

Retiring Azure Lab Services: A Case Study in Deploying Azure DevTest Labs at UWTSO

Joseph Evans – BSc Computing (Networks and Cybersecurity)



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Introduction

Cloud computing is increasingly transforming how Higher Education Institutions (HEIs) deliver and manage resources. Cloud based virtual lab solutions enable HEIs to deploy easy access, sandboxed virtual machines to students, providing an insulated environment in which to carry out scenario-based tasks that may be insecure to perform on domain-joined PCs.

The University of Wales Trinity Saint David (UWTSd) currently utilizes Azure Lab Services to deliver virtual labs to students. Azure Lab Services provides centralized management of labs, with robust cost management policies such as usage quotas and stop-start schedules to ensure expenditure is kept within an expected range. Azure Lab Services offers both Windows and Linux virtual machines (VMs) with nested virtualization capabilities, whilst providing a simple web portal interface for students to access their labs.

Microsoft is retiring Azure Lab Services on the 28th June 2027, therefore HEIs must identify a suitable successor solution in order to continue providing cloud labs to students [1]. This project explores Azure DevTest Labs as a potential replacement, being the only first party solution that matches the core functionality of Azure Lab Services [2].

Aims & Objectives

The aim of this project is to design, deploy and evaluate a suitable cloud-based virtual lab solution to replace Azure Lab Services at UWTSD.

To achieve the above aim, the following objectives were established:

- Conduct a literature and evaluate potential virtual lab alternatives.
- Design and configure a prototype virtual lab environment aligned with UWTSD's requirements.
- Gather feedback from stakeholders to validate requirements during development.
- Assess and evaluate the suitability of the proposed solution through testing and stakeholder feedback.
- Provide recommendations and identify areas for further consideration.

Methodology

This project employs a development-base case study methodology. This approach is beneficial for demonstrating and reviewing the effectiveness of a solution in a real-word context., while also allowing for stakeholder engagement and feedback.

An iterative development methodology was adopted to allow for flexibility in the configuration of the solution, and the ability adapt to stakeholder feedback between iterations. This project takes an inductive approach, where understanding and insights are developed through the process of implementation and stakeholder engagement, rather than testing a pre-defined hypothesis.. A cross-sectional perspective is adopted, focusing on the effectiveness of the solution at a specific point in time, rather than through an extended longitudinal study.

Requirements

Requirements for the replacement cloud lab solution were gathered through consultation with UWTSD's technical demonstrator, responsible for managing Azure Lab Services.

The key requirements identified include:

- Support for both native Windows and Linux virtual machines.
- Compatibility with Generation 2 virtual machines.
- Capability for nested virtualisation to enable advanced lab scenarios.
- Built-in cost control features such as usage quotas and automated start-stop scheduling.
- The solution should be Azure-native, utilising the university's existing Azure subscription to minimise additional costs and reduce the need for additional staff training on a new platform.
- Straightforward, repeatable lab provisioning to streamline setup and minimise administrative overhead for IT staff.
- Simple access for students both on campus and remotely.

Implementation

the architecture of Azure DevTest Labs allows administrators to define templates, images, and policies within a DevTest lab environment, enabling VMs to be pre-provisioned rapidly and made accessible to users, with little manual setup once templates and custom images are in place. This aligns with the university's requirements for ease of provisioning and simplified access for students.

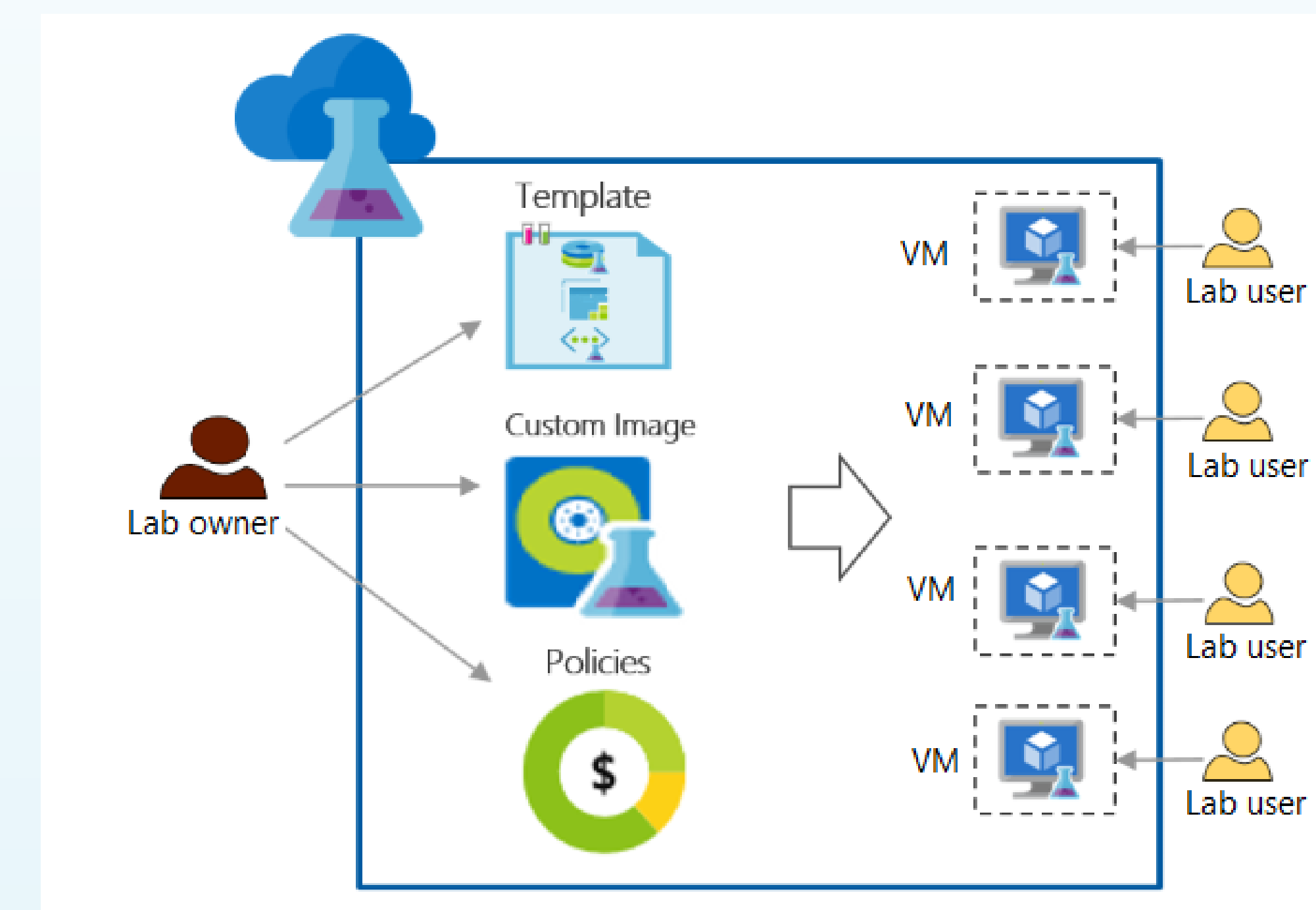


Figure 1. Axure DevTest Labs design overview [3]

Azure DevTest Labs was configured in line with UWTSO's technical requirements across three iterations, adding extra features at each stage. The final iteration includes two native Windows and Linux base VMs, and a Windows VM deployed from a custom image.

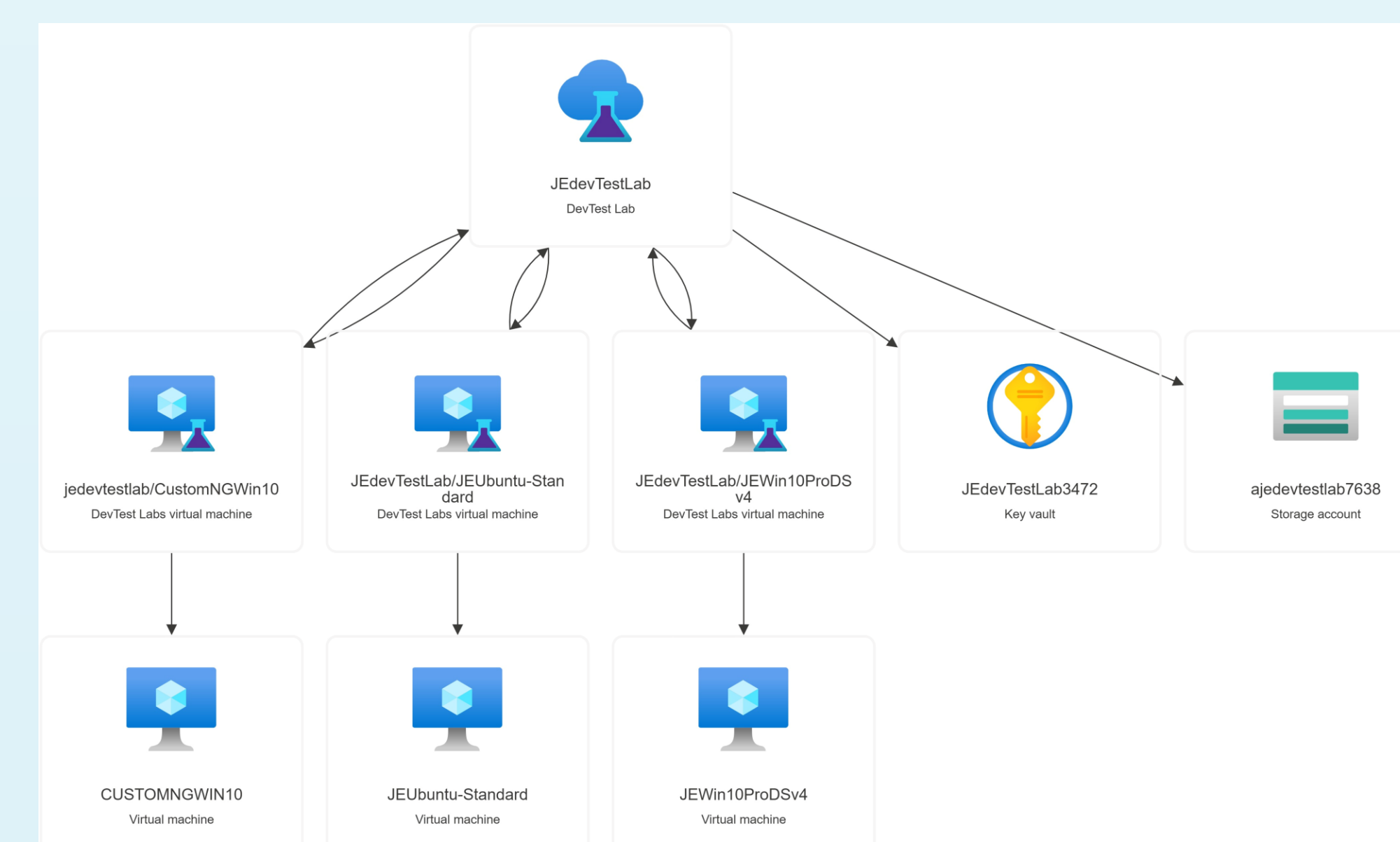


Figure 2. Azure DevTest Lab environment.

References

- [1] Microsoft, "Azure Lab Services retirement guide," Microsoft Learn, Apr. 3, 2024. [Online]. Available: <https://learn.microsoft.com/en-us/azure/lab-services/retirement-guide> (accessed Jul. 14, 2025).

- [2] Microsoft, "Transition from Azure Lab Services to Azure DevTest Labs," Microsoft Learn. [Online]. Available: <https://learn.microsoft.com/en-us/azure/lab-services/transition-devtest-labs-guidance> (accessed Jul. 21, 2025).

The use of custom images allows for rapid deployment of pre-configured VMs. To facilitate this an Azure Compute Gallery was configured to store custom images. Various other supporting Azure resources were also established, including a key vault to store encrypted credentials, and a virtual network to facilitate communication

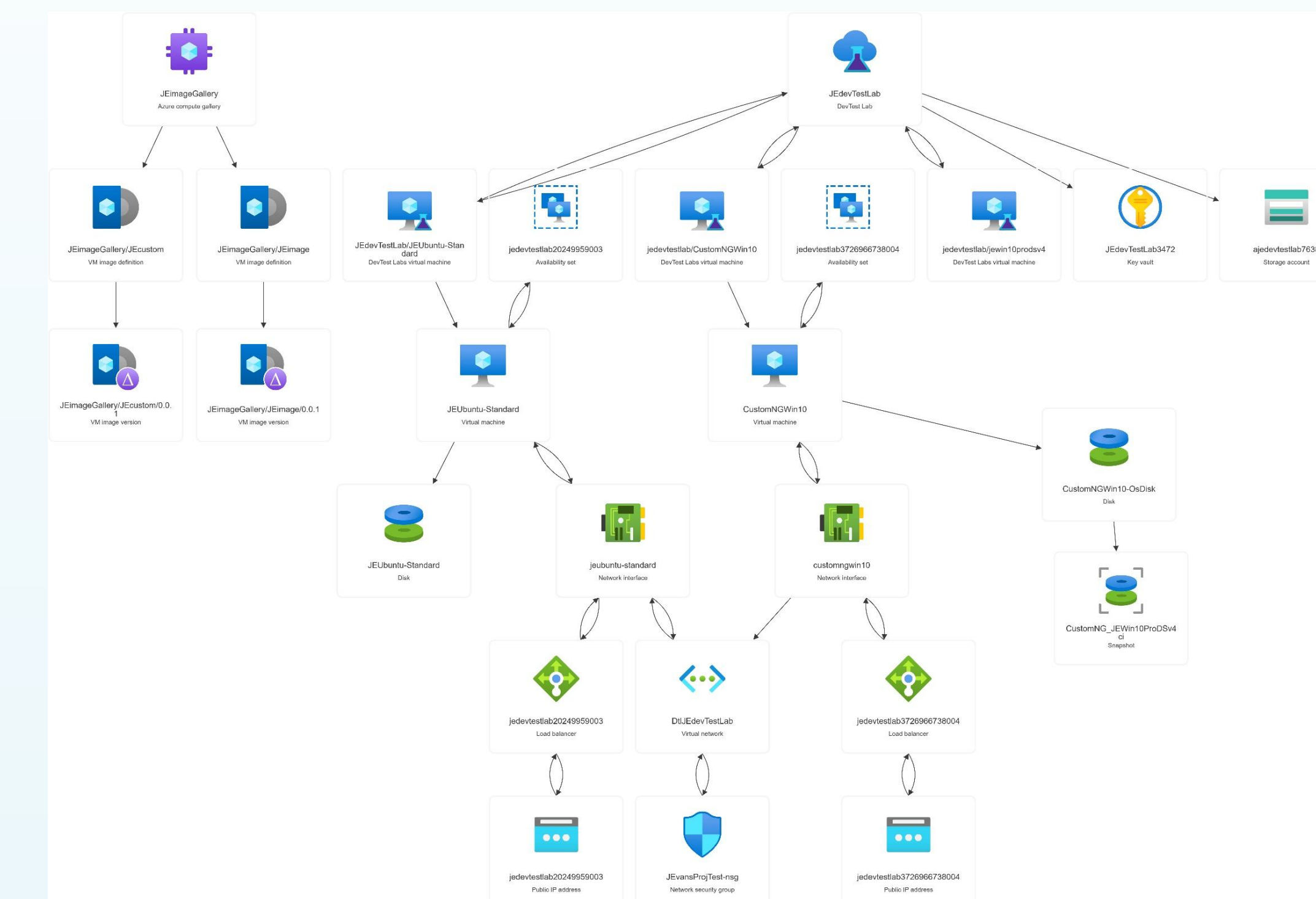


Figure 3. Logical overview of Azure resources.

Evaluation

Following the evaluation of the implementation of Azure DevTest Labs, whilst technically successful, limitations of the solution were identified, particularly surrounding cost management and usability for students. The lack of usage quotas and stop-start scheduling presents the risk of overspending on resources, due to the inability to limit uptime. Furthermore, the absence of a simplified web portal introduced usability issues for users unfamiliar with the Azure Portal.

Recommendations

Given the identified limitations of DevTest Labs, it is recommended that UWTSO consider evaluating third-party Azure partner lab platforms tailored specifically for educational use

Further research or testing of Azure partner platforms would be beneficial in providing a more comprehensive basis for long-term decision-making.

- [3] Microsoft, "Transition from Azure Lab Services to Azure DevTest Labs," Microsoft Learn. [Online]. Available: <https://learn.microsoft.com/en-us/azure/lab-services/transition-devtest-labs-guidance> (accessed Jul. 21, 2025).