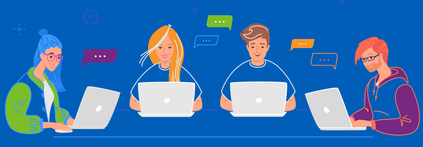
CYBAGE
Delivering Value. Scientifically.



Benchmarked a world-leading interactive e-learning platform to support 400K participants

About the Client

A leading US-based edtech company producing interactive technology solutions for the global learning market

Recipient of various prestigious tech and learning excellence awards

Its products are retailed in ~60 countries, and its software is available in 32 languages

Has an extensive partner network that helps find the right solution for educators, schools, and classrooms

Instrumental in transforming instructional education delivery and student learning outcomes

Business Needs

- Confirm the latest cloud adopted platform's readiness for global user base
- Determine precise cloud cluster configurations for performance and cost optimization
- Confirm anticipated improvements in application responsiveness post cloud platform adoption
- Determine backend integrations and scalability tuning to support live sessions attended by 400K participants
- Validate high availability of the platform against provisioned failover scenarios during peak hours
- Establish uniform and consistent user behavior across demand patterns

Solutions

- Designed performance testing framework and scalable cloud load generation lab for geo-distributed load testing
- Defined platform's workload, variation in access pattern, and traffic distribution across regions
- Performed various feasibility analysis for user modeling and load generation tooling over WebSocket, video, and audio protocols
- Defined the toolsets, custom counters, monitoring, and stubs integrations
- Executed performance benchmarking from component to application, via user experience analysis, load testing, stress testing, and scalability and failover testing
- Monitored multiple tiers ranging from user experience, API interactions, platform response to infrastructure consumptions

Technology Stack

Product Technology Stack

Languages and Frameworks	Microsoft .NET, C#
Web Technologies	HTML5, Bootstrap, CSS3, JavaScript
Servers	WebRTC, node
Database	Microsoft SQL Server

Test Engineering Stack

Protocols	http://, WebRTC, HLS, WebRTC
Log Analysis	Google Analytics
Load Generation Tools	JMeter, WebRTC
UX Analysis	
Monitoring	PM2, Prometheus, Azure, Application Insights

Business Benefits

Created on-demand scalable infrastructure to sustain **400K live user base**

Lowered operational costs by identifying optimized resources with minimal consumption footprint

Improved and secured WebSocket message handling

Reduced infra provisioning by 40% by config tuning and improved cluster provisioning

Achieved 30% response optimization through enhancements identified in benchmarking

Cybage Performance Testing Capabilities

- Advisory Services
- Test Engineering and Execution Services
- User Experience Benchmarking
- Load Testing
- Stress Testing
- Spike Testing
- Optimization testing
- Scalability Testing
- Resilience Testing

Casting success with innovative performance testing marvels

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