

# **ACS Technology Platform**

## **Comparison of “Behind-the-Firewall” vs. Hosted Learning Solutions**

**An ACS: Expertise In Action™  
White Paper**



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## Summary

### Comparison of “Behind-the-Firewall” vs. Hosted Learning Solutions

Web-based learning, as well as online access to learning administration and reporting services, requires a high-performance, scalable, and reliable platform to meet baseline user requirements. Users (learners, managers, and administrators) have come to expect a quality experience with any technology enabled learning solution and generally will reject slow or unreliable solutions. These requirements are the same whether the learning solution is managed “behind the firewall” on a customer’s intranet or through an application services provider (ASP).

In considering the major market trends and drivers for ASP-hosted learning solutions, one can make several general observations: (1) a greater business acceptance of technology outsourcing and the lack of in-house IT resources to support enterprise learning solutions, (2) an increasing need for businesses to acquire a full range of services to adequately support their learning solution platforms with a single point of accountability, (3) the need for rapid deployment of learning solution platforms, and (4) increasing pressures to reduce total cost of ownership for applying new technologies and avoiding large upfront capital investments.

ACS-hosted learning solutions focus on each of these drivers (see Market Characteristics of ACS ASP Platform below for details) and are best aligned to customers that have the following profile:

- Business need to leverage technology to support the development, delivery, and management of learning – drive workflow efficiencies and productivity
- Business need to scale technology to serve large enterprise and/or extended enterprise user communities – enable self-service access without limitation
- Business need to adopt a technology “solution” strategy, integrating and managing required components as a single platform – deliver a comprehensive service

When each of these customer business needs is present, ACS can be a strategic alternative to “behind-the-firewall” hosted learning solutions.

## Relevant Customer Perspectives

From a customer perspective, a hosted learning solution (as offered by ACS) makes sense in relation to three key factors:

1. Software application and technology infrastructure acquisition costs can be avoided and replaced by a subscription use cost.



Large investments in software licenses, server and network hardware, and dedicated support personnel required for a “behind-the-firewall” platform can be replaced by renting all components (on a shared basis with other ASP customers).

The extent of a customer’s investment in technology is defined by the service level to be provided for platform capacity and availability (including failover requirements). Generally, learning solution platforms must scale to peak capacity levels based on use trends/forecasted requirements, with availability managed on a 24/7 standard. ASPs typically provide such service levels without limitation as standard practice and leverage a highly trained technical staff to monitor and manage the solutions of multiple customers on a shared basis – vs. a dedicated staff required for “behind-the-firewall” platforms. Further, technology obsolescence risk generally is shifted to the ASP, including responsibility for maintaining platform components to comply with evolving security and operating standards for Web-based applications. As such, customers can limit upfront investments to adopt or convert Web-based learning technologies as well as limit exposure to risks associated with managing technology (based on contract term).

Finally, periodic upgrades (18 to 24-month cycle) are required to maintain each of the applications supporting the customer’s learning solution; technology refresh requirements also extend to server hardware and operating system software (24 to 36-month cycle) that host the learning solution. Such upgrade and technology refresh costs are included services under an ASP, but they must be planned and budgeted as new acquisition costs for “behind-the-firewall” platforms.

2. Solution management requirements can be standardized based on best practices, and outsourced.

Technology enabled learning solutions are best managed through defined Service Level Agreements (SLAs) that leverage standardized support processes based on best practices.

In many organizations, “behind-the-firewall” platforms can suffer from inadequate support levels or lack of accountability to manage to a defined standard. Such organizations may have a limited number of resources who have the technical competencies required to manage Web-based applications and therefore dedicate such resources to core business functions (vs. learning). Under an ASP, customer service level requirements are clearly defined in the contract, with direct accountability for managing the learning solution, including penalties for non-performance. Critical SLA requirements relating to solution operations



include the following service areas: (1) issue response and resolution standards, including timely escalation and effective troubleshooting of priority issues, and (2) application development quality standards – defect containment for enhancements and required break/fix modifications.

Finally, organizations may also find it difficult to identify and implement best practices for learning solution management, as opposed to an ASP that defines its core capability as managing a best practice environment. Key areas of focus for an ASP include performance monitoring and platform optimization to meet emerging demand (capacity requirements) and continually improve the user experience.

3. Extended enterprise users can be given access to learning solution components, without providing access to an internal network.

Learning solutions that are open to extended enterprise user communities (channel partner, supply chain members and customers) are best managed on the Internet, using commercial authentication protocols.

Due to security requirements, customers generally limit intranet access to employees and contractors. As such, “behind-the-firewall” platforms are unable to support extended enterprise users (channel partners, supply chain members and customers); a separate and potentially duplicate environment would have to be maintained on the Internet for these users, dramatically increasing platform acquisition and operating costs. ASPs provide secure Internet access for all authorized users as a core capability, thereby enabling multiple-use learning solutions to support customer enterprise and extended enterprise requirements.

Other customer decision factors include the ability to host third-party applications and content, relevant industry experience (with hosted learning solutions), and competitive pricing and financial stability of the ASP. ACS is well positioned to address each of these factors, based on extensive experience hosting market-leading applications and content from leading vendors, deep experience across major industry segments (e.g., Financial Services, Technology, Professional Services, Construction, and Pharmaceuticals), and market-leading pricing and business financial results.

## Market Characteristics of ACS ASP Platform

The defining characteristics of the ACS Application Services Provider Platform (ACS ASP Platform) include the following:



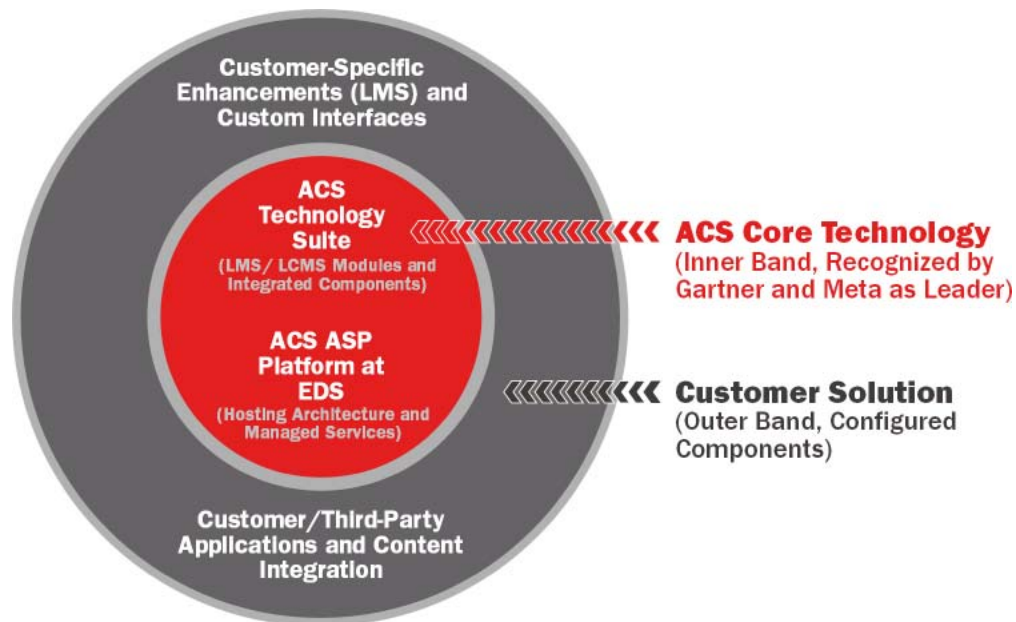
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- **Solution-Centric.** The ACS ASP Platform provides access to and management of an integrated set of applications that support learning and content management workflow (ACS LMS and LCMS Products). Additionally, we host and/or integrate commercially available third-party software (e.g., Livelink, Questionmark, Centra, and WebEx) and Web-based content that deliver a customer's entire learning solution. Our focus is on providing a complete learning solution platform for customers, including technology and content elements.
- **Subscription Service.** ACS offers a subscription service to customers for Internet access to the ACS LMS and LCMS Products, eliminating upfront investments in software licenses, server and network hardware, dedicated support personnel, and other platform requirements. Our subscription service is available to customers on a "registered user" basis as determined by the customer (typically through a data feed that defines authorized users) and can be extended to include hosting of third-party applications and content licensed by the customer. Our standard subscription service is comprehensive, providing unlimited capacity for a customer's registered user base, extensive solution management support and included core application upgrades (ACS LMS and LCMS Products), and technology refresh of hosting infrastructure.
- **Centrally Managed.** ACS ASP Platform services are managed from a central location (the ACS Technology Center in Irving, Texas, USA), rather than at customer locations; customers access their hosted learning solution remotely over the Internet (or via dedicated network connection), globally. As with other "behind-the-firewall" platforms, customers manage network bandwidth, desktop configuration, and Help Desk Level 1 support requirements.
- **One-to-Many Service.** ACS ASP Platform services are designed as a one-to-many offering; ACS partners with Electronic Data Systems (EDS), a well recognized Tier 1 Service Provider, to package a standardized managed service offering that customers subscribe to over a defined contract term. ACS also offers custom support services (e.g., Help Desk Level 1) to meet unique or extended needs of the customer. In this manner, customers benefit from economies of scale and related investments made by ACS.
- **Delivering on the Contract.** ACS is responsible for delivering on the customer contract, ensuring that all ACS ASP Platform services are provided as promised (under SLAs). Although EDS provides hosting infrastructure and support services to enable the ACS ASP Platform, ACS is responsible to the customer for resolving all trouble tickets. Each customer relies on one partner (ACS) to manage all components of its hosted learning solution, including related integration requirements.



## Overview of ACS ASP Platform and Managed Services

ACS technology suite is a critical enabler of our global services capabilities. In executing our technology strategy, we believe it is important to develop and operate certain key strategic technology components, while integrating other non-strategic components available from third-party vendors. Integrated components include Livelink (knowledge management and collaboration), Questionmark (assessments), Centra (virtual classroom), and WebEx (Web conferencing); custom interfaces can be developed for other third-party applications and content products as necessary.



ACS LMS and LCMS software modules are developed and maintained in accordance with a defined Product Roadmap that incorporates evolving market and customer requirements for required features/functionality and adheres to industry standards for solution interoperability (AICC, SCORM). Additionally, ACS hosts a quarterly Technology Forum for key customers to review their requirements for LMS customizations, with a view to implement as core product features (based on demand).

Finally, ACS technology follows best practices:

- Software design and development processes are structured, including change management, documentation, and testing requirements.
- Software is configurable and based on an architecture that enables customizations and systems interface requirements (e.g., data feeds).



As part of our product development strategy, ACS acquired technology R&D and source code (LMS and LCMS components) from a third party, with maintenance provided under a perpetual support agreement. ACS has extensive knowledge and expertise to (1) modify and customize acquired core components for our customers; (2) add custom modules providing new or expanded functionality; and (3) incorporate standard interfaces for third-party applications and content, all of which are seamlessly integrated and supported on the ACS ASP Platform.

Workflow features/functionality and conformance to industry standards are critical factors in integrating and operating large-scale learning solutions across multiple organizations and geographies. Based on customer business requirements, a design determination is made with each customer as to which components are required to implement a complete learning solution. ACS has competent technical resources available to configure or customize software components to meet unique requirements (on a timely and flexible basis). Further, ACS software customizations can be maintained across versions or migrated to core product functionality (based on market demand).

## ACS ASP Platform at EDS

The ACS ASP Platform is an application management and hosting services solution designed to provide a high-performance, scalable, and reliable platform for learning on a global basis. The ACS ASP Platform standardizes the application management process, reducing costs and support time and allowing customers to focus on learning (rather than on technical and support operations).

ACS partners with EDS (a Tier 1 Service Provider) to provide technology infrastructure and support services to enable the ACS ASP Platform; such services are provided under a long-term contract that includes defined service levels and performance requirements designed to support online learning and related business processes.

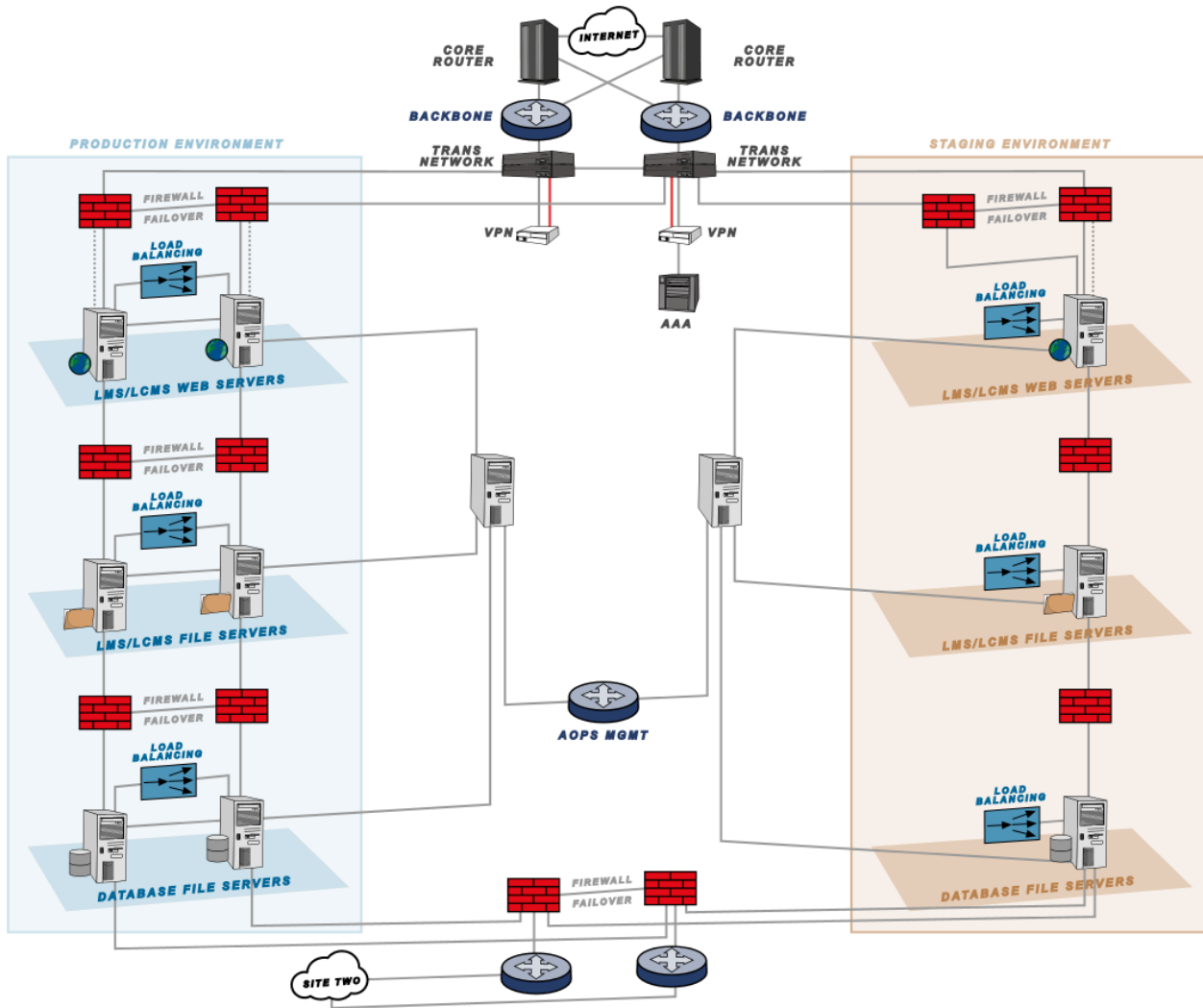
Key technical service components of the ACS ASP Platform at EDS include:

- Two Hosting Centers
- One Hop From Internet Backbone Connections
- Mirrored and Redundant Platform Architecture
- MCI (UUNet) and Sprint Network Circuit Providers
- Cisco Blade Technology Deployed Across Productions Pools
- Full Scope Managed Service for Hardware Components
- 24/7 Application Management and Operational Support
- 100 Percent Technology Infrastructure Uptime Guarantee



- SLA Time-to-Repair Guarantees
- Global Load Balancing (Akamai)
- Global Content Distribution (Akamai)

ACS ASP Platform Architecture:



## ACS Standard Service Level Agreements, Performance

ACS operates hosted learning solutions under standard SLAs that are comprehensive in scope and focused on performance. Operational SLAs include:



- Issue response and resolution standards based on priority level, with specific (performance) metrics for timely escalation and effective troubleshooting of production issues.
- Application development quality standards to limit defects during technology projects phases and upon production (break/fix issues during warranty support period).

In addition to these operational SLAs, ACS manages solution reliability and performance based on the following metrics for LMS/LCMS components: (1) application availability 99.9 percent (excluding planned downtime for maintenance), (2) average response time of 4 seconds or less for Learner page requests (response times for Administrator page requests may exceed standard for reports and similar database queries), and (3) average failure rate of 0.5 percent (page errors per thousand).

## ACS Managed Services

ACS Managed Services are delivered through a Solution Management Office (SMO), which focuses on the effective and efficient operation of the customer’s hosted learning solution. These services include 24/7 Help Desk escalation and problem resolution, troubleshooting, and break/fix development requirements (where the platform is not operating as designed), capacity planning, and platform reporting.

ACS Managed Services		
Hosting Infrastructure (ACS and EDS)	Solution Management	Project Management
<p><b>Complete Hosting Infrastructure</b> (Provided by ACS and EDS)</p> <ul style="list-style-type: none"> <li>› Production/ Staging Environments (Three Tiered Server Infrastructure, Network Hardware, Data Storage, and Internet Connectivity)</li> <li>› Dedicated (Customer) T-1 Circuits</li> </ul> <p><b>Comprehensive Platform Support Services</b> (Provided by ACS and EDS)</p> <ul style="list-style-type: none"> <li>› ASP Contract Services for Hosting Infrastructure (Includes Server, Application, Database and Network Management)</li> <li>› Global Content Distribution Network</li> <li>› Platform Security (Access and Data)</li> <li>› Technology and Data Interation</li> <li>› Scheduled Upgrade Service</li> </ul>	<p><b>Solution Management Service</b></p> <ul style="list-style-type: none"> <li>› Scope of Service – Focus on Production Solution Operations and Support</li> <li>› Measurement – Issue Response and Resolution Matrix and Customer Satisfaction Rating</li> <li>› Tools – SLAs, Operations Scorecard</li> </ul> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>› Dedicated Single Point of Customer Contact</li> <li>› Help Desk Support Service</li> <li>› Troubleshooting Service</li> <li>› Solution Documentation</li> <li>› eCommerce Service</li> <li>› Platform Capacity Planning</li> <li>› Customer Care and Reporting</li> </ul>	<p><b>Project Management Service</b></p> <ul style="list-style-type: none"> <li>› Scope of Service – Focus on Design and Implementation of Changes to Production Solution</li> <li>› Measurement – Solution Quality Performance Matrix and Customer Satisfaction Rating</li> <li>› Tools – SLAs, Standard SOW</li> </ul> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>› Dedicated Program Manager</li> <li>› Manage Customer Requirements Definition and Solution Integration</li> <li>› Co-Develop Project Scope, Deliverables, Timelines and Budgets</li> <li>› Coordinate Resource Requirements</li> <li>› Status Reporting</li> </ul>



An ACS Solution Manager is assigned to and communicates directly with customers on a day-to-day basis to monitor the operational effectiveness of the solution and to plan and implement enhancements. In addition, as may be required by the customer, ACS will manage third-party content integration, provide customized reporting services, and perform administration support services (e.g., catalog maintenance). The ACS SMO works closely with a customer's technology and business stakeholder groups to provide effective and seamless service delivery to (customer) user communities.

## Conclusion

ACS hosted learning solutions are designed for customers with defined business needs to leverage and scale technology to support enterprise and/or extended enterprise learning, based on a "solution" strategy for integrating and managing required components as a single platform. Customers can expect significant cost savings (compared to total cost of ownership for "behind-the-firewall" hosted solutions), contracted service levels for comprehensive operational support, and a single point of accountability with ACS-hosted solutions.

## Frequently Asked Questions

### 1. Why did ACS select EDS to provide technology infrastructure and managed services for the ACS ASP Platform?

ACS selected EDS, a global Tier 1 Service Provider, to deliver a comprehensive technology platform and set of managed services to support ACS customer learning solutions. The ACS ASP Platform at EDS was designed to optimize performance of the ACS Technology Suite (LMS and LCMS Products), including customer scalability and reliability requirements. EDS operates technology infrastructure components of the Platform under a Service Level Agreement with ACS that incorporates the highest commercial standards. ACS contracted with EDS for significant platform capacity under a long-term agreement, resulting in economies of scale that benefit our customers and provide greater flexibility for meeting demand from new and existing customers.

### 2. What customer advantages do the ACS LMS and LCMS Products offer over competing products?

ACS LMS and LCMS Products provide significant customer advantages, including (1) the ability to scale software to support large user communities (ACS Three-Tier Architecture); (2) ACS LMS Product Modules supporting Entitlement,



Personalization, eCommerce, Mandated Learning, and Ad Hoc Reporting; (3) ACS LCMS Product Authoring Template Library; (4) ACS ASP Platform optimized for hosting customer learning solutions; (5) large, experienced ACS Technology Team available to implement learning solution components and develop custom functionality and interfaces; and (6) direct customer participation in quarterly ACS Technology Forums which provides the ability to influence the ACS Product Roadmap.

**3. Can ACS integrate its hosted solution with “behind-the-firewall” customer components?**

ACS has substantial experience and expertise in integrating with customer components, including authentication protocols, data feeds for user profiles and organization structure, content management systems for catalog maintenance, and portals and databases for user navigation and access to knowledge bases. In this manner, customer investments in “behind-the-firewall” components can be leveraged with ACS-hosted components (e.g., LMS and LCMS) to deliver a comprehensive learning solution.

**4. What services does ACS provide to deliver a high-performance and scalable learning solution across multiple customer sites?**

ACS conducts comprehensive, end-to-end testing of all hosted learning solution components as part of the implementation project and at planned intervals after production go-live (to validate that performance standards are being achieved). Simulated load tests based on peak capacity requirements establish whether scalability and performance standards can be achieved. In collaboration with customer IT resources, ACS testing protocols include ASP Platform segments (application and database layers, server and network hardware), customer Internet Service Provider/proxy server connections, customer network and QoS settings, and user desktop configurations. Based on test results, ACS will adjust platform components to optimize performance and provide recommendations to the customer for improvements to network and desktop configurations, as appropriate.

