



**HARBINGER**  
G R O U P

# Harbinger Offline Player for eLearning

Facilitates eLearning in a Disconnected Environment

**A Harbinger Group White Paper**

# Harbinger Group

*Innovate.Partner.Excel*

**About Harbinger Group:** Harbinger Group ([www.harbingergroup.com](http://www.harbingergroup.com)) is a global provider of software products and services since 1990. The Harbinger Group companies include Harbinger Systems, Harbinger Knowledge Products and Harbinger Interactive Learning. Harbinger's patented technology and sound thought leadership have resulted in revolutionary products, including the market - leading Raptivity®. We are a highly applauded and awarded Group of Companies. At Harbinger we thrive on innovation, partnership and excellence. Transparency, trust and respect for the individual are the hallmarks of our culture. Our core values remain Innovate, Partner and Excel. The Harbinger philosophy is to create value for its clients through a culture of continuous learning.

This white paper is part of Harbinger's eLearning practice. Harbinger provides a wide set of software development and testing services for companies with eLearning software requirements.

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# Introduction

It is widely known and accepted that a Learning Organization stays ahead of its peers in the competitive landscape. With a globally spread workforce, it has been a challenge, at least until recently, for organizations to provide its associates continuous learning opportunities, in a cost effective manner, that will enable associate development and performance and achieve business competitive advantage. However, eLearning methodologies have to a great extent helped organizations overcome this challenge.

But, more recently, “future of work” concept has added a new dimension to the learning challenge which puts a demand on organizations to provide anywhere, anytime learning opportunities to their associates. Though organizations have been able to enhance their learning systems - leveraging mobile devices and internet - to deliver on this demand to a great extent, there are situations where they are failing due to intermittent connectivity issues, low bandwidth or unavailability of internet and hence affecting employee productivity. This paper presents a solution architecture that organizations can use to give their Learning Management Systems (LMS) the capability to deliver eLearning content in a disconnected mode where the learner device need not be connected to the LMS server. It also discusses the key features and benefits of Harbinger Offline Player, which is an industry leading solution for disconnected learning deployed at several global organizations.

## eLearning Platform

Any eLearning platform operates with two key entities i.e. Content and Learner. Based on domain and the business requirement, overall feature set may vary but these two components are integral part of any learning management system. Below are the life cycle events associated with each of them.

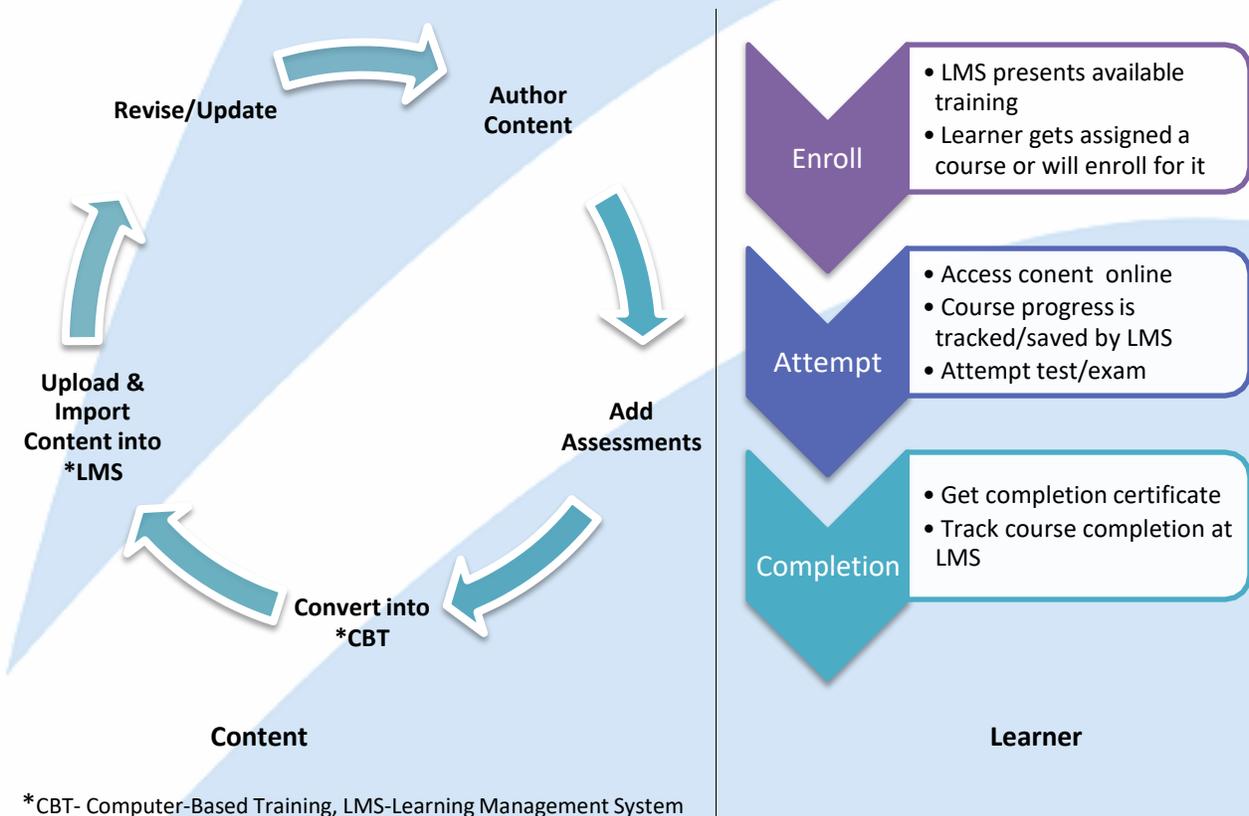


Figure 1: Life Cycle Events of Content and Learner

Above is a representation of typical online workflow. Factors such as limited bandwidth, mobile staff or use of media (audio/video/interactivity) content etc. impose challenges on an organization's ability to cater to the training needs of its associates.

There are two widely recognized and supported specifications available for eLearning content i.e. SCORM and AICC. Harbinger has built an offline player that provides an ability to make this standard compliant content available for offline use so that connection to LMS is not required always.

## Disconnected Learning Architecture - Offline Player

In order to access course content online, LMS provides a UI referred as Online Course Player. This component is responsible for presenting course material to learner as per content metadata files and tracking & saving user progress based on user actions through content navigation.

In order to make this workflow available for offline access below are high level events/requirements:

- Availability of Course Content on a local computer
- Need a player that can play the content to the user even though it is disconnected from LMS
- Ability to send user progress back and forth between LMS and local computer

Based on these three key principles, a high level architecture for a player to enable offline access to learning content need to have the below depicted components.

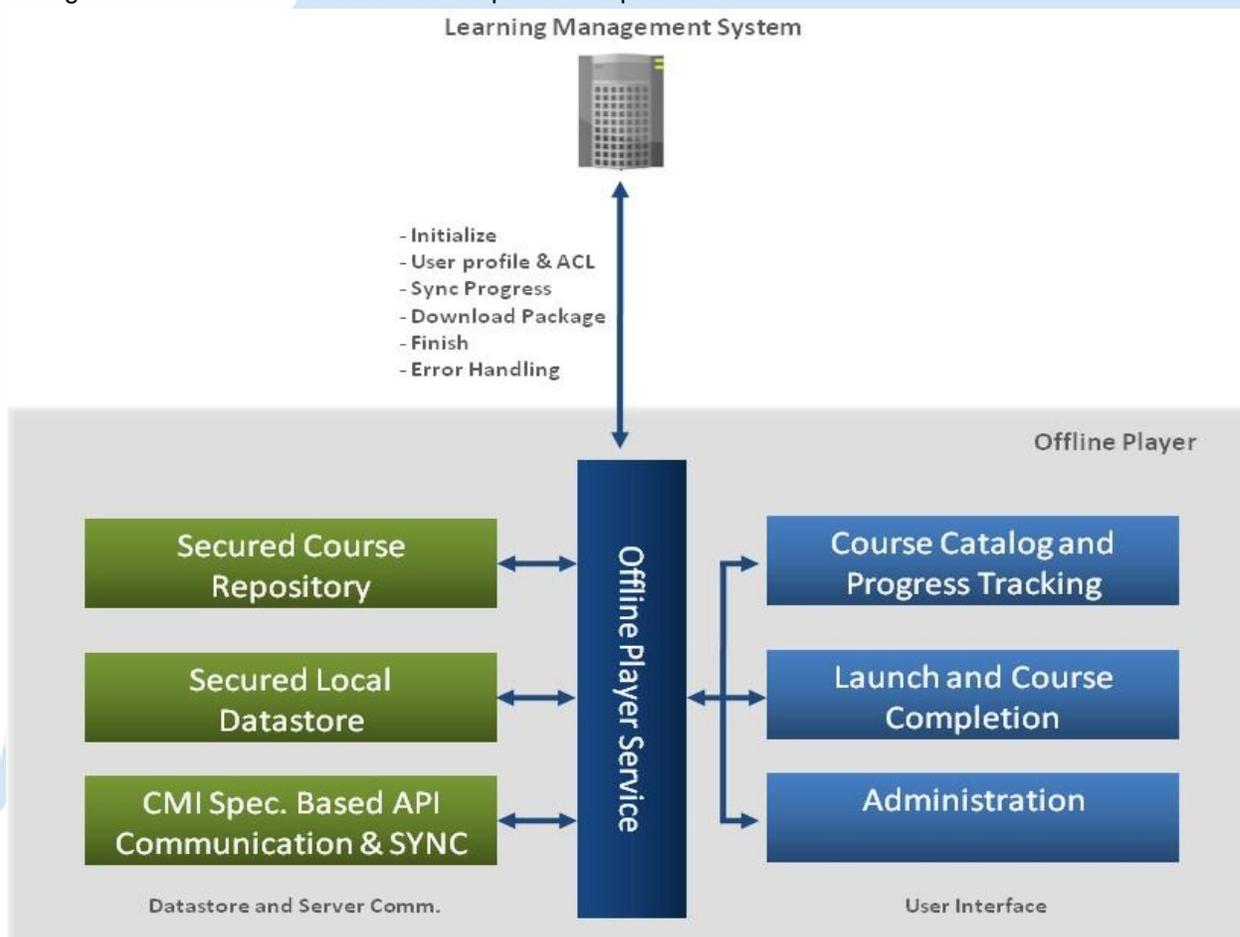


Figure 2: Offline Content Player Components

## Key Components of Offline Player

### ✓ **CMI Specification for Communication with LMS over HTTP**

A communication protocol is defined to provide an interface and set of rules for communication between Web based CMI systems, the LMS and Offline CMI System, the Offline Player (OLP). Messages exchanged between LMS and OLP are listed below

- **Initialize**  
This message is used to initialize a session between Offline Player and LMS. This is the first message that is sent by the Offline CMI to the LMS. It indicates beginning of a session between the two systems.
- **GetProgress**  
This message is used to get information about a student's online progress in one or more learning units/objects. The response contains a collection of Progress Data nodes, where each node contains student progress information in a particular learning unit/object.
- **PutProgress**  
This message provides the LMS information about student's offline progress in one or more learning unit/object. The response indicates the update status.
- **GetPackage**  
This message is used to get information about the course package that needs to be downloaded. The response contains information on the various options available to download the course package.
- **Finish**  
This message is used to complete the session between the Offline CMI and LMS. This is the last command that is sent by the Offline Player to the LMS to indicate completion of a session between the two systems.

### ✓ **Course Repository**

Course packages downloaded to local computer are stored in course repository in encrypted format. Course package is encrypted during download process to avoid any unauthorized access to content on local computer.

### ✓ **Local Data Store**

Offline player needs to download user profile and access control details from LMS to provide access to assigned/permitted content same as LMS. It also needs to store user course progress on local computer during offline mode. This data is stored in encrypted format on local computer and is synced with LMS on availability of internet connection as well as based on pre-defined triggers.

### ✓ **User Interface**

Offline player provides browser based interface to ensure same user experience as LMS. It also enables implicit support for all course content developed to run through LMS. Administrative interface is provided to manage bulk operations for course progress/update and to support various functions of user management.

# Harbinger Offline Player - Facilitates eLearning in a disconnected environment

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Offline Player provides enterprises with a seamless and highly secure way to access training content without need for continuous Internet connectivity. It is an easy-to-use, secure, standards-based player for accessing SCORM/ AICC courses on tablet, desktop and USB for disconnected learning.

Harbinger Offline Player is being used extensively by Enterprises/end user companies such as Banks, Healthcare, Pharmaceutical, Oil & Gas, Aviation, Construction, Shipping companies, National Army, NGOs etc. for imparting trainings to their employees across the globe.

Several Learning Technology providers, Training providers also leverage Harbinger Offline Player to enhance their learning platforms capability to deliver a cross-device, cross-platform training content for their customers. The player can integrate with Proprietary or Open Source Learning Management System and provide offline access so that users can continue to learn anywhere, anytime even when internet connectivity is not available between their device and the LMS.

## Offline Player Advantages for Enterprises

- Leverage Offline Player capabilities for providing trainings in disconnected mode
- Support untethered learning on desktop, mobile and tablets
- Deliver online content offline without changing or migrating content

## Offline Player Advantages for LMS, LCMS, Content Providers

- Extend online content delivery to offline mode across platforms, with high configurability
- Integrate using extensible standards based APIs
- Customize branding and navigation for seamless user experience

## Key Features

- ✓ **Access from Anywhere**  
By allowing the user to later unpack and play the course at anytime, enterprise content users have access to their content from anywhere at any time without Internet connectivity.
- ✓ **Enhanced User Experience**  
The offline player leverages user familiarity with browsers and existing LMS look-and-feel, reducing the need for user training and providing for an enhanced user experience.
- ✓ **Auto Synchronization**  
User's training progress is synchronized with the LMS automatically after a specific time interval. The Player track user's training progress and synchronizes the progress when connected back on-line.

✓ **Reduced Cost of Ownership**

Offline Player integrates with any existing LMS to increase the return on your existing training investments. By using industry based standards software, familiar user interface as well as enabling the users to access training when offline, the offline content player increases usage of existing training material and reduces the total cost of ownership of your learning system.

✓ **End-to-End Security**

The offline user-profile, progress data and course content are always encrypted to ensure complete security and privacy of the user and that of the downloaded course content.