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| **Assessment 1A**  WesTrac IT Infrastructure Upgrade Solutions Report | | |
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|  | 1. **Executive Summary**   This report addresses the upgrade requirements for WesTrac's warehouse and hose shop, focusing on enhancing WiFi infrastructure and updating computer systems. Two solutions are evaluated: implementing a WiFi mesh network in the warehouse and upgrading computer systems in the hose shop to meet 2024 standards.  Detailed cost breakdowns, installation processes, and implementation plans are provided to ensure a smooth transition and improved operational efficiency. | |  | |

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| 1. **Project Overview**   WesTrac, a prominent mining company, needs to modernize its IT infrastructure to support its strategic goals. The current WiFi network in the warehouse is outdated and unreliable, causing connectivity issues. Additionally, the hose shop's computer systems are old and struggle to run necessary software efficiently. The project aims to establish a robust WiFi network and upgrade the hose shop's computer systems to meet current industry standards. | |
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| 3. Business Requirements **3.1 High-Level Objectives/Use Cases**   * **WiFi Perimeter Setup**: Establish a reliable WiFi network throughout the warehouse to support inventory management, real-time tracking, and internal communication. * **Computer Systems in Hose Shop**: Upgrade all four computers in the hose shop to modern standards to enhance productivity and support advanced software applications.   **3.2 Relation to Strategic Plan**  This project aligns with WesTrac's strategic goal to leverage technology for optimizing operational efficiency and maintaining a competitive edge in the mining industry. Improved connectivity and upgraded systems will facilitate smoother workflows and better resource management, contributing to overall productivity.  **3.3 Existing Configurations**   * **WiFi Infrastructure**: The existing WiFi setup is outdated with frequent connectivity issues. * **Computer Systems**: Current computer systems in the hose shop are old and lack the necessary specifications to run modern software efficiently. Can find out current systems  4. Gap Analysis Using gap analysis tools, the following gaps were identified:   * **WiFi Coverage**: Insufficient coverage causing dead zones in the warehouse. * **System Performance**: Outdated computer systems causing slow performance and hindering the use of modern applications. * **Data Management**: Lack of integration between systems resulting in inefficiencies and data silos.  5. Research Related to Solutions **Solution 1: Advanced WiFi Mesh Network:**   * **Overview**: Implementing a WiFi mesh network to ensure seamless coverage throughout the warehouse. * **Components**: High-performance mesh routers, multiple access points, network management software. * **Cost Breakdown**:   + Mesh Routers (5 units): $500 each = $2,500   + Access Points (10 units): $300 each = $3,000   + Network Management Software: $1,000   + Installation Fees: $1,500   + Total Cost: $8,000 * **Installation Process**:   + Survey the warehouse to identify optimal placement for routers and access points.   + Install mesh routers and access points at designated locations.   + Configure network management software to monitor and manage the network.   + Conduct a final test to ensure seamless connectivity across the warehouse.   **Solution 2: Upgraded Computer Systems:**   * **Overview**: Upgrading the existing computers in the hose shop to modern, high-performance systems. * **Components**:   + High-performance desktop computers (4 units)   + Software installation and configuration   + Enhanced security features * **Cost Breakdown**:   + High-performance Desktops (4 units): $1,200 each = $4,800   + Software Licenses: $300 each = $1,200   + Installation Fees: $500   + Total Cost: $6,500 * **Installation Process**:   + Procure the new desktop computers and software licenses.   + Install and configure the new systems, ensuring compatibility with existing applications.   + Transfer data from old systems to new ones.   + Test the new systems to ensure they run efficiently and meet performance standards. | |  |

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| 6. Pre-Existing Tools or Solutions WesTrac can leverage existing network infrastructure by integrating the new WiFi mesh network with current network management tools. Existing software licenses for applications can be upgraded to work on the new computer systems, reducing additional costs. 7. Impact Considerations **7.1 Impact on the Business**   * **WiFi Mesh Network**: Enhanced connectivity, reduced downtime, improved productivity, and better inventory management. * **Upgraded Computer Systems**: Faster processing times, improved workflow efficiency, and enhanced data security.   **7.2 Team’s Ability to Implement**   * **WiFi Mesh Network**: Minimal training required as mesh networks are user-friendly and can be managed centrally. * **Upgraded Computer Systems**: Some training required for new software features and system operations.   **7.3 Effectiveness of the Project**   * **WiFi Mesh Network**: Highly effective due to improved connectivity and network reliability. * **Upgraded Computer Systems**: Highly effective through enhanced system performance and productivity.   **7.4 Industry Standards and Practices**   * **WiFi Mesh Network**: Adheres to modern networking standards and best practices, ensuring high performance and security. * **Upgraded Computer Systems**: Aligns with industry standards for computer hardware and security, ensuring longevity and robustness. | | | |
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| Enhanced Productivity  Upgrading the WiFi and computer systems will streamline workflows, reduce downtime, and boost overall productivity in the warehouse and hose shop. | Cost-Effective Solutions  The report provides detailed cost breakdowns and implementation plans, ensuring the selected solutions are financially viable and offer long-term savings. | | Future-Proof Technology  Implementing modern, scalable technology aligns with WesTrac's strategic goals, ensuring the infrastructure can support future growth and technological advancements. |

## 8. Conclusion

The proposed solutions for upgrading WesTrac's IT infrastructure—specifically the implementation of a WiFi mesh network in the warehouse and the modernization of computer systems in the hose shop—are designed to significantly enhance operational efficiency, productivity, and future scalability. These improvements align with WesTrac's strategic objectives and are supported by a detailed cost analysis and implementation plan.

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| Item | Cost per Unit ($) | Total Cost ($) |
| Mesh Routers (5 units) | 500 | 2500 |
| Access Points (10 units) | 300 | 3000 |
| Network Management Software | 1000 | 1000 |
| WiFi Installation Fees | 1500 | 1500 |
| High-performance Desktops (4 units) | 1200 | 4800 |
| Software Licenses (4 units) | 300 | 1200 |
| Computer Installation Fees | 500 | 500 |