Technical Information

The SoftChalk Cloud service is built on the Amazon Web Services (AWS) platform which provides a highly reliable and scalable infrastructure, allowing for tremendous flexibility, security, and high availability. Because the AWS platform is distributed, the chance of service outages is greatly reduced, as there is no single point of hardware failure.

Infrastructure

SoftChalk Cloud is hosted, supported, and maintained by SoftChalk using the cloud-based infrastructure provided by Amazon Web Services (AWS) in conjunction with Amazon Simple Storage Service (S3) for file storage, Amazon Elastic Compute Cloud (Amazon EC2) for its application servers, Amazon Elastic Load Balancing (ELB) to distribute traffic across our application servers, and Amazon Relational Database System (RDS) as its database storage system.

Amazon Simple Storage Service (S3) for file storage is used by SoftChalk Cloud for user file storage. Files stored on these volumes persist independently from the life of an instance and are not stored directly on a server. S3 volumes are highly available, highly reliable volumes that are automatically replicated. This prevents data loss due to failure of any single hardware component.

The Amazon EC2 application servers are virtual servers, which makes it possible to easily deploy additional servers within minutes, increasing our ability to provide redundancy and scalability. This flexibility means that we can handle increased demand quickly. Using cloud servers also removes our need to manage hardware directly or deal with hardware failures, which in turn substantially reduces the change of service outages. To provide maximum redundancy, we deploy servers in multiple availability zones within an Amazon region, which enables us to continue to provide our service in the event that one of the availability zones experiences an outage.

A high availability service can require numerous application servers to handle requests quickly and efficiently. Using multiple application servers requires a load balancer. SoftChalk Cloud uses Amazon Elastic Load Balancing (ELB) to distribute traffic across our application servers. Using a load balancer enables us to add additional servers as needed in order to scale the application to handle growth and traffic spikes and allows us to scale our service to as many servers as we need to keep the application running smoothly. The servers behind the load balancer can be increased or replaced if ever there is an issue with a particular server, without any interruption to the service.

Another essential part of the Cloud service is the database server. SoftChalk Cloud utilizes the Amazon Relational Database System (RDS) as its database storage system. Using the RDS service enables SoftChalk to ensure high reliability for our mission critical production databases, and the ability to easily scale our databases to handle increased demand. It also provides automated point-in-time backups, instant scaling, automated security patching, and automated rollover in cases of hardware failure. Our database infrastructure is also deployed across multiple Amazon availability zones to minimize the risk of service outages.

Security

SoftChalk is committed to ensuring the security of our data and servers. A large part of security is ensuring access to servers is as secure as possible. We follow best security practices on all production and development servers. All server access is restricted to the absolute minimum number of people that require direct access to our servers. Server connections are made using secure shell (SSH), a cryptographic network protocol. Our servers can only be accessed through password protected, encrypted keys, and do not accept username/password combination logins.

To increase the security of the data coming into and out of the application, all traffic to the SoftChalk Cloud services is encrypted using industry standard security with high grade encryption (AES-255 bit keys). All sensitive data, including passwords for user accounts, is stored as a hash created with a one way algorithm, using a complex salt that is unique for each user.

Physical access to our servers is also very important. Because of the type of service Amazon provides, they have made tremendous investments in the physical security of their data centers. Amazon has in the past successfully completed multiple SAS70 Type II audits, and now publishes a Service Organization Controls 1 (SOC 1) report, published under both the SSAE 16 and the ISAE 3402 professional standards. In addition, AWS has achieved ISO 27001 certification, and has been successfully validated as a Level 1 service provider under the Payment Card Industry (PCI) Data Security Standard (DSS). In the realm of public sector certifications, AWS has received authorization from the U.S. General Services Administration to operate at the FISMA Moderate level, and is also the platform for applications with Authorities to Operate (ATOs) under the Defense Information Assurance Certification and Accreditation Program (DIACAP).

Integration with Learning Management Systems

SoftChalk Cloud integrates with Learning Management Systems such as Blackboard, Moodle, Canvas, and Desire2Learn (among others) via an industry standard communications protocol called IMS Learning Tools Interoperability (LTI). SoftChalk was a very early adopter and advocate of the IMS Learning Tools Interoperability (LTI) data exchange specification. The SoftChalk Cloud's interoperability with industry learning management systems (LMS) was built specifically for use with LTI and is an LTI certified service. SoftChalk Cloud is fully compliant with LTI v1.0, LTI v1.1 and LTI 1.3, and supports transactions with these versions of the standard.

All requests between an LMS and SoftChalk Cloud are SSL encrypted https requests. In addition to the security provided by the SSL encryption, the LTI specification requires all incoming and outgoing transactions to use the OAuth authorization standard. Using OAuth allows for much more secure exchange of information between SoftChalk Cloud Learning Management systems that implement LTI. OAuth helps guarantee that transactions are coming from a trusted source and that all information is exchanged securely.

SoftChalk Cloud enables instructors to store their centralized content outside of a LMS, but still be able to use the content stored on the SoftChalk Cloud in an integrated way with their institution's LMS. Student's access SoftChalk content through their institution's LMS. Authentication is handled by the institution's LMS. When a student clicks on a SoftChalk content link in the LMS, SoftChalk Cloud can track detailed information about the activities and progress of the student through the content. The properties of the score content are recorded on SoftChalk Cloud, as well as a student's answers and their point values for each activity. The final score for the content is recorded, and is then passed from SoftChalk Cloud to the institution's LMS as the student's overall score, using an encrypted LTI transaction between SoftChalk Cloud and the LMS.

For LTI to work, when a student accesses a SoftChalk Cloud item in the institutional LMS, the LMS sends SoftChalk Cloud information about the content. This includes a course identifier, a content item identifier, the unique OAuth identifier for the LMS system, and a student identifier from the LMS. These values are all system level identifiers, typically the primary key in the database for the items. LTI v1.1 allows for a content system to also send the student's first and last names. Sending the student's first and last name is a configuration option and is enabled by the administrators or the instructors.

In order to enable an instructor to easily identify their students when reviewing attempt details, ScoreCenter stores the students name and associates it with the student's LMS internal-identifier that is sent from the LMS as part of the LTI transaction. No other personal information related to the instructors or students, such as usernames or passwords, is sent or stored by SoftChalk Cloud. If the student name information is passed to SoftChalk Cloud, student first and last names are encrypted within our database using AES-256. It is possible, though not recommended, to exclude the student name information from being passed to SoftChalk Cloud. Student name information is necessary to allow the course instructor to view student detailed score result data. Final score results can still be tracked and passed to the institution's LMS even if student name information is not made available to SoftChalk Cloud.

SoftChalk Cloud is typically integrated with 3rd party learning management systems. SoftChalk maintains testing sites for all of the major learning management systems (Blackboard Learn, Desire2Learn, Canvas, Moodle, etc.) in order to troubleshoot and test SoftChalk Cloud with these platforms. We configure these LMS systems in the same way customers configure their LMS platforms and then test against each of these environments to ensure that content is displaying as desired, and score tracking features are working properly.

In addition, we regularly perform testing of 3rd party content integration with SoftChalk-created content. For example, we regularly troubleshoot and test the use of 3rd party media (video, audio, web widgets, iFrames).

SoftChalk also regularly tests and troubleshoots use of SoftChalk-created content for use on a variety of delivery devices – including all of the major, supported web browsers on Windows/Mac, iPad, tablet, and smart phone devices.

SoftChalk Cloud (www.softchalkcloud.com) Technical Support

At SoftChalk we believe that support for our products is as important as the product itself. Our team is dedicated to ensuring the success of your faculty and students in using SoftChalk products. We continuously strive to provide support that is informative, responsive and timely. SoftChalk's premium support is included in our service and provides:

1. Access to SoftChalk's Online Support Center (http://support.softchalk.com)(24x7)

2. Access for 2 primary, authorized admins per institution to submit help tickets via online support portal

3. Email and telephone call-back support during core business hours (8am-7pm Eastern time)

4. Access to a growing knowledge base and FAQs (24x7)

5. Access to an extensive library of guides and training materials (24x7)

6. 1 business day response time is our goal;

7. 99% uptime guarantee

SoftChalk's support team uses remote desktop software that enables our support technicians to view users' computers for fastest problem resolution. In addition to email, our support team uses phone call-back to users to resolve issues. Incidents that cannot be resolved directly by the support team are escalated to SoftChalk's Tier II support for resolution by the product engineering team. SoftChalk uses the Parature system, a web-based help desk software and automated support ticketing system to manage requests for assistance.

SoftChalk provides every SoftChalk user with access to our Online Support Center (http://support.softchalk.com). Here users will find our FAQs and Knowledge Base, which are searchable. We also provide an extensive library of User Guides, not only for our own products, but we also provide detailed, step-by-step integration guides for the most popular Learning Management Systems.

Perhaps the most important aspect of SoftChalk Support is our dedicated team of support professionals. We routinely receive rave reviews from customers because we routinely go above and beyond by providing not only assistance with our own products, but assistance with many related products – like LMS systems, browser problems, media problems, etc. – all in the interest of making sure that faculty and students achieve their desired results.

For more information please call 877-638-2425 ext. 1 to be connected with the sales director for your region.