



MICRO ASSESSMENT SAAS CLOUD SOLUTION

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INTRODUCTION

- Micro assessment system for small or medium enterprises (SMEs) built upon ideas of Cloud computing and Software as a Service
- Lifelong learning [1] refers to a society in which learning possibilities exist for those who want to learn [2]
- Increasing demand for new approaches towards fostering lifelong learning perspectives [3]

BACKGROUND AND DEFINITIONS

- Micro teaching
- Micro learning
- Micro assessment

MICRO TEACHING

- this technique employs real teaching situations for developing skills and helps teachers get deeper knowledge regarding the art of teaching [4]
- appeared in the 60-ies at the Stanford University; it is a baseline for micro learning [5]

MICRO LEARNING

- people can learn better, easier, more effectively in a more enjoyable manner if information is broken down into smaller units and if learning takes the shape of small steps [6]
- Bruck's [6] three aspects: Reduce the overflow and complexity of information, Undertake this reduction from the perspective of the person, Allow individual learners to choose personally the time, place and pace of learning

MICRO ASSESSMENT

- next step in the learning process
- method that covers assessing gained knowledge through smaller units

SOFTWARE DESIGN AND IMPLEMENTATION

- Cloud solution applying *multi-tenancy* and *scalability* architecture
- Main functionality: to inform and assess the employees in the companies of innovations and services the same company offers, as well as to measure their activity

FUNCTIONAL DESCRIPTION

○ Primary features:

- Background activity - Activates user interface (UI) when the user is inactive
- Testing and Surveys
- Reporting

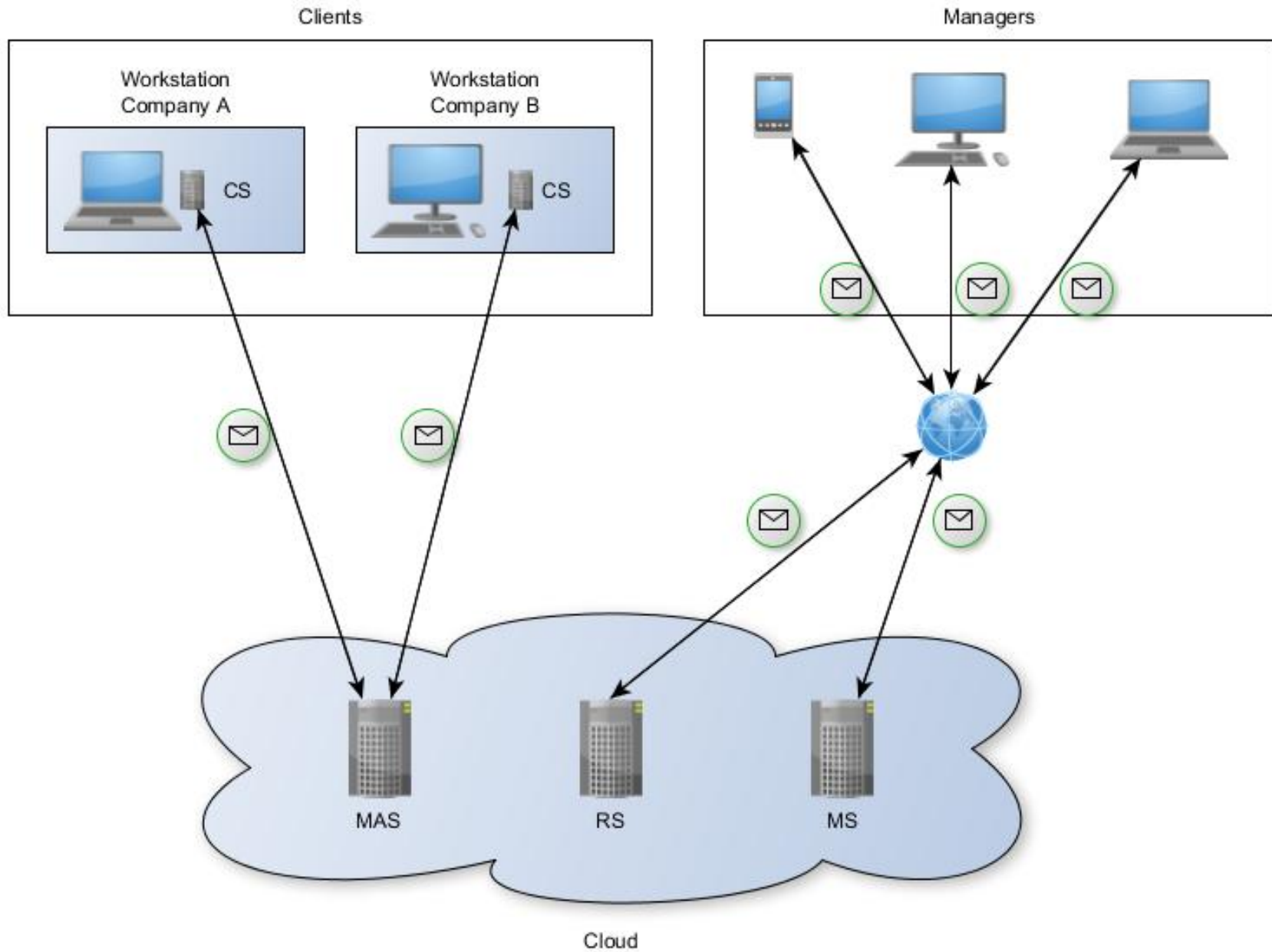
○ Secondary features:

- Access, Presentation, Announcing, Customization, Manipulating with materials, Delay, prolongation of the specified time, Multi Language support, Automatic recognition of user

SOFTWARE DESIGN AND IMPLEMENTATION

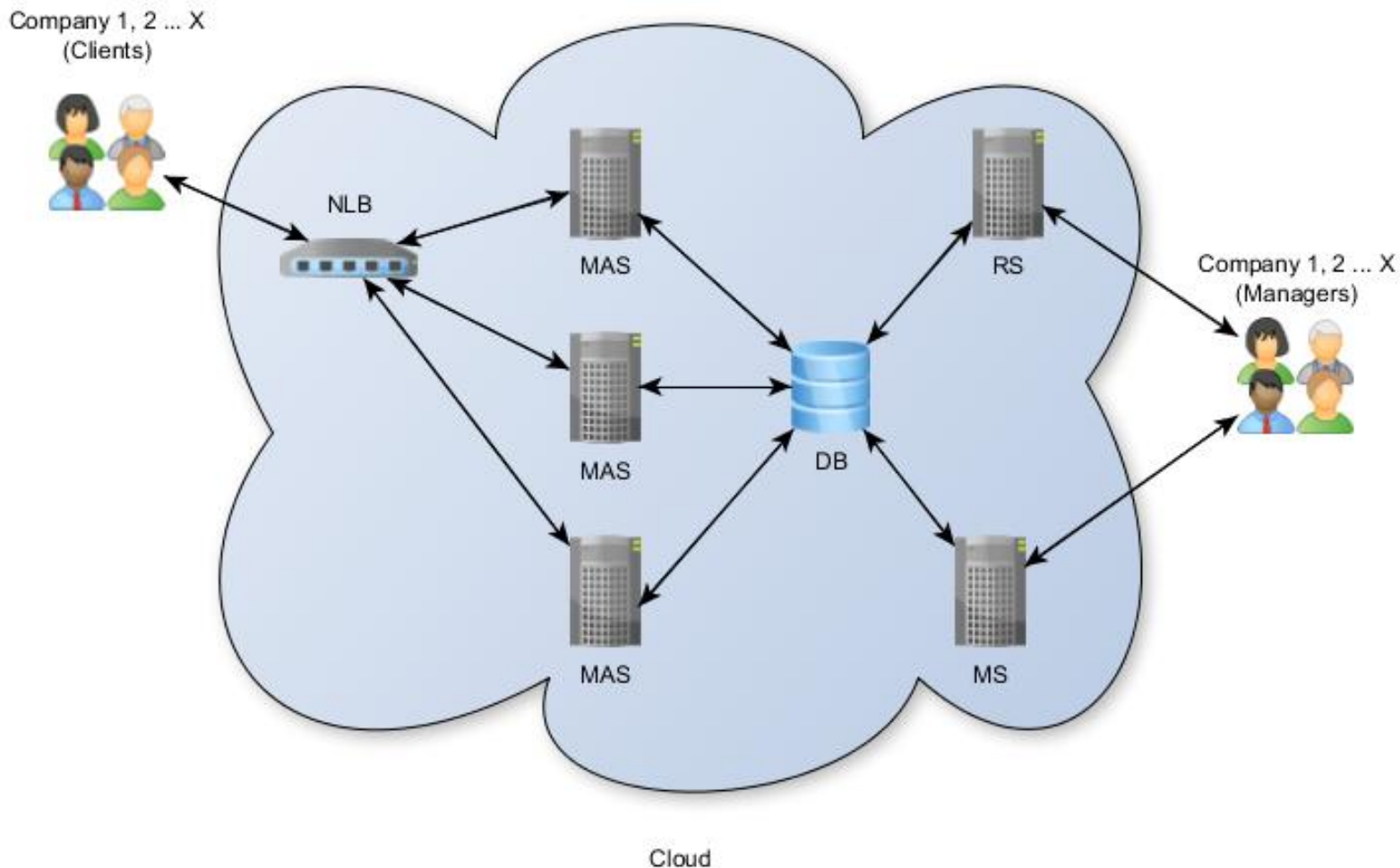
- **Micro Assessment Service (MAS)** (distribute data relevant to users and process their response, and evaluate whether the answer is true or false. Processes all the messages with the Client side),
- **Management Service (MS)** (users, courses, questions, exams and user authentication and authorization management,)
- **Report Service (RS)**
- **Database (DB)**
- **Client Service (CS)** – monitor the activity of the user and display the data obtained from the MAS

ARCHITECTURE DESIGN



TECHNICAL SOLUTION

- **Scalability** - install more MAS services enabled through the Network Load Balancing (NLB) technology [13]
- **Multitenancy** - one joint database, one joint MS, RS and clustered MAS based on NLB technology



PERFORMANCE ANALYSIS

- A. Bundovski, M. Gusev, “A New Methodology to Analyze Micro Assessment Solutions”, in *Web Proceedings of ICT Innovations 2010*, pp. 315-329

EXISTING SYSTEMS ANALYSIS

- SAP ® BusinessObjects TM Knowledge Accelerator [9], [10]:
 - WEB-based learning, training and supporting tool
 - provides end-users with relevant tutorials and reference materials to for self-service training
 - helps individuals familiarize with business intelligent processes, at their own pace and schedule
- RSA KnowledgePulse ® [11], [12]:
 - a client-server solution (a server infrastructure is not needed)
 - user/course administration interface
 - set of clients application for PCs, notebook computers, handhelds and other devices
 - the absorption of knowledge to occur through small steps
 - sends small 'micro-lessons' in the form of flashcards when a computer or mobile phone is idle for a certain period

COMPARISONS

Features	MA solution	Knowledge Accelerator	Knowledge Pulse®
tests and survey	✓	X	X
inexpensive	✓	X	X
no additional hardware expenses	✓	✓	X
interaction with the user after user inactivity	✓	X	✓
product of itself	✓	X	✓
displaying information	✓	X	X
displaying question	✓	X	✓
delay for the specified time	✓	X	X
measuring user activity	✓	X	X
measuring the results of testing	✓	✓	✓
access to materials via Internet	✓	✓	✓
easy to deploy	✓	✓	X
delivery of materials in a specific format	✓	✓	✓

ADVANTAGES AND BENEFITS OF MICRO ASSESSMENT

- impacts a diverse range of user groups
- training available 24 hours a day
- speeds up user productivity, performance and knowledge, helping users to add more value
- train users via job-specific skill development scenarios based on company data samples
- quick deployment of educational materials via the Internet, delivered directly to the users' devices, giving them the flexibility they need to learn when and where it best suits them

ADVANTAGES AND BENEFITS OF MICRO ASSESSMENT

- continuous education of employees will be enabled
- allows measuring the activity and inactivity of employees and the managers can constantly have reports how active or inactive their employees are
- no more internal trainings and long staff meetings will be needed, all of the information will be distributed by the tool
- pop quizzes and ad hoc tests can be introduced at any time

CONCLUSION

- **Measuring** employees' **performance** has always been one of the managers' biggest challenge
- Micro Assessment **educates** employees, measure performance and helps HR managers in their **performance reviews** and tests employees how much they have learnt, i.e. how interested they are in company's prosperity, how motivated they are by their managers, how ambitious they are about getting promoted

CONCLUSION

- beneficiaries of this solution might be:
 - SMEs
 - financial institutions
 - public administration
- a tool that might change the working and the educating culture and can bring a more realistic way of measuring employees' performance

QUESTIONS

