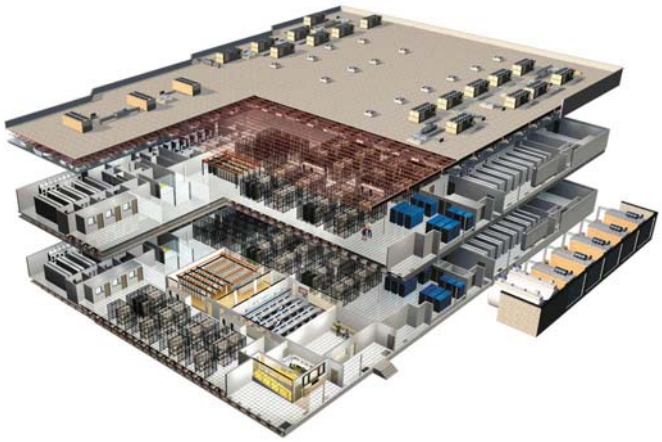
AESOP : TECHNICAL FACT SHEET

(**A**utomated **E**ducational **S**ubstitute **O**perator)

aesoponline.com

OVERVIEW

AESOP is a substitute teacher automated replacement solution that is offered by FrontLine Data, Inc. on an ASP platform.



The AESOP production system is located in a hosted and managed environment at Exodus Communications, a Cable and Wireless subsidiary (www.exodus.com).

Technical benefits to your school district

- You have ***do not have to buy*** hardware, software and telecommunications infrastructure.
- You ***do not have to install and manage*** hardware, software and telecommunications infrastructure.
- Your users can rely on a system that has a very ***high degree of availability*** because of enterprise grade redundant hardware.
- Your ***data is secure*** because of the significant investment in industry standard security***.***
- Your users can rely on a system that provides ***consistently good response times*** because of the scalable architecture.
- You no longer have to be concerned with local ***power outages*** because the AESOP system has 7 days of diesel power generators.

AVAILABILITY

Each component of the AESOP System Environment has been specifically engineered to be available at all times. In order to achieve this, the AESOP System relies on two industry standard methodologies – redundancy and fault-tolerance.

Redundancy and Fault Tolerance

AESOP Data

- The AESOP system utilizes an enterprise-level database management system capable with world-class fault-tolerance and backup mechanisms. Database backups are taken daily and transferred to a secure location for storage and quick retrieval.
- The AESOP database relies on a fault-tolerant database cluster, which allows uninterrupted database access, even in cases of complete server failure.
- All AESOP data is stored in no less than two distinct secure locations to guarantee that the information you need will be available, even during the most severe conditions.

AESOP Infrastructure

- The AESOP infrastructure contains only server class hardware, which meets stringent redundancy requirements. Each piece of server hardware, down to the smallest component, incorporates fault-tolerant and redundant mechanisms to ensure that each server will be available at all times.
- Each critical proprietary AESOP application has been designed to execute on no less than two servers at once. This ensures that, in case of server failure, the AESOP system remains available.
- Each network device incorporates fault-tolerant and redundant mechanisms to ensure that Internet and telecommunication connectivity goes uninterrupted.
- The AESOP Infrastructure is housed in a world-class datacenter. This facility guarantees multiple uninterrupted power feeds and complete HVAC temperature control.
- The AESOP System receives Internet access directly from the datacenter. This facility features a redundant network of multiple fiber trunks from multiple sources, and is in close proximity to major public and private cross connects.
- The AESOP web site will never bottleneck on Internet bandwidth thanks to a burstable methodology that allows us to use as much internet bandwidth as our users require at any single point in time.

SYSTEMS MONITORING

The AESOP production environment is monitored 24x7 by highly skilled personnel utilizing a variety of automated monitoring and reporting tools.

Automated Tools

- **Early Alert Systems ensures high responsiveness.** Every aspect of the internal AESOP infrastructure, from hardware to software, is monitored at regular intervals by an industry-standard systems monitoring package. This monitoring tool provides proactive

notification to systems personnel so that problems are addressed before they impact system availability. In case of a system outage, systems personnel are immediately notified via telephone, pager, and email.

- **Continuous external web site polling and performance testing**. The AESOP web application is tested over one hundred times per day to ensure users receive the highest level of application response. This testing is performed using a enterprise-grade web performance tool which simulates user activity from five geographic locations.
- **Error notification built into application components**. Each critical proprietary AESOP application has been designed to notify the AESOP systems personnel when problems occur. This ensures that any application issues are immediately detected and resolved.

Personnel

- **Personnel on standby 24x7**. AESOP systems personnel are available at all times to respond to any issue that could cause system unavailability. Each AESOP engineer can access the system remotely to immediately resolve most issues.
- In the unlikely event of a hardware failure requiring immediate action, local personnel are immediately available to address the issue.

SECURITY

The security of your user data is of utmost concern to us. In order to ensure that this data is completely protected and that your users can interact with our system in a secure fashion, the AESOP Systems has incorporated numerous security mechanisms and methodologies.

Security Components

Firewall. The AESOP System is shielded from intrusion by a system of enterprise-level firewalls. These firewalls ensure that the sensitive components of the AESOP System are completely invisible to the "outside world", while allowing only appropriate traffic to pass.

Intrusion Detection. All Internet traffic is thoroughly examined by a enterprise-level Intrusion Detection System (IDS). This system is managed and monitored by a team of highly skilled e-commerce security experts who will react to any suspicious activity immediately.

Encryption. AESOP web site access is secured using 56-bit Secure Socket Layer encryption. This ensures that all web interaction is completely protected from unwanted observation.

Security Methodologies

Industry Standard Security. The AESOP Infrastructure has been engineered to meet the most stringent security standards. All external administrative access is secured via a Virtual Private Network. Additionally, all access to the AESOP System is logged and audited on a regular basis.

E-commerce security expertise. FrontLine Data, Inc. retains the services of highly skilled e-commerce security experts. The expertise of these security specialists is used to validate AESOP System architecture and methodologies. Additionally, the security personnel can be dispatched to immediately address any security breach incident.

SCALABILITY

In order to facilitate the growth potential of our customers base, the AESOP System has been architected to allow for high degree of scalability.

Hardware

Capacity built for growth. Each aspect of the AESOP System has been designed to allow capacity increases simply by adding additional servers. In addition, many of the servers in the AESOP environment are currently executing at less than a quarter of their operational capacity.

Internet Bandwidth. The datacenter environment provides unlimited growth potential in the areas of Internet bandwidth, floor space, and power consumption.

Telephone (IVR) capacity. The AESOP System currently utilizes over 180 phone lines for inbound and outbound calling. Additional phone lines can be added as needed.

Software

The proprietary AESOP applications have been developed to allow capacity increases by simply starting another instance of the application. This allows the AESOP Applications to be distributed over several servers. When one server reaches processing or throughput capacity, another instance of the application is started on another server.