

# WorldLearn



## WorldLearn® 2 Hosting Platform

### Hosting

WorldLearn® 2 is fully hosted by WorldLearn. Our experience in establishing Internet services and managing the entire process is one of our major strengths.

### Availability

The aim to provide quality learning experiences to learners irrespective of their location is at the heart of WorldLearn® 2 and for the development strategy that underpins the technologies delivered. This model ensures seamless 24-hour delivery to the widest range of users. Client staff will be enabled to access courseware from their desks at the office, from home PCs and from any Internet enabled location.

### Scalability

WorldLearn® 2 has many years experience in designing, managing and implementing the hosting and delivery strategies for large companies. Our reputation for having the capacity to deal with large-scale, enterprise-wide solutions remains unchallenged.

### Security

Security is a critical issue that WorldLearn understands. We are committed to standards of practice that offer high levels of security. An exhaustive security audit examined all our physical and logistical processes against best practices. WorldLearn systems and processes exceeded all security benchmarks used in the audit process.

In all cases, WorldLearn provides a secure environment with full authentication and controlled access path for registered users. We take all necessary steps to protect the integrity of clients' intellectually valuable and commercially sensitive information. In this process we recognise that different user types require different levels of access to a range of information. The WorldLearn® 2 product allows these to be defined and managed accordingly.

### Architecture

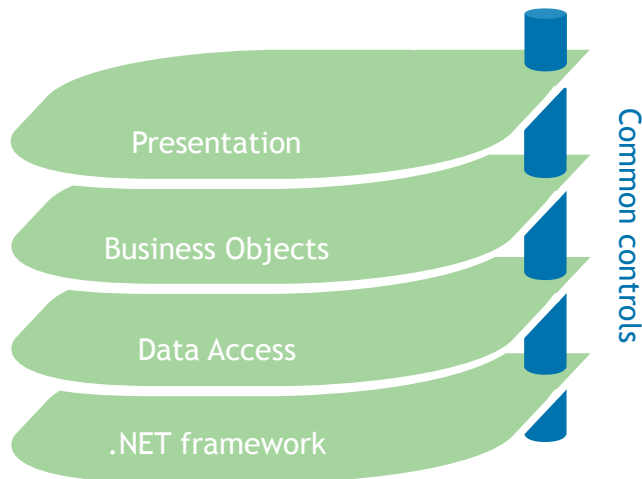
The WorldLearn® 2 System Platform has been developed using the Microsoft technology platform for the Internet, comprising Microsoft Win2008 servers, IIS and SQL Server 2008 utilising ASP components.

### Key features

- ✓ Fully hosted
- ✓ Highly secure
- ✓ 99% uptime
- ✓ Client branded
- ✓ 24-hour access
- ✓ Offsite disaster recovery site
- ✓ Highly flexible
- ✓ Monitored service with alerts

## Design Architecture

The WorldLearn® 2 application design is based on a tiered approach. A 'tier' is a logical partition of the separation of concerns within the system. Each tier is assigned a unique responsibility in the system. Each tier is logically separated from one another however is loosely coupled with the adjacent tier. The WorldLearn® 2 application architecture can be represented in the following layers illustrated by the diagram below:



### Presentation Layer

The Presentation Layer represents the point at which users will enter the system. This includes online users as well as external systems.

A standard Internet Browser such as Internet Explorer is the primary presentation layer for the WorldLearn® 2 application. HTML pages are delivered to the client browser by the application upon a user request. The Web Pages also include JavaScript functions where applicable.

### Business Objects Layer

The Business Objects layer implements the business rules for the application. It hosts the business service components as well as Business Objects (BO). Business Objects include the dependent .Net classes that provides service APIs to the business rules and operations required by the application. Business components are software units and process business logic. The business component implements the following:

- Business rules, such as calculations and validations
- Interfaces between the user interface and the resource layer

The business logic layer runs under the 'Application Server' environment. Application Servers provide support for transaction control, thread management and other run-time services that make application development much simpler and more reliable.

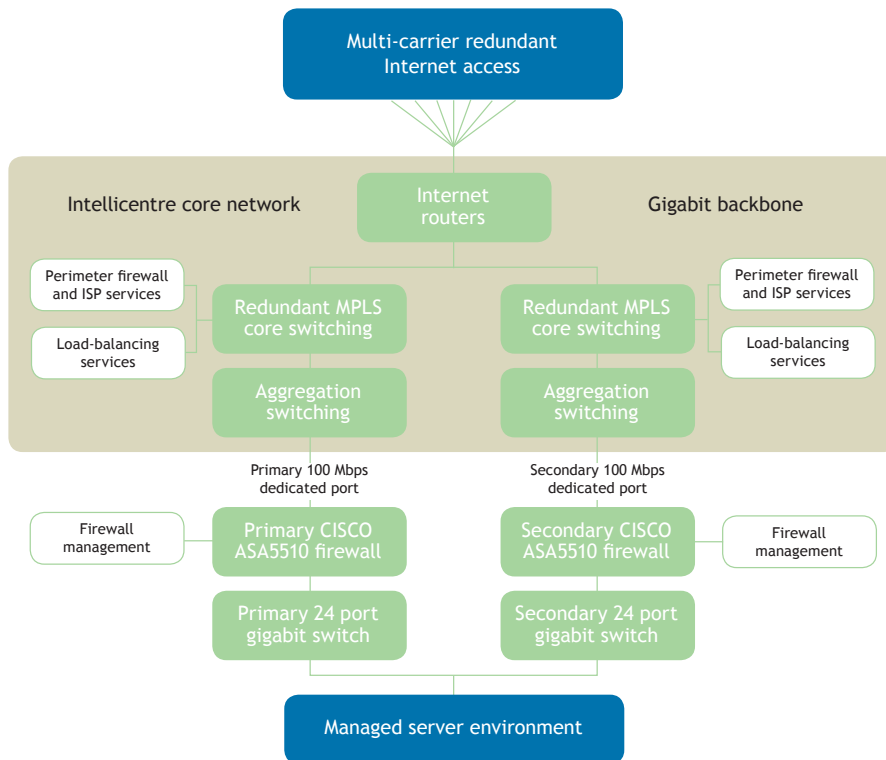
### Data Access Layer

Data Access Objects using native SQL connection classes manage the interface to the database. The Data Access Object (DAO) pattern allows for the abstraction of the persistence from the business component. The Data Access Object manages the connection to the data source to obtain and store data. It encapsulates all access to the data store.

## Technical Details

The WorldLearn® 2 hosting solution uses a dedicated data hosting facility that is compliant to the standards and certifications listed at right. The WorldLearn® 2 applications are also supported by a 24/7 fully functional disaster recovery (DRP) site hosted in an alternative data center.

The WorldLearn® 2 applications are constantly monitored through the Hosting Monitor software. The Hosting Monitor application monitors service quality of the Web and Database servers and sends email and SMS alerts to the support team.



WorldLearn® 2 application hosting architecture

## Application Architecture

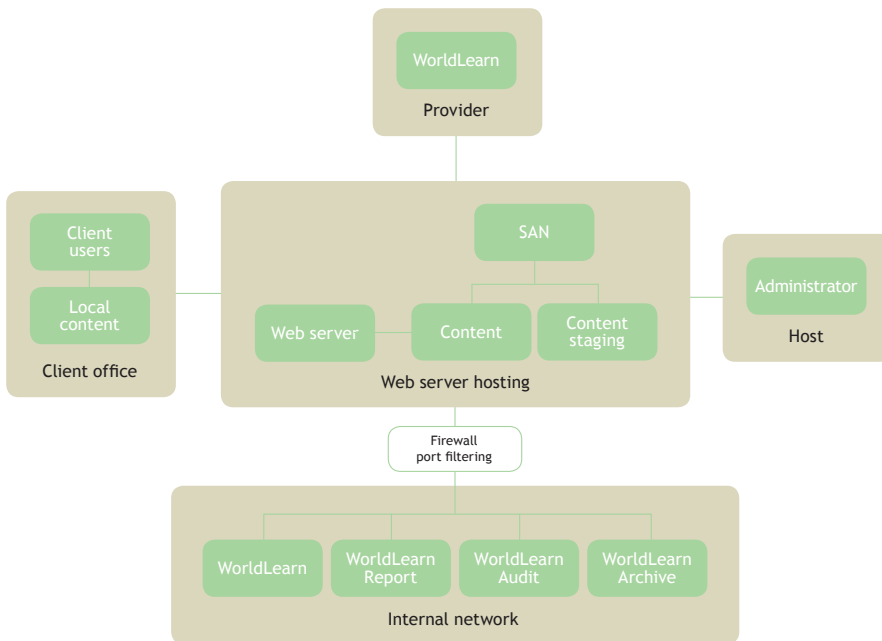
A high level diagrammatic representation of the application architecture for the WorldLearn® 2 system and its key components is shown overleaf. The application is divided into two physical components: Web interface (hosted and managed under the DMZ subnet) and the Data Interface (hosted and interfaced through the internal subnet). The CISCO ASA 5510 Security plus firewall with a standby by interface to the secondary Network port, firewall and switch is used to provide the port filtering between the internal and DMZ subnets.

Client and accredited suppliers access the WorldLearn® 2 application through a dedicated URL. The URL employs standard username and password validation through an SSL-enabled session to validate the user access to the WorldLearn® 2 application resources. Based on the associated roles and permission, the user is provided various navigation links to access the appropriate system resources.

### Certifications and standards compliance:

- ✓ AS7799
- ✓ BS 7799
- ✓ ISO17799 Information Security standard
- ✓ Higher than AS2834
- ✓ DSD Highly Protected ASIO T4
- ✓ Suntone II
- ✓ EMC Certified
- ✓ Microsoft Certified
- ✓ RedHat Certified

Plus Siemens Landis & Staefa Network Monitoring System with high level interfaces to fire control system, power system, UPS, CRACs, Access control and more.

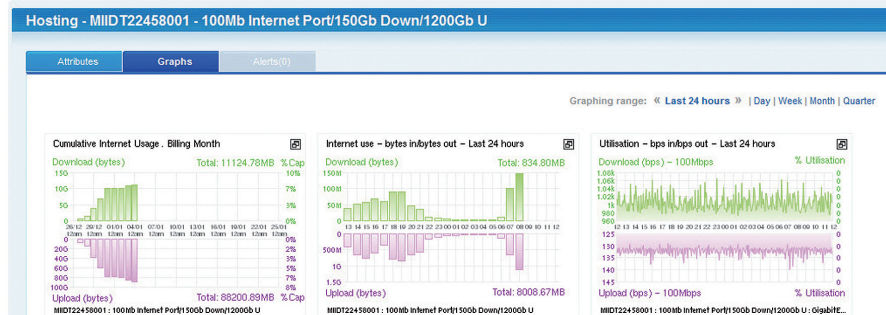


WorldLearn® 2 Application Architecture

## Client References and Availability Report

The WorldLearn® 2 application uptime average is 99%, including the schedule maintenance downtime which may be required for system upgrade or hosting services upgrade.

Test name	Status	Recure	Reply	Test method	Alive %	Unknown %	Total time	Alive time	Dead time	Total tests	Passed tests	Average reply
TEST [SQL]	Host is alive	2134	62 ms	TCP (port - 1433)	99.48	0.00	110 days 07:08:51	109 days 17:59:36	00:07:15	15873	15751	38
TEST [WEB]	Host is alive	2960	47 ms	ping (timeout - 2000 ms)	99.64	0.00	85 days 21:53:22	85 days 14:18:38	00:34:43	12395	12314	25
TEST [FTP]	Host is alive	9086	16 ms	TCP (port - 1433)	99.77	0.00	327 days 07:45:13	326 days 07:58:13	00:47:00	463719	462647	23
TEST [SMTP]	Host is alive	7817	16 ms	ping (timeout - 2000 ms)	99.53	0.00	148 days 15:57:38	148 days 13:08:59	00:40:26	218554	218410	23
TEST [POP3]	Host is alive	17089	15 ms	TCP (port - 1433)	99.78	0.00	327 days 07:49:52	326 days 09:02:05	00:38:48	463732	462711	23
TEST [IMAP4]	Host is alive	17089	16 ms	ping (timeout - 2000 ms)	99.95	0.00	148 days 15:57:21	148 days 13:51:11	00:06:09	216559	216451	24
TEST [LDAP]	Host is alive	17089	16 ms	TCP (port - 1433)	99.77	0.00	310 days 13:46:07	309 days 15:51:09	00:55:48	428591	427619	23
TEST [LDAP]	Host is alive	17088	16 ms	ping (timeout - 2000 ms)	99.74	0.00	327 days 07:49:05	326 days 08:01:03	00:44:03	463621	462721	22



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