



Waipapa  
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**University  
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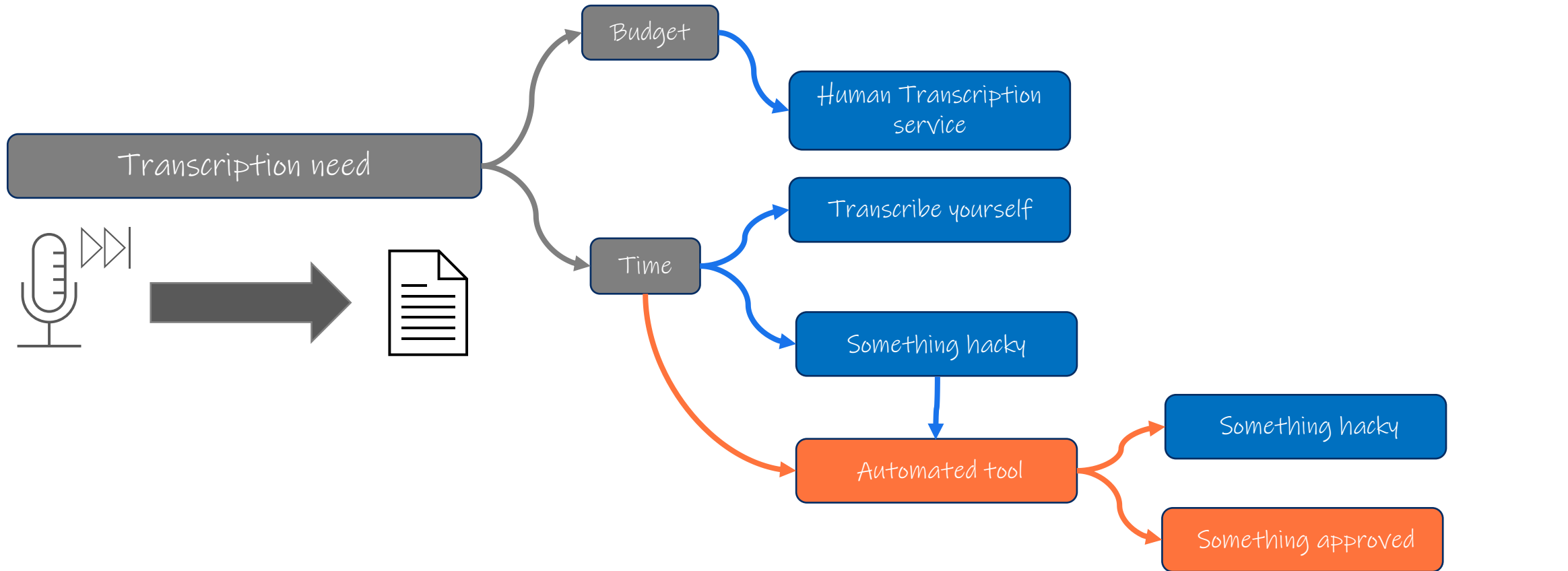
# **Using AI tools in a virtual desktop for transcription and translation**

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**Centre for eResearch**

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# Acknowledgement of Country

We acknowledge the Traditional Owners of the land on which we gather today, the **Turrbal** and **Jagera** peoples of Brisbane. We pay our respects to their Elders past and present, and recognise their enduring connection to land, waters, skies, and community.



Transcription Pilot using Nectar

1. Infrastructure - Nectar VDI (akl)
2. Model and Desktop - User experience
3. Hub information

# What was the need?

Need: simple, easy to use, useful to researchers, hosted locally, transient, using CPUs

# What are the options for researchers?

## LOCAL COMPUTER

*install on university  
computer*

- Whisper command line, tools like Vibe and Buzz
- Considers privacy concerns
- Limited by hardware

## VIRTUAL COMPUTE

*install on virtual machine  
(VM)*

- Set up Whisper model/tools on vm
- Access research tools in a familiar desktop environment remotely

## CLOUD SERVICE

*use approved  
services APIs/tools*

- Fast
- Different levels accuracy
- Costs
- Privacy consideration

# What we did:

How are our researchers using transcription?

## Interviews

### Use case 1: Health Professionals

- Accurate transcription of technical language
- Handheld recordings



### Use case 3: Industry

- NZ jargon and slang
- English
- Interviewees' approval of transcript required



## Sensitive Data

### Use case 2: Health Participants

- Focus groups
- Recognition of speakers as nice to have
- Māori, NZ English, Chinese, Spanish  
German, Arabic ...



### Use case 4: Education

- Poor Audio Quality
- Children/Students
- Māori, NZ English, Samoan, Chinese ...



## Zoom Recordings

# What we did:

## Evaluating transcription frontends

- Ease of use and having the right features are important.
- Compared three transcription tools – going with Buzz and Vibe. Also refining a custom frontend.

	Vibe	Buzz	aTrain
Models	Whisper.cpp	Whisper.cpp, Faster Whisper	Faster Whisper
Can queue up multiple recordings	No	Yes	No
Speaker labels (diarisation)	Yes	No	Yes
Notes	Newer versions are slow on CPU (45 mins for 5 min recording)		Requests citation from researcher using it

# What we did:

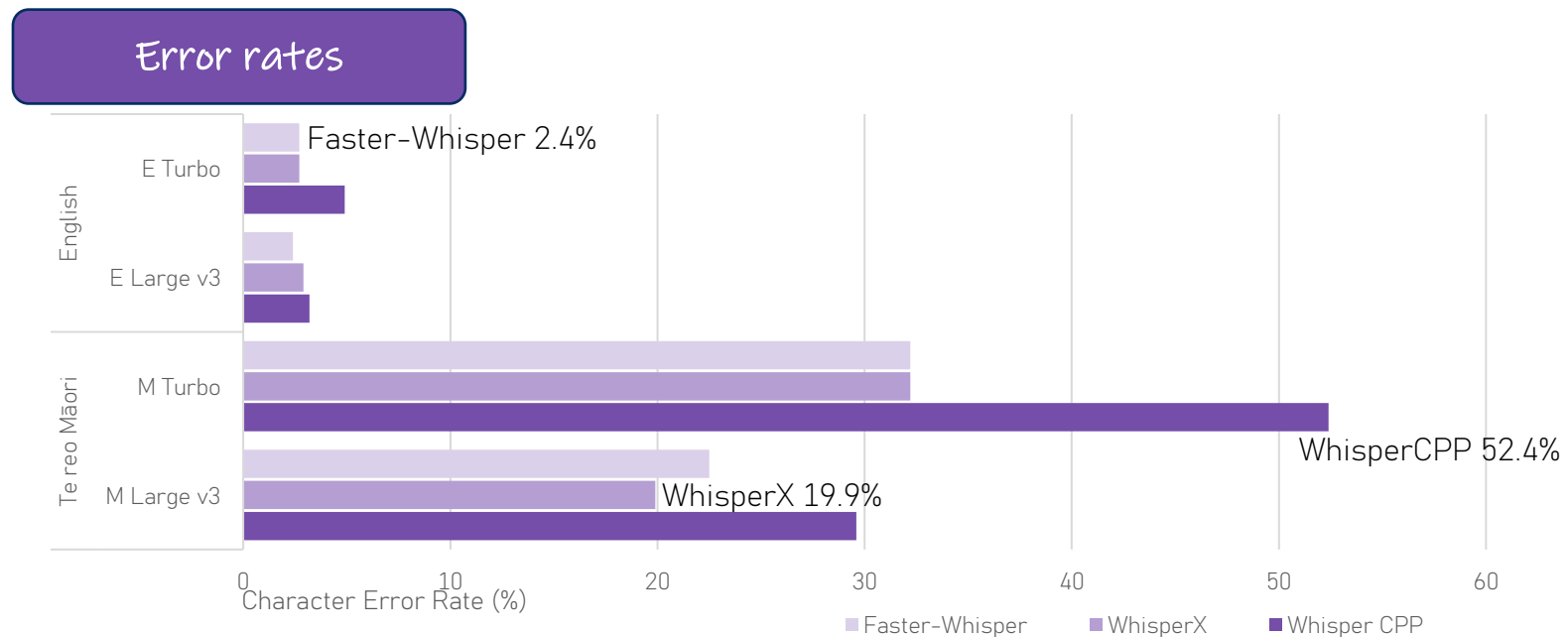
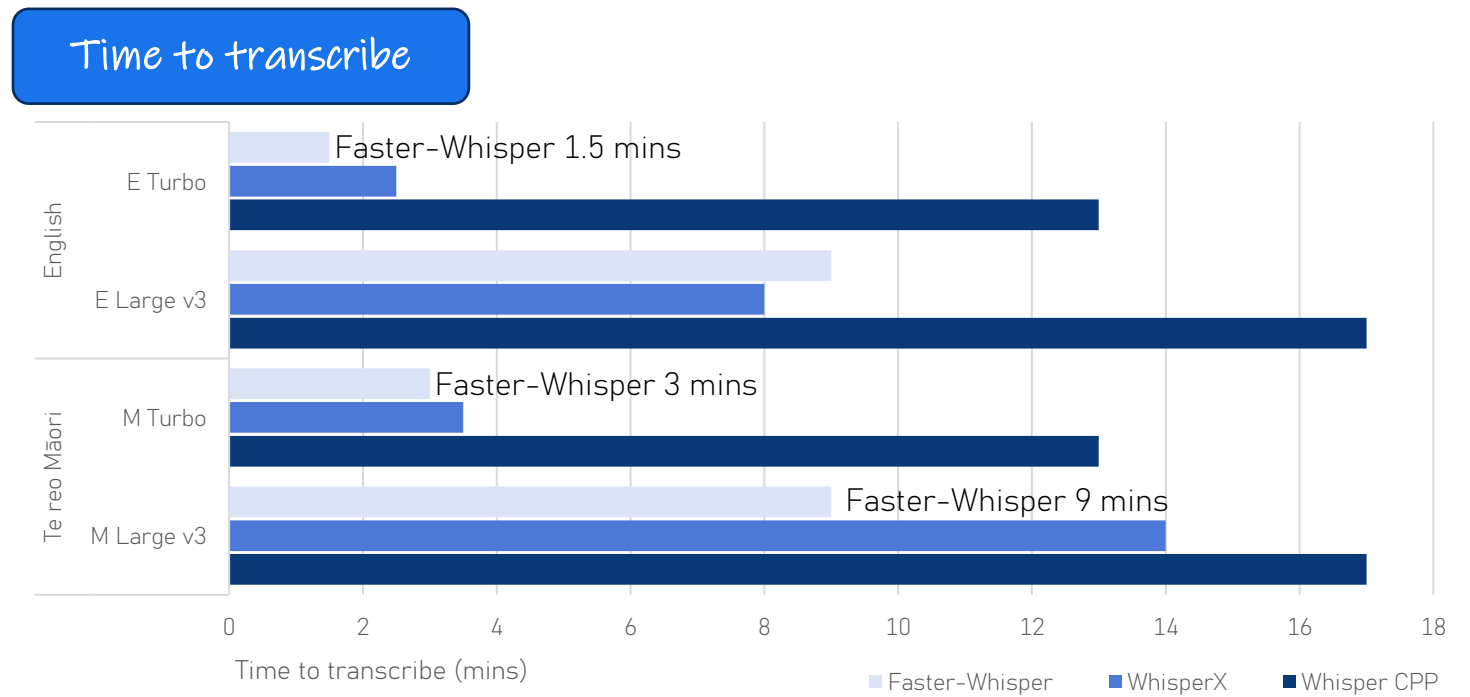
## Evaluating models

Tested 3 models, 2 sizes

Measured different factors including time to transcribe and character error rate (% of characters transcribed incorrectly by the model).

## Two audio files

- English (6 mins)
- Te Reo Māori (9 mins)









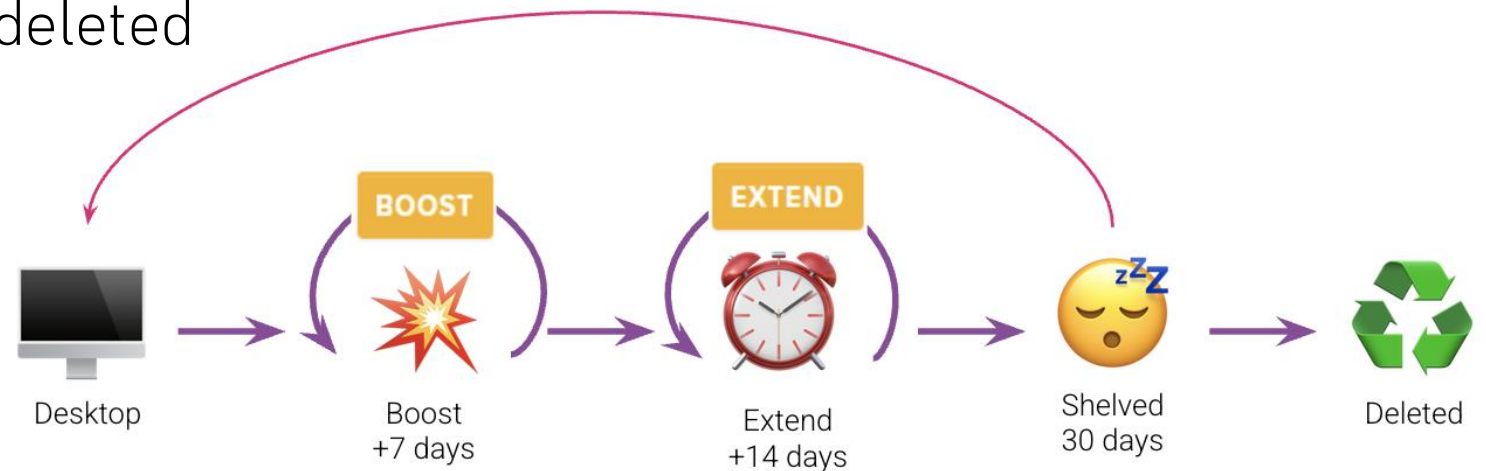
# What we did (together): TranscribeDesktop pilot

Built in Nectar's Virtual Desktop Service

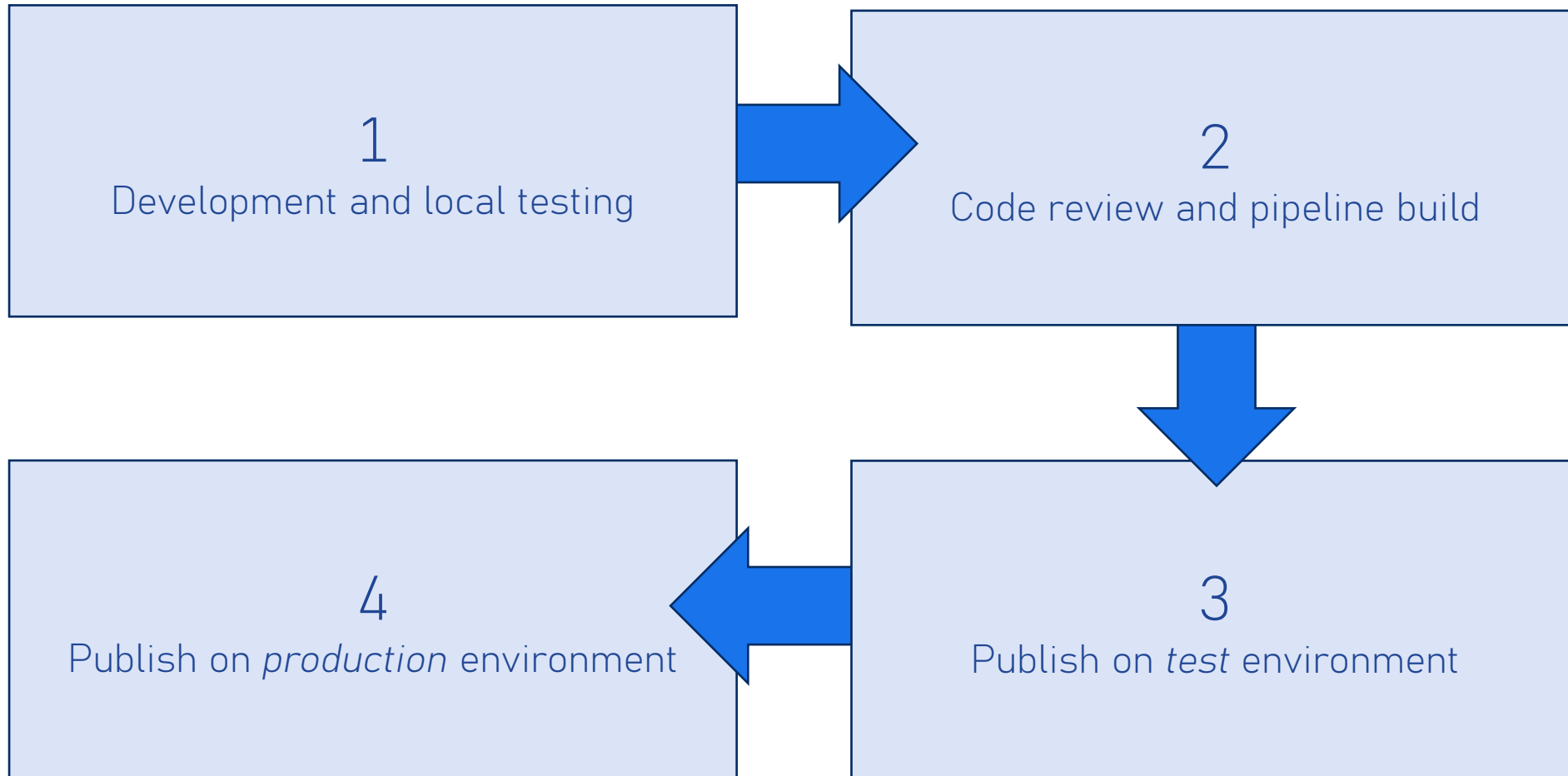
- a remote virtual machine accessible through your web browser.
- allows user to self-service launch a virtual desktop (locally).
- desktop instances are automatically shelved and deleted when it becomes inactive,

## Desktop Library

 <b>GeoDesktop</b> OPERATING SYSTEM GeoDesktop <a href="#">View Details &gt;</a>	 <b>ubuntu</b> OPERATING SYSTEM Ubuntu 22.04 (Jammy) <a href="#">View Details &gt;</a>	 <b>Neurodesktop</b> OPERATING SYSTEM Neurodesktop <a href="#">View Details &gt;</a>
 <b>Rocky Linux™</b> OPERATING SYSTEM Rocky 9 <a href="#">View Details &gt;</a>	 <b>TranscribeDesktop</b> OPERATING SYSTEM TranscribeDesktop (beta test) <a href="#">View Details &gt;</a>	 <b>ubuntu</b> OPERATING SYSTEM Ubuntu 20.04 (Focal) <a href="#">View Details &gt;</a>



# Nectar virtual desktop image creation workflow



# Workflow:

## 1 Development and local testing

1  
Development and  
local testing

- Test locally by building and launching a virtual machine using Vagrant.
- Virtual desktops are created with Ansible playbooks, which produce qcow2 images.
- Easy to reference and borrow from other virtual desktop playbooks.

The screenshot shows the ARDC Nectar Virtual Desktop Service Desktop Library. The page features a header with the ARDC Nectar logo, navigation links (Home, About, Help), and a contact email (noel.zeng@auckland.ac.nz). The main content area displays a grid of virtual desktop options, each with a logo, name, operating system details, and a 'View Details' link.

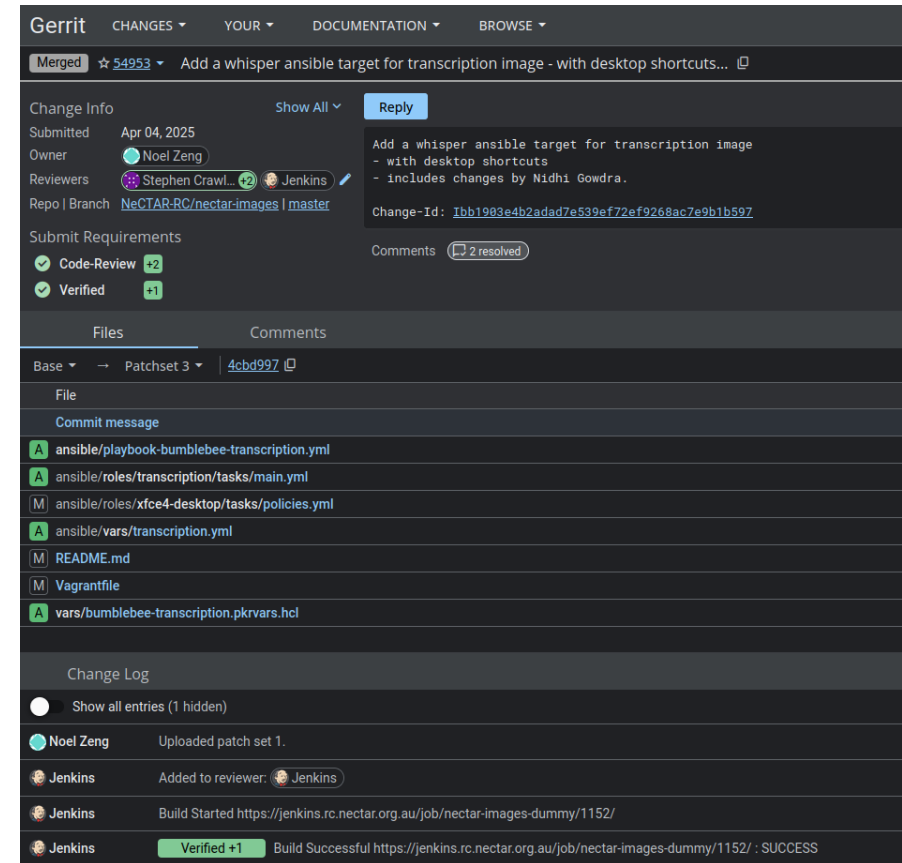
Desktop Name	Operating System
GeoDesktop	GeoDesktop
ubuntu	Ubuntu 22.04 (Jammy)
Neurodesktop	Neurodesktop
Rocky Linux™	Rocky 9
TranscribeDesktop	TranscribeDesktop (beta test)
ubuntu	Ubuntu 20.04 (Focal)
Windows Server 2022	Windows Server 2022 (beta)

# Workflow:

## 2 Code review and setting up pipeline

2  
Code review and  
pipeline build

- Gerrit code review by Nectar team.
- Jenkins pipeline set up to build and deploy the images once merged.
- Thanks to Stephen Crawley and Andy Botting for being responsive and making the process easy!



The screenshot displays the Gerrit web interface for a merged change. The change title is "Add a whisper ansible target for transcription image - with desktop shortcuts...". The change is submitted by Noel Zeng on April 04, 2025. Reviewers include Stephen Crawley (with a +2 score) and Jenkins (with a +1 score). The change requirements are "Code-Review +2" and "Verified +1". The change log shows the following entries:

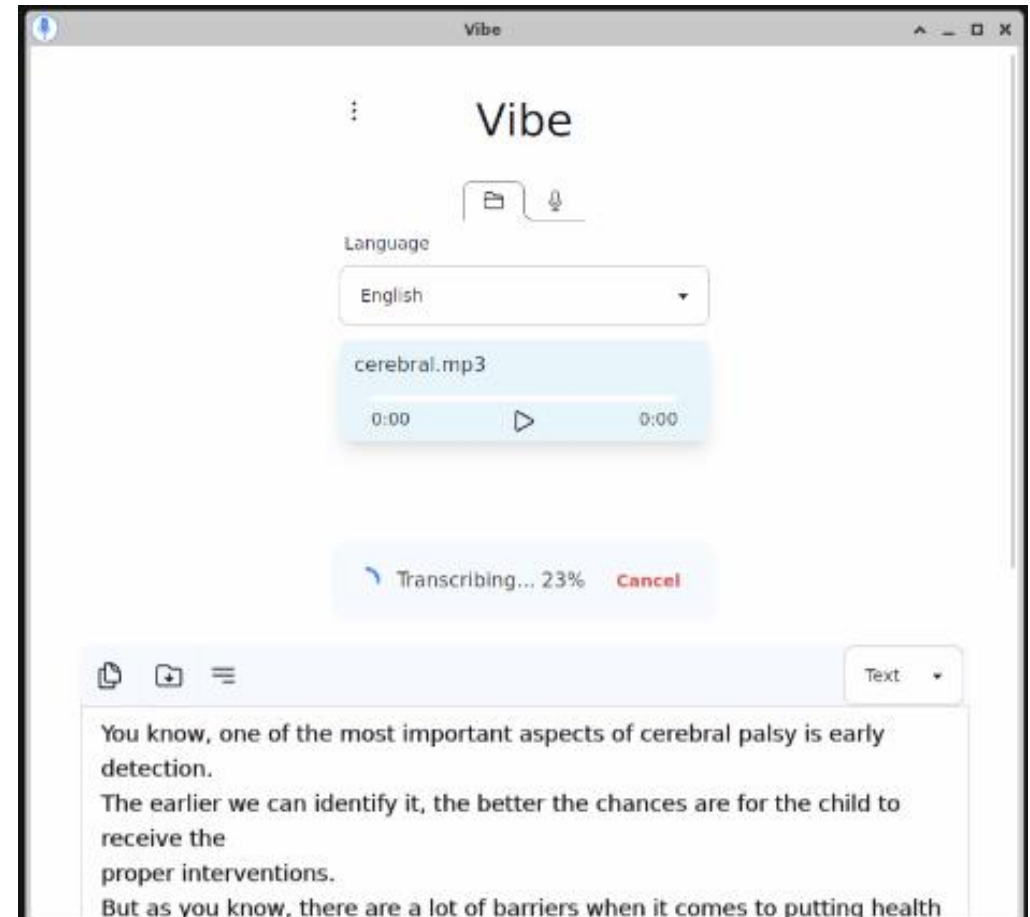
- Noel Zeng: Uploaded patch set 1.
- Jenkins: Added to reviewer: Jenkins
- Jenkins: Build Started https://jenkins.rc.nectar.org.au/job/nectar-images-dummy/1152/
- Jenkins: Build Successful https://jenkins.rc.nectar.org.au/job/nectar-images-dummy/1152/ : SUCCESS

# Workflow:

## 3 Publish test environment

3  
Publish on test

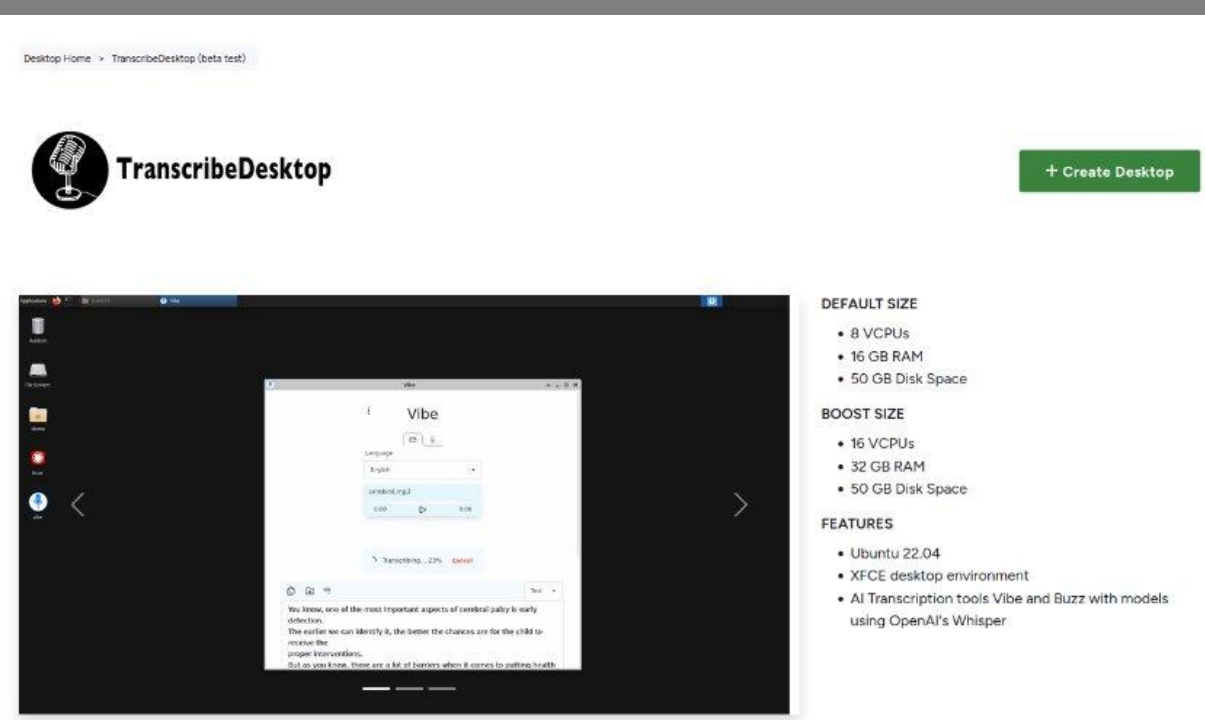
- In the test environment, you can launch the desktop on Nectar compute. Suitable for performance and user testing.
- Opportunity to finalise description and graphics.
- Check user documentation and screenshots for the virtual desktop.



# Workflow: 4 Move to production

4  
Publish on prod

- Once satisfied with the virtual desktop image, worked with Nectar team to publish it on production.
- Transcription desktop available across wider Nectar.
- 70 instances of transcription virtual desktop launched since move to production.

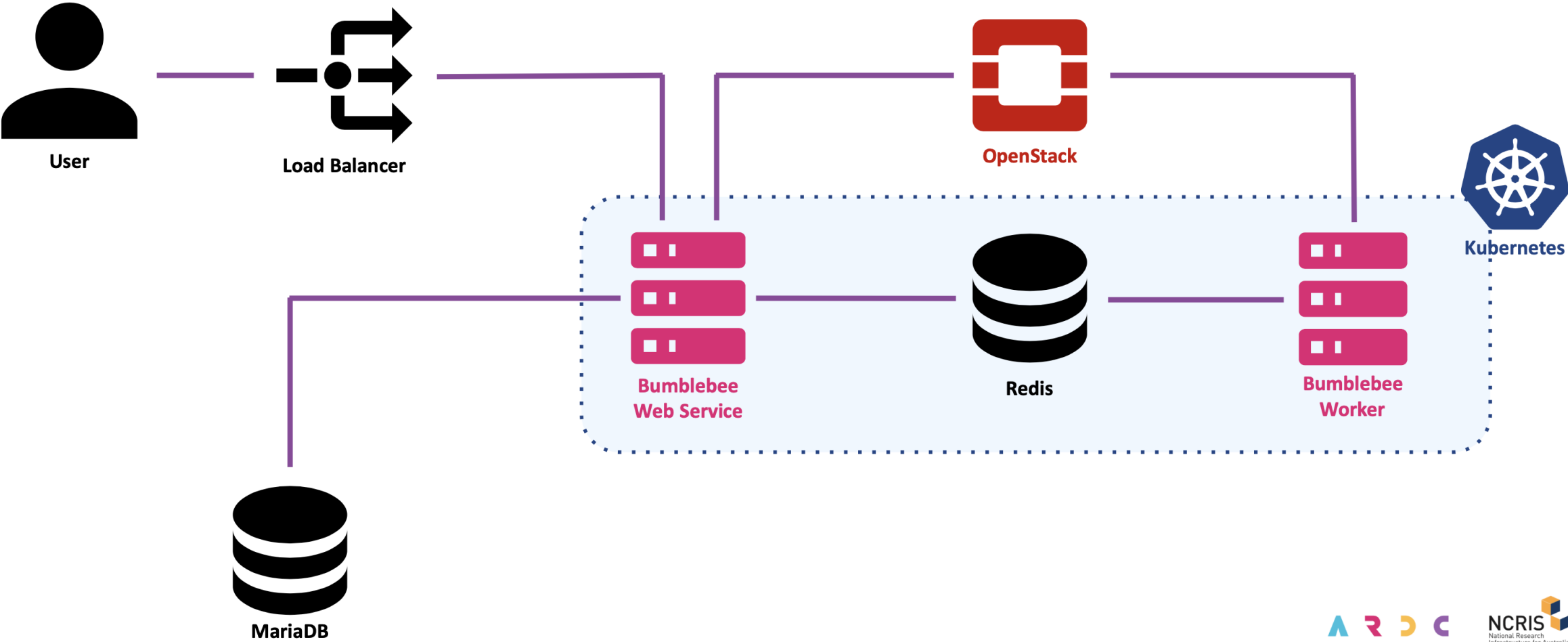


The screenshot displays the TranscribeDesktop interface. At the top left is the 'TranscribeDesktop' logo, which includes a microphone icon. To the right of the logo is a green button labeled '+ Create Desktop'. Below the logo is a preview of a virtual desktop environment. This environment shows a window titled 'Vibe' with a language selection dropdown set to 'English', a 'Transcribing... 23%' progress indicator, and a terminal window displaying a transcription of audio text. The desktop background is dark, and there are navigation arrows on either side of the preview. To the right of the preview, there are three sections: 'DEFAULT SIZE' (8 VCPUs, 16 GB RAM, 50 GB Disk Space), 'BOOST SIZE' (16 VCPUs, 32 GB RAM, 50 GB Disk Space), and 'FEATURES' (Ubuntu 22.04, XFCE desktop environment, AI Transcription tools Vibe and Buzz with models using OpenAI's Whisper).

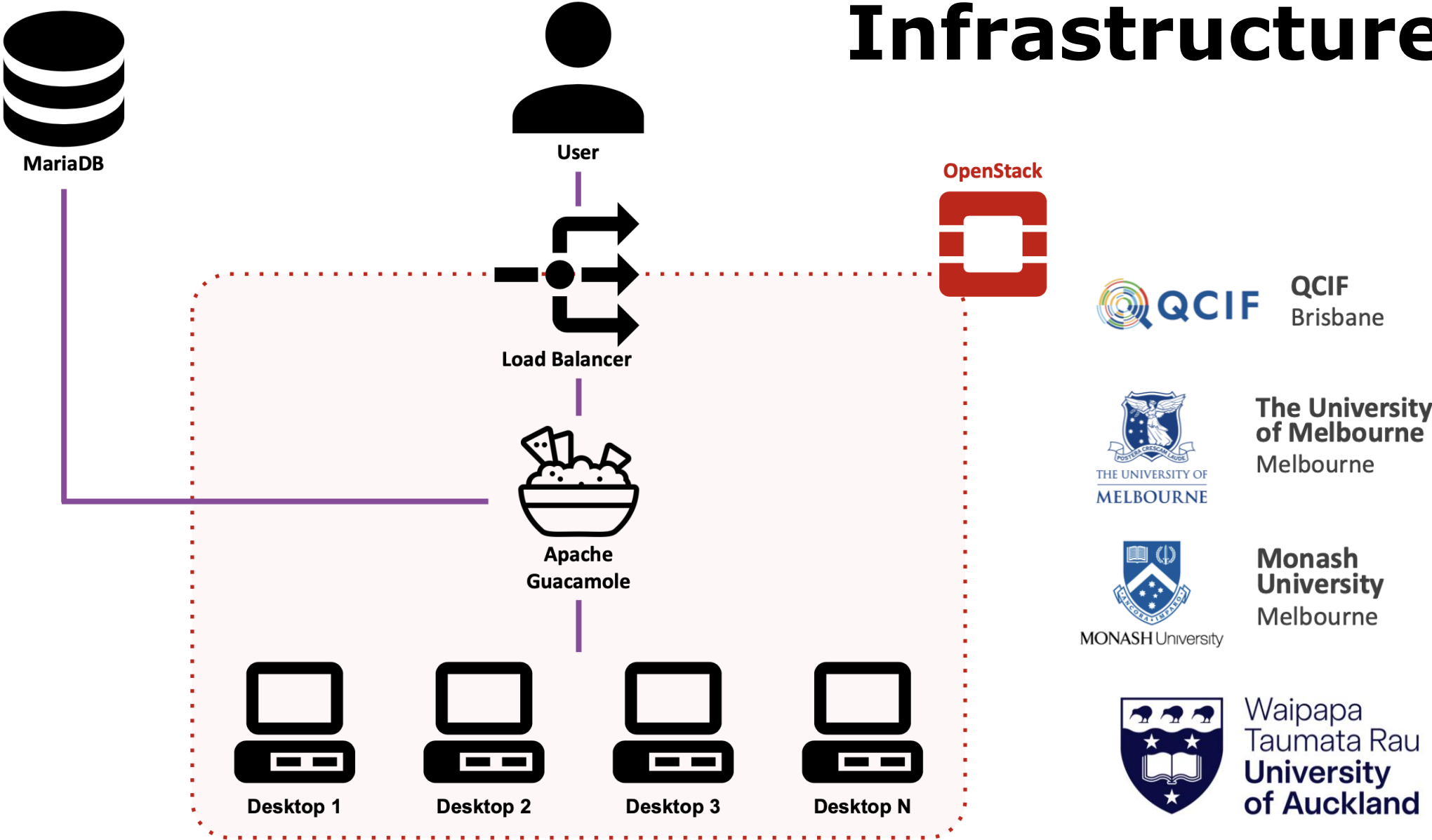
TranscribeDesktop is our customised desktop environment enabling researchers to transcribe audio recordings using AI tools locally on the virtual desktop.

We've included a suite of useful tools and applications, and we'll be adding more as requested by users to ensure it becomes a valuable resource for AI transcription.

# Infrastructure

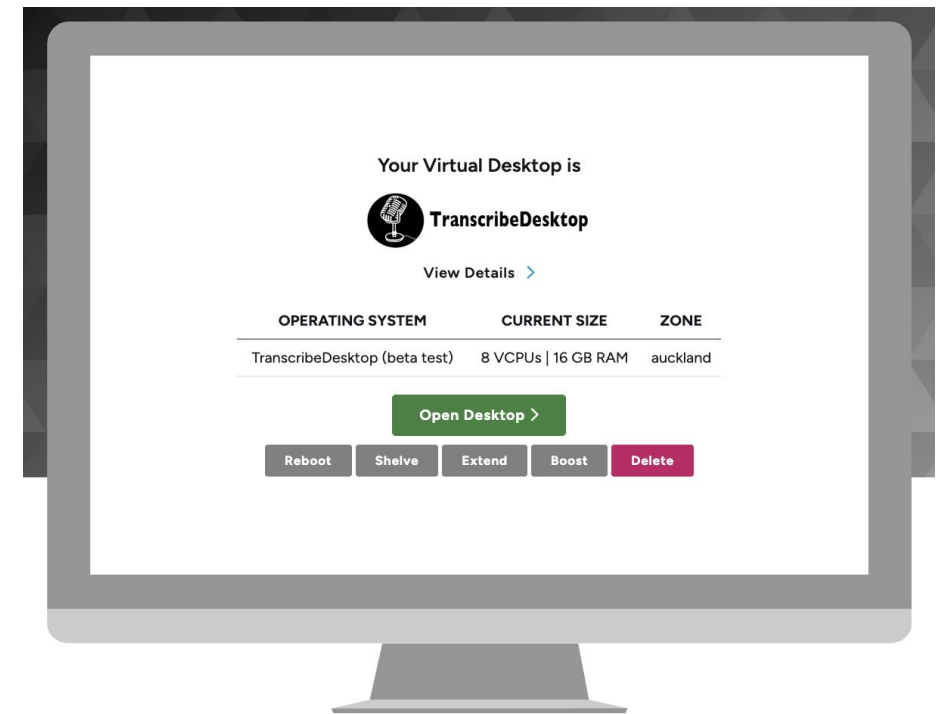


# Infrastructure



# Infrastructure

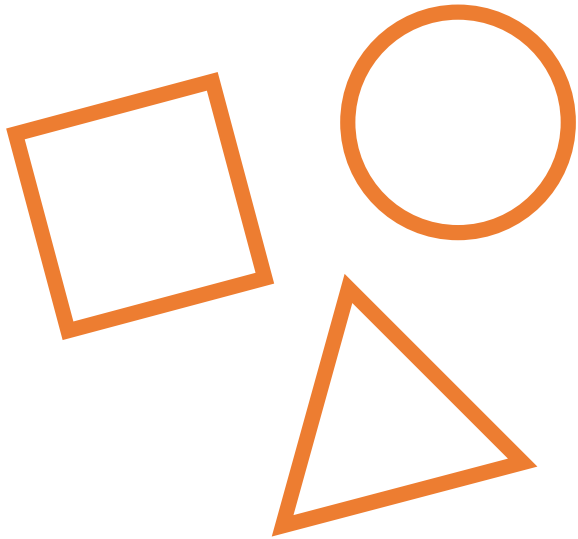
- Nectar Bumblebee/VDS: just a fancy launcher
- More secure, more isolated, shorter life
- Default geographical affinity for AZ
- GPU-backed Whisper possible, planned for early 2026
- Can use today by any eligible Nectar user, launch in either Australia or New Zealand zones. No approval required.
- <https://desktop.rc.nectar.org.au/home/>



# What we've learnt

Creating a virtual desktop = taking on application support.  
This includes:

- understanding application behaviour in the virtual desktop environment (Vibe).
- reproducibility for installation steps.
- developing user documentation, and support for user queries
- considering pre-configurations/downloads e.g. speech recognition models.
- periodic updates





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# Questions?

## Contact us

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 [s.matheny@auckland.ac.nz](mailto:s.matheny@auckland.ac.nz)

**Thank you**