National College of Ireland

MSc. In Cloud Computing, (MSCCLOUD)

Semester 1 Repeat Examinations – 2012/13

May 2013
xx:xx – yy:yy am

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Cloud Security

Mr. Michael Bradford

Full marks will be awarded for complete answers to **FOUR** questions

Duration of exam: 2 hrs
Attachments: N/A

1.
    (i)   Describe the Jericho Forum's Cloud Cube Model with regards to cloud service models, physical locations of resources, and the attribution of management and ownership of resources.

                    [10 marks]

    (ii)   'Vendor Lock-In is a Major Concern for Cloud Service Consumers'. Discuss this statement in the context of IaaS, PaaS, and SaaS cloud service models.

                    [10 marks]

    (iii)   Describe what is meant by the term *De-perimiterisation* with regards to cloud computing ecosystems.

                    [5 marks]

2.
    (i)   Describe two threats associated with multi-tenancy within an SaaS environment. Explain how the risks assocaited with the two threats you have identified may be mitigated.

                    [10 marks]

    (ii)   What is a threat model? Describe how threat models may be developed using the STRIDE threat modelling process.

                    [10 marks]

    (iii)   Describe how a cloud service provider can mitigate DDoS.

                    [5 marks]

3.
    (i)   What is meant by the term *Reduced Sign-on* with respect to authentication and authorisation in cloud computing environments?
Describe how *Single Sign-on* and federated identity can be used to access cloud services.

                    [15 marks]

    (ii)   Describe the Free Form Model architecture for interfacing cloud services with identity and attribute providers.

                    [10 marks]

4.
    (i)   Discuss the characteristics of Penetration Testing for Cloud Applications making reference to the types of security testing that should be undertaken for each of the different cloud service models.

                    [10 marks]

    (ii)   Describe both the *containment* and *eradication & recovery* stages of the incident response life-cycle.

                    [10 marks]

    (iii)   Describe how Digital Rights Management (DRM) secures data. Describe the main categories of DRM.

                    [5 marks]