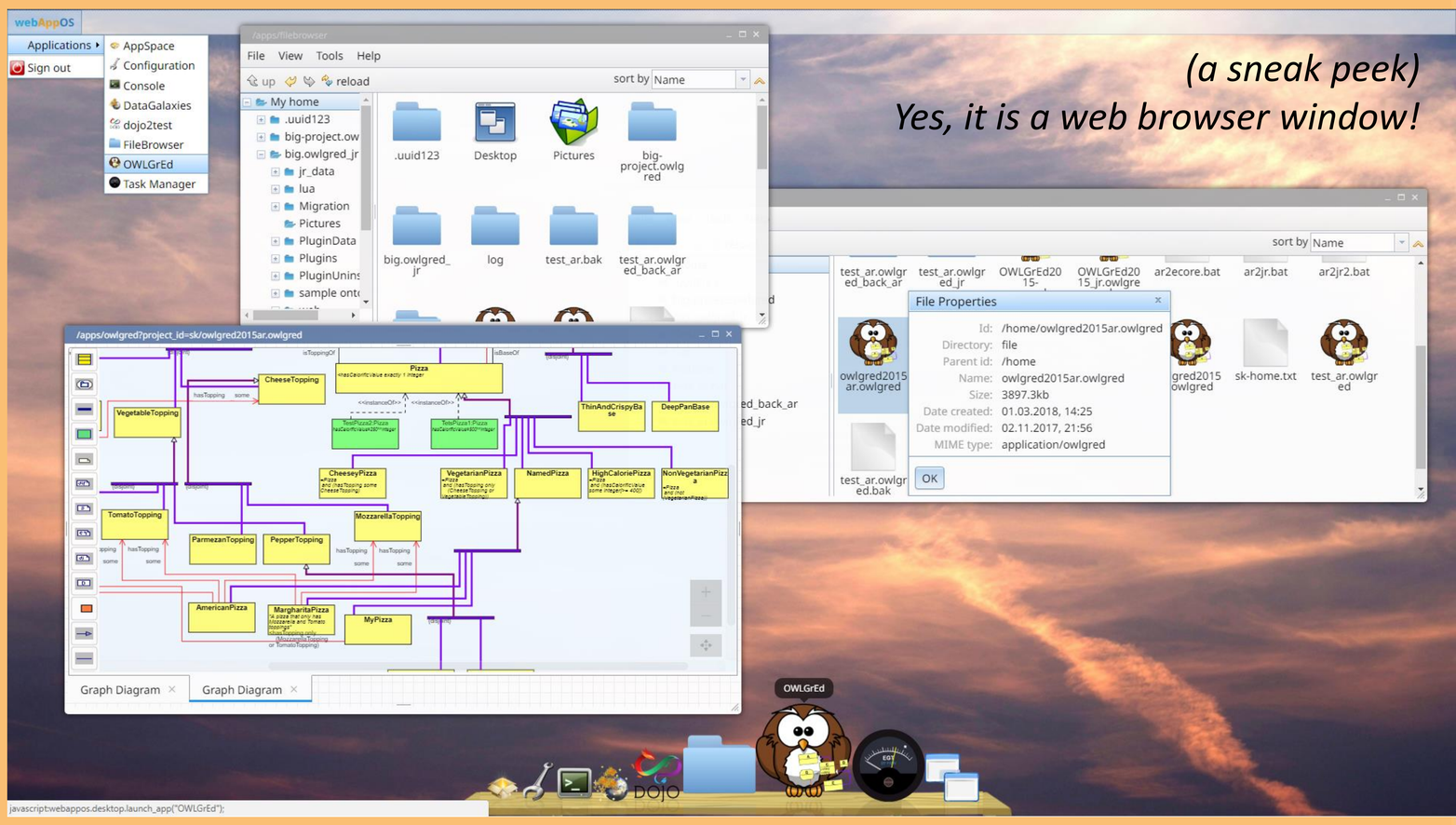
In the proposed infrastructure, both the server and the client share the same “web memory”, which is implemented as a formal model. “Web memory” is kept in sync automatically and transparently. An efficient super-fast model repository has been developed for that (published).

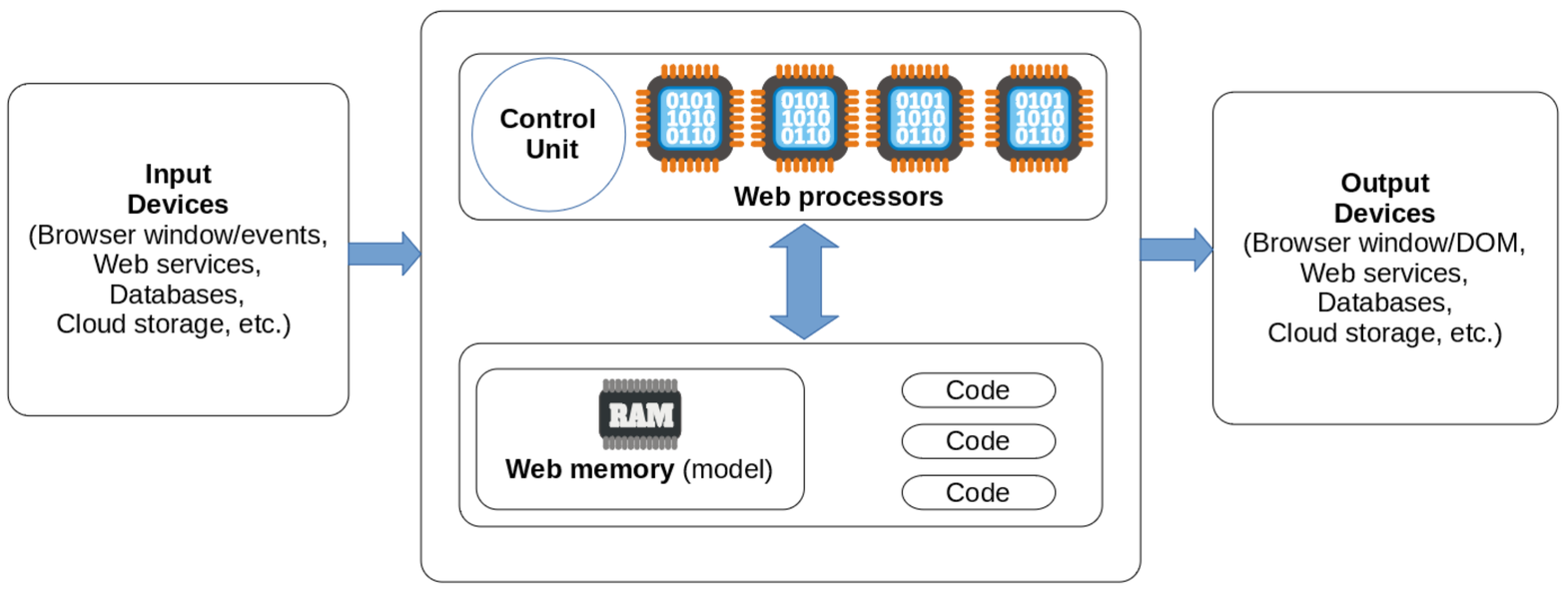


The proposed infrastructure will provide a uniform way to access various cloud infrastructures (such as Google Cloud Platform, Amazon EC2, OpenStack) for automatic scaling.



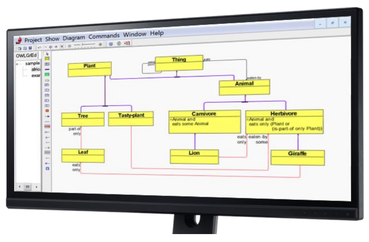
(a sneak peek)
Yes, it is a web browser window!





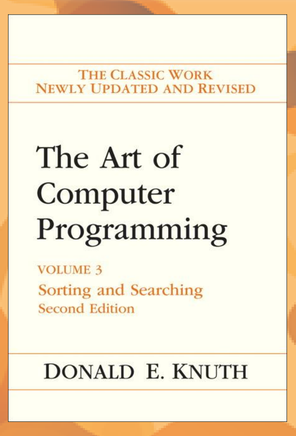
The proposed infrastructure is based on the Web Computer Architecture, a web-specific analog of the von Neumann architecture (specification in progress).

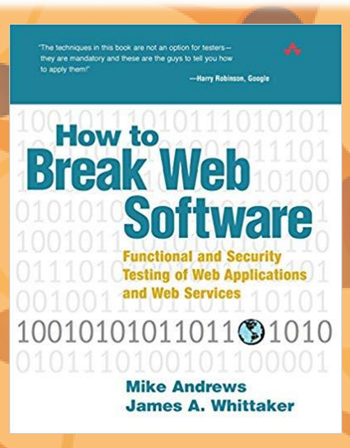
Our awesome desktop-based ontology editor OWLGrEd (owlgred.lumii.lv) will be migrated and launched as fully-fledged web application running on top of webAppOS.



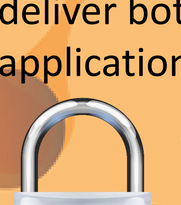
Open-source developers are welcome to join in developing webAppOS modules.

By utilizing European Union Public License, EUPL, we ensure that all potential contributing authors from the open-source community will warranty their copyright and take certain legal responsibility for their code. On the other hand, EUPL retains compatibility with popular open-source licenses, including GNU licenses.





We base our research on firm scientific foundation to deliver both efficient and secure platform for web applications.



The proposed infrastructure will obtain and renew Let’s Encrypt certificates automatically.

Find out more at webAppOS.org

Valsts izglītības attīstības aģentūra
NACIONĀLAIS ATTĪSTĪBAS PLĀNS 2020
EIROPAS SAVIENĪBA
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