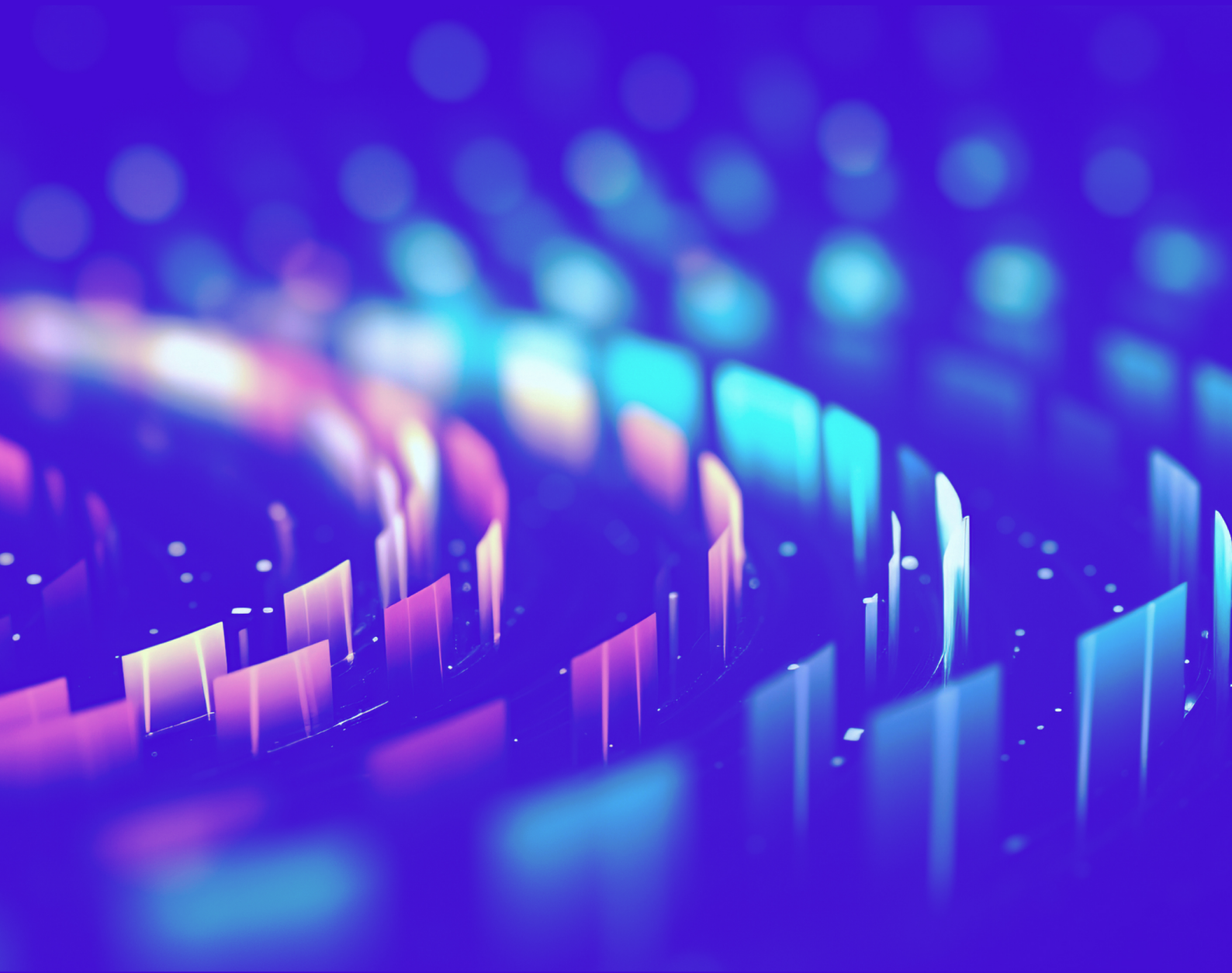


Virtual Hands-on Labs:

A Strategic Buyer's Guide



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Introduction

Considering your challenges

Training leaders today face complex responsibilities beyond traditional education development and delivery, including providing optimized content to multiple audiences, often managing full P&L operations, providing mission-critical support to other business units, and demonstrating tangible business impact.

Scalability continues to be critical as workforces disperse globally, creating a need for training to be available 24/7. Traditional customer, partner, and employee training on complex software creates bottlenecks, as individual learning environments created for different modalities, geographies, and languages generate technical overhead and inconsistent experiences.

Resource optimization pressures require strategic decisions about how staff time and technical resources are used. Training leaders must reduce development cycles while increasing effectiveness and productivity.

Meanwhile diverse learner needs—from technical training to product adoption and certification—require different approaches and metrics that current infrastructures struggle to support efficiently.

Over the past few years, virtual lab solutions have risen to address these challenges with rapidly deployed, consistently configured environments that work across various use cases and audiences.

This guide combines a strategic analysis created for VPs and Directors of Training with a practical approach to selecting the right hands-on lab solution for your organization.



02 Understanding where the virtual lab market is today

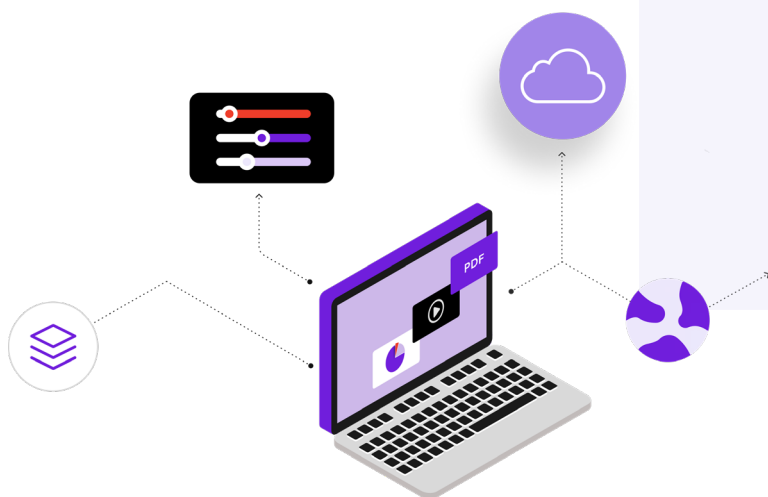
The virtual lab market has evolved significantly from its early "gold rush" days when organizations were rapidly adopting any available solution to facilitate remote hands-on training with accompanied hands-on labs. Today, we've reached critical mass in market adoption, with 65% of organizations now utilizing virtual labs, and an additional 34.5% planning implementation in the near future.¹

The market has also witnessed significant point solutions consolidation as vendors evolve from specialized standalone tools toward comprehensive integrated systems. Capabilities such as course authoring and publishing, lab environment provisioning coupled with virtual classroom, assessment, and analytics are being integrated into unified offerings that reduce procurement complexity, eliminate tool-switching, and enhance data integration.

This maturation signals a shift to the selection of solutions that measure and truly deliver business value. The market has entered a "survival of the fittest" phase. And the core criteria for decision-makers and buying committees are similar to those for any cloud-based solution.

Rapid lab creation checklist

- ☐ Cloud-agnostic solution
- ☐ Ready-made & customizable templates
- ☐ Customizable views and content
- ☐ Supports complex network scenarios
- ☐ Multi-region capabilities
- ☐ ISO file import
- ☐ Unlimited scalability
- ☐ Centralized resource center



¹CloudShare industry survey data

Solution stability is non-negotiable. Whether in training sessions, sales demonstrations, or development environments, organizations cannot afford unexpected downtime or performance issues. Similarly, product latency directly impacts user engagement and learning outcomes.

User experience has become increasingly important as organizations recognize that complex interfaces create adoption barriers. Solutions offering intuitive and seamless experiences for administrators and instructors demonstrate higher productivity and for end-users demonstrate higher engagement, faster onboarding, and greater ROI.

Interoperability with existing systems, particularly learning management systems (LMS) that capture learner activity and customer relationship management (CRM) platforms that track account activity, has also become crucial for streamlining workflows and consolidating data.

Data quality is also vital. Training departments' rising status and responsibility for enhancing organizational outcomes requires not only granular training KPIs, but also actionable insights into how they impact core business metrics, especially around customer success.

Scalability is paramount for any training organization. Leading virtual lab solutions maintain consistent training experiences regardless of volume, supporting simultaneous sessions across time zones while ensuring identical environments for all learners. They enable rapid deployment of hundreds of lab instances with centralized content control.

Pricing models for virtual labs, meanwhile, continue to evolve beyond simple per-user licensing to better align with actual usage patterns and business outcomes. Organizations are seeking flexible, cost-effective consumption models that accommodate seasonal fluctuations and business variables like expanding or declining demand.

As the virtual lab market reaches full maturity, decision-makers must evaluate solutions based on these critical factors.

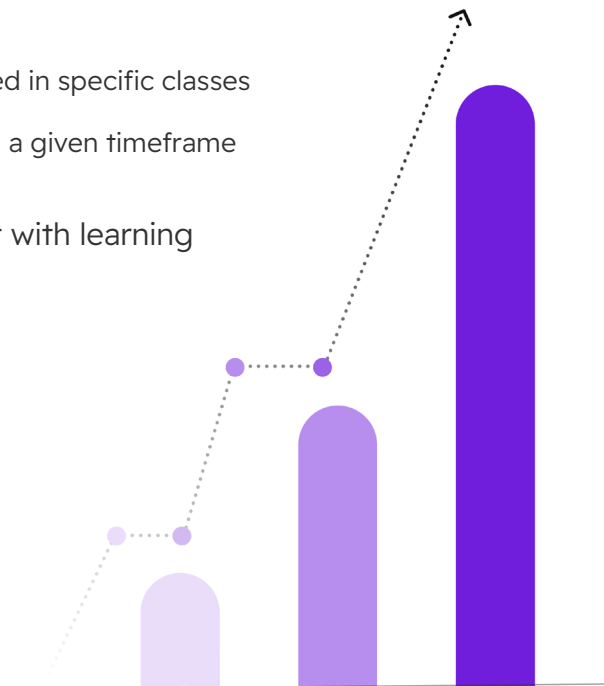
03 Core training KPIs are still key

Operational excellence metrics provide crucial baseline data about system efficiency. Content and lab development time measures how quickly teams can create and update learning lab instructions and environments—critical for curricula improvement and products with frequent release cycles. Production metrics include environment provisioning speed, deployment success rates, and resource utilization efficiency, while delivery metrics include:

- ⦿ Utilization rates: how effectively you're using your total training capacity across your entire program
- ⦿ Fill rates: the percentage of available seats that are occupied in specific classes
- ⦿ Run rates: how many training sessions can be conducted in a given timeframe

Training consumption metrics track basic engagement with learning content, including:

- ⦿ Learning progression beyond simple completion statistics
- ⦿ Time spent on specific activities
- ⦿ Engagement patterns indicating potential drop-off points
- ⦿ Areas where labs prove challenging
- ⦿ Exercises generating highest engagement
- ⦿ Components needing additional support



Customer satisfaction measurements validate that training meets learner expectations, including:

- ⦿ Traditional CSAT and NPS for overall satisfaction
- ⦿ Time-to-competency or productivity tracking for proficiency achievement
- ⦿ Knowledge-based assessments that convey understanding of the training material
- ⦿ Post-training utilization

Comprehensive metrics across delivery, consumption, and satisfaction provide training leaders with actionable intelligence to continuously optimize revenue, reduce costs, and expand their programs.

04 But the focus has widened to business metrics

Connecting virtual lab investments to core business metrics transforms how organizations perceive training value. This approach elevates training from a necessary expense to a strategic business accelerator with measurable financial impact.

Cost reductions

Support ticket volume directly correlates effective training with operational savings—well-trained users generate fewer support requests, although only 18% of organizations currently measure this relationship.² What's more, properly trained users submit more complex, high-value questions rather than basic issues. With effective training, organizations can also highlight reduced concessions and fewer escalations requiring senior intervention, both translating to tangible savings.

Adoption acceleration

Virtual labs compress time-to-value by tracking how quickly new customers move from purchase to active usage (time-to-onboard), when users effectively apply products (time-to-productivity), and for partners, time between enablement and first sale or first successful implementation. The quicker a customer adopts a solution, the more likely they are to renew, increasing the lifetime value of the customer in terms of both Annual Recurring Revenue and Annual Run Rate.

Business growth

Training directly impacts retention metrics: 47% of renewing customers received training versus only 21% of churning customers.³ Organizations implementing virtual labs typically see faster onboarding leading to earlier expansion opportunities and higher satisfaction driving improved retention rates (GRR) and expansion through cross-selling or up-selling (NRR).

By connecting virtual lab implementation to these business outcomes, training leaders can secure executive buy-in and demonstrate quantifiable ROI beyond traditional learning metrics.

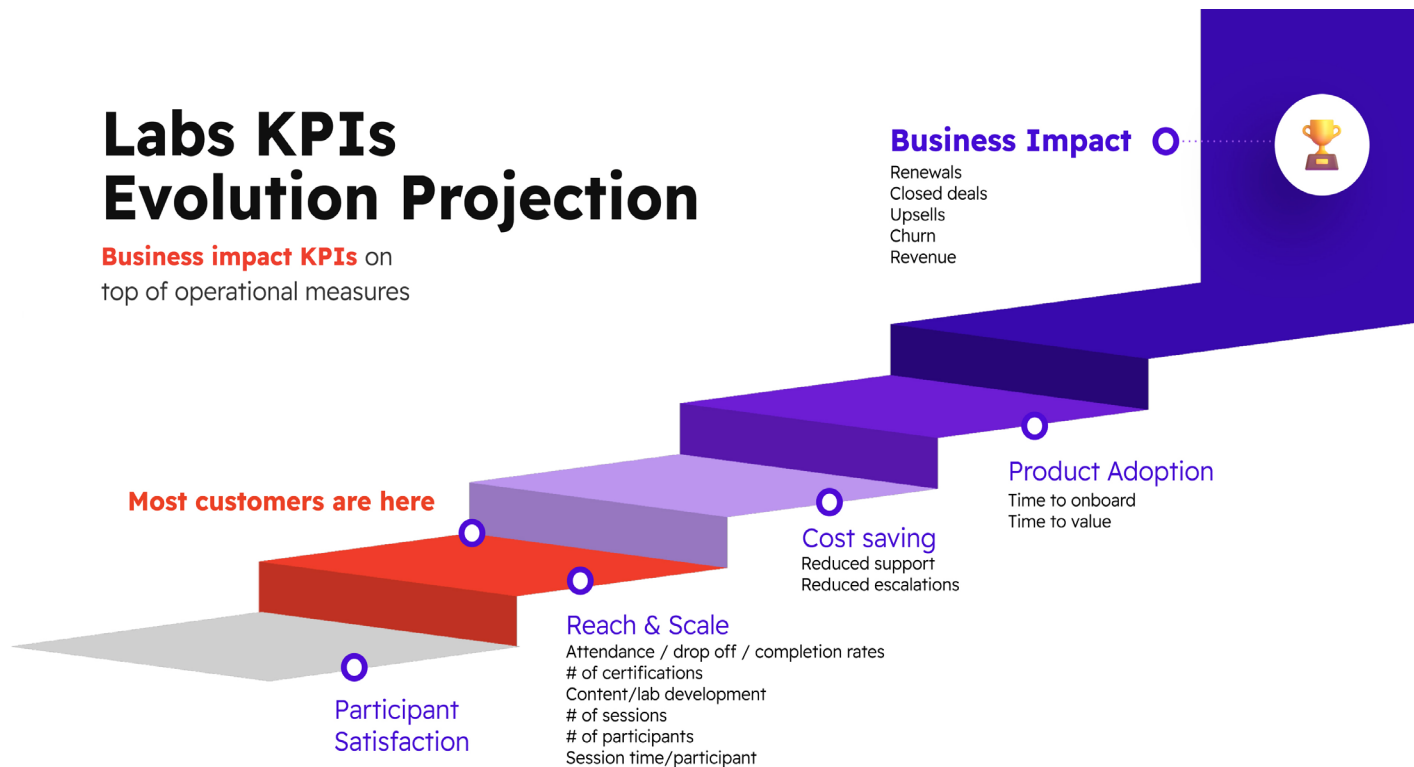
^{2,3} CEdMA Enterprise

Analytics

Demonstrating ROI

Labs KPIs Evolution Projection

Business impact KPIs on
top of operational measures



Effective use of analytics can significantly enhance the impact of hands-on training programs. CloudShare Analytics is designed to provide visibility across key stages of customer engagement, helping teams make data-informed decisions that drive both operational and strategic improvements.

1

Participant satisfaction

Analytics begins with insight into learner experience. Feedback and engagement metrics help identify what's working within sessions and where improvements are needed. This ensures that training programs remain relevant and effective.

2

Reach and scale

CloudShare tracks attendance patterns, drop-off rates, completion rates, number of sessions, and time spent per participant. These metrics allow organizations to assess how well their training is scaling, and to plan for future growth or refinement.

3

Cost efficiency

By highlighting reductions in support needs and fewer escalations, analytics can support more efficient resource allocation. Identifying where processes can be streamlined contributes to lowering overall delivery costs.

4

Product adoption

Metrics such as time to onboard and time to value help training teams evaluate how effectively their programs support product adoption. This data can be used to shorten learning curves and ensure customers or employees quickly become productive.

5

Business impact

CloudShare's analytics connect training performance to broader business outcomes, including renewals, cross-sell and upsell opportunities, reduced churn, and revenue generation. For many teams, this makes it easier to align training investments with measurable return.

Rather than functioning as a standalone reporting feature, CloudShare Analytics is positioned as a business support tool—enabling teams to connect day-to-day learning and sales enablement activities with high-level strategic goals.

06 Controlling virtual lab costs

Effective cost management is critical for maximizing virtual lab ROI by ensuring financial sustainability while delivering optimal value.

Key cost drivers include usage, computation resources (VMs, containers, serverless functions), storage for images and data, network transfers, license fees, and administrator time.

Leading virtual lab solutions now offer analytics-driven cost control approaches, including analyzing usage patterns for efficient resource scheduling, monitoring performance to prevent overprovisioning, and tracking user behavior to streamline features.

Similarly, cloud management strategies can leverage reserved capacity for baseline needs with on-demand resources for fluctuations.

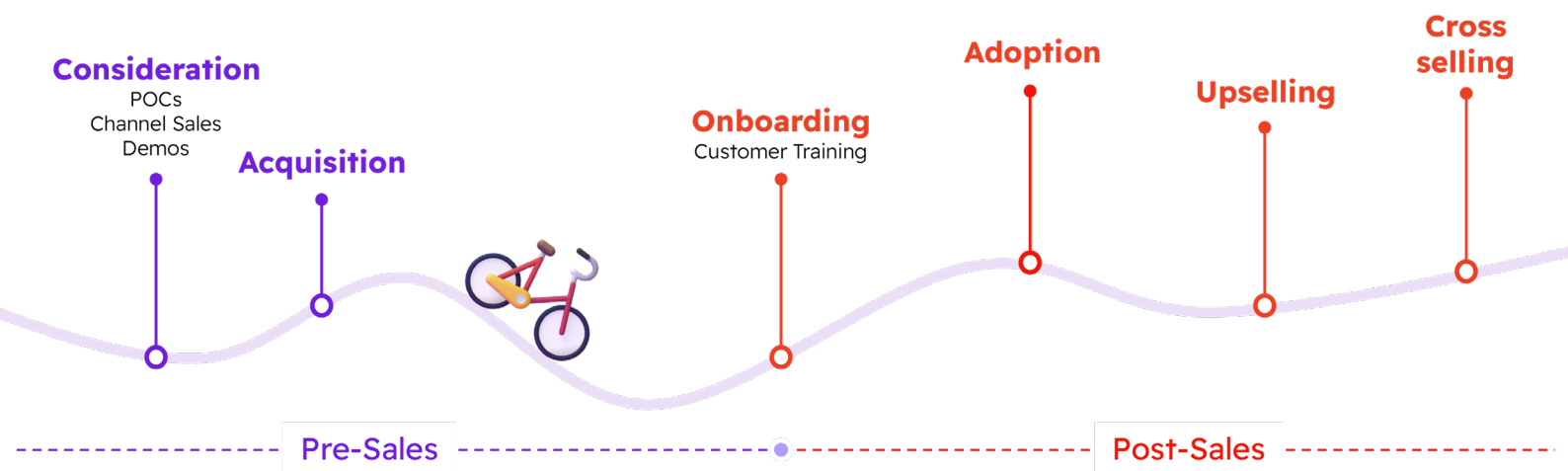
These strategies can expand virtual lab accessibility while maintaining or reducing overall expenditure, significantly improving ROI.



Cost optimization checklist

- ☐ Automatic provisioning, deprovisioning, and management
- ☐ Auto-sensing and suspension of idle environments
- ☐ Policies for environment lifetime and maximum resource usage
- ☐ On-demand reporting and real-time usage metrics
- ☐ Spending control within projects
- ☐ Custom resource alerts
- ☐ Software licenses included

Building an integrated customer experience strategy



By developing this integrated customer experience strategy, organizations ensure virtual labs deliver an exceptional user experience with maximum value across the business, rather than serving as isolated training tools with limited impact.

Creating a cohesive customer experience requires integrating learning environments within the customer journey, positioning virtual labs as critical touchpoints.

This approach maps the customer lifecycle from awareness through renewal, with virtual environments serving multiple purposes: pre-sales demonstrations to prospects, post-purchase customer onboarding, and ongoing feature adoption support.

Cross-functional alignment ensures consistent customer experiences throughout their journeys:

- ⦿ Marketing offers free trials and test drives, generating Education Qualified Leads and MQLs that are more likely to become SQLs.
- ⦿ Sales delivers compelling demonstrations and POCs, highlighting product value.
- ⦿ Training provides structured onboarding learning paths within these environments for the new customer.
- ⦿ Training and Customer Success accelerate onboarding and product adoption.
- ⦿ Support troubleshoots and replicates issues highlighted by customer support tickets.
- ⦿ Professional Services helps customers configure the solution for their unique business needs and will need POC environments to demonstrate prototypes.

This internal cross-functional alignment ensures consistent messaging and a seamless experience throughout the customer lifecycle.

System integrations between CRM, LMS, support ticketing, and customer success platforms provide customer engagement visibility, including leading churn indicators, track progress and certification, facilitate issue reproduction and resolution, and inform customer intervention strategies.

Content reusability maximizes efficiency and productivity by repurposing environments across functions, with certain required modifications, ensuring virtual labs deliver maximum value and consistency across the business.

08 Mapping your use case(s) for larger enterprise support

Virtual labs deliver value across multiple organizational functions. By understanding not only your here-and-now needs, but also the full spectrum of future use cases, you'll be able to select a solution that addresses immediate pain points while providing flexibility for future expansion.

Customer education remains the most common virtual lab implementation. Virtual lab environments enable practical, hands-on software training without risking production systems. Learners can experiment freely in simulated environments, make mistakes safely, and develop confidence before applying skills to real-world scenarios.

Internal and partner technical product training leverages the same advantages for both employee development and partner training, if channel is a key part of your company's go to market strategy. Whether onboarding new team members, cross-training existing staff, or building specialized technical skills, virtual labs provide consistent, accessible learning environments which are particularly valuable for distributed teams.

Sales and partner enablement virtual labs host compelling, interactive product demonstrations that allow prospects to experience actual functionality. Sales engineers can develop standardized proof-of-concept environments that showcase capabilities while maintaining visibility into and control over the experience, reducing sales cycles and increasing conversion rates. This extends to partners who need the same level of knowledge and adherence to best practices.

Sandboxing for software development, testing, and exploration is another key use case. Development teams can create isolated environments to test new features before release without affecting production systems. Support teams can reproduce customer-reported issues in controlled settings, and product managers can explore integration possibilities in secure, contained spaces.

By identifying which of these use cases align with your organizational priorities, you can better evaluate potential solutions and build a compelling business case that addresses multiple stakeholders' needs.

09 Leveraging applicable AI

Artificial intelligence capabilities are transforming virtual lab environments, enhancing both administrative efficiency and learning effectiveness. Forward-thinking organizations are leveraging these technologies to create more personalized, scalable, and measurable training experiences.

Automated assessment evaluates user actions in lab environments, providing granular insight into knowledge and application mastery. This eliminates the delays caused by instructors having to manually review every step for each learner. For self-paced learning, it allows immediate feedback without instructor involvement, accelerating the learning cycle. Some platforms employ computer vision to automatically verify task completion by analyzing screen content, eliminating the need for complex scripting to track user actions.

Adaptive learning paths represent the next evolution in personalized training. By analyzing performance patterns across exercises, AI can dynamically adjust content difficulty, recommend supplementary materials, or modify challenges based on individual strengths and weaknesses.

Natural language processing will further enhance the learning experience through intelligent assistants that can answer questions, provide guidance, and explain concepts within the lab environment, reducing dependency on live instructor support.

Predictive analytics helps organizations optimize resource allocation by forecasting usage patterns, identifying learners who may need additional support, and projecting certification outcomes based on early performance indicators.

Content generation tools are already assisting in creating lab instructions, exercises, and assessment criteria based on product documentation and learning objectives. While still requiring human review, these tools accelerate development cycles and help maintain consistency.

By strategically implementing these AI capabilities, organizations can create more effective, scalable learning experiences while reducing administrative overhead and instructor workload.

10 Supporting delivery modalities

When implementing virtual IT labs, organizations must determine which delivery modalities best serve their various use cases and audience needs. Three primary approaches have emerged, each offering distinct advantages for different scenarios.

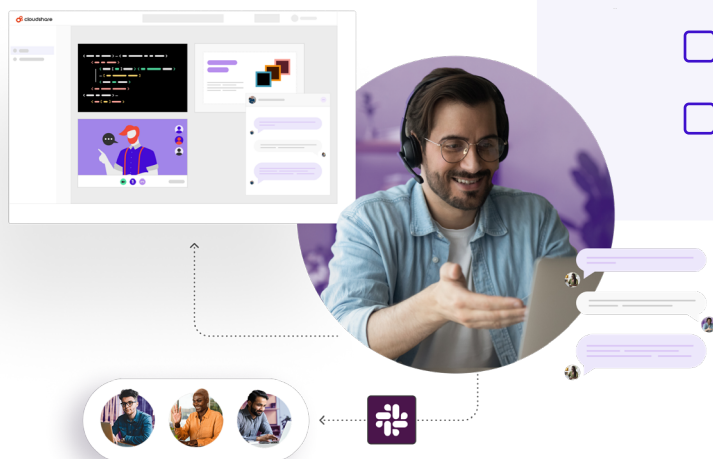
Virtual Instructor-Led Training delivers premium synchronous experiences combining traditional teaching with hands-on practice in safe environments built around experimentation. Instructors can monitor participant actions in real time, identify struggling learners, and provide targeted assistance.

Advanced solutions offer personalized environments for specific customer needs or industry scenarios.

Enterprise solutions ensure fast global deployment with consistent experiences regardless of location, allow quick environment duplication as participation numbers change, and integrate collaboration tools such as low-latency over-the-shoulder view, live chat, A/V functionality, multi-instructor mode and VM screen share.

VILT Checklist

- ☐ Automatic post-registration distribution of lab credentials
- ☐ No plugin installation requirement
- ☐ Good-to-go confirmation protocol
- ☐ Reliable over-the-shoulder capability
- ☐ Multi-instructor option
- ☐ Live chat functionality - between instructors & students
- ☐ Screen takeover feature
- ☐ A/V capability
- ☐ Environment broadcast facility



Self-paced learning accommodates participants requiring schedule flexibility, allowing access to lab environments at their convenience with the ability to pause and resume. These labs typically include detailed instructions and may offer automated validation and progress tracking, featuring both guided walkthroughs and open-ended challenges. Effective implementations include assistance mechanisms to prevent learners from becoming blocked on difficult exercises.

Hybrid approaches blend modalities for engagement and flexibility, including instructor-led kickoffs with self-paced practice, or self-paced preparation followed by live discussion. Organizations may offer instructor "office hours" during specific periods or create community forums for peer assistance. These models balance self-paced efficiency with the engagement and personalization benefits of live instruction.

Selecting the appropriate delivery model—or combination of models—depends on audience needs, content complexity, resource constraints, and organizational objectives.

Ensuring interoperability

Creating a seamlessly connected learning ecosystem requires thoughtful attention to interoperability between virtual labs and complementary systems. As organizations move toward composable technology architectures, the ability to integrate lab environments with other platforms becomes increasingly critical for workflow efficiency and data continuity.

- ☐ **Learning Management System** integration enables single sign-on, automated enrollment, bidirectional data flow, and direct lab launching from learning paths.
- ☐ **Identity management** integration supports standards like SAML and OAuth for secure access across organizational boundaries without credential proliferation.
- ☐ **Content management** synchronization ensures lab environments stay updated with current product versions and documentation.
- ☐ **Analytics platforms** benefit from lab data to correlate learner engagement with business outcomes like certification, adoption, and retention.
- ☐ **API-first design** provides the foundation for custom integrations and future system compatibility.
- ☐ **REST API** web protocol exposes lab functionality via HTTP endpoints for third-party integrations.
- ☐ **LTI integration** allows secure embedding of virtual labs in learning platforms with authentication support.

By prioritizing these interoperability capabilities, organizations can construct composable tech stacks that deliver cohesive experiences while maintaining the flexibility to evolve individual components as needs change.

12 CASE STUDY

Ping Identity

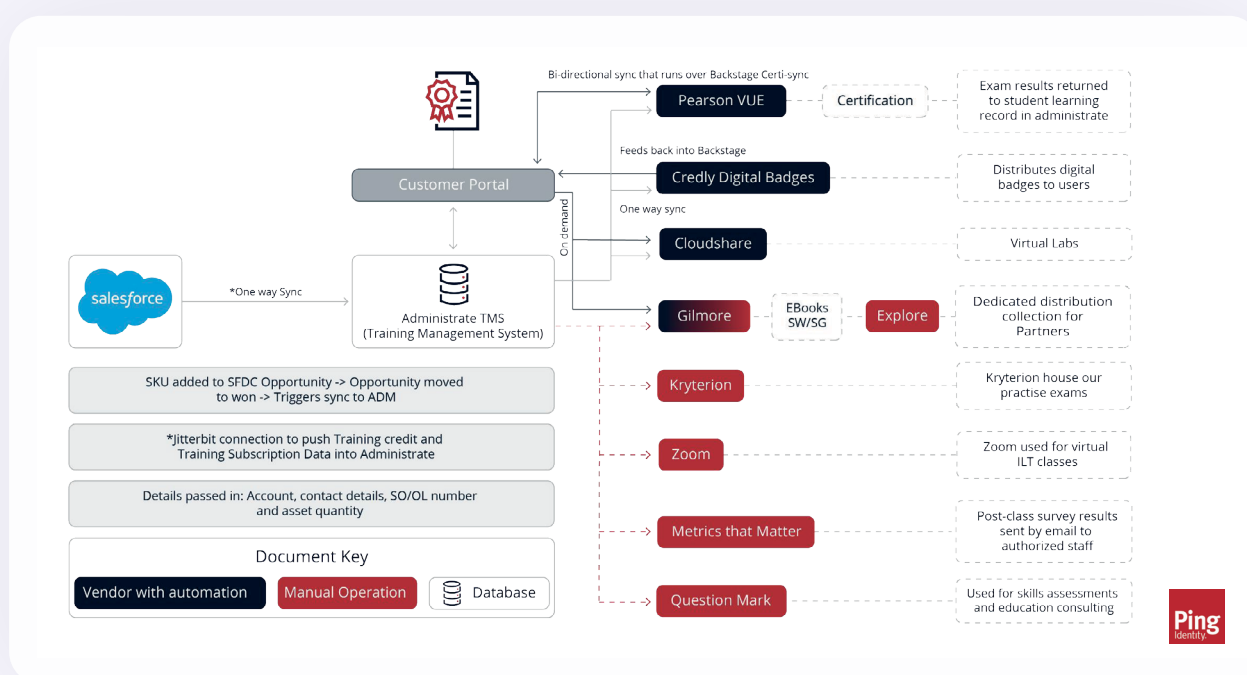


Leonie Schwede, Customer Training Director at Ping Identity, advocates for headless architecture and composable tech stacks in enterprise training programs. This approach enables greater agility, scalability, and data integration.

Composable tech stacks separate front-end experiences from back-end systems, allowing organizations to customize learner experiences while independently optimizing backends. Unlike rigid learning management systems, these modular solutions integrate specialized tools for specific business needs.

Schwede emphasizes there's no universal solution for headless architecture. Training teams must build learning infrastructures supporting specialization and long-term investment, with composable stacks enabling seamless API integration to adapt to changing needs.

At Ping Identity, training data from virtual labs serves as both a performance tracker and customer churn indicator, demonstrating how composable systems transform training from a cost center into a business intelligence asset.



13 Comparing the leading solutions

Feature	 cloudshare	 instruct	 vmware	 strigo	 skillable	 Skytap	 R
Modern & User Friendly UI	✓	✓	✓	✓	✓		
Rest API	✓	✓	✓	✓	✓	✓	✓
Live Class Analytics	✓						✓
Cloud Agnostic	✓	✓	✓		Azure & AWS	Azure & IBM	✓
Strong A/V Capability	✓						BYO
All-in-one Simple Pricing	✓		✓	✓	✓		
Stable Connection	✓	✓	✓			✓	
LTI Integration	✓	✓	✓		✓	✓	
Cloud Resource & Cost Management	✓	✓	✓			✓	✓
Collaboration Tools	✓			✓			✓
Template Library	✓	✓	✓	✓	✓	✓	✓
Live Customer Support	✓	✓		✓	✓		✓
SSO	✓	✓		✓	✓		✓
Heavy Graphics	✓	✓	✓		✓	✓	
Multi instructor	✓			✓			✓
Terraform Script	✓	✓	✓	✓		✓	
SOC 2/ISO 27001	✓	✓	✓	✓	✓	✓	
Embeddable in iFrame		✓		✓			
Step-by-step Guided Content	✓	✓		✓	✓		
AI Assessment	✓	✓					

14 CASE STUDY

Semperis



1 **Creating repeatable and familiar POCs**

As a market leader, Semperis needed a POC solution that could automate the configurations required to deliver high-quality, repeatable POCs. They saw this as a necessary step to ensure their POCs were capable of delivering cutting-edge experiences without compromising on consistency and familiarity.

2 **Empowering sales teams with the right technology**

Semperis's sales teams were no strangers to delivering high-quality POC experiences. However, they needed a solution that could keep pace with the company's rapidly expanding deal pipeline — a solution that was scalable, feature-rich, and designed with sales enablement best practices in mind.

3 **Most virtual training solutions were unsuitable for Semperis's use case**

Before finding CloudShare, Semperis explored the idea of constructing a custom-hosted environment for tests and demos on Microsoft Azure or AWS. However, they knew scaling these POCs would likely become a long-term challenge.

4 **Delivering impactful partner enablement training**

A large part of Semperis's success is their ability to enable strategic partners with high-quality training.

Accomplishing this meant finding a solution that allowed them to deliver engaging training at scale that directly caters to their partners' most important use cases.

Pricing

Semperis is able to execute POCs and deploy blueprints and demos without excessive cost. Instead, they pay only for the resources they use, with no additional fees.

Supporting Channel Partners

In addition to POC demos, Semperis has begun using CloudShare to provide its partner community with scheduled training sessions. This has considerably improved the company's relationship with its partner community, enabling more effective onboarding, increasing channel activity, and bringing in even more new prospects.

Better Insights

Account executives no longer have to stress over whether or not POC demos are going smoothly. Instead, they have access to comprehensive usage analytics that tells them exactly how and where prospects are engaging with Semperis's software.

Better Product Engagement

Thanks to CloudShare's hands-on POC environments, prospects can explore and experience the software with ease on their own, which in turn increases their chances of realizing its added value and closing the deal.

15 Facing the future

The virtual IT labs landscape is rapidly evolving with emerging technologies, changing work patterns, and new educational approaches requiring forward-thinking organizations to adapt their strategies.

A key trend is the shift from administrative Learning Management Systems to learner-centric Learning Experience Platforms, driving demand for more adaptive, self-directed virtual lab experiences with stronger integration capabilities.

Remote and hybrid work models have transformed training expectations, requiring virtual labs with lower latency, reduced bandwidth needs, and browser-based interfaces that work across locations and devices.

Experiential learning methodologies are gaining prominence, with leading organizations creating immersive environments that reflect real-world challenges beyond basic product training.

Containerization technologies offer advantages in provisioning speed and resource efficiency for certain applications, while generative AI promises to transform both content creation and learning experiences through automated scenario generation and personalized guidance.



Organizations that adapt to these trends will leverage virtual labs as strategic assets driving competitive advantage through superior skill development and accelerated expertise acquisition.

Summary

Buying the right virtual hands-on lab solution for your needs is a strategic investment in your organization's future success. Choose wisely and you'll streamline the delivery of meaningful and memorable educational content, providing consistent, scalable experiences that drive measurable business outcomes.

Your training program won't only generate higher direct revenue; it will evolve into a business growth engine, positively impacting key metrics from support costs reduction to product adoption, customer retention, and beyond.

As you evaluate your options, prioritize solutions offering stability, intuitive and seamless experience, flexible interoperability, and actionable analytics that demonstrate tangible ROI across multiple use cases.

The path forward is clear: organizations that integrate virtual labs into their customer journey, leverage emerging AI capabilities, and build a cohesive product experience will set the standard for training excellence while achieving superior business results.

About CloudShare

CloudShare is the market-leading virtual hands-on lab for software training, sales demos, and POCs, replicating real-world scenarios in safe and secure "play & break" environments. Our solution has been delivered to millions of users worldwide by customers automating environment creation at scale.

With a proven track record of technological excellence and innovation, CloudShare provides a fast and easy way to spin up wonderfully collaborative sales, training, and innovation experiences in minutes. We proudly serve global software companies such as Salesforce, Atlassian, Motorola, Palo Alto Networks, Ping Identity, and more. For more information, visit **www.cloudshare.com**