

Academy of Art University Disaster Recovery in the Cloud

“42 Lines has been a key partner for our system administration and software development needs for many years. Their transition of our key systems to the Amazon Cloud proved to be a painless and reliable process that provided us with the safety net we very much needed. I am continually impressed by 42 Lines dedication to our success and well-being.”

- Chris Lefferts, CIO
Academy of Art
University

Challenge

AAU was hosted in a managed hosting facility in San Jose. This facility had experienced yearly incidents of unexpected downtime lasting from minutes to hours. Fortunately these incidents had primarily occurred during holiday or off-peak periods that had a smaller impact on AAU's operations. This uncertainty led the Academy to desire a solution that would keep all systems running after the least amount of downtime in the event of another facility incident. There was also a fear of losing all data should the facility suffer a catastrophic incident.

Solution

We designed a multi-phase project to address the Academy's concerns while giving them the ability to balance cost/benefit and risk. The plan was designed to deliver risk reduction in the early rapid phases and focus on scalability and cost efficiency in later larger phases. The Academy chose to implement the risk reduction phases on an as soon as possible basis, the disaster recovery phase on a short term basis, and eventually the cost reduction phase about a year after project initiation. We recommended using Amazon Web Services (AWS) as the service provider given their broad capabilities, vast scalability, and market leader position.

Phase 1 - On-site logical protection: hourly/daily backups of all data and code on systems

- Protects against logical errors (accidental deletions; data corruption due to bad code)

Phase 2 - Off-site physical protection: all back-ups copied to AWS S3 upon completion

- Protected against physical site destruction
- Can protect against intentional sabotage by insider

Phase 3 - Off-site disaster site in AWS

- Continuous replication of databases and file data into AWS
- Ensure DNS is not dependent on primary site
- Document configurations and procedures; optimally automate both
- Ability to create QA/Test environments with recent live data
- Costs above base cost are dynamic and use-based rather than fixed in second owned-colo alternative solution

Phase 4 - Live and disaster site in AWS

- Immense flexibility in scale; pay for use
- Dedication to automation enabled the rapid deployment of full DR site
- Common platform for live and DR eliminated most duplication of maintenance efforts

Outcome

While the primary objective of the project was to avoid downtime there were benefits that provided significant value in other areas. Post the completion of Phase 3 the Academy was able to create QA environments that were re-launched nightly with live site data. This greatly improved QA accuracy and facilitated customer support. The implementation of a large scale video distribution system was enabled by having all data to be transcoded and served already in AWS. After the completion of Phase 4 the Academy realized a minimum of \$300,000 per year in savings. Over time we continue to increase the savings by tuning the capacity of the system to match the load cycles of semesters and even intra-week load patterns. The ability to pay-for-use and terminate unneeded capacity immediately was impossible when using a fixed set of physical hardware and contract-fixed power and space capacity.

