**BTEC Assignment Brief**

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| **Qualification** | |  |
| **Unit number and title** | | **Unit 6: Networking in the Cloud** |
| **Learning aim(s)** (For NQF only) | | **A:** Examine commonplace networking principles used in a cloud infrastructure to support communication  **B:** Explain the operation of networking technologies within a cloud infrastructure |
| **Assignment title** | |  |
| **Assessor** | |  |
| **Issue date** | |  |
| **Hand in deadline** | |  |
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| **Vocational Scenario or Context** | | You have been accepted into our company as an intern engineer currently undergoing training in the field of cloud technologies. The company is engaged in the wholesale distribution of ready-made clothing products. In order to modernize the existing IT infrastructure, you are expected to provide an analytical approach to migrating systems such as ERP, CRM, and WMS to a cloud environment. |
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| **Task 1** | | The technical director has assigned you to conduct in-depth research and prepare a report based on analysis in the following areas:   * The impact of using remote services on business operations and customer experience * Core principles and capabilities of cloud networking * Learn and explain the key differences between different clouds * Justify how migrating to a cloud environment can positively influence the overall efficiency of the company * Deploy a dynamic website * Implement a CI/CD automation pipeline and demonstrate how the application utilizes resources under high load   Based on your research, the company’s management will make a strategic decision regarding the migration of services to the cloud environment. |
| **Checklist of evidence required** | |  |
| **Criteria covered by this task:** | | |
| Unit/Criteria reference | To achieve the criteria you must show that you are able to: | |
| A.P1 | Discuss the benefits and constraints of different network architectures and standards within the cloud. | |
| A.M1 | Compare common networking standards and how they facilitate cloud computing. | |
| A.D1 | Review how creating a cloud environment affects network implementation and overall performance. | |
| A.P2 | Describe how network communication operates within the cloud. | |

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| B.M2 | Explore the impact of remote operating system optimisation within the cloud on performance. |
| B.P3 | Explain how remote operating system services are deployed within the cloud. |
| B.P4 | Explain how remote clients interact with cloud services. |

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| **Sources of information to support you with this Assignment** | DUTT, D. (2019) Cloud Native Data-Center Networking: Architecture, Protocols, and Tools. Sebastopol: O’Reilly KUROSE, J., ROSS, K. (2016) Computer Networking: A Top-Down Approach. Harlow, Pearson STALLINGS, W. (2015) Foundations of Modern Networking: SDN, NFV, QoE, IoT, and Cloud. Boston: Addison Wesley |
| **Other assessment materials attached to this Assignment Brief** |  |

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| **Qualification** | |  |
| **Unit number and title** | | **Unit 6: Networking in the Cloud** |
| **Learning aim(s)** (For NQF only) | | **C:** Design a networking solution for a cloud-based system for a business use case |
| **Assignment title** | | **Networking in the Cloud in action** |
| **Assessor** | |  |
| **Issue date** | |  |
| **Hand in deadline** | |  |
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| **Vocational Scenario or Context** | |  |
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| **Task 1** | | Examine commonplace networking principles used in a cloud infrastructure to support communication: |
| **Checklist of evidence required** | | * WAN (Wide Area Network) * LAN (Local Area Network). * TCP/IP model, * Theoretical OSI model |
| **Criteria covered by this task:** | | |
| Unit/Criteria reference | To achieve the criteria you must show that you are able to: | |
| C.M3 | Test the cloud-based network, for performance and scalability. | |
| C.P5 | Design a networked solution for a cloud-based system for a given business use case. | |
| C.D2 | Justify the effectiveness of your design, based on performance and scalability results from testing. | |
| C.P6 | Implement the networking solution designed for a cloud system. | |
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| **Sources of information to support you with this Assignment** | | DUTT, D. (2019) Cloud Native Data-Center Networking: Architecture, Protocols, and Tools. Sebastopol: O’Reilly KUROSE, J., ROSS, K. (2016) Computer Networking: A Top-Down Approach. Harlow, Pearson STALLINGS, W. (2015) Foundations of Modern Networking: SDN, NFV, QoE, IoT, and Cloud. Boston: Addison Wesley |
| **Other assessment materials attached to this Assignment Brief** | | *e.g., work sheets, risk assessments, case study* |

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| **Qualification** | |  |
| **Unit number and title** | | **Unit 6: Networking in the Cloud** |
| **Learning aim(s)** (For NQF only) | | **D:** Enhance network performance for a cloud-based system developed for a given business use case. |
| **Assignment title** | |  |
| **Assessor** | |  |
| **Issue date** | |  |
| **Hand in deadline** | |  |
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| **Vocational Scenario or Context** | |  |
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| **Task 1** | | Explaining differences between: |
| **Checklist of evidence required** | | * premises vs in-cloud vs hybrid systems. * Application of NaaS (Network as a Service) used in conjunction with PaaS (platform as a service), * aPaaS (application PaaS) and SaaS (software as a service), * VPN (virtual private network) solutions, * BoD (bandwidth on demand) and virtualization resources. |
| **Criteria covered by this task:** | | |
| Unit/Criteria reference | To achieve the criteria you must show that you are able to: | |
| D.D3 | Justify the resulting networking improvements against the original network design. | |
| D.M4 | Test network enhancements for further performance and scalability improvements. | |
| D.P7 | Recommend network enhancements based on cloud test results. | |
| D.P8 | Implement network enhancements for a cloud system. | |
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| **Sources of information to support you with this Assignment** | | DUTT, D. (2019) Cloud Native Data-Center Networking: Architecture, Protocols, and Tools. Sebastopol: O’Reilly KUROSE, J., ROSS, K. (2016) Computer Networking: A Top-Down Approach. Harlow, Pearson STALLINGS, W. (2015) Foundations of Modern Networking: SDN, NFV, QoE, IoT, and Cloud. Boston: Addison Wesley |
| **Other assessment materials attached to this Assignment Brief** | |  |