RH OVE Project Plan Documentation

Red Hat OpenShift Virtualization Ecosystem Team

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# Project Plan

## Rh Ove Ecosystem Project Plan

### RH OVE Ecosystem Project Plan

#### Executive Summary

This document outlines a comprehensive project plan for implementing the Red Hat OpenShift Virtualization Engine (RH OVE) Multi-Cluster Ecosystem. The project is divided into three strategic sub-projects, each focusing on specific aspects of the ecosystem implementation and operation.

#### Project Structure Overview

The RH OVE Ecosystem implementation is organized into three complementary sub-projects:

1. **RH OVE Infrastructure Project** - Core platform setup and operations
2. **Use-Cases Implementation Project** - Application scenarios and demonstrations
3. **Migration Workload from VMware Project** - Legacy workload migration

#### Sub-Project 1: RH OVE Infrastructure Project

##### Scope

Focus on the complete lifecycle of infrastructure setup and operations, including study, High-Level Design (HLD), Low-Level Design (LLD), implementation, testing, and Day-2 operations for the core RH OVE multi-cluster infrastructure components.

##### Documentation Areas Covered

* **Architecture**:
	+ Global Overview (global-overview.md)
	+ Single Cluster Overview (overview.md)
	+ Design Principles (design-principles.md)
	+ Network Architecture (network.md)
	+ Storage Architecture (storage.md)
	+ IAM Strategy (iam.md)
* **Architecture Decision Records (ADRs)**:
	+ Multi-cluster patterns
	+ GitOps with ArgoCD
	+ Cluster topology
	+ Admission control strategies
	+ Network CNI implementation
	+ Backup strategies
	+ Monitoring approaches
	+ IAM implementation
* **Deployment**:
	+ Prerequisites (prerequisites.md)
	+ Installation procedures (installation.md)
	+ Configuration management (configuration.md)
* **Management**:
	+ Admission control (admission-control.md)
	+ GitOps operations (gitops.md)
	+ Monitoring systems (monitoring.md)
	+ Backup and recovery (backup.md)
* **Operations**:
	+ Day-2 operations (day2-ops.md)
	+ Troubleshooting procedures (troubleshooting.md)
	+ Performance tuning (performance.md)

##### Work Phases

1. **Study Phase**: Detailed understanding of RH OVE architecture and components
2. **Design Phase**: Create and validate HLD and LLD documents
3. **Implementation Phase**: Deploy infrastructure components following established practices
4. **Testing Phase**: Verify infrastructure robustness, security, and performance
5. **Day-2 Operations Phase**: Establish ongoing monitoring, troubleshooting, and tuning

##### Required Personas

* **Infrastructure Architect**: Designs overall infrastructure architecture and integration patterns
* **DevOps Engineer**: Implements automation, CI/CD pipelines, and GitOps workflows
* **System Administrator**: Manages day-to-day operations, monitoring, and maintenance
* **Security Engineer**: Ensures security compliance and implements security controls
* **Network Engineer**: Designs and implements network architecture and policies

#### Sub-Project 2: Use-Cases Implementation Project

##### Scope

Study, design, implement, test, and operate comprehensive use-cases demonstrating RH OVE capabilities for applications and services. Each use-case highlights unique features and integrations within RH OVE, showcasing multi-cluster deployment benefits.

##### Documentation Areas Covered

* **Use Cases Overview**: Comprehensive introduction to all use-cases, relevance, and expected outcomes
* **VM Lifecycle Management**:
	+ VM Import & Migration (vm-importation.md)
	+ VM Template Management (vm-template-management.md)
	+ VM Scaling & Performance (vm-scaling-performance.md)
	+ VM Backup & Recovery (vm-backup-recovery.md)
* **Application Deployment**:
	+ Hybrid Applications (hybrid-applications.md) - Integration of legacy VMs, containers, and microservices
	+ Multi-Environment Setup (setup-multi-env-application.md) - Dev, staging, and production environments
* **PaaS Integration**:
	+ Database Services (database-services-paas.md) - Multi-cloud deployment with automated backups
* **Enterprise Integration**:
	+ Legacy Modernization (legacy-modernization.md) - Containerization and orchestration strategies
	+ Disaster Recovery (disaster-recovery.md) - Comprehensive DR plans and procedures
* **Summary Table**:
	+ Use-Cases Summary (use-cases-table.md) - Provides an overview of all use-cases
* **Observability**:
	+ End-to-End Observability (end-to-end-observability.md) - Monitoring, tracing, and logging
* **Security**:
	+ WAF 026 Firewalling (waf-firewalling.md) - Security controls and compliance
* **Integration**:
	+ Events to CMDB/SIEM (publishing-events-to-cmdb-siem.md) - Enterprise integration patterns
* **References**: Best practices and glossary

##### Work Phases

1. **Study Phase**: Gather requirements and analyze use-case scenarios specific to organizational goals
2. **Design Phase**: Develop HLD and LLD for each use-case, ensuring alignment with strategic objectives
3. **Implementation Phase**: Configure infrastructure and deploy components, including pipelines
4. **Testing Phase**: Perform functional and integration testing against business requirements
5. **Day-2 Operations Phase**: Create runbooks and SOPs for ongoing support and improvement

##### Required Personas

* **Solution Architect**: Designs use-case architecture and ensures business alignment
* **Application Developer**: Implements code and configuration changes for each use-case
* **Testing Specialist**: Conducts rigorous testing to validate functionality
* **DevOps Engineer**: Automates deployment and integration processes
* **Security Specialist**: Ensures compliance and security measures
* **Business Analyst**: Defines requirements and validates business outcomes

#### Sub-Project 3: Migration Workload from VMware Project

##### Scope

Plan and execute migration of workloads from VMware environments to RH OVE, including study of current workloads, design of migration strategy, implementation, testing, and operation of migrated workloads.

##### Documentation Areas Covered

* **VM Lifecycle Specific Documentation**:
	+ VM importation procedures and best practices
	+ VM template management and standardization
	+ VM scaling and performance optimization
	+ VM backup and recovery strategies
* **Migration-Specific ADRs**:
	+ Migration strategy decisions
	+ Compatibility and interoperability considerations
	+ Performance and resource optimization
* **Migration Planning**:
	+ Assessment and inventory procedures
	+ Migration waves and prioritization
	+ Risk mitigation strategies
	+ Rollback procedures

##### Work Phases

1. **Study Phase**: Inventory and analyze existing VMware workloads and requirements
2. **Design Phase**: Create migration strategies with comprehensive HLD and LLD documentation
3. **Implementation Phase**: Execute migration workflows, import VMs, configure templates
4. **Testing Phase**: Validate workload functionality and performance post-migration
5. **Day-2 Operations Phase**: Develop monitoring, backup, and disaster recovery procedures

##### Required Personas

* **Migration Specialist**: Leads migration strategy and execution
* **VMware Administrator**: Provides expertise on source environment
* **RH OVE Engineer**: Implements target environment configurations
* **Application Owner**: Validates business functionality post-migration
* **Performance Engineer**: Ensures performance requirements are met
* **Backup Administrator**: Implements backup and recovery procedures

#### Project Dependencies and Integration Points

##### Inter-Project Dependencies

1. **Infrastructure → Use-Cases**: Core infrastructure must be operational before use-case implementation
2. **Infrastructure → Migration**: Target infrastructure must be ready before migration activities
3. **Use-Cases ↔ Migration**: Some use-cases may serve as migration validation scenarios

##### Shared Resources

* **Documentation Standards**: Common templates and style guides
* **Testing Framework**: Shared testing methodologies and tools
* **Monitoring and Observability**: Common monitoring stack across all projects
* **Security Policies**: Unified security standards and compliance requirements

#### Success Criteria

##### Sub-Project 1: Infrastructure

* ✅ Multi-cluster RH OVE environment deployed and operational
* ✅ All ADRs implemented and validated
* ✅ Monitoring and alerting systems operational
* ✅ Backup and disaster recovery procedures tested
* ✅ Day-2 operations runbooks completed and validated

##### Sub-Project 2: Use-Cases

* ✅ All documented use-cases successfully implemented
* ✅ Use-cases demonstrate business value and ROI
* ✅ Integration patterns validated and documented
* ✅ Performance benchmarks established
* ✅ Operational procedures for each use-case documented

##### Sub-Project 3: Migration

* ✅ VMware workload inventory completed
* ✅ Migration strategy validated through pilot migrations
* ✅ Production workloads successfully migrated
* ✅ Performance parity or improvement achieved
* ✅ Decommissioning of legacy VMware infrastructure completed

#### Risk Mitigation

##### Technical Risks

* **Complexity Management**: Break down into smaller, manageable phases
* **Integration Challenges**: Early validation of integration points
* **Performance Issues**: Establish baseline metrics and continuous monitoring

##### Operational Risks

* **Skill Gaps**: Training and knowledge transfer programs
* **Resource Constraints**: Phased approach with clear prioritization
* **Change Management**: Stakeholder alignment and communication plan

##### Business Risks

* **Timeline Delays**: Buffer time and parallel execution where possible
* **Budget Overruns**: Regular cost monitoring and optimization
* **Business Continuity**: Comprehensive testing and rollback procedures

#### Conclusion

This three-pronged approach ensures comprehensive implementation of the RH OVE ecosystem while maintaining focus on specific domains of expertise. Each sub-project can be executed with dedicated teams while maintaining coordination points for integration and shared components.

The phased approach within each sub-project allows for iterative improvement and validation, reducing overall project risk while ensuring alignment with business objectives and operational requirements.

## Detailed Project Timeline

### RH OVE Ecosystem - Detailed Project Timeline

#### Project Overview

This document provides detailed timelines, milestones, and dependencies for the three sub-projects within the RH OVE Ecosystem implementation.

**Project Duration**: 12-18 months
**Start Date**: TBD
**Target Completion**: TBD

#### Timeline Summary

| Sub-Project | Duration | Dependencies | Key Deliverables |
| --- | --- | --- | --- |
| **RH OVE Infrastructure** | 6-8 months | None (Foundation) | Multi-cluster platform, ADRs, Operations runbooks |
| **Use-Cases Implementation** | 8-10 months | Infrastructure 70% complete | Working use-cases, Integration patterns |
| **Migration from VMware** | 10-12 months | Infrastructure 80% complete | Migrated workloads, Decommissioned legacy |

#### Project Timeline Visualization



##### Timeline Dependencies Diagram



##### Resource Allocation Timeline



##### Resource Allocation Notes

**Infrastructure Team Variable Allocation:** - **Infrastructure Architect**: Full-time during Study/Design phases, part-time for consulting during implementation - **DevOps Engineers**: Start during Design phase, continue through implementation and operations - **System Administrators**: Join during Implementation phase, continue for Day-2 operations - **Security Engineer**: Active during Design through Testing phases - **Network Engineer**: Active from Study through Implementation phases

**Use-Cases Team Variable Allocation:** - **Solution Architect**: Active during Study and Design phases primarily - **Application Developers**: Core implementation team, active longest duration - **Testing Specialist**: Primarily active during Testing phase with some overlap - **DevOps Engineer**: Active during Implementation and operations phases - **Security Specialist**: Active during Design, Implementation, and Testing phases - **Business Analyst**: Active during Study and early Design phases

**Migration Team Variable Allocation:** - **Migration Specialist**: Project-long involvement for strategy and coordination - **VMware Administrators**: Active during Study through early Implementation - **RH OVE Engineers**: Active during Implementation through Day-2 operations - **Application Owners**: Active during Design, Implementation, and Testing phases - **Performance Engineer**: Active during Testing and early Implementation phases - **Backup Administrator**: Active during Implementation through Day-2 operations

#### Sub-Project 1: RH OVE Infrastructure Project

##### Phase 1: Study Phase (Weeks 1-4)

**Duration**: 4 weeks
**Effort**: 3-4 FTEs

###### Milestones

* **Week 2**: Current state assessment completed
* **Week 3**: Gap analysis finalized
* **Week 4**: Requirements gathering complete

###### Deliverables

* Current infrastructure assessment report
* Gap analysis document
* Technical requirements specification
* Resource capacity planning

###### Key Activities

* Analyze existing infrastructure components
* Document current network, storage, and compute resources
* Identify skill gaps and training needs
* Define non-functional requirements (performance, security, scalability)

##### Phase 2: Design Phase (Weeks 5-12)

**Duration**: 8 weeks
**Effort**: 4-5 FTEs

###### Milestones

* **Week 7**: High-Level Design (HLD) approved
* **Week 10**: Low-Level Design (LLD) completed
* **Week 12**: ADRs finalized and approved

###### Deliverables

* High-Level Design document
* Low-Level Design document
* 8 Architecture Decision Records (ADRs)
* Security architecture design
* Network topology design

###### Key Activities

* Design multi-cluster architecture
* Define GitOps workflows with ArgoCD
* Plan Cilium CNI implementation
* Design backup and monitoring strategies
* Create security and IAM frameworks

##### Phase 3: Implementation Phase (Weeks 13-20)

**Duration**: 8 weeks
**Effort**: 5-6 FTEs

###### Milestones

* **Week 15**: Management cluster deployed
* **Week 17**: First workload cluster operational
* **Week 19**: GitOps pipeline functional
* **Week 20**: Monitoring and backup systems active

###### Deliverables

* Deployed multi-cluster RH OVE environment
* GitOps configuration and workflows
* Monitoring stack (Prometheus, Grafana, Dynatrace)
* Backup solution (Rubrik integration)
* Admission controllers configuration

###### Key Activities

* Deploy management and workload clusters
* Configure Cilium CNI and network policies
* Implement GitOps with ArgoCD
* Set up monitoring and alerting
* Configure backup and disaster recovery

##### Phase 4: Testing Phase (Weeks 21-24)

**Duration**: 4 weeks
**Effort**: 4-5 FTEs

###### Milestones

* **Week 22**: Security testing completed
* **Week 23**: Performance benchmarks established
* **Week 24**: Infrastructure acceptance testing passed

###### Deliverables

* Security assessment report
* Performance benchmark results
* Test execution reports
* Infrastructure acceptance criteria validation

###### Key Activities

* Conduct security penetration testing
* Perform load and stress testing
* Validate disaster recovery procedures
* Execute acceptance test scenarios

##### Phase 5: Day-2 Operations (Weeks 25-28)

**Duration**: 4 weeks
**Effort**: 3-4 FTEs

###### Milestones

* **Week 26**: Operations runbooks completed
* **Week 27**: Team training finished
* **Week 28**: Operations handover complete

###### Deliverables

* Day-2 operations runbooks
* Troubleshooting guides
* Performance tuning procedures
* Team training materials

#### Sub-Project 2: Use-Cases Implementation Project

##### Phase 1: Study Phase (Weeks 15-18)

**Duration**: 4 weeks
**Effort**: 2-3 FTEs
**Dependency**: Infrastructure Design Phase 75% complete

###### Milestones

* **Week 16**: Use-case requirements gathered
* **Week 17**: Business value assessment completed
* **Week 18**: Use-case prioritization finalized

###### Deliverables

* Use-case requirements specification
* Business value assessment
* Implementation priority matrix
* Resource allocation plan

##### Phase 2: Design Phase (Weeks 19-26)

**Duration**: 8 weeks
**Effort**: 3-4 FTEs

###### Milestones

* **Week 21**: VM lifecycle use-cases designed
* **Week 23**: Application deployment patterns defined
* **Week 25**: Enterprise integration patterns completed
* **Week 26**: All use-case designs approved

###### Deliverables

* Use-case HLD and LLD documents
* Integration architecture designs
* Security and compliance frameworks
* Performance and scalability specifications

##### Phase 3: Implementation Phase (Weeks 27-38)

**Duration**: 12 weeks
**Effort**: 4-6 FTEs
**Dependency**: Infrastructure Implementation 80% complete

###### Milestones

* **Week 29**: VM lifecycle use-cases implemented
* **Week 32**: Hybrid applications deployed
* **Week 35**: Database services operational
* **Week 37**: Security and observability complete
* **Week 38**: All use-cases integrated

###### Deliverables

* Implemented use-cases with working demonstrations
* Configuration manifests and scripts
* Integration patterns and templates
* Security controls and policies

##### Phase 4: Testing Phase (Weeks 39-42)

**Duration**: 4 weeks
**Effort**: 3-4 FTEs

###### Milestones

* **Week 40**: Functional testing completed
* **Week 41**: Integration testing finished
* **Week 42**: Business validation approved

###### Deliverables

* Test execution reports
* Performance validation results
* Business outcome measurements
* User acceptance documentation

##### Phase 5: Day-2 Operations (Weeks 43-46)

**Duration**: 4 weeks
**Effort**: 2-3 FTEs

###### Milestones

* **Week 44**: Use-case runbooks completed
* **Week 45**: Monitoring dashboards operational
* **Week 46**: Knowledge transfer complete

###### Deliverables

* Use-case operational runbooks
* Monitoring and alerting configurations
* Best practices documentation
* Training materials

#### Sub-Project 3: Migration Workload from VMware Project

##### Phase 1: Study Phase (Weeks 21-28)

**Duration**: 8 weeks
**Effort**: 3-4 FTEs
**Dependency**: Infrastructure Implementation 60% complete

###### Milestones

* **Week 23**: VMware inventory completed
* **Week 25**: Workload assessment finished
* **Week 27**: Migration strategy approved
* **Week 28**: Migration waves defined

###### Deliverables

* Complete VMware workload inventory
* Workload assessment and compatibility analysis
* Migration strategy document
* Migration wave planning
* Risk assessment and mitigation plan

##### Phase 2: Design Phase (Weeks 29-36)

**Duration**: 8 weeks
**Effort**: 4-5 FTEs

###### Milestones

* **Week 31**: Migration architecture designed
* **Week 33**: VM templates standardized
* **Week 35**: Migration procedures documented
* **Week 36**: Pilot migration plan approved

###### Deliverables

* Migration architecture design
* VM template standards and configurations
* Migration procedure documentation
* Rollback and recovery procedures
* Pilot migration plan

##### Phase 3: Implementation Phase (Weeks 37-50)

**Duration**: 14 weeks
**Effort**: 5-7 FTEs
**Dependency**: Infrastructure Testing 100% complete

###### Milestones

* **Week 39**: Pilot migration completed
* **Week 42**: Wave 1 migrations finished
* **Week 46**: Wave 2 migrations completed
* **Week 49**: Wave 3 migrations finished
* **Week 50**: All critical workloads migrated

###### Deliverables

* Migrated virtual machines and applications
* Updated VM templates and configurations
* Migration execution reports
* Performance optimization results
* Updated network and security configurations

##### Phase 4: Testing Phase (Weeks 51-54)

**Duration**: 4 weeks
**Effort**: 4-5 FTEs

###### Milestones

* **Week 52**: Application functionality validated
* **Week 53**: Performance benchmarks achieved
* **Week 54**: Business continuity confirmed

###### Deliverables

* Application validation reports
* Performance comparison analysis
* Business continuity test results
* User acceptance confirmation

##### Phase 5: Day-2 Operations (Weeks 55-60)

**Duration**: 6 weeks
**Effort**: 3-4 FTEs

###### Milestones

* **Week 57**: Migration runbooks completed
* **Week 58**: Legacy decommissioning planned
* **Week 60**: Operations transition complete

###### Deliverables

* Migration operations runbooks
* Legacy infrastructure decommissioning plan
* Post-migration monitoring procedures
* Lessons learned documentation

##### Resource Planning

##### Team Composition by Sub-Project

###### Infrastructure Project

* Infrastructure Architect: 1 FTE
* DevOps Engineers: 2 FTEs
* System Administrators: 2 FTEs
* Security Engineer: 1 FTE
* Network Engineer: 1 FTE

###### Use-Cases Implementation

* Solution Architect: 1 FTE
* Application Developers: 3 FTEs
* Testing Specialist: 1 FTE
* DevOps Engineer: 1 FTE
* Security Specialist: 1 FTE
* Business Analyst: 1 FTE

###### Migration Project

* Migration Specialist: 1 FTE
* VMware Administrators: 2 FTEs
* RH OVE Engineers: 2 FTEs
* Application Owners: 2 FTEs
* Performance Engineer: 1 FTE
* Backup Administrator: 1 FTE

##### Cross-Project Coordination

###### Weekly Sync Meetings

* Architecture review board
* Technical coordination committee
* Risk and issue management
* Resource allocation review

###### Monthly Steering Committee

* Progress against milestones
* Budget and resource adjustments
* Risk escalation and mitigation
* Stakeholder communication

#### Risk Management

##### High-Risk Areas

1. **Resource Availability**: Specialized skills in RH OVE and VMware
2. **Technical Complexity**: Multi-cluster networking and storage
3. **Business Continuity**: Migration impact on critical workloads
4. **Timeline Dependencies**: Sequential phases with limited parallel execution

##### Mitigation Strategies

1. **Cross-training**: Develop skills across multiple team members
2. **Proof of Concepts**: Validate technical approaches early
3. **Phased Migration**: Minimize business impact through careful wave planning
4. **Buffer Time**: Include 15-20% contingency in timeline estimates

#### Success Metrics

##### Infrastructure Project

* 99.9% infrastructure uptime SLA
* Security compliance audit pass rate: 100%
* Performance benchmarks met or exceeded
* Team satisfaction with operational procedures

##### Use-Cases Project

* All documented use-cases successfully demonstrated
* Business value metrics achieved
* User adoption rates meet targets
* Documentation completeness and accuracy

##### Migration Project

* 100% critical workload migration success
* Performance parity or improvement: 95% of workloads
* Business continuity maintained throughout migration
* Legacy infrastructure decommissioning completed on schedule

## Rh Ove Infrastructure Project Plan

### RH OVE Infrastructure Project Plan

#### Executive Summary

This sub-project focuses on the comprehensive setup and operation of the RH OVE infrastructure, targeting the study, design, implementation, testing, and Day-2 operations of the multi-cluster environment.

#### Scope

Ensure the complete lifecycle of infrastructure operation, from study to implementation and ongoing support. This includes designing and deploying core components, establishing monitoring and security protocols, and documenting operational procedures.

#### Documentation Areas

* **Architecture**: Review and define the network, storage, and IAM strategies.
* **ADRs (Architecture Decision Records)**: Finalize key decisions including multi-cluster patterns and GitOps.
* **Deployment**: Identify prerequisites, and cover installation and configuration tasks.
* **Management**: Focus on admission control, GitOps, monitoring, and backup strategies.
* **Operations**: Develop detailed guidance for day-to-day operations, troubleshooting, and performance tuning.

#### Work Phases

1. **Study Phase**
	* Gather comprehensive understanding of current and future needs.
	* Perform gap analysis on existing infrastructure.
2. **Design Phase**
	* Create High-Level Design (HLD) and Low-Level Design (LLD) documents.
	* Validate designs against organizational goals.
3. **Implementation Phase**
	* Deploy infrastructure components utilizing best practices.
	* Integrate security, monitoring, and backup systems.
4. **Testing Phase**
	* Conduct thorough infrastructure robustness, security, and performance tests.
	* Validate alignment with ADRs.
5. **Day-2 Operations Phase**
	* Establish ongoing monitoring.
	* Document troubleshooting and tuning procedures.

#### Required Personas

* **Infrastructure Architect**: Define overarching infrastructure architecture.
* **DevOps Engineer**: Implement and automate delivery using CI/CD and GitOps.
* **System Administrator**: Oversee operations, ensuring stability and performance.
* **Security Engineer**: Ensure alignment with security protocols and compliance.
* **Network Engineer**: Design and implement network components and policies.

#### Success Criteria

* Successful deployment of a robust, secure, and scalable infrastructure that supports RH OVE multi-cluster functionality.
* Full documentation of operational guidelines and procedures.
* Stakeholder satisfaction with alignment to strategic goals.

## Use Cases Implementation Project Plan

### Use-Cases Implementation Project Plan

#### Executive Summary

This sub-project focuses on implementing and showcasing various use-cases within the RH OVE ecosystem. The use-cases demonstrate the system’s capabilities in multi-cluster environments, covering diverse application scenarios.

#### Scope

Study, design, implement, test, and operate comprehensive use-cases showcasing RH OVE capabilities, including hybrid applications, database services, legacy modernization, and more.

#### Documentation Areas

* **Use Cases**: Overview, multi-env setup, hybrid applications, database services, legacy modernization, disaster recovery, observability, security, integration.
* **References**: Best practices and glossary.

#### Work Phases

1. **Study Phase**
	* Analyze use case requirements and their alignment with organizational goals.
2. **Design Phase**
	* Develop High-Level and Low-Level Designs for each use case.
	* Ensure designs support strategic objectives.
3. **Implementation Phase**
	* Build and deploy configurations, manifests, and scripts for each use case.
4. **Testing Phase**
	* Conduct functional and integration testing
	* Validate business outcomes and performance benchmarks.
5. **Day-2 Operations Phase**
	* Develop runbooks and SOPs for operational support.
	* Ensure ongoing integration and optimization.

#### Required Personas

* **Solution Architect**: Guide the architectural design of use-cases.
* **Application Developer**: Implement required code and configurations.
* **Testing Specialist**: Validate use-case functionality and integration.
* **DevOps Engineer**: Automate deployment processes.
* **Security Specialist**: Ensure security compliance and measures.
* **Business Analyst**: Define requirements and assess business value.

#### Success Criteria

* Implementation of documented use-cases that align to strategic goals and demonstrate RH OVE’s capabilities to stakeholders.
* Comprehensive documentation of each use-case, including lessons learned and best practices for replication.

## Migration Workload Project Plan

### Migration Workload from VMware Project Plan

#### Executive Summary

This sub-project focuses on the migration of existing workloads from VMware environments to the RH OVE platform. The migration will ensure minimal downtime and optimal performance while maintaining functionality and business continuity.

#### Scope

Plan and execute the migration of workloads from VMware environments to RH OVE, including assessment of current workloads, migration strategy development, testing, and operation of migrated components.

#### Documentation Areas

* **VM Lifecycle**: VM importation, template management, scaling performance, and backup recovery strategies.
* **Migration-Specific ADRs**: Strategy decisions, compatibility considerations, and performance optimization.
* **Migration Planning**: Assessment procedures, migration waves, risk mitigation, and rollback procedures.

#### Work Phases

1. **Study Phase**
	* Inventory and analyze existing VMware workloads and their requirements.
	* Identify dependencies and performance baselines.
2. **Design Phase**
	* Create migration strategies with comprehensive HLD and LLD documentation.
	* Define migration waves and prioritization.
3. **Implementation Phase**
	* Execute migration workflows.
	* Import VMs and configure templates in the new environment.
4. **Testing Phase**
	* Validate workload functionality and performance post-migration.
	* Ensure compliance with business requirements.
5. **Day-2 Operations Phase**
	* Develop monitoring, backup, and disaster recovery procedures for migrated workloads.
	* Document lessons learned and operational guidelines.

#### Required Personas

* **Migration Specialist**: Lead migration strategy and execution.
* **VMware Administrator**: Provide expertise on source environment and legacy systems.
* **RH OVE Engineer**: Implement target environment configurations and optimization.
* **Application Owner**: Validate business functionality post-migration.
* **Performance Engineer**: Ensure performance requirements are met in the new environment.
* **Backup Administrator**: Implement backup and recovery procedures for migrated workloads.

#### Success Criteria

* Successful migration of all critical workloads with minimal disruption to business operations.
* Achievement of performance parity or improvement post-migration.
* Complete decommissioning of legacy VMware infrastructure where applicable.
* Comprehensive documentation of migration procedures and operational guidelines.

## Personas

### Skills Matrix

This table outlines the key skills and expertise required for each persona involved in the RH OVE project.

| Persona | Key Skills and Expertise |
| --- | --- |
| Infrastructure Architect | Cloud architecture, multi-cluster systems, strategic planning |
| DevOps Engineer | CI/CD pipelines, automation tools, GitOps, ArgoCD |
| System Administrator | Unix/Linux systems, network configurations, troubleshooting |
| Security Engineer | Security protocols, penetration testing, compliance standards |
| Network Engineer | Network topology, load balancing, disaster recovery |
| Solution Architect | Use-case design, systems integration, architectural patterns |
| Application Developer | Programming languages (Python, Java), application frameworks, microservices |
| Testing Specialist | Test automation, QA processes, performance testing |
| Security Specialist | Application security, vulnerability assessments, security audits |
| Business Analyst | Requirements gathering, stakeholder communication, problem-solving |
| Migration Specialist | Migration strategies, VMware expertise, project coordination |
| VMware Administrator | VMware infrastructure, virtualization techniques, backup/recovery |
| RH OVE Engineer | RH OVE management, infrastructure optimization, performance tuning |
| Application Owner | Business requirements alignment, post-migration validation |
| Performance Engineer | Performance analysis, system benchmarking, tuning |
| Backup Administrator | Backup management, data integrity, recovery processes |

### Persona Perspectives

#### Infrastructure Project

**Infrastructure Architect** - Defines the overarching architecture and integration patterns. - Leads the High-Level and Low-Level design phases. - Ensures strategic alignment with business objectives.

**DevOps Engineer** - Implements automation and CI/CD pipelines. - Oversees the setup of GitOps with ArgoCD. - Manages ongoing system optimization and updates.

**System Administrator** - Manages the day-to-day operations. - Ensures system stability and performance. - Handles system troubleshooting and maintenance.

**Security Engineer** - Implements security protocols and compliance measures. - Conducts regular security audits and vulnerability assessments. - Designs and implements IAM policies.

**Network Engineer** - Designs network architecture and policies. - Oversees network configuration and optimization. - Ensures robust connectivity and disaster recovery protocols.

#### Use-Cases Implementation

**Solution Architect** - Guides architectural design for use-cases. - Aligns use-case requirements with system capabilities. - Ensures solution scalability and performance efficiency.

**Application Developer** - Develops application components as per designed specifications. - Implements integration logic and application workflows. - Collaborates on code reviews and deployment processes.

**Testing Specialist** - Develops testing strategies for functional and integration testing. - Executes test cases and validates use-case functionality. - Provides recommendations for performance enhancements.

**Security Specialist** - Designs use-case-specific security measures. - Ensures compliance with relevant legislation and policies. - Conducts security drills and audits.

**Business Analyst** - Facilitates requirements gathering and prioritization. - Defines business value of implemented use-cases. - Liaises between technical teams and business stakeholders.

#### Migration Workload from VMware

**Migration Specialist** - Leads the strategy and execution of migration activities. - Coordinates migration phases including assessment and validation.

**VMware Administrator** - Provides expertise on source VMware environments. - Ensures correct configuration and performance tuning.

**RH OVE Engineer** - Manages RH OVE platform setup and optimization post-migration. - Supports both the development and operation phases.

**Application Owner** - Represents application requirements during migration. - Validates business functionality and performance post-migration.

**Performance Engineer** - Assesses and optimizes performance during and after migration. - Establishes performance benchmarks and monitoring thresholds.

**Backup Administrator** - Manages backup and recovery strategies during migration. - Ensures data integrity and availability throughout the process.

## Raci Matrix

### RH OVE Ecosystem RACI Matrix

#### Executive Summary

The RACI matrix defines the roles and responsibilities of team members across different phases and activities within each sub-project of the RH OVE Ecosystem.

#### RACI Guide

* **R (Responsible)**: Person(s) who perform the work
* **A (Accountable)**: Person who ensures task completion and has decision authority
* **C (Consulted)**: Person(s) who provide input and feedback
* **I (Informed)**: Person(s) who need to be informed of progress and outcomes

#### RH OVE Infrastructure Project

| Task | Infrastructure Architect | DevOps Engineer | System Administrator | Security Engineer | Network Engineer |
| --- | --- | --- | --- | --- | --- |
| Requirements Gathering | R | I | I | C | C |
| HLD & LLD Design | A | C | C | C | C |
| Cluster Deployment | C | A, R | R | I | C |
| Network Configuration | I | C | I | C | A, R |
| Security Implementation | C | C | C | A, R | I |
| GitOps Pipeline Setup | C | A, R | C | I | I |
| System Monitoring Setup | I | C | A, R | C | C |

#### Use-Cases Implementation Project

| Task | Solution Architect | Application Developer | Testing Specialist | DevOps Engineer | Security Specialist | Business Analyst |
| --- | --- | --- | --- | --- | --- | --- |
| Use-Case Requirements Analysis | R, A | I | I | C | I | C |
| HLD & LLD for Use-Cases | A | C | C | C | C | I |
| Application Deployment | C | A, R | I | C | C | I |
| Integration Development | C | A, R | C | R | C | I |
| Functional Testing | I | C | A, R | C | C | I |
| Security Compliance | C | C | C | C | A, R | I |
| Stakeholder Review | A | I | C | I | I | R |

#### Migration Workload from VMware Project

| Task | Migration Specialist | VMware Administrator | RH OVE Engineer | Application Owner | Performance Engineer | Backup Administrator |
| --- | --- | --- | --- | --- | --- | --- |
| Inventory & Analysis | R, A | R | C | C | I | I |
| Migration Strategy Development | A | C | C | C | C | C |
| Migration Execution | C | C | A, R | I | C | C |
| Performance Testing | C | C | C | C | A, R | I |
| Rollback & Recovery Planning | C | C | A | C | C | R |
| Business Continuity Verification | C | C | C | R, A | C | I |
| Post-Migration Monitoring | C | I | A, R | I | C | C |

#### Conclusion

The RACI matrix provides a structured overview of responsibilities and accountabilities across the RH OVE Ecosystem implementation. It ensures clear communication and role clarity, contributing to project success.

## Risk Register

### RH OVE Ecosystem Risk Register

#### Document Information

* **Document Version**: 1.0
* **Last Updated**: TBD
* **Risk Assessment Period**: Project Duration (12-18 months)

#### Risk Assessment Scale

##### Probability Scale

* **1 - Very Low** (0-10%): Risk unlikely to occur
* **2 - Low** (11-30%): Risk may occur in exceptional circumstances
* **3 - Medium** (31-50%): Risk may occur under certain conditions
* **4 - High** (51-80%): Risk likely to occur in most circumstances
* **5 - Very High** (81-100%): Risk almost certain to occur

##### Impact Scale

* **1 - Very Low**: Minimal impact on project objectives
* **2 - Low**: Minor impact with easy workarounds
* **3 - Medium**: Moderate impact requiring management attention
* **4 - High**: Major impact requiring significant resources
* **5 - Very High**: Critical impact threatening project success

##### Risk Score = Probability × Impact

#### Infrastructure Project Risks

| Risk ID | Risk Description | Category | Probability | Impact | Risk Score | Owner | Mitigation Strategy | Status |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| INF-001 | Resource contention with 2,000 VMs and 200 applications exceeding cluster capacity | Technical | 3 | 4 | 12 | Infrastructure Architect | Implement auto-scaling, capacity monitoring, and multi-cluster load balancing | Open |
| INF-002 | Network bottlenecks during peak usage with 40 Gbps requirement | Technical | 3 | 4 | 12 | Network Engineer | Design redundant network paths, implement QoS policies, traffic shaping | Open |
| INF-003 | Storage IOPS degradation with 200,000 IOPS requirement | Technical | 3 | 3 | 9 | System Administrator | Implement tiered storage, SSD caching, performance monitoring | Open |
| INF-004 | Cilium CNI configuration complexity in multi-cluster setup | Technical | 4 | 3 | 12 | DevOps Engineer | PoC validation, expert consultation, phased rollout | Open |
| INF-005 | Security vulnerabilities in multi-tenant environment | Security | 2 | 5 | 10 | Security Engineer | Regular security audits, penetration testing, network segmentation | Open |
| INF-006 | GitOps pipeline failures affecting deployment automation | Operational | 3 | 3 | 9 | DevOps Engineer | Implement pipeline monitoring, rollback procedures, backup deployment methods | Open |
| INF-007 | Backup system (Rubrik) integration issues with large dataset (1 PB) | Technical | 3 | 4 | 12 | System Administrator | Extensive testing, vendor support engagement, backup strategy validation | Open |
| INF-008 | Skills gap in RH OVE administration and troubleshooting | Resource | 4 | 3 | 12 | Project Manager | Training programs, knowledge transfer sessions, external consultant support | Open |
| INF-009 | Hardware procurement delays affecting project timeline | External | 3 | 4 | 12 | Infrastructure Architect | Early procurement planning, multiple vendor options, buffer time | Open |
| INF-010 | Monitoring system (Prometheus/Grafana) overload with 2,200 workloads | Technical | 3 | 3 | 9 | System Administrator | Distributed monitoring architecture, metric sampling, alert optimization | Open |

#### Use-Cases Implementation Risks

| Risk ID | Risk Description | Category | Probability | Impact | Risk Score | Owner | Mitigation Strategy | Status |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UC-001 | Application compatibility issues with RH OVE platform (200 hybrid apps) | Technical | 3 | 4 | 12 | Solution Architect | Compatibility assessment, application inventory, testing framework | Open |
| UC-002 | Performance degradation in hybrid workload scenarios | Technical | 3 | 3 | 9 | Performance Engineer | Performance benchmarking, optimization guidelines, monitoring dashboards | Open |
| UC-003 | Integration complexity between containers, PaaS, and VMs | Technical | 4 | 3 | 12 | Solution Architect | Integration patterns, service mesh implementation, API gateway setup | Open |
| UC-004 | Business stakeholder availability for use-case validation | Business | 3 | 3 | 9 | Business Analyst | Early stakeholder engagement, flexible scheduling, clear communication plan | Open |
| UC-005 | Use-case dependencies causing implementation delays | Operational | 3 | 3 | 9 | Project Manager | Dependency mapping, parallel development tracks, modular implementation | Open |
| UC-006 | Security compliance requirements for PaaS services | Security | 2 | 4 | 8 | Security Specialist | Compliance framework development, security controls validation, audit preparation | Open |
| UC-007 | Data consistency issues in hybrid application scenarios | Technical | 2 | 4 | 8 | Application Developer | Data architecture design, consistency protocols, transaction management | Open |
| UC-008 | Observability gaps in complex multi-tier applications | Operational | 3 | 3 | 9 | DevOps Engineer | Distributed tracing implementation, log aggregation, custom metrics | Open |

#### Migration Project Risks

| Risk ID | Risk Description | Category | Probability | Impact | Risk Score | Owner | Mitigation Strategy | Status |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MIG-001 | Data loss during migration of 500 TB across 1,000 VMs | Technical | 2 | 5 | 10 | Migration Specialist | Multiple backup strategies, checksum validation, pilot testing | Open |
| MIG-002 | Extended downtime exceeding 2-hour window per application | Business | 3 | 4 | 12 | Migration Specialist | Rehearsal migrations, optimized procedures, rollback planning | Open |
| MIG-003 | VMware licensing and dependency issues during transition | Legal/Technical | 3 | 3 | 9 | VMware Administrator | License audit, dependency mapping, phased decommissioning | Open |
| MIG-004 | Application performance degradation post-migration | Technical | 3 | 4 | 12 | Performance Engineer | Performance baselines, optimization procedures, monitoring setup | Open |
| MIG-005 | Network connectivity issues during migration waves | Technical | 3 | 3 | 9 | Network Engineer | Network planning, connectivity testing, backup communication paths | Open |
| MIG-006 | Resource contention during concurrent migrations (200 VMs per wave) | Technical | 4 | 3 | 12 | RH OVE Engineer | Resource planning, migration scheduling, capacity monitoring | Open |
| MIG-007 | Legacy application compatibility with new infrastructure | Technical | 4 | 4 | 16 | Application Owner | Compatibility testing, application modernization planning, fallback options | Open |
| MIG-008 | Staff resistance to new platform and procedures | Change Management | 3 | 3 | 9 | Project Manager | Change management program, training, communication strategy | Open |
| MIG-009 | Rollback complexity if migration fails | Operational | 2 | 4 | 8 | Migration Specialist | Detailed rollback procedures, automated rollback tools, testing protocols | Open |
| MIG-010 | Compliance and audit trail maintenance during migration | Regulatory | 2 | 4 | 8 | Backup Administrator | Audit procedures, compliance documentation, regulatory liaison | Open |

#### Cross-Project Risks

| Risk ID | Risk Description | Category | Probability | Impact | Risk Score | Owner | Mitigation Strategy | Status |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CP-001 | Resource conflicts between concurrent sub-projects | Resource | 4 | 3 | 12 | Project Manager | Resource allocation matrix, coordination meetings, escalation procedures | Open |
| CP-002 | Timeline dependencies causing cascading delays | Schedule | 3 | 4 | 12 | Project Manager | Buffer time allocation, parallel execution planning, milestone monitoring | Open |
| CP-003 | Technical debt accumulation due to rapid deployment | Technical | 3 | 3 | 9 | Technical Architect | Code reviews, refactoring cycles, technical debt tracking | Open |
| CP-004 | Budget overruns due to scope creep and complexity | Financial | 3 | 4 | 12 | Project Manager | Budget monitoring, change control process, stakeholder communication | Open |
| CP-005 | Knowledge silos limiting cross-team collaboration | Organizational | 3 | 3 | 9 | Project Manager | Knowledge sharing sessions, documentation standards, cross-training | Open |
| CP-006 | Vendor support availability for critical issues | External | 2 | 4 | 8 | Project Manager | SLA agreements, escalation procedures, alternative support channels | Open |

#### Risk Monitoring and Review

##### Weekly Risk Review

* **Frequency**: Every Tuesday during project execution
* **Attendees**: Risk owners, project managers, technical leads
* **Agenda**: New risks, status updates, mitigation progress

##### Monthly Risk Assessment

* **Frequency**: First Friday of each month
* **Attendees**: Steering committee, project sponsors
* **Agenda**: Risk trend analysis, escalation decisions, resource adjustments

##### Risk Escalation Criteria

* **Immediate Escalation**: Risk score ≥ 15 (High probability + High impact)
* **Weekly Escalation**: Risk score ≥ 12
* **Monthly Review**: Risk score ≥ 9

#### Risk Response Strategies

##### High-Priority Risks (Score ≥ 12)

1. **MIG-007**: Legacy application compatibility - Requires immediate compatibility assessment
2. **CP-002**: Timeline dependencies - Needs buffer time implementation
3. **INF-001**: Resource contention - Auto-scaling implementation priority
4. **MIG-002**: Extended downtime - Rehearsal migration mandatory

##### Medium-Priority Risks (Score 9-11)

* Regular monitoring and mitigation progress tracking
* Monthly review of mitigation effectiveness
* Proactive communication with stakeholders

##### Low-Priority Risks (Score ≤ 8)

* Quarterly review and assessment
* Documentation of lessons learned
* Contingency planning development

#### Success Metrics for Risk Management

##### Target KPIs

* **Risk Closure Rate**: >80% of identified risks mitigated by project completion
* **Schedule Impact**: <5% schedule variance due to risk materialization
* **Budget Impact**: <10% budget variance due to risk management costs
* **Quality Impact**: Zero critical system failures due to unmanaged risks

##### Risk Management Effectiveness

* Early identification of 90% of project risks
* Successful mitigation of all high-priority risks
* No project-threatening risks materialized
* Stakeholder satisfaction with risk communication and management

## Budget Estimate

### RH OVE Ecosystem Budget Estimate

#### Executive Summary

This budget estimate outlines the financial requirements for the RH OVE Ecosystem implementation, considering infrastructure, use-cases, and migration workload projects.

#### Budget Categories

1. **Infrastructure Costs**
2. **Migration Costs**
3. **Use-Cases Implementation Costs**
4. **Operational Costs**
5. **Contingency Fund**

#### Detailed Budget Estimate

##### 1. Infrastructure Costs

| Item | Estimated Cost (USD) |
| --- | --- |
| Compute Resources | $1,000,000 |
| Storage Solutions | $500,000 |
| Networking Equipment | $300,000 |
| Security Implementations | $150,000 |
| Software Licenses | $200,000 |
| Total Infrastructure Cost | **$2,150,000** |

##### 2. Migration Costs

| Item | Estimated Cost (USD) |
| --- | --- |
| Migration Tools | $200,000 |
| VMware Licenses | $100,000 |
| Personnel Training | $150,000 |
| Consulting Services | $250,000 |
| Total Migration Cost | **$700,000** |

##### 3. Use-Cases Implementation Costs

| Item | Estimated Cost (USD) |
| --- | --- |
| Application Development Tools | $300,000 |
| Testing Frameworks | $100,000 |
| Security Compliance | $150,000 |
| Monitoring Solutions | $100,000 |
| Total Use-Cases Cost | **$650,000** |

##### 4. Operational Costs

| Item | Estimated Cost (USD) |
| --- | --- |
| Personnel Salaries | $1,200,000 |
| Maintenance Contracts | $200,000 |
| Utilities and Overhead | $150,000 |
| Total Operational Cost | **$1,550,000** |

##### 5. Contingency Fund

* **10% of Total Estimated Cost**: Approx. $505,000

#### Total Estimated Project Cost

* **Overall Total**: **$5,555,000**

#### Notes:

* The costs provided are approximations based on industry standards and may vary based on final project requirements and vendor agreements.
* Contingency fund is reserved for unexpected expenses and scope changes.
* Regular financial reviews will be conducted to ensure budget compliance and adjust estimates as needed.

## Sizing Plan

### RH OVE Ecosystem Sizing Plan

#### Executive Summary

This document outlines the sizing estimates for the RH OVE Ecosystem implementation. It addresses the expected capacity and complexity for each sub-project. The plan ensures that proper resource allocation and infrastructure setups are achieved to meet performance and scalability demands.

## \*\* TO BE REVIEW FOR NODE SIZING \*\*

#### Infrastructure Sizing

**Scope**: Support up to 200 hybrid applications (containerized, PaaS, and VMs) and 2,000 virtual machines.

##### Key Metrics

* **Application Types**: Hybrid, combining containers, PaaS services, and virtual machines.
* **Maximum Applications**: 200
* **Maximum Virtual Machines**: 2,000
* **Expected Compute Resources**:
	+ CPUs: Approximately 10,000 vCPUs
	+ Memory: Approximately 20 TB RAM
	+ Storage: Approximately 1 PB (Petabyte)
* **Network Capacity**: High-throughput connectivity with redundant failover capabilities.
* **Security and Compliance**: Adherence to regulatory standards with IAM components and network policies.

##### Resource Allocation

###### Node Size Options

To optimize resource allocation and cost efficiency, three node size configurations are proposed:

###### Option 1: Small Nodes (Recommended for Development/Testing)

* **Node Configuration**: 16 vCPUs, 64 GB RAM, 1 TB NVMe SSD
* **Number of Nodes**: 625 nodes
* **Use Case**: Development environments, testing workloads, small applications
* **Cost Efficiency**: Lower initial investment, flexible scaling
* **Pros**:
	+ Lower hardware costs per node
	+ Better granular scaling
	+ Reduced blast radius for failures
* **Cons**:
	+ Higher management overhead
	+ More network complexity

###### Option 2: Medium Nodes (Recommended for Production)

* **Node Configuration**: 32 vCPUs, 128 GB RAM, 2 TB NVMe SSD
* **Number of Nodes**: 313 nodes
* **Use Case**: Production workloads, hybrid applications, medium-scale VMs
* **Cost Efficiency**: Balanced performance and cost
* **Pros**:
	+ Optimal resource density
	+ Balanced management overhead
	+ Good performance isolation
* **Cons**:
	+ Higher individual node cost
	+ Less flexible for small workloads

###### Option 3: Large Nodes (Recommended for High-Performance Workloads)

* **Node Configuration**: 64 vCPUs, 256 GB RAM, 4 TB NVMe SSD
* **Number of Nodes**: 157 nodes
* **Use Case**: High-performance applications, large VMs, compute-intensive workloads
* **Cost Efficiency**: Best performance per dollar for large workloads
* **Pros**:
	+ Maximum resource density
	+ Lower management overhead
	+ Best for large workloads
* **Cons**:
	+ Higher blast radius
	+ Less flexibility for smaller workloads
	+ Higher individual node investment

###### Recommended Hybrid Approach

**Distribution across clusters**: - **Management Cluster**: 6 Medium nodes (dedicated for cluster management) - **Production Clusters**: - 60% Medium nodes (188 nodes) - Primary production workloads - 30% Large nodes (47 nodes) - High-performance applications - 10% Small nodes (62 nodes) - Development and testing

**Total Node Count**: 303 nodes **Total Resources**: ~10,000 vCPUs, ~20 TB RAM, ~600 TB Storage

###### Network and Storage Specifications

* **Network Bandwidth**: Up to 40 Gbps per cluster
* **Storage IOPS**: Minimum 200,000 IOPS aggregate
* **Network Architecture**:
	+ 25 Gbps per node connectivity
	+ Redundant spine-leaf topology
	+ Dedicated storage network (10 Gbps)

##### Application Gabari Descriptions

To ensure compatibility and optimal performance, applications are categorized based on typical resource demands and architectural patterns:

###### 1. Microservices Applications

* **Configuration**: Typically small, scalable units with minimal resource needs per instance (1-2 vCPUs, 2-4 GB RAM)
* **Key Considerations**: Designed for high scalability, containerized deployments, and stateless architecture
* **Use Cases**: Web services, REST APIs, lightweight backend services

###### 2. Monolithic Applications

* **Configuration**: Larger resource footprint with robust processing needs (4-8 vCPUs, 16-32 GB RAM)
* **Key Considerations**: May not scale horizontally; benefits from vertical scaling
* **Use Cases**: Legacy applications, computational intensive tasks, single-platform systems

###### 3. Distributed Applications

* **Configuration**: Moderate resources per service, optimized for distributed workload (2-4 vCPUs, 8-16 GB RAM per node)
* **Key Considerations**: Requires synchronization across nodes, often benefits from microservices/design separation
* **Use Cases**: Databases, clustered applications, interconnected services

###### 4. Resource-Intensive Applications

* **Configuration**: High-performance requirements, large scale of resources (8-16 vCPUs, 32-64 GB RAM)
* **Key Considerations**: Compute-intensive, may need specific hardware accelerators (e.g., GPUs)
* **Use Cases**: Data analytics, machine learning workloads, scientific computing

#### Migration Sizing

**Scope**: Plan for the migration of 1,000 virtual machines and 100 applications.

##### Key Metrics

* **Virtual Machines**: 1,000
	+ VM Types: Includes various OS types and legacy configurations
	+ Average VM size: 4 vCPUs, 16 GB RAM per VM
	+ Storage per VM: 500 GB
* **Applications**: 100
	+ Application Types: Legacy, modern monoliths, and distributed services
* **Data Migration Volume**: 500 TB

##### Migration Planning

* **Migration Waves**: 5 waves, 200 VMs + 20 Applications per wave
* **Expected Downtime**: Max 2 hours per application
* **Risk Mitigation**:
	+ Pilot migrations for high-risk workloads
	+ Rollback strategies for failed migrations

#### Strategic Considerations

##### Infrastructure

1. **Scalability**: Design to accommodate future growth up to 300 applications and 3,000 VMs.
2. **Redundancy**: Implement failover and disaster recovery protocols.
3. **Monitoring and Logging**: Comprehensive observability with real-time analytics.

##### Migration

1. **Compatibility**: Analyze application dependencies and compatibility early.
2. **Data Integrity**: Ensure lossless data transfer methods.
3. **Operational Support**: Equip teams with runbooks for migration phases.

#### Appendices

##### Sizing Assumptions

* Based on existing organizational usage patterns and vendor best practices.

##### Dependencies

* Align sizing with strategic initiatives.
* Regular reviews to anticipate scaling needs and compliance demands.

##### Risk Factors

* Sizing models subject to change with evolving requirements and emerging technologies.

## Weekly Charge Breakdown

### Weekly Workload Breakdown by Persona and Project

#### Overview

This document provides a detailed weekly workload breakdown in person-days for all personas across the three sub-projects of the RH OVE Ecosystem implementation.

**Project Duration**: 60 weeks (15 months)
**Total Estimated Workload**: 2,694 person-days

#### Persona Skill Levels and Availability

| Persona Type | Skill Level | Standard Days/Week | Notes |
| --- | --- | --- | --- |
| Infrastructure Architect | Senior | 5 | Part-time (2.5 days) during Implementation |
| Solution Architect | Senior | 5 | Full-time during active phases |
| Migration Specialist | Senior | 5 | Full-time throughout migration project |
| DevOps Engineer | Mid-Senior | 5 | Multiple resources (2x) |
| Security Engineer | Senior | 5 | Full-time during active phases |
| Network Engineer | Senior | 5 | Full-time during active phases |
| Security Specialist | Senior | 5 | Full-time during active phases |
| Application Owner | Mid-Senior | 5 | Multiple resources (2x) |
| Performance Engineer | Mid-Senior | 5 | Full-time during active phases |
| Business Analyst | Mid-Senior | 5 | Full-time during active phases |
| RH OVE Engineer | Mid-Senior | 5 | Multiple resources (2x) |
| Application Developer | Mid-Level | 5 | Multiple resources (3x) |
| System Administrator | Mid-Level | 5 | Multiple resources (2x) |
| Testing Specialist | Mid-Level | 5 | Full-time during active phases |
| VMware Administrator | Mid-Level | 5 | Multiple resources (2x) |
| Backup Administrator | Mid-Level | 5 | Full-time during active phases |

#### Project 1: RH OVE Infrastructure

##### Weekly Allocation by Phase (Person-Days)

| Week | Phase | Infrastructure Architect | DevOps Engineer (2x) | System Administrator (2x) | Security Engineer | Network Engineer | Weekly Total (Days) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1-4 | Study | 5 | 0 | 0 | 0 | 5 | 10 |
| 5-12 | Design | 5 | 10 | 0 | 5 | 5 | 25 |
| 13-20 | Implementation | 2.5 (PT) | 10 | 10 | 5 | 5 | 32.5 |
| 21-24 | Testing | 0 | 10 | 10 | 5 | 0 | 25 |
| 25-28 | Day-2 Ops | 0 | 10 | 10 | 0 | 0 | 20 |

**Infrastructure Project Total: 582.5 person-days**

##### Phase-wise Workload Summary

* **Study Phase (Weeks 1-4)**: 40 person-days
* **Design Phase (Weeks 5-12)**: 200 person-days
* **Implementation Phase (Weeks 13-20)**: 260 person-days
* **Testing Phase (Weeks 21-24)**: 100 person-days
* **Day-2 Operations (Weeks 25-28)**: 80 person-days

#### Project 2: Use-Cases Implementation

##### Weekly Allocation by Phase (Person-Days)

| Week | Phase | Solution Architect | Application Developer (3x) | Testing Specialist | DevOps Engineer | Security Specialist | Business Analyst | Weekly Total (Days) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15-18 | Study | 5 | 0 | 0 | 0 | 0 | 5 | 10 |
| 19-26 | Design | 5 | 0 | 0 | 0 | 5 | 5 | 15 |
| 27-38 | Implementation | 0 | 15 | 0 | 5 | 5 | 0 | 25 |
| 39-42 | Testing | 0 | 15 | 5 | 5 | 5 | 0 | 30 |
| 43-46 | Day-2 Ops | 0 | 0 | 0 | 5 | 0 | 0 | 5 |

**Use-Cases Project Total: 560 person-days**

##### Phase-wise Workload Summary

* **Study Phase (Weeks 15-18)**: 40 person-days
* **Design Phase (Weeks 19-26)**: 120 person-days
* **Implementation Phase (Weeks 27-38)**: 300 person-days
* **Testing Phase (Weeks 39-42)**: 120 person-days
* **Day-2 Operations (Weeks 43-46)**: 20 person-days

#### Project 3: Migration from VMware

##### Weekly Allocation by Phase (Person-Days)

| Week | Phase | Migration Specialist | VMware Admin (2x) | RH OVE Engineer (2x) | Application Owner (2x) | Performance Engineer | Backup Administrator | Weekly Total (Days) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21-28 | Study | 5 | 10 | 0 | 0 | 0 | 0 | 15 |
| 29-36 | Design | 5 | 10 | 0 | 10 | 0 | 0 | 25 |
| 37-50 | Implementation | 5 | 10 | 10 | 10 | 5 | 5 | 45 |
| 51-54 | Testing | 5 | 0 | 10 | 10 | 5 | 5 | 35 |
| 55-60 | Day-2 Ops | 5 | 0 | 10 | 0 | 5 | 5 | 25 |

**Migration Project Total: 869 person-days**

##### Phase-wise Workload Summary

* **Study Phase (Weeks 21-28)**: 120 person-days
* **Design Phase (Weeks 29-36)**: 200 person-days
* **Implementation Phase (Weeks 37-50)**: 630 person-days
* **Testing Phase (Weeks 51-54)**: 140 person-days
* **Day-2 Operations (Weeks 55-60)**: 150 person-days

#### Summary by Sub-Project

| Sub-Project | Duration (Weeks) | Total Workload (Person-Days) | Average Weekly Workload (Days) |
| --- | --- | --- | --- |
| RH OVE Infrastructure | 28 | 582.5 | 20.8 |
| Use-Cases Implementation | 32 | 560 | 17.5 |
| Migration from VMware | 40 | 869 | 21.7 |
| **Total** | **60** | **2,011.5** | **33.5** |

#### Peak Resource Utilization

##### Highest Workload Weeks

| Week Range | Projects Active | Weekly Workload (Days) | Key Activities |
| --- | --- | --- | --- |
| 37-42 | Infrastructure + Use-Cases + Migration | 102.5 | Implementation overlap |
| 43-46 | Use-Cases + Migration | 30 | Testing phases |
| 47-50 | Migration Implementation | 45 | Critical migration waves |

##### Resource Overlap Analysis

**Weeks 15-28**: Infrastructure and Use-Cases overlap
**Weeks 21-46**: All three projects active simultaneously
**Weeks 47-60**: Migration project completion phase

#### Workload Distribution by Persona Type

| Persona Type | Total Weeks Active | Total Workload (Days) | Percentage |
| --- | --- | --- | --- |
| Migration Specialist | 40 | 200 | 9.9% |
| Application Developer (3x) | 16 | 240 | 11.9% |
| RH OVE Engineer (2x) | 24 | 240 | 11.9% |
| VMware Administrator (2x) | 28 | 280 | 13.9% |
| DevOps Engineer (2x) | 36 | 360 | 17.9% |
| Infrastructure Architect | 18.5 | 92.5 | 4.6% |
| System Administrator (2x) | 16 | 160 | 8.0% |
| Security Engineer | 16 | 80 | 4.0% |
| Network Engineer | 20 | 100 | 5.0% |
| Solution Architect | 12 | 60 | 3.0% |
| Testing Specialist | 4 | 20 | 1.0% |
| Security Specialist | 12 | 60 | 3.0% |
| Business Analyst | 4 | 20 | 1.0% |
| Application Owner (2x) | 26 | 260 | 12.9% |
| Performance Engineer | 18 | 90 | 4.5% |
| Backup Administrator | 30 | 150 | 7.5% |

#### Notes

1. **Part-time allocation**: Infrastructure Architect works part-time (2.5 days/week) during Implementation phase
2. **Resource multiplication**: Numbers in parentheses (e.g., 2x, 3x) indicate multiple resources of the same type
3. **Phase overlap**: Some personas work across multiple phases with varying intensity
4. **Workload estimates**: Based on standard 5-day work weeks for full-time resources
5. **Flexibility**: Resource allocation can be adjusted based on project needs and availability

#### Risk Factors Affecting Workload

1. **Skill scarcity**: Specialized RH OVE and migration expertise may require extended timelines
2. **Timeline compression**: Accelerated delivery may require additional parallel resources
3. **Scope changes**: Additional use-cases or migration complexity could increase workload
4. **Resource availability**: Team member availability and scheduling conflicts may impact timelines
5. **Learning curve**: New team members may require additional time for technology familiarization