

This document is a guideline for the successful and timely completion of your project. Adjustments may be made if unforeseen circumstances arise. But for now, this document represents our best understanding of the project details. All parties commit to meeting the above requirements in a timely manner in order to insure a successful project. Any delays during the project will result in a delayed completion date. Significant delays may result in a reprioritizing of this project.

You will receive this Project Charter for review and signature after requirements have been gathered, and again at the completion of the project for final signoff. Also, at the completion of this project, you will receive a Project Survey. Once your project is complete, please take a few minutes to take the survey and tell us how UITS did with the planning and execution of your project.

UITS Project Management Project Charter

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| Project Name: OpenStack |

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| **Prepared By:** | Jaden Jefferson, Nick Miller |
| **Date:** | 2 April 2025 |
| **Department:** | TSYS School of Computer Science |
| **Sponsor:** | Dr. Zhou |
| **Project Manager:** |  |
| **Technical Rep:** |  |

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| Stakeholders | | | |
|  | Name | Email | Phone |
| Project Sponsor |  |  |  |
| Project Manager |  |  |  |
| Functional Manager/ Data Stewart |  |  |  |
| Stakeholder |  |  |  |
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| Project Description | How does this project contribute to the overall Vision of Columbus State University? What does this project need to accomplish? What are the benefits? Please list the deliverables. |
| Columbus State University’s vision prioritizes student success and academic excellence. By tasking students with the design, implementation, and maintenance of a private cloud for real-life usage by peers, this project will provide both career-relevant experience and daily utility for computer science students. Senior-level students who work on the cloud will gain invaluable experience with requirement analysis, collaboration, stakeholder communication, and production procedures. Younger students will have the chance to work with industry-standard cloud computing technology over the courses of their studies. The project will provide a significant new way for students to engage with computer science.  Successful execution of the project is defined by the establishment of a functional private cloud from bare metal, local servers. The cloud should be fully accessible by students over the campus LAN and the Internet. Students will be able to access virtual computing services on-demand, simplifying their development process. The cloud must be highly maintainable and extensible, allowing future senior students to continue and expand upon our efforts. Clear documentation on the system will be necessary for future project continuation.  Undergraduate and graduate computer science students will be able to experiment with programming and system administration on ephemeral virtual machines, allowing for quick, low-risk access to unfamiliar operating systems and environments. As a private, on-premises cloud platform, the project will be faster and less expensive than offerings from public cloud providers. Large datasets, which are a vital component in industry trends like big data and AI, can be stored locally for reduced costs and increased computational accuracy. The hands-on experience gained from the use of these machines will strengthen students’ overall understanding of IT infrastructure containing networking, hardware, and software components. Senior students who work directly on the cloud servers will gain further experience with real hardware that would otherwise have prohibitively high barriers to entries.  The primary deliverable will be an OpenStack-based cloud infrastructure, fully deployed and accessible by students through a web-based dashboard and a command line interface, which can provide on-demand virtual machines.  A dashboard for maintainers and faculty will provide administrative access and system monitoring.  Documentation for users will be created to explain the basics necessary to utilize the system’s capabilities.  Documentation for maintainers will enable the project to continue and expand. | |

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| Information Security & Risks | How is data being made secure for this project? Does the project need BC/DR plans in case of a disaster?  Identify any risks or obstacles that may cause the project to fail. |
| A variety of security measures will be taken. The physical servers will operate from a locked room. Further physical security can be achieved with the lockable server front bezels, and a lockable server rack. The servers’ storage disks are encrypted with LUKS (Linux Unified Key Setup). Access to the cloud will be managed with OpenStack Keystone, an implementation of OpenStack’s token-based authentication API. The cloud will be connected through a private VLAN with configurable access control lists. Usernames and passwords for the servers will be stored and managed with BitWarden, an open-source, encrypted password manager.  Yes, some plans must be created for continuation and recovery in disasters. In the case of power outages, documentation on server startup will be necessary. Similarly, plans for network connection and reconnection are vital for continued availability. Evaluations should be conducted on the cloud’s resilience and critical systems in order to prioritize future maintenance and upgrades.  A short list of serious risks threaten the project’s success. The necessity of departmental support for the project characterizes immediate risks. Sufficient network access to connect the cloud servers to each other and the Internet has not been granted, halting progress towards a full deployment. Funding for future maintenance and upgrades may become necessary, requiring assistance from the Computer Science department, in potential events of hardware failures or obsolescence. Prominent among long-term obstacles is the ongoing transfer of knowledge between student maintenance teams; continual effort will be required on behalf of the Computer Science faculty to ensure successful preservation of existing documentation. Outages and ensuing disaster recovery are long-term risks which can be largely mitigated through documentation. | |

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| Scope | List what the project will and will not address. |
| The project will address the provision of cloud computing resources for experiential learning. To preserve resource availability, it will not provide long-term server hosting, virtual machines, cloud storage, or high-performance computing. | |

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| **Project Start (estimated):** | January 13, 2025 |
| **Project Finish (estimated):** | April 30, 2025 |
| **Project Cost (estimated):** | $480 |
| **Funding Source:** |  |

# Approval Signatures

Sponsor

Title Date

Executive Sponsor

Title Date

Program Manager Date

Director or CIO Date

# Final Customer Sign Off[[1]](#footnote-1)«

Sponsor

Title Date

Executive Sponsor

Title Date

« Should be completed as a final signoff to the project.

1. [↑](#footnote-ref-1)