Introduction to Active Channel Technology

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This technology is obsolete as of Windows Internet Explorer 7 and should not be used. Prior to the release of Microsoft Internet Explorer 4.0 and the introduction of Microsoft Active Channel technology, there was only one way for users to obtain the latest information from the Web—they had to go get it. They had to type a URL, or click a hyperlink; there was no automated way to obtain information updates from a Web site. With channels, this is no longer the case. Users don't have to go get their updates anymore. They can have them delivered.

Automatic updates are just one aspect of Active Channel technology. Channel content can also be viewed offline—that is, without a network connection. Channel developers can organize their Web sites into different "views," providing users an "intelligent subset" of the sites' content. Active Channel technology can be used to deliver content directly to users' desktops, with Active Channel features, for example. Microsoft Active Desktop items are small Web pages or HTML components, such as a Java applet or an Microsoft ActiveX control, that are displayed directly on the desktop. The authoring options available to channel developers are designed to increase the visibility of content, and to improve the user experience while viewing that content. The increased exposure afforded by Active Channel technology helps Web publishers maintain an ongoing relationship with their users.

Simply put, a channel is a Web site described by a Channel Definition Format (CDF) file. The CDF file defines a hierarchy of pages included in the channel. In addition to defining the resources in the channel, the CDF file also specifies how each item will be used or displayed, and when the channel should be updated.

You, the Web publisher or content author, can easily create Active Channel sites that, among other things, enhance the offline browsing experience for your users and facilitate timely updates of your content on their desktops.

This article is an overview of Active Channel technology. It presents the terminology, benefits, and uses of Active Channel technology. Links to other overviews, references, and tutorials are included at the end of the article.

- Key Terms and Concepts

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- Requirements
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- How It's Done
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Key Terms and Concepts

This section includes terminology you should be familiar with to understand Active Channel technology.

- CDF

  CDF is an XML vocabulary, or XML-based data format, that can be used to organize a set of related Web documents into a logical hierarchy. CDF enables developers to describe the structure and logically present various structured views of their HTML-based sites. Individual Web pages can be described by a CDF file to specify a hierarchy of associated Web pages.

  Like HTML files, CDF files are structured text made up of various elements, each enclosed within opening and closing tags. CDF files provide an index of the resources available in the channel—a hierarchy of the channel's Web pages—and can include a recommended schedule for when the channel should be updated on the user's computer.

  Using CDF files, channel developers and end users can schedule content updates, deliver personalized, password-protected content, log page hits, set up Active Channel screen savers, and categorize content.

  A typical CDF file contains a top-level **CHANNEL** element to define the channel itself, along with **ITEM** elements to specify the actual contents of the channel. Subsequent occurrences of the **CHANNEL** element define subchannels and allow publishers to create a hierarchy for the channel. The **TITLE** and **ABSTRACT** elements can be used to describe the contents of each item or channel element. Publishers may also want to use the **LOGO** element to associate an image with each item in the channel, as well as with the channel itself.

- Offline browsing

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Offline browsing enables users to view Web pages from the cache, a local repository of files gathered from the Web, through normal browsing and through the delivery of content subscriptions.

Users can choose to work offline by selecting Work Offline from the File menu in Internet Explorer 4.0 and later. When the Work Offline menu item is selected, the system enters a global offline state, independent of any network connection, and content is read exclusively from the cache. If specified content is not available locally, Windows Internet Explorer asks users if they want to go online to view the content or continue working offline.

Channels are not the only offline implementation for CDF files. For information about the "smart" offline Favorites feature in Microsoft Internet Explorer 5 and later, see Enhancing Offline Favorites.

- Site crawling

  Site crawling is the process of a browser proceeding through the following steps:

  1. Retrieve an HTML page.
  2. Store that page locally on a user's computer.
  3. Find the links (anchors) in the page.
  4. Repeat the process from step 1 for each link to an HTML page.
  5. Stop the above process when the browser has run out of links to follow, or when the process has repeated enough times based on some criteria.
  6. Retrieve the actual content for each link to a non-HTML document, such as an image file or a text file.

- Webcasting

  Webcasting refers to technologies that enable Web publishers to broadcast content to their users on a regular schedule, much like television and radio programs do. Web developers can deliver content directly to users on a regular schedule by "pushing" the content to them through a channel.

  Push is a misnomer. It should more aptly be called "scheduled pull." User's browsers are actually "pulling" the content from the Web. The difference between Webcasting and the traditional way users pull content from the Web is that once they subscribe to the channel, they don't have to navigate back to the site to obtain updates.

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Requirements

Active Channel technology and CDF files are supported by Internet Explorer 4.0 and later. CDF files can be authored with any text editor. Save the file with a .cdf extension, and Internet Explorer will process it accordingly.

Benefits

Web publishers can profit from the improved visibility and accessibility of their content and a more interactive relationship with their users. Users enjoy a rich and intuitive browsing experience when Web publishers offer their content on a channel.

- What's in it for Developers?

  Web publishers can create a default schedule in the CDF file that Internet Explorer 4.0 and later uses to determine when the channel information on the user's computer should be updated. Specifying a schedule with a range of valid update times can help to effectively manage server loads when Webcasting to Internet Explorer.

  A channel can be created that delivers the following items to a browser:
  - Branded icons and logos representing the channel in the desktop channel bar.
  - A sitemap describing the content available in the channel.
  - Web pages containing text, images, and ActiveX controls. These pages can have a special use associated with them, such as appearing in a screen saver or Active Desktop item.

  Page-hit logging enables you to collect page-hit information from offline users in much the same way as you can from online users. Logging offline page hits can help publishers develop a better understanding of their user base, and how their users view content. This feature can be disabled by home users or corporate administrators, if desired.

  You can create Active Channel sites using skills and tools you already possess. Active Channel sites are just as easy to author as they are to discover and use.

- What's in it for Users?

  Offline browsing saves connection charges, navigation and download time, and enables users to take Web content with them wherever they can go with their

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computers. All of the desired text, graphics, and multimedia files can be placed on users' hard drives for offline browsing.

Users can choose to be notified when information that is important to them is updated. Or, users can elect to have updated information automatically delivered directly to their desktop. In either case, their channel information is always up-to-date.

The exposed hierarchy of a channel can help users find the content they are most interested in. The channel bar can be used to expose an effective map of a site's content. Intelligent subsets of a site's content can be organized to fulfill the needs of individual groups of users, improving a site's appearance and user experience, and making the site more personalized and intuitive.

Sample Uses

Active Channel sites can be used to deliver news and information, divide large sites into smaller, more useful subsites, notify users of changes to Web sites, and provide an aid to navigating Web sites.

- Delivering news and information

  Channels can keep users up-to-date on breaking news, periodically delivering a hierarchically structured set of news items to the desktop. News content can be downloaded for offline use—during a laptop user's morning ferry or train commute, for example.

- Dividing a site into useful subsets

  Channels can be used to present an "intelligent subset" of a site's content, for particular users, for example. The hierarchical nature of a CDF file is particularly well suited for this type of organizing.

  A library's Web site, for example, might maintain individualized channels for avid mystery, science fiction, and western readers.

- Notifying users of changes

  Channels can be used to notify users when new content is available. Notification refers to the ability of Internet Explorer 4.0 and later to monitor channels, letting users know when the content of selected Web sites has changed. The notification

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mechanism is a gleam—a red asterisk that flags the icon and logo that represent the site on the user's desktop. Channel authors and users decide whether or not the new content is automatically cached for offline use.

A human resources department might use this notification mechanism to inform users about a change in employee services or benefit programs. A special kind of channel, called a Software Update Channel, can be used to notify users when new versions of software are available.

- Providing an aid to site navigation

  Channels can be used to create an authored environment that aids navigation. Internet Explorer 4.0 and later can display a hierarchical outline of a channel, called a site map, that makes it easy for users to locate and navigate to the specific information they're seeking. Once again, the content in this type of channel can be precached for offline use.

How It's Done

Active Channel technology can be added to a traditional Web site with a minimal amount of work by the publisher. These are the required tasks:

1. Create a CDF file.

   The CDF file provides an organizational map of the site that lists the resources of the channel and usually contains an update schedule.

2. Place a button, anchor, or other hyperlink to the CDF file on the Web site.

   Users who click the hyperlink will encounter a dialog box that enables them to choose how they want to interact with the channel.

3. Post the CDF file on an HTTP server.

4. Create the logo graphics, if desired.

   Logo images can be created to represent the channel in the desktop Channel Bar and Windows Media Showcase.

Software Update Channels

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Introduction to Software Update Channels provide Internet software providers with a utility for distributing updates. Software Update Channels are specialized channels that can notify users of software updates, and can deliver and install the updates on users' computers. Users who have downloaded your software and subscribed to your Software Update Channel are notified when new versions of your software become available. When notified of an update, users can click a gleaming icon representing your channel, which returns them to your download site so they can obtain the new version of your software. Software updates can also be delivered and installed on users' computers automatically.

Related topics

Conceptual

About Active Channel Features

CDF Extensions for Active Desktop Items

CDF Extensions for Software Update Channels

CDF Reference for Active Channels

How to Create Channel Definition Format (CDF) Files

Designing Active Channel Sites

Developing an Active Channel Site

Creating Active Channel Logo Images

Optimizing Active Channels over HTTP

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Using Dynamic HTML with Active Channel Sites

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