ISEngineering

Technische Universität Berlin

Enterprise Computing – Assignment 01.12.15 – 21.01.16

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Wirtschaftsinformatik – Information Systems Engineering

Lectures

Introduction	Tue, Oct 13 Introduction	
NoSQL Systems	Tue, Oct 20 Intro NoSQL	Tue, Oct 27 Case Study: Dynamo
	Tue, Nov 03 GFS, BigTable, and beyond	
Services	Tue, Nov 10 Web Engineering, REST	Tue, Nov 17 Cloud Services 1
	Tue, Nov 24 Cloud Services 2	
Assignment (6 weeks)	Tue, Dec 1 Kick-Off	Thu, Jan 21 End of Assignment
Cloud Benchmarking	Tue, Jan 26 Benchmarking 1	Tue, Feb 2 Benchmarking 2
Wrap-Up	Tue, Feb 9 Q&A	

Reminder: Grading „Portfolioprüfung“

- The written test at the end of the lecture counts 70 Portfoliopunkte
- The exercises during the lecture count 30 Portfoliopunkte
  - There is a total of 7 exercise sheets => 21 Portfoliopunkte
  - Per exercise sheet you can achieve a max of 3 Portfoliopunkte:
    - At least 40% correct answers => 1 Portfoliopunkt
    - At least 60% correct answers => 2 Portfoliopunkte (total)
    - At least 80% correct answers => 3 Portfoliopunkte (total)
  - The 6-week assignment counts **9 Portfoliopunkte** based on our assessment of your work and presentation

Assignment

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Scenario: Expense Reimbursement System

- Design and implement a reimbursement system from scratch in the cloud
- …using cloud services other than Lambda Services
- And using both AWS and IBM Bluemix as platforms

Assignment

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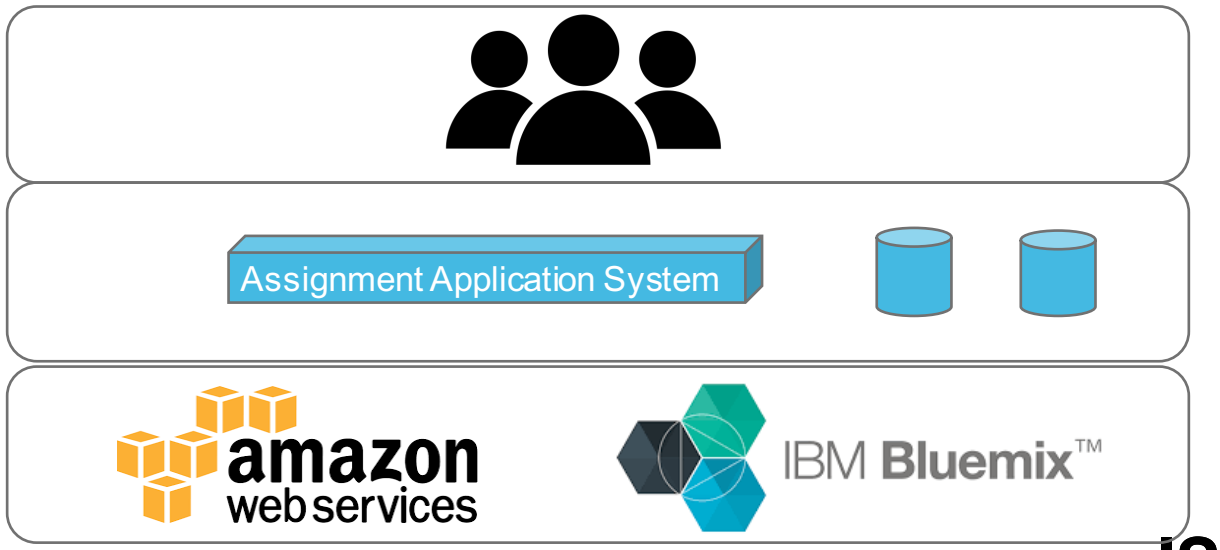
Scenario: Expense Reimbursement System

- Team of Lead Developers
- design and implement a reimburse system from scretch in the cloud
- using cloud services other than Lambda Services



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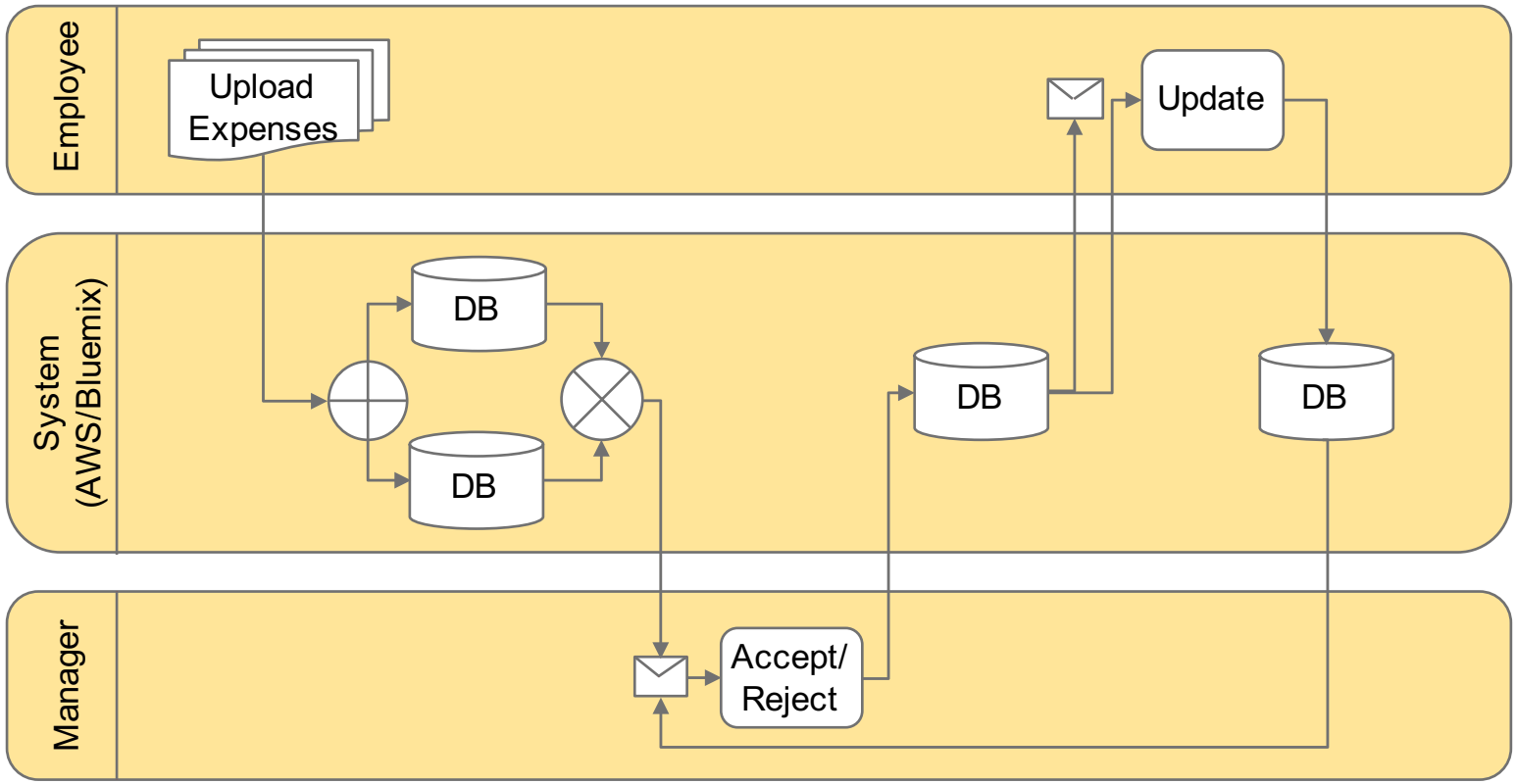
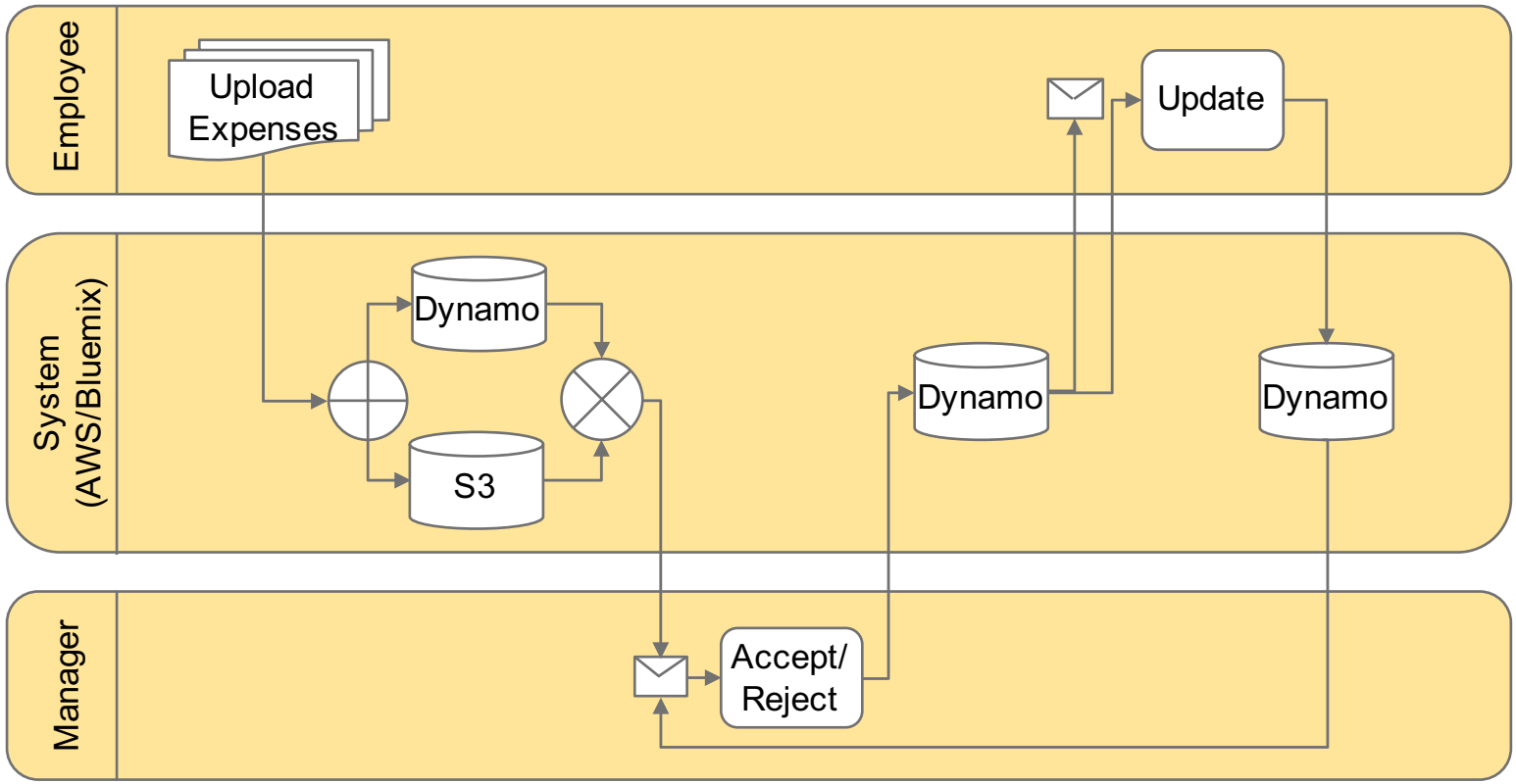
Reimbursement Process



Reimbursement Process



Your tasks as a group

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Week 1:

0. Organize yourself as a group.

1. **Extend** the lambda functions from Exercise 6 by introducing **AWS DynamoDB** as the database for storing/**uploading additional information** related to the the Expense Claim (**Why, When, What, Where**) using cloud services **other than Lambda** on AWS .

Week 2:

2. **Create** an **API** with AWS **API Gateway service**.
3. **Create** an **AWS S3 Instance** where the scanned documents can be uploaded to.

Week 3 & 4:

4. **Build** and **deploy** a **simple Web Application** in support of the scenario described. **Use** a **Web development framework** of your choice on **Bluemix** and **use services** from your **developed API Gateway and the data/storage services** so that the reimbursement process is realized.

Your tasks as a group

Week 5:

5. **Discuss** your **future system architecture** regarding **Performance, Scalability, Fault Tolerance** and **Security** and **document** your findings. **Explain why** you made certain decisions and **justify your decisions** against alternative designs.
6. **Discuss** and **document** possible **technical** and **process challenges** for future features:
   - *Business Exception Handling*: The Manager forgets to decide/does not decide in a given time window.
   - *Technical Exception Handling*: A document was already uploaded and approved.

Current process map (copy first and edit via draw.io):
https://drive.google.com/file/d/0B0I335W1QWZnamV2aElQNTlCZHM/view?usp=sharing

Your tasks as a group

Week 6:

7. **Document** your work (**Wiki, GitHub**, **current** and **future System Architecture Map**)
8. **Prepare** a **presentation** (**10 minutes** including QA, **3 slides max**.) with your results.
   Questions to be answered:
   - How did you solve the implementation tasks/why did you struggle?
   - Why should the Board choose your architecture/design? (as regards the system qualities: Performance, Scalability, Fault Tolerance and Security)
9. **Present** your results on Jan 21, 2016.

The groups.

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Group 1:
- The-Anh Ly
- Rigved Satish Patki
- Maxim Tschumak
- Jonathan Heiß

Group 2:
- Adrian Warszewski
- Simon Schwarz
- Maksymilian Wysocki
- Tim-Jonas Schwarz

Group 3:
- Andreas Salzmann
- Carlos Garcia
- Nik Hille
- Tayfun Wiechert

Group 4:
- Flavio Holstein
- Jonas Anschlag
- Maxim Volsky
- Talmaj Marinc

Group 5:
- Juhana Suhonen
- Dongdong Liu
- Mouhammad Souleiman
- Sandro Mesterhelde

Group 6:
- Philip Poloczek
- René Filpe
- Sebastian Werner
- Malte Peers

Group 7:
- Ahmed Tidjani Tidjani
- Dennis Kuhnert
- Onur Taskin
- Yuanzhang Fan

Group 8:
- Alexander Elvers
- Andres Ardila
- Dennis Westphal
- Maria Catarina Borges

Group 9:
- Teodor Patras
- Martijn Roo
- Florian Marienwald
- Lukas Meusel