EXAMINATION

Course: 5DV131/Cloud Computing

Teacher in charge: Yvonne Löwstedt/Johan Tordsson

Semester: Spring 2012
Date: 2012-06-08
Time: 9:00–13:00

Name: ________________________________________________________________

Personal ID number: ____________________________________________________

Unique code for this examination: 23

Note!
This examination will be graded anonymously. This sheet will be removed before the
teacher receives the rest of the examination. The above code must therefore be on all other
pages when you submit the examination to the examination supervisory staff. Memorize
your code since it will be used as reference when the results are published.
Furthermore,

- Write the answers on the answers on the same paper as the question (the back of
the paper may also be used).
- Mark the questions you have solved with a cross on the next page.
- The solutions should be neatly written. The train of thought should be easy to
follow. All non-obvious assumptions must be explicitly stated.

Till skrivningsbevakaren: Avskilj detta försättsblad och stoppa i kuvert
som skickas till Yvonne Löwstedt, Datavetenskap.
Question 1  (3 + 3 points)

a. What are the 3 main types of clouds (*aaS delivery models)?

b. For each type, describe the main user group (target customer segment).
Question 2  (5 + 5 points)

a. According to NIST definition, what are the five essential characteristics of cloud computing?

b. Based on the NIST definition, discuss to what extent the Cubby cloud sharing service (see description on the next page) actually can be classified as cloud computing.
13 April 2012 09:53

LogMeIn previews new cloud sharing service, ‘Cubby’

Please see the below release from LogMeIn who has today launched the beta of ‘Cubby’ an all-new cloud data service to simply and securely share information across PCs, Macs, iPads, iPhones, Android devices, or with other people.

First offering to showcase LogMeIn’s new cloud data sync and storage services

Sydney, Australia – April 13, 2012 — LogMeIn Inc. (NASDAQ: LOGM), the company behind the popular namesake remote access service, has just opened the beta of Cubby, an all new cloud data service to simply and securely share information across PCs, Macs, iPads, iPhones, Android devices, or with other people. The first service built on LogMeIn’s very own cloud data sync and storage platform, Cubby lets people turn any number of PC or Mac folders into cubbies that can be accessed from other devices, stored in the cloud, and shared with colleagues and friends. Cubby also gives people the option to simply share or sync an unlimited amount of information across their devices for free, and without ever counting against cloud storage limits. As a result, people have the flexibility to share and access information across their devices without having to worry about creating a new, separate version of their digital life in the cloud.

People interested in participating in the Cubby beta, which includes 50GB of cloud storage, free unlimited syncing across devices, as well as apps for the iPad, iPhone, Android, Mac and Windows, can request an invitation at Cubby.com.

“When it comes to sharing data in the cloud today, most solutions on the market are ultra simple but inflexible, or highly flexible but inherently complex. We see Cubby as an opportunity to deliver an ideal balance of simplicity and flexibility,” said Marton Anka, LogMeIn’s CTO. “It is designed to adapt to the way people naturally interact with their information — to deliver the benefits of the cloud without forcing people to change their behaviour.”

Cubby highlights:

- Any folder can be a cubby — People can simply use the folders they have — their existing PC or Mac folders — or they can take advantage of a simple, easy-to-use default cubby. There’s no need to pull files and documents into a single cloud folder box, and no need to recreate existing folders.

- Share your stuff across devices for free, cloud optional — People can share their stuff across their devices for free, without being restricted by cloud data storage limitations. Cubbies can be stored to the cloud or simply synced across devices.

- Decide what content gets shared across which devices — Any cubby and its content can be synced to selected devices. So people can keep their work, personal and family information as separate as they’d like. No need to have those family holiday photos on your work PC or a copy of the latest TPS report from the office on your kid’s Macbook.

- Multiple ways to share and collaborate with others — Cubbies and their content can be shared with others either by inviting them into a cubby which lets both parties see, work with, and sync content; or they can simply send people read-only links to files and cubbies.

- Simple access from anywhere, any device — Cubby can be accessed from any web browser, comes standard with Mac and PC desktop apps, and offers a free iPad and iPhone app in the Apple App Store and a free Android app in Google Play.
Question 3  (3 + 4 points)

a. Describe the main components, their roles, and interactions in a 3-tier Web architecture.

b. Discuss the implications of hosting such a 3-tier Web application in a cloud. In particular, what methods/techniques can be applied to achieve scalability and redundancy?
Question 4  (4 + 4 points)

a. What benefits does the use of virtualization (virtual machines) bring for cloud infrastructure providers?

b. Describe the main benefits and drawbacks of paravirtualization, used, e.g., by Xen?
Question 5  (4 + 4 points)

a. According to “The VISION of autonomic computing” what are the main motivations for autonomous computing systems?

b. Describe a few scientific and/or engineering challenges for creating autonomic systems.
Question 6  (5 points)

a. Describe a few of the main considerations when constructing a data center.