

# Introduction to Yale Spinup and Cloud Computing

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Yale

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Laboratory

# Key Traits of Cloud Computing<sup>1</sup>

- Self-provisioning
- Shared
- Elastic/Ephemeral
- Accessible
- Metered

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1. Peter Mell; Timothy Grance (September 2011). The NIST Definition of Cloud Computing (Technical report). National Institute of Standards and Technology: U.S. Department of Commerce.

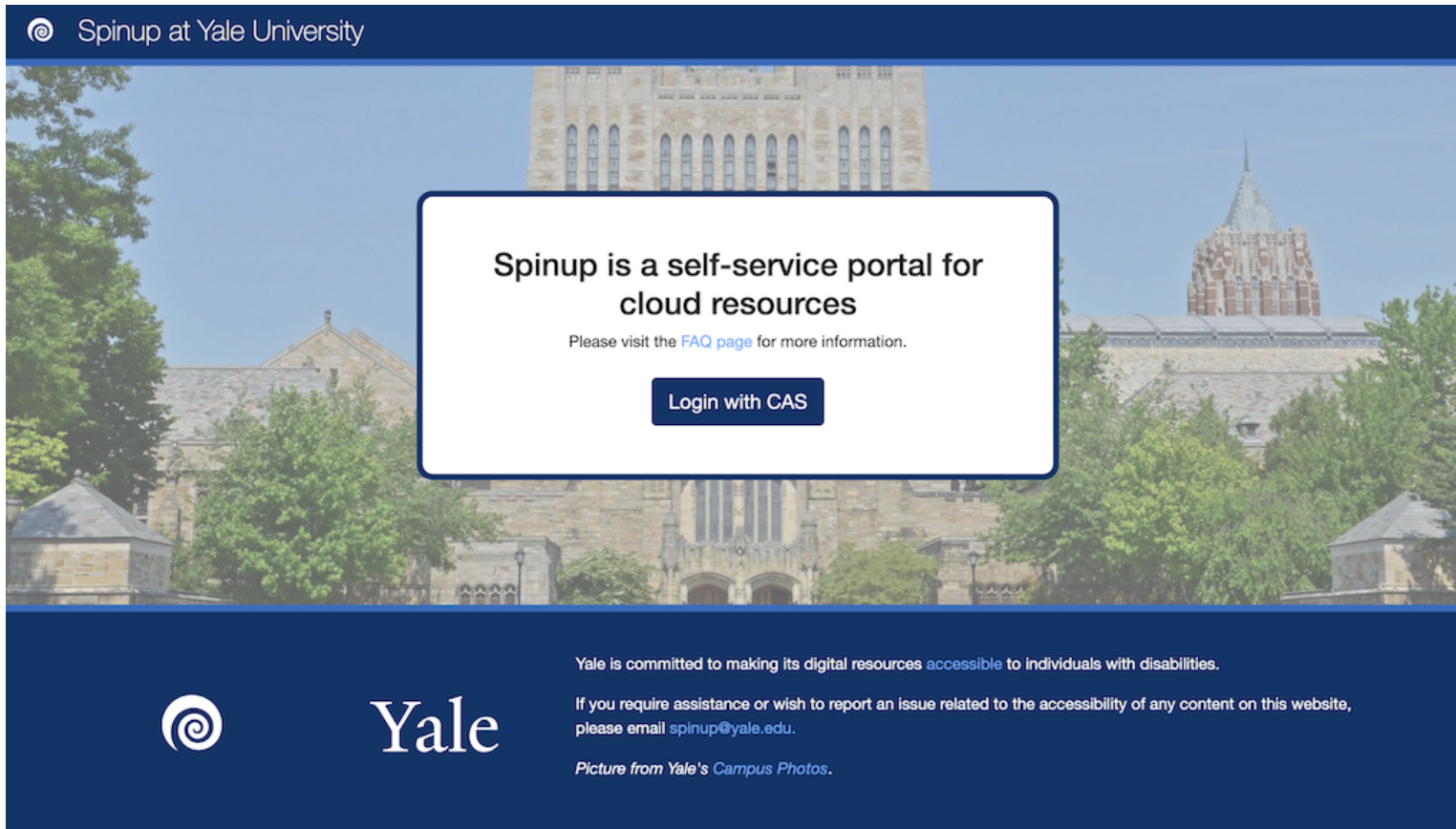
# Implementation

- Identity and role-based access controls
- Policy
- Automated provisioning and configuration of workloads
- Wide area networks
- Service instrumentation

# Yale Spinup

- Application layer over a shared AWS account
- Yale governance
  - CAS/Shibboleth identity
  - Enterprise and business agreement with Amazon
  - Automated creation and configuration adhering to institutional standards
  - Shared responsibility
- Enables self-service

# Demonstration Spinup Web Application



# Infrastructure as a Service (IaaS): Server Instances

- Virtual servers hosted in Amazon EC2
- Cost directly proportional to provisioned resource
- Only charged for uptime and storage
- Regular snapshots

# Demonstration: Spinup EC2 Instances

# Platform as a Service (PaaS): Databases

- Provisioned to clustered database environment or to a fully managed instance
- Backups fully managed
- No need for patching
- Support for common databases



# Demonstration: Spinup Database Services

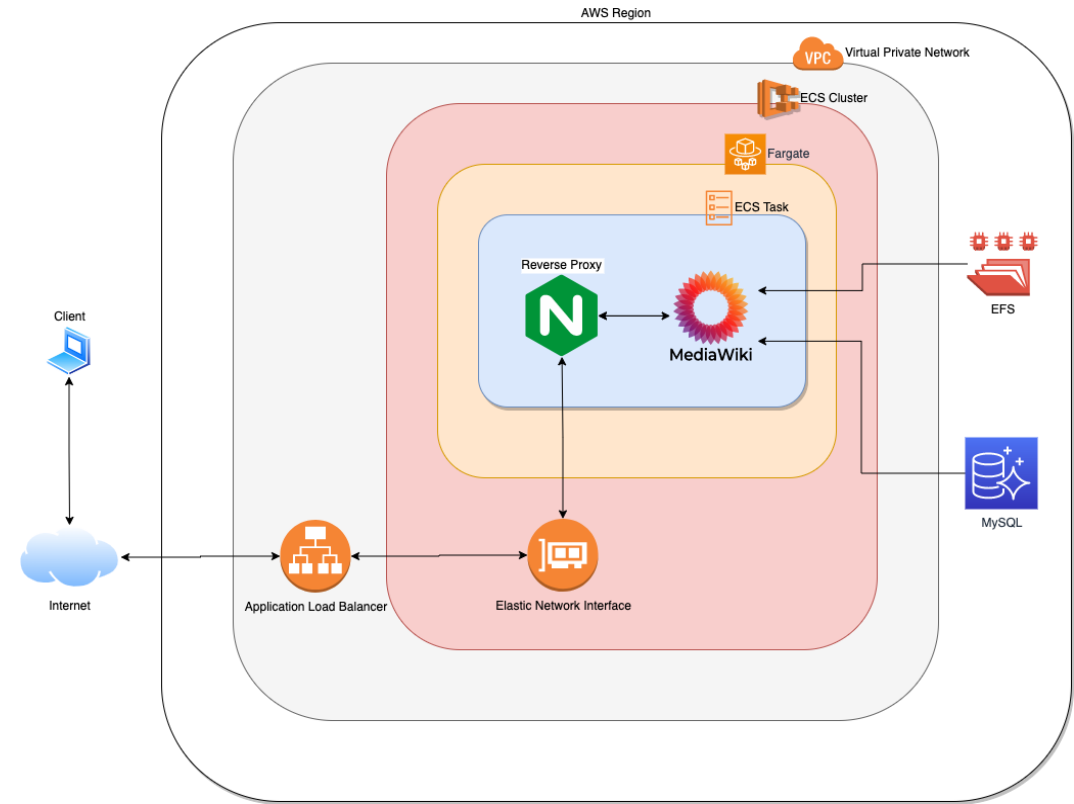
# Storage

- S3 object storage
- NFS volumes through Amazon Elastic File System (EFS)
- Static websites

# Demonstration: Spinup Storage Services

# Containers

- Isolation of application from host
- All dependencies encapsulated
- Achieve greater density and utilization
- Drawbacks
  - Complicated infrastructure
  - Orchestration of interrelated services
  - Stateless



# Demonstration: Spinup Container Services

# Conclusion

- Constitutes an ideal environment to learn cloud computing.
- Provides convenient and secured access to the AWS cloud.
- Provides a stepping-off point for the other clouds that Yale offers

# Resources

- [Yale Spinup Selfservice FAQ](#)
- **#spinup** channel in [Yale University Slack](#)