

ORACLE®



*“Science in a time of ultra-high resolution: storing it all so you can explore it all”*

**Use Case: Queensland Brain Institute depends on data in the search for a cure for Alzheimer's Disease**

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**ORACLE®**



THE UNIVERSITY  
OF QUEENSLAND  
AUSTRALIA

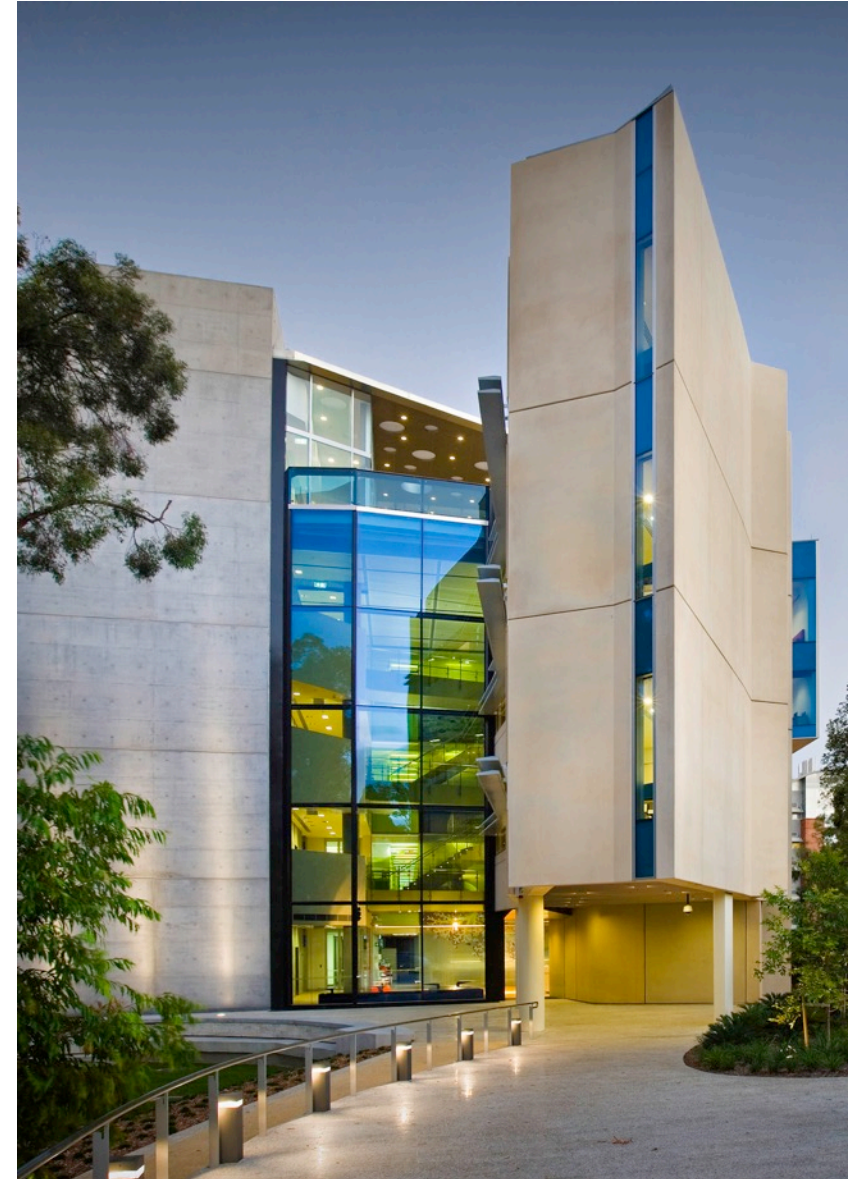
**qbi**

queensland brain institute



# Queensland Brain Institute

- When and who
  - Established in 2003
  - More than 450 Scientists
  - Over 42 Lab Leaders
- Research advances
  - Understand the brain function
  - Treatments of disorders of the brain function
  - Fundamental Neuroscience in
    - Ageing Dementia
    - Schizophrenia
    - Motor Neurone Disease



# Queensland Brain Institute Accomplishments

- Successes
  - Over 1200 papers published
  - Over \$110 million in competitive grant funding
  - Earned the highest possible score for neuroscience in Excellence in Research for Australia in 2010, 2012 and 2015
- Discovered Alzheimer's break through
  - Non-invasive ultrasound technology
  - Treat AND restore brain function





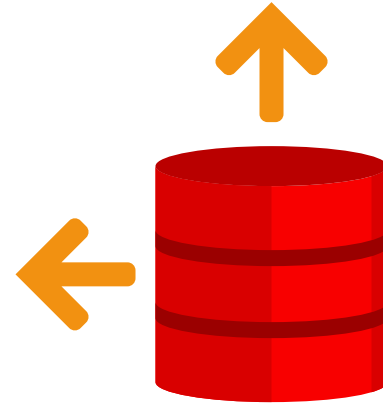


# QBI Workflow and Requirements

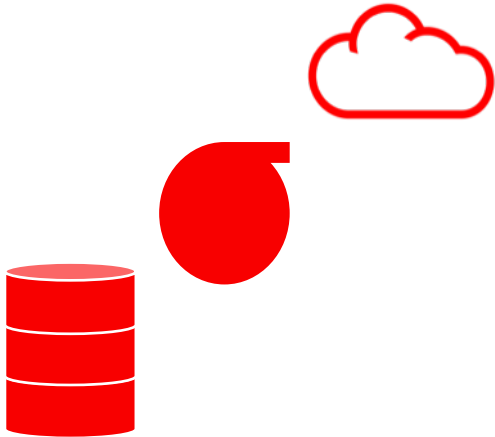
# “REAL” User Requirements



Available



Searchable



Endless  
Capacity



Safe

# Physical Capacity and Performance Requirements

**3.45**

Billion Files

**> 9 PB**

Actual Data

**180 TB**

Ingest Per Day

**> 800** Users

**> 110**

VMs and Bare Metal Servers Access

**80**

Node HPC Cluster Access



“If you lost the data, you lost the game. If you can’t store it all, you can’t *explore* it all”

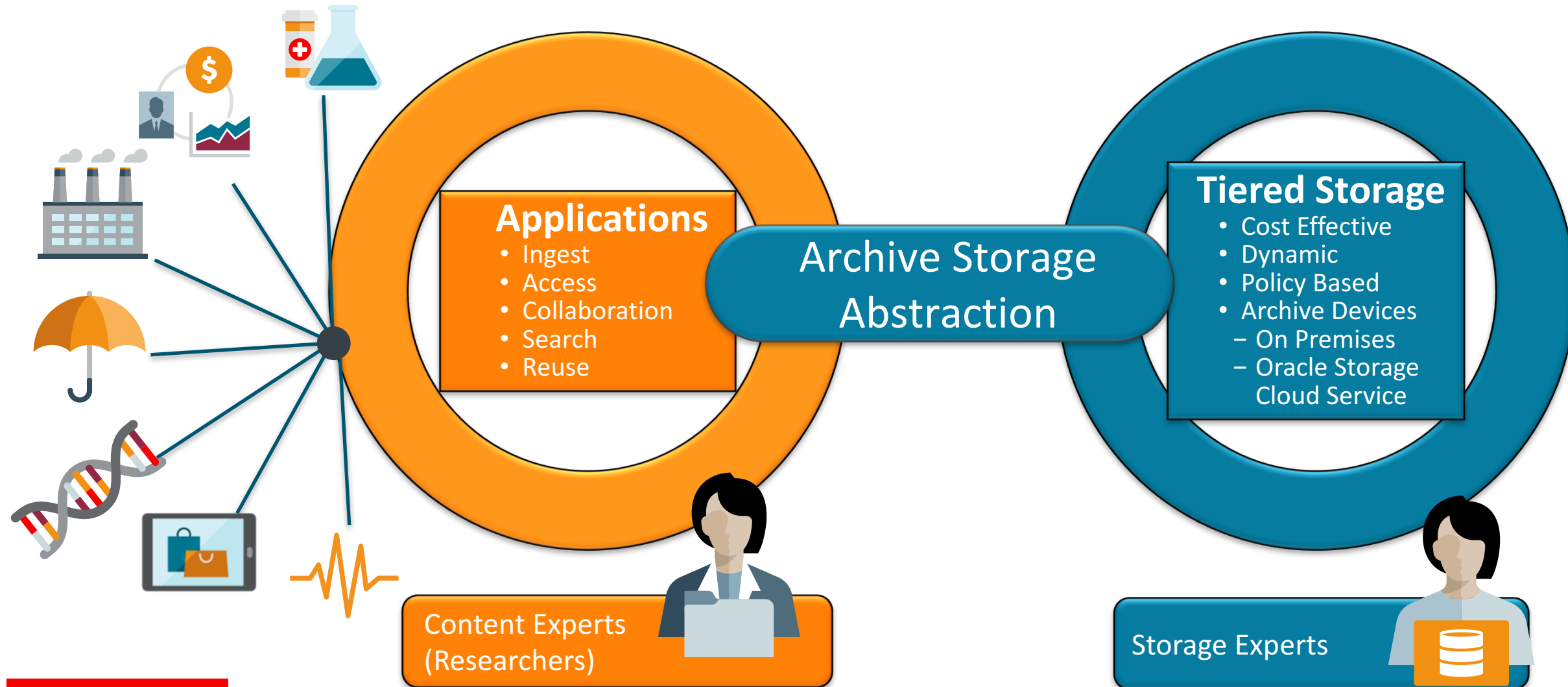
— Jake Carroll, Senior ICT Manager, Research  
The Queensland Brain Institute, UQ, Australia



# Architecture

# Abstract the Storage from the Application

Dynamic access to 100 percent of content



# QBI Architecture

Researchers



Data In



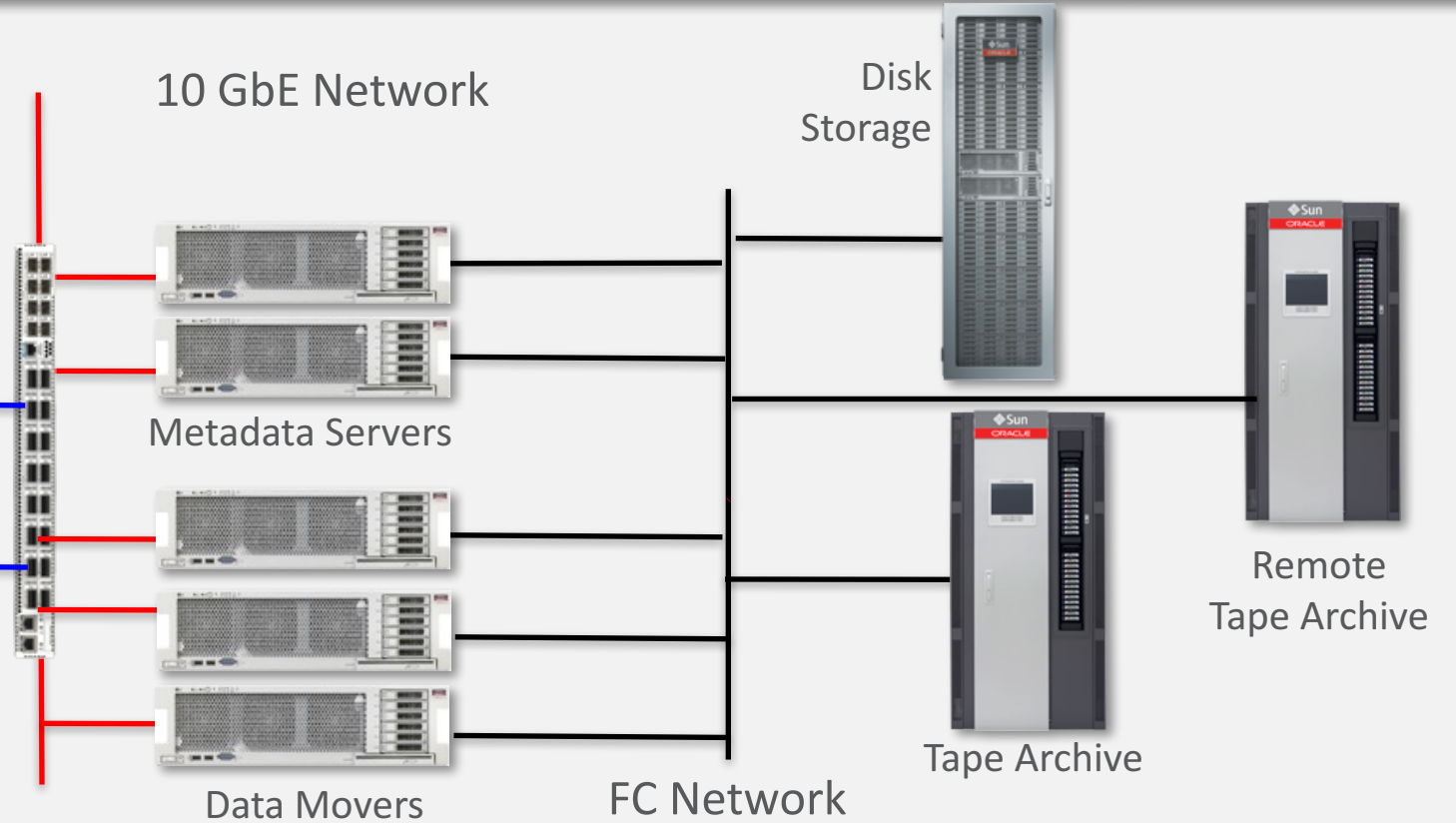
Results Out

Researcher  
and  
Application  
Servers

NFS Client

CIFS Client

Jake's World is the Abstraction and Storage Layer





A male scientist in a white lab coat, safety glasses, and blue gloves is using a pipette to transfer liquid into a multi-well plate. In the background, another scientist is visible, also in a lab coat and safety glasses, working with a large piece of equipment. A computer monitor in the foreground displays a graph with multiple curves. The overall scene is a laboratory environment.

# Why Tiered Storage



# Tiered Storage?



Tiered storage architectures ensure assets are on the **right storage at the right time at the right cost in the right location**



“Sometimes you get one shot at an experiment. It might be worth 10’s if not 100’s of thousands of dollars. You want every byte. All the resolution. Compromising on your ability to store compromises your ability to **discover** and **rediscover**”

— Jake Carroll, Senior ICT Manager, Research  
The Queensland Brain Institute, UQ, Australia

# Safe Harbor Statement

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# Integrated Cloud

## Applications & Platform Services



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