Technical Research Study

PROWESS DELL Technologies

Faster Deployment, Lower IT Labor Costs

Tests show how Dell™ Private Cloud reduces Day-0 through Day-2 operational effort compared to traditional three-tier architectures for VMware® and Red Hat® OpenShift® workflows.

Executive Summary

Enterprise IT organizations continue to underestimate the labor required to deploy and manage private cloud infrastructure. Hardware acquisition costs tend to anchor infrastructure business cases, but operational labor spread across deployment, scaling, and ongoing administration can quietly compound into larger long-term costs.

To evaluate whether integrated private cloud architecture can reduce these operational burdens, Prowess Consulting conducted a controlled, task-level study comparing Dell™ Private Cloud against a traditional three-tier architecture across Day-0 through Day-2 operations in VMware® and Red Hat® OpenShift® environments. Our test results show that, compared to a traditional three-tier architecture, Dell Private Cloud can reduce combined Day-0 and Day-1 deployment time by up to 25 hours per cluster, representing a reduction of up to 63%. Day-1 provisioning and configuration time dropped by as much as 85%, and Day-2 ongoing administration required up to 66% less time per cluster. These results are based on measured task execution during controlled testing.

At enterprise scale, the time savings can translate into meaningful modeled labor cost reductions. At 25 clusters, Day-0 and Day-1 deployment savings can reach up to $18,750. At 100 clusters, those savings increase to up to $75,000, excluding recurring Day-2 savings.

Prowess Consulting found that, compared to traditional three-tier architectures for VMware® and Red Hat® OpenShift® workflows, Dell™ Private Cloud can result in up to:

63% FEWER
Day-0 and Day-1 deployment hours

85% LESS
Day-1 provisioning time

66% LOWER
Day-2 administration time

Study Overview

Enterprise IT teams are under sustained pressure to deploy infrastructure faster and maintain consistency across environments. They are also under pressure to do all of that while reducing management overhead. These demands intensify as organizations operate with leaner teams and expand private cloud footprints.

Private cloud infrastructure has moved from a legacy preference to a strategic priority. Organizations invest in private clouds to maintain control over their sensitive data, meet regulatory compliance requirements, and achieve the predictable operational costs that public cloud environments often cannot guarantee. As AI initiatives demand tighter governance over proprietary datasets, dedicated infrastructure has become all the more important.

The investment in private cloud infrastructure only delivers its full value if that infrastructure can be deployed and managed efficiently. Private cloud deployments span multiple stages and infrastructure layers, each with its own tooling and workflow. In traditional three-tier environments, that fragmentation introduces handoffs, validation steps, and reworks that can reduce delivery speeds and increase labor costs. The impact of this fragmentation extends beyond the initial deployment, with ongoing administrative tasks repeated across every cluster and persisting for the life of the platform.

Operational labor costs can be difficult to quantify and are often underrepresented in infrastructure business cases. As organizations scale private cloud environments to support modernization initiatives and AI workloads, the cumulative cost of manual and fragmented workflows becomes harder to ignore. Moreover, as organizations modernize their infrastructures and reassess their long-term platform commitments, architectural flexibility and freedom from hypervisor lock-in also become operational considerations. This is particularly true when tooling management differs across platforms.

Study Motivation and Scope

Prowess Consulting designed this study, commissioned by Dell Technologies, to evaluate whether integrated private cloud automation can reduce operational effort in a measurable and reproducible way. Dell Private Cloud served as the representative integrated platform on which we evaluated whether integrated private cloud solutions materially reduce operational effort versus traditional three-tier designs. With that goal in mind, we used two three-tier cluster designs as the comparison baseline for this study.

Our study assessed both VMware and Red Hat OpenShift environments across the full Day-0 through Day-2 operational lifecycle. The primary objective was to determine whether Dell Private Cloud reduces the time required to deploy, configure, scale, and administer infrastructure compared to a conventional three-tier approach. A secondary objective was to translate measured time differences into a model labor-cost impact suitable for infrastructure business cases and operating expense (OpEx) planning.

The scope included planning and installation, provisioning and configuration, scaling activities, and ongoing administration. The study did not evaluate application performance, workload benchmarking, or procurement cost, which fell outside its focus on operational effort.

Architectural Approaches Compared

The choice of architectural approach shapes deployment and ongoing operational workflows. This study focuses on the structural differences between integrated private cloud solutions and traditional three-tier solutions that influence administrative effort over time.

Traditional Three-Tier Architecture

Traditional three-tier architecture organizes compute, storage, and networking as independently managed layers. Each layer uses its own hardware, tooling, and operational processes. This separation can offer component-level flexibility, but it also introduces coordination overhead across the infrastructure lifecycle.

During deployment, teams typically work through each layer in sequence. Compute, storage, and networking specialists configure their respective domains using separate interfaces. Tasks often require handoffs between teams, along with validation steps to confirm that configurations align across layers. As cluster count grows, these handoffs become more frequent and more difficult to standardize.

Day-2 operations reflect the same pattern. Routine activities such as node additions, capacity expansion, and firmware updates require actions in multiple management tools. Administrators must maintain proficiency across each domain and ensure that changes remain consistent over time. This fragmentation increases the effort required to scale environments and raises the risk of configuration drift.

Dell Private Cloud Architecture

Dell Private Cloud is a software platform that runs on standard Dell™ PowerEdge™ servers, the same hardware used in many traditional three-tier deployments; it is not a hyperconverged infrastructure (HCI) appliance or a specialized hardware configuration. The platform ties together three components:

- Dell storage (either platform-integrated Dell PowerStore™ with full automation and lifecycle management or validated Dell storage managed independently)
- PowerEdge compute (either new or existing servers, with no specialized equipment required)
- Third-party cloud operating system (OS) licenses sourced through the customer's preferred channels

VMware solutions, Red Hat OpenShift, Nutanix® solutions, and Microsoft® Azure® Local each integrate into their native management consoles (VMware vSphere®, OpenShift Web Console, Nutanix® Prism®, and the Azure portal) so teams continue working in familiar tools without retraining.

Compute, storage, and networking resources are orchestrated through the Dell™ Automation Platform, a unified management layer, rather than managed as separate stacks. Operational workflows are defined through blueprints that coordinate configuration and lifecycle tasks across infrastructure domains.

Dell Private Cloud supports VMware, Red Hat OpenShift, Nutanix, and Azure Local environments on a common management foundation, reducing the need for separate operational models per platform. Compute options include PowerEdge R6715, R6725, R7715, and R7725 servers powered by 5th Gen AMD EPYC™ processors. These platforms provide high core densities and modern memory and input/output (I/O) architectures, which give organizations additional flexibility when designing and scaling private cloud environments. Higher workload density can help improve infrastructure utilization and create opportunities to reduce software licensing, power, cooling, and management costs as environments grow.

Independent scaling of compute, storage, and networking follows orchestrated workflows rather than manual, layer-by-layer coordination, reducing the operational effort associated with scaling events and routine administration over time.

Operational Use Cases Evaluated

In this study, we focused on the operational work required to deploy and manage private cloud infrastructure. The use cases we selected reflect the tasks IT teams perform in real environments, rather than abstract platform capabilities.

The Operational Lifecycle

Private cloud operations fall into distinct phases, each with distinctive characteristics and cost drivers:

- **Day-0** includes planning and physical installation activities, such as site preparation, rack-and-stack, cabling, and initial hardware-readiness checks. While these tasks are common across architectures, the time required varies based on workflow complexity, coordination requirements, and validation steps.
- **Day-1** covers base configuration and cluster bring-up. Tasks include storage provisioning, host hardware and firmware preparation, platform installation, cluster creation, and host and operating system networking. Architectural differences have the greatest impact during this phase, as workflows diverge sharply between integrated and layered environments.
- **Day-2** encompasses the ongoing administrative work that continues throughout the life of the platform. This includes node additions, capacity expansion, firmware updates, monitoring, and routine change management. These activities repeat over time and across clusters, making their cumulative labor cost a significant operational factor.

Justification for Task Selection

We selected these private cloud operations because they represent the practical administrative work that infrastructure teams perform consistently. The tasks align with documented customer deployment patterns and span the full lifecycle from initial installation through ongoing operations.

A key consideration is repeatability. Deployment and administration tasks occur once per cluster, but organizations rarely manage one. As environments scale, per-cluster time differences accumulate into measurable operational costs. Day-2 tasks compound further, as they recur throughout the operational life of each environment.

Study Methodology

This study evaluated Dell Private Cloud against a traditional three-tier architecture using a time-on-task measurement framework. The methodology focused on quantifying the labor required to perform equivalent deployment and administration tasks across both platforms.

Test Framework and Comparison Model

We evaluated both Dell Private Cloud and a traditional three-tier architecture in VMware and Red Hat OpenShift environments. This produced two comparison scenarios: Dell Private Cloud with VMware solutions versus a three-tier architecture with VMware solutions, and Dell Private Cloud with Red Hat OpenShift versus a three-tier architecture with Red Hat OpenShift.

We collected all measurements on a per-cluster basis. Results are presented both as individual cluster outcomes and as modeled enterprise-scale scenarios to illustrate how time differences accumulate across larger environments.

Operational Activities Measured

Our study measured the time required to complete representative tasks across the private cloud operational lifecycle. These tasks included:

- Planning and physical installation
- Base configuration
- Storage provisioning
- Host hardware and firmware preparation
- Platform installation
- Cluster creation
- Host and operating system networking
- Node-add and ongoing administrative workflows

We selected these tasks to reflect documented customer deployment patterns and routine administrative practices. We measured each task from initiation through validated completion.

Comparative Management-Cost Framework

To translate time differences into modeled labor cost impact, we applied a fully burdened labor rate of $60 per hour for infrastructure specialists. A conservative productivity-recapture rate of 50% was applied to recovered hours to reflect the reality that not all saved time converts directly into productive output.

We used the resulting effective savings rate of $30 per recovered hour consistently across all scenarios. Modeled cost figures are presented as comparative guidance rather than guaranteed customer savings. Actual results will vary based on the environment, staffing model, labor rates, and operational practices.

Finding 1: Dell Private Cloud Can Reduce Day-0 and Day-1 Deployment Effort

Day-0 and Day-1 activities establish the operational baseline for a private cloud environment. Delays or inconsistencies during this phase can extend time to production and consume specialist labor that is difficult to recover later. Our testing shows that integrated private cloud architecture can materially reduce the effort required to complete these tasks.

Day-0 and Day-1 Deployment Results

For combined Day-0 and Day-1 activities, Dell Private Cloud required 14.25 hours per cluster. A traditional three-tier architecture required 35.25 hours per cluster in a VMware environment and 39.25 hours per cluster in a Red Hat OpenShift environment (see Table 1). This represents time savings of 21 hours per cluster versus VMware and 25 hours per cluster versus Red Hat OpenShift, corresponding to reductions of 59% and 63%, respectively.

When planning activities are excluded to focus on hands-on execution tasks, the difference narrows but remains significant. Dell Private Cloud required 9.75 hours per cluster for Day-0 and Day-1 execution activities. The comparable figures were 18.25 hours for a three-tier VMware environment and 22.25 hours for a three-tier Red Hat OpenShift environment (see Table 1). This reflects savings of 8.5 hours and 12.5 hours per cluster, or reductions of 46% and 56%, respectively.

Table 1 | Day-0 and Day-1 results (all times in decimal hours)

Metric	Three-Tier VMware® Environment	Dell™ Private Cloud with VMware	Three-Tier Red Hat® OpenShift® Environment	Dell Private Cloud with Red Hat OpenShift
Total time	35.25	14.25	39.25	14.25
Time saved	–	21.00	–	25.00
Reduction	–	59%	–	63%
Total (without planning)	18.25	9.75	22.25	9.75
Saved (without planning)	–	8.50	–	12.50
Reduction (without planning)	–	46%	–	56%

Why Deployment Simplification Matters Operationally

The measured time differences reflect differences in deployment workflow rather than task scope. In a traditional three-tier architecture, deployment activities require sequential configuration across compute, storage, and networking domains, with validation and coordination between each step. Dell Private Cloud coordinates these activities through predefined workflows that reduce manual sequencing and cross-team handoffs.

For organizations deploying multiple clusters, these per-cluster differences accumulate quickly. Shorter deployment cycles reduce time to production and improve consistency across environments, which can lower the likelihood of post-deployment rework and configuration remediation.

Finding 2: Dell Private Cloud Can Streamline Day-1 Provisioning and Configuration

Day-1 provisioning and configuration represent the most workflow-intensive phase of private cloud deployment. Tasks during this stage require precise sequencing and coordination, which makes them sensitive to tooling fragmentation and manual handoffs. Prowess Consulting's testing shows that integrated private cloud architecture can reduce the effort required to complete these activities.

Day-1 Provisioning and Configuration Results

In our testing, Dell Private Cloud required 2.5 hours per cluster to complete Day-1 provisioning and configuration tasks. A traditional three-tier architecture required 13.0 hours per cluster in a VMware environment and 17.0 hours per cluster in a Red Hat OpenShift environment (see Table 2). This corresponds to time savings of 10.5 hours and 14.5 hours per cluster, respectively, representing reductions of 80% and 85%.

These measurements cover execution tasks only, including provisioning, configuration, and cluster bring-up. Planning activities were excluded to isolate hands-on operational effort.

Table 2 | Day-1 results (all times in decimal hours)

Metric	Three-Tier VMware® Environment	Dell™ Private Cloud with VMware	Three-Tier Red Hat® OpenShift® Environment	Dell Private Cloud with Red Hat OpenShift
Total time	13.00	2.50	17.00	2.50
Time saved	–	10.50	–	14.50
Reduction	–	80%	–	85%

Implications for Operations Teams

In a traditional three-tier environment, Day-1 tasks require administrators to move sequentially across compute, storage, and networking tools. Configuration decisions made in one layer must be validated against the other layers, and errors identified late in the process can require rework.

Dell Private Cloud coordinates these activities through predefined workflows that manage task sequencing across infrastructure domains. This reduces the need for manual coordination and limits opportunities for inconsistency during cluster bring-up.

For operations teams, reduced Day-1 effort supports more standardized and repeatable deployments. Faster completion of this phase also improves responsiveness to internal requests for new environments, particularly in multi-cluster enterprise settings.

Finding 3: Dell Private Cloud Can Simplify Day-2 Scaling and Ongoing Operations

Day-2 operations represent a recurring source of operational effort over the life of a private cloud environment. Activities such as node additions, capacity expansion, firmware updates, monitoring, and routine change management repeat across clusters and maintenance cycles. Prowess Consulting's testing shows that integrated private cloud architecture can reduce the effort required to perform these tasks.

Day-2 Administration Results

In our testing, Dell Private Cloud required 3.75 hours per cluster to complete representative Day-2 administrative tasks. A traditional three-tier architecture required 9.25 hours per cluster in a VMware environment and 11.25 hours per cluster in a Red Hat OpenShift environment (see Table 3). This corresponds to time savings of 5.5 hours and 7.5 hours per cluster, respectively, representing reductions of 59% and 66%.

These measurements reflect a single administrative cycle and include node-add operations, scaling activities, firmware updates, monitoring, and routine administrative workflows.

Table 3 | Day-2 results (all times in decimal hours)

Metric	Three-Tier VMware® Environment	Dell™ Private Cloud with VMware	Three-Tier Red Hat® OpenShift® Environment	Dell Private Cloud with Red Hat OpenShift
Total time	9.25	3.75	11.25	3.75
Time saved	–	5.50	–	7.50
Reduction	–	59%	–	66%

Why Day-2 Efficiency Matters as Much as Speed of Initial Deployment

In a three-tier environment, Day-2 activities typically require administrators to coordinate changes across compute, storage, and networking layers using separate tools and processes. Each change introduces validation steps and coordination overhead that can increase the time required to complete routine operations.

Dell Private Cloud coordinates these activities through orchestrated workflows that manage changes across infrastructure domains. This reduces manual sequencing and limits the need for cross-team coordination during scaling and maintenance events.

Even modest per-cycle time differences can accumulate into meaningful operational impact because Day-2 tasks recur over time. Organizations that scale environments frequently or that manage large numbers of clusters are likely to see these effects compound over the operational lives of their platforms.

Finding 4: Time Savings Translate into Meaningful Management-Cost Advantages

Measured time savings have operational value on their own, but infrastructure planning and OpEx analysis require those differences to be expressed in cost terms. Prowess Consulting translated the measured time reductions from this study into modeled labor-cost impacts using a conservative management-cost framework.

Labor Cost Modeling Approach

In our testing, we used a fully burdened labor rate of $60 per hour for infrastructure specialists. To accurately represent the fact that not all recovered time results in increased productive output, we applied a 50% productivity-recapture rate. This yields an effective savings rate of $30 per recovered hour.

We applied these assumptions consistently across all scenarios. Modeled figures are intended as comparative guidance rather than guaranteed customer savings.

Deployment and Administration Cost Implications

For combined Day-0 and Day-1 deployment activities, we found that per-cluster time savings translate into modeled labor cost reductions of $630 versus a three-tier VMware environment and $750 versus a three-tier Red Hat OpenShift environment. At 25 clusters, these savings reach $15,750 and $18,750. At 100 clusters, they reach up to $63,000 and $75,000 (see Table 4). For Day-1 tasks alone, the labor savings for 100 clusters ranged from $31,500 to $43,500; for Day-2 tasks for 100 clusters, the savings ranged from $16,500 to $22,500 (see Tables 5 and 6).

Table 4 | Day-0 and Day-1 deployment labor savings

Scale	Dell™ Private Cloud vs. Three-Tier VMware® Environment	Dell Private Cloud vs. Three-Tier Red Hat® OpenShift® Environment
1 cluster	$630	$750
5 clusters	$3,150	$3,750
25 clusters	$15,750	$18,750
100 clusters	$63,000	$75,000

Table 5 | Day-1 provisioning and configuration labor savings

Scale	Dell™ Private Cloud vs. Three-Tier VMware® Environment	Dell Private Cloud vs. Three-Tier Red Hat® OpenShift® Environment
1 cluster	$315	$435
5 clusters	$1,575	$2,175
25 clusters	$7,875	$10,875
100 clusters	$31,500	$43,500

Table 6 | Day-2 ongoing administration labor savings

Scale	Dell™ Private Cloud vs. Three-Tier VMware® Environment	Dell Private Cloud vs. Three-Tier Red Hat® OpenShift® Environment
1 cluster	$165	$225
5 clusters	$825	$1,125
25 clusters	$4,125	$5,625
100 clusters	$16,500	$22,500

Note that the Day-2 figures in Table 6 reflect a single administrative cycle. Actual cumulative savings over a multi-year platform lifecycle will be substantially larger for organizations that scale and maintain clusters regularly. For example, Table 7 projects the labor savings for adding five nodes per cluster per year for Dell Private Cloud versus a three-tiered architecture over both three-year and five-year server lifecycles.

Table 7 | Day-2 ongoing node-add labor savings (assumes adding five nodes per year per cluster)[1]

Scale	Dell™ Private Cloud vs. Three-Tier VMware® Environment (3-year lifecycle)	Dell Private Cloud vs. Three-Tier Red Hat® OpenShift® Environment (3-year lifecycle)	Dell Private Cloud vs. Three-Tier VMware Environment (5-year lifecycle)	Dell Private Cloud vs. Three-Tier Red Hat OpenShift Environment (5-year lifecycle)
1 cluster	$2,475	$3,375	$4,125	$5,625
5 clusters	$12,375	$16,875	$20,625	$28,125
25 clusters	$61,875	$84,375	$103,125	$140,625
100 clusters	$247,500	$337,500	$412,500	$562,500

When planning activities are excluded to reflect an execution-only view, modeled savings remain material, though smaller in absolute terms. Day-1 provisioning and configuration savings, modeled independently, also scale directly with cluster count.

Day-2 administration savings are calculated per administrative cycle. While individual cycle savings are modest on a per-cluster basis, they recur over time. Organizations that scale environments frequently or that operate large numbers of clusters can expect these savings to accumulate over their platforms' operational lives.

Interpreting the Results

These modeled figures provide a structured way to incorporate operational labor into infrastructure business cases. Actual outcomes will vary based on labor rates, staffing models, skill levels, and how effectively recovered time is redirected to higher-value work. The underlying time data, measured at the task level, allows organizations to adjust assumptions and apply the framework to their own environments.

Platform Value Beyond the Timed Tasks

The measured time and labor cost reductions in this study capture only part of the operational impact of private cloud architecture. Several additional factors influence how infrastructure teams experience deployment and ongoing management over time.

Unified Management and Simplified Control Plane

Dell Private Cloud consolidates the administration of compute, storage, and networking under a single management layer powered by the Dell Automation Platform. In contrast, traditional three-tier environments require administrators to work across multiple tools, each with its own interface, workflows, and update cycles.

A unified control plane reduces the number of systems that administrators must actively manage. This can lower cognitive overhead and simplify training. It can also make it easier to maintain consistent operational practices, particularly in environments with staffing constraints or shared responsibilities across teams.

Monitoring, Visibility, and Operational Consistency

Three-tier architectures often rely on separate monitoring tools for each infrastructure layer. This can result in operational visibility being distributed across systems and must be reconciled manually during troubleshooting or change events.

Dell Private Cloud provides a more consistent monitoring posture across supported environments. This consistency can improve situational awareness during routine operations and can reduce the effort required to identify and resolve issues. Over time, standardized visibility also helps limit configuration drift across clusters and sites.

Flexibility, Platform Choice, and Lifecycle Control

Dell Private Cloud is compatible with VMware, Red Hat OpenShift, Nutanix, and Azure Local environments. This wide compatibility enables organizations to manage several platforms using a unified management framework, instead of maintaining different operational models for each platform.

This approach can reduce long-term operational disruption as platform requirements evolve. Organizations can introduce innovative technologies or adjust platform strategies without rebuilding core management workflows, which can help lower transition risk over the infrastructure lifecycle. Moreover, Dell Private Cloud and Dell Automation Platform together decouple the management layer from any single hypervisor or platform. This decoupling helps organizations reduce their dependence on long-term vendor commitments and gives them greater flexibility to adapt platform choices over time.

Dell Automation Studio extends this management foundation to additional technologies and tools. This extension enables organizations to incorporate new capabilities without rearchitecting existing operational workflows.

Operational Risk Reduction

Fewer integration points and fewer manual handoffs reduce opportunities for error. More consistent deployment and administration workflows also make outcomes easier to predict across environments.

For organizations managing private clouds at scale, this predictability has practical value. It can reduce incident response effort, simplify change management, and improve confidence when planning deployment timelines or expansion activities.

What These Findings Mean for Enterprise IT Organizations

The findings in this study highlight how architectural choices shape operational effort over time. For organizations managing private clouds at scale, these effects extend beyond individual deployment events and influence daily operations, staffing models, and cost predictability.

Implications for Infrastructure and Platform Teams

For infrastructure and platform teams, reduced deployment and administration effort changes how work is allocated. Tasks that previously required extended coordination across teams and tools can now be completed more quickly and with greater consistency. This shortens time-to-production and reduces variability between environments.

Lower Day-2 administrative effort also affects long-term operations. Scaling events, maintenance cycles, and routine changes require less coordination and fewer manual steps. Over time, this can free skilled staff to focus on higher-value activities such as architecture planning, optimization, and workload enablement rather than repetitive execution.

Operational consistency is another practical outcome. When deployment and administration follow repeatable workflows, teams spend less time troubleshooting configuration differences across clusters and sites. This consistency is difficult to enforce in fragmented environments without significant process overhead.

Implications for Financial and Business Stakeholders

For financial and business stakeholders, this study provides a clearer way to evaluate private cloud OpEx. The modeled labor savings translate measured operational effort into cost terms that can be incorporated into infrastructure business cases alongside capital expenditures (CapEx).

More predictable deployment and administration effort can also reduce planning uncertainty. When operational labor is easier to estimate, organizations can make more informed decisions about scaling strategies, staffing requirements, and long-term platform investments.

Operational Implications of Integrated Private Cloud Architecture

Private cloud infrastructure carries an operational labor cost that many organizations underestimate. Deployment, configuration, scaling, and ongoing administration consume specialist time throughout the infrastructure lifecycle, and those demands intensify as environments grow.

This study evaluated whether integrated private cloud architecture can reduce that burden in a measurable way. Task-level testing across VMware and Red Hat OpenShift environments shows that Dell Private Cloud consistently required less time than a traditional three-tier architecture across Day-0, Day-1, and Day-2 operations. Deployment and provisioning completed more quickly, and recurring administrative tasks required fewer hours per cycle.

When translated into modeled labor cost, these differences produce meaningful implications at enterprise scale. The findings also highlight how architectural design influences operational consistency, tooling complexity, and long-term flexibility.

Appendix A: Comparative Management-Cost Methodology

This appendix summarizes the assumptions and modeling approach used to translate measured time savings into modeled labor-cost impact.

Labor Rate and Productivity Assumptions

- **Base labor rate:** $60 per hour
  Fully burdened rate for an IT infrastructure specialist, including salary, benefits, and overhead. This rate reflects a conservative mid-market assumption. Higher-cost labor markets might experience larger absolute savings.
- **Productivity-recapture rate:** 50%
  Not all recovered time can convert into alternative productive output. This assumption accounts for meetings, context switching, and organizational overhead.
- **Effective savings rate:** $30 per recovered hour
  All modeled savings figures use this rate.

Scenario Sizing

Modeled results are presented at three representative infrastructure scales:

- **5 clusters:** Small private cloud footprint
- **25 clusters:** Mid-scale enterprise deployment
- **100 clusters:** Large-scale enterprise environment

Per-cluster time savings are multiplied directly by cluster count. The model does not apply scale discounts or efficiency premiums.

Interpretation and Limitations

The modeled labor cost figures are intended as comparative guidance, not guaranteed customer savings. Actual results will vary based on labor rates, staffing models, skill levels, and how effectively recovered time is redirected to higher-value work.

Organizations applying these findings should adjust labor and utilization assumptions to reflect local conditions. The underlying task-level time measurements provide a consistent basis for those adjustments.

Appendix B: Test Tasks

Note: All times in decimal hours

Major Activity	Task Category	Task	Three-Tier VMware® Environment	Dell™ Private Cloud with VMware	Three-Tier Red Hat® OpenShift® Environment	Dell Private Cloud with Red Hat OpenShift
Three-node, three-tier environment	Planning	Solution planning	3	1	3	1
Day 0	Planning	Dell™ Automation Platform planning	–	0.5	–	0.5
Day 0	Planning	Hardware and software validation	3	0.5	3	0.5
Day 0	Planning	Plan hypervisor/ Dell Private Cloud (VMware/Red Hat installation)	6	1	6	1
Day 0	Planning	Plan storage	4	0.5	4	0.5
Day 0	Planning	Plan network and switch install	1	1	1	1
Day 0	Orchestrator install	Install Dell Automation Platform Orchestrator	–	2	–	2
Day 0	Physical install	Server	1.5	1.5	1.5	1.5
Day 0	Physical install	Network	1	1	1	1
Day 0	Physical install	Storage	1.5	1.5	1.5	1.5
Day 0	Base configuration	Integrated Dell™ Remote Access Controller (iDRAC) initial configuration/ onboarding to Dell Automation Platform	0.25	0.25	0.25	0.25
Day 0	Base configuration	Network switch configuration	0.5	0.5	0.5	0.5
Day 0	Base configuration	Storage base configuration	0.5	0.5	0.5	0.5

Major Activity	Task Category	Task	Three-Tier VMware® Environment	Dell™ Private Cloud with VMware	Three-Tier Red Hat® OpenShift® Environment	Dell Private Cloud with Red Hat OpenShift
Day 1	Storage	Storage provisioning volumes/logical unit numbers (LUNs)	1	–	1	–
Day 1	Storage	Container Storage Interface (CSI) driver install/ configuration	–	–	2	–
Day 1	Storage	Storage class and Persistent Volume (PV)/ Persistent Volume Claim (PVC) configuration	–	–	2	–
Day 1	Host hardware (HW) configuration	Server firmware (FW) updates	3	–	3	–
Day 1	Host HW configuration	Server HW/ settings configuration	1.5	–	1.5	–
Day 1	Hypervisor/OS	OS installation	3	–	3	–
Day 1	Hypervisor/OS	OS configuration	1.5	–	1.5	–
Day 1	Hypervisor/OS	Cluster creation	1.5	–	1.5	–
Day 1	Hypervisor/OS	Dell Private Cloud cluster creation	–	2.5	–	2.5
Day 1	Host/OS network	Host network configuration	1.5	–	1.5	–
Node add	Plan	Plan node add	2	0.5	2	0.5
Day 2	Physical install	Install node	0.5	0.5	0.5	0.5
Day 2	Base configuration	iDRAC initial configuration/ onboarding to Dell Automation Platform	0.25	0.25	0.25	0.25
Day 2	Host HW configuration	Server FW updates	1	0	1	0
Day 2	Host HW configuration	Server HW/ settings configuration	0.5	0	0.5	0
Day 2	Hypervisor/OS	OS installation	1	0	1	0
Day 2	Hypervisor/OS	OS configuration	0.5	0	0.5	0

Major Activity	Task Category	Task	Three-Tier VMware® Environment	Dell™ Private Cloud with VMware	Three-Tier Red Hat® OpenShift® Environment	Dell Private Cloud with Red Hat OpenShift
Day 2	Hypervisor/OS	Cluster join	0.5	0	0.5	0
Day 2	Storage	Storage provisioning volumes/LUNs	1	0	1	0
Day 2	Storage	CSI driver install/ configuration	0	0	1	0
Day 2	Storage	Storage class and PV/PVC configuration	0	0	1	0
Day 2	Host/OS network	Host network configuration	0.5	0	0.5	0
Day 2	Dell Private Cloud node add blueprint	Dell Private Cloud node add blueprint	0	1	0	1
Node remove	Migrate workloads	Migrate workloads	0.5	0.5	0.5	0.5
Day 2	Remove node	Remove node	0.5	0.5	0.5	0.5
Cryptographic node erase	Cryptographic node erase	Cryptographic node erase	0.5	0.5	0.5	0.5

Endnotes

[1] Figures for Table 7 derived by multiplying the respective 1-cluster Day-2 labor-savings figure from Table 6 for both the three-tier VMware and three-tier Red Hat OpenShift architectures by the number of clusters and the number years in a server lifecycle.

0626/260001