**Networking (Advocate: Mike Watkins)**

**P1 Discuss the benefits and constraints of different network types and standards.**

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| <https://github.com/LBruni98/Networking#different-network-types-and-standards>  <https://github.com/LBruni98/Networking/blob/master/README.md#conceptual-models>  <https://github.com/LBruni98/Networking/blob/master/README.md#ieee-standards>  <https://github.com/LBruni98/Networking/blob/master/README.md#routed-protocols>  <https://github.com/LBruni98/Networking/blob/master/README.md#services-and-network-applications> |
| The links above take the user to different points of the networking README document. The first link takes the user to the section titled “Different network types and Standards. Within the section describes Peer-based, client-server, cloud, cluster, centralised and virtualised servers, evaluating them on what they do and their benefits.  The second link takes the user to the section titled “Conceptual Models”. In this section, the two network conceptual models, TCP/IP and OSI, are evaluated on how they work and their layer functions, and then compared within a breakdown table describing their benefits and drawbacks against each other.  The third link directs the user to the section on IEEE standards. The standards are covered are IEEE 802.3, 802.7, 802.8 and 802.11, explaining what standards are covered in each one for cabling and data transmission; IEEE 802.3 covers the standard for the Ethernet, with the transmission speed and cabling requirements; 802.7 identifies the broadband LAN practices; 802.8 is the standard for fibre optic in a LAN; and 802.11 is a set of standards defining the data communication in wireless LANs.  The Forth link directs the user to the “Routed Protocols section” in the README. Routed Protocols are explained here with how they work and the individual types that are used. Within the types listed, they are explained with their function and the issues that surround them.  The last link directs the user to the “Services and Network Applications” section. In this section, the network and service applications are described with how they work and their functions for users. The services and applications covered here are FTP, HTTP, SMTP, POP3 and SSL. |

**P2 Explain the impact of network topology, communication and bandwidth requirements.**

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| <https://github.com/LBruni98/Networking#the-impact-of-networking-topology-communication-and-bandwidth> |
| The link above directs the user to the section “The Impact of Networking Topology, Communication and Bandwidth”. The section describes that of topologies and communication within two subsections. The first subsection is the network topologies. Here, two of the common topologies are evaluated; physical and logical. Both were described with examples; logical explained as a network in practice and examples mentioned, such as the Ethernet topology, and physical explained as an actual, laid out network, with how it functions and lists off examples of types of topologies.  The second subheading goes into communication. Covered here is what network communication is along with the factors that affect it, how it is used in daily life, devices used for communication, its use in networking models and how it is effected by bandwidth. |

**P3 Discuss the operating principles of networking devices and server types.**

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| <https://github.com/LBruni98/Networking#operating-principles> |
| The link above directs the user to the section on operating principles. This section is laid out like a glossary and covers the terms of both networking and server terms. The first section describes the networking devices that are used within a network, with each term being explained on what they are, what they do and sometimes what they are used for.  The second section covers the server types, explaining the different types, what they do and how they work. |

**P4 Discuss the interdependence of workstation hardware with relevant networking software.**

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| <https://github.com/LBruni98/Networking#workstation-hardware>  <https://github.com/LBruni98/Networking#comparison-of-network-and-cabling>  <https://github.com/LBruni98/Networking#permissions>  <https://github.com/LBruni98/Networking#local-workstation-architecture> |
| Above are the links that takes the user to various sections on workstation hardware. Covered are the workstation terms, hardware and other features, all in these links.  The first link takes the user to a section on the networking software used. Covered here are the networking software that is used within a workstation, which are client software, server software, client operating system, server operating system, firewall and proxies. Each are explained on what they do and their functions.  The second link directs the user to the section “Comparison of network and Cabling”. This section covers both the types of network connections used, which are network card, wireless and mobile, explaining how they work and the differences between them and explains the cabling that is used within a network.  The third link leads to the section on permissions. Here, the need for permissions are reviewed and a comparison on NTFS and network shared permissions are described.  The final link leads to the section “Local Workstation Architecture”. What is covered here is what workstations are and describes the hardware used within these PCs, such as the processor and the RAM. A section on the system bus is described as well, with how it works within a workstation and the different types of system bus. |

**P5 Design a networked system to meet a given specification.**

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| <https://github.com/LBruni98/Networking/blob/master/README.md#architecture> |
| Above is the link that leads to the design of a networked system. Here covered is the requirements needed for designing the network and the outline of the design, describing how it will work and what devices should be included as well as the planned connections for each device and both the LANs to create the Wide Area Network. Also in a sub-section is the set configuration for both networks that was laid out in the requirements and planned within the network. |

**P6 Test and evaluate the design to meet the requirements and analyse user feedback.**

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| <https://github.com/LBruni98/Networking/blob/master/README.md#testing>  <https://github.com/LBruni98/Networking/blob/master/README.md#evaluation>  <https://github.com/LBruni98/Networking#user-feedback> |
| The links above lead to the testing of the network and the evaluation of the system. The testing of the network is carried out with each feature of the network being tested, from the implementation of DHCP to the WAN connection between the two LANs and the wireless devices being configured with access points. The evaluation covers the design on how well it worked with its functionality and assesses the user feedback to aid in the conclusion on how the design and implementation could be improved. |

**P7 Implement a networked system based on a prepared design.**

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| <https://github.com/LBruni98/Networking/blob/master/README.md#implemented-system-and-justification> |
| The link above directs to the implementation of the network, showcasing how it works with a diagram showing the version of the conceptual design being used, along with the features and the set configuration being implemented. The justification of the design is also covered, detailing why the features such as the topology was used as it aided in data transmission and the connections used in the design were implemented. |

**P8 Document and analyse test results against expected results.**

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| <https://github.com/LBruni98/Networking#testing>  <https://github.com/LBruni98/Networking/blob/master/README.md#analysing-results> |
| The links above are both the testing results which were analysed. The first link, which was used earlier, showcases the results of both the expected results and the actual results. The second link details the results from the given plan and goes into detail about how the testing was carried out and the results that came out of it, detailing the results that were matched with the expected results; explaining how some of the actual outcomes were no different from the expected outcomes and how the unexpected results were addressed then retested. |

**M1 Compare common networking principles and how protocols enable the effectiveness of networked systems.**

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**M2 Explore a range of server types and justify the selection of a server, considering a given scenario regarding cost and performance optimisation.**

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**M3 Install and configure network services and applications on your choice.**

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**M4 Recommend potential enhancements for the networked systems.**

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**D1 Considering a given scenario, identify the topology protocol selected for the efficient utilisation of a networking system.**

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**D2 Design a maintenance schedule to support the networked system.**

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**D3 Use critical reflection to evaluate own work and justify valid conclusions.**

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