

# Using a CMS to create fully accessible websites

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## ABSTRACT

This session demonstrates how a content management system (CMS) can facilitate the creation of fully accessible websites for people with disabilities. Throughout this lecture, the participants will access an in-depth view of the technical components and solutions adopted by Netic Hypermedia Inc for the development of the content management system Edimaster Plus™ which supports the highest Web Accessibility standards. The speakers will demonstrate navigation, dynamic content management and search function tools adapted to different users as well as a wide range of other tools offering advanced functions of text, image, forms, and data table editing. The demonstration will be conducted using assistive technology such as screen reader and screen magnifier software.

## Categories and Subject Descriptors

### D.2 SOFTWARE ENGINEERING

D.2.2 Design Tools and Techniques : Modules and interfaces, Flow charts

D.2.4 Software/Program Verification : Correctness proofs, validation

D.2.11 Software Architectures : Data abstraction, Domain-specific architectures, Information hiding, Languages (e.g., description, interconnection, definition), Patterns (e.g., client/server, pipeline, blackboard)

D.2.12 Interoperability : Data mapping, Interface definition languages

### I.5 PATTERN RECOGNITION

I.5.4 Applications: Computer vision (Detecting events, Organizing information e.g. for indexing databases of images and image sequences)

### H.5 INFORMATION INTERFACES AND PRESENTATION

H.5.2 User Interfaces: Natural language, Screen design (e.g., text, graphics, color), Standardization, Style guides

H.5.4 Hypertext/Hypermedia : Architectures, Navigation, Theory,

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User issues

### I.7 DOCUMENT AND TEXT PROCESSING

I.7.1 Document and Text Editing : Document management

I.7.2 Document Preparation : Hypertext/hypermedia, Standards

I.7.4 Electronic Publishing

## General Terms

Algorithms, Documentation, Performance, Design, Experimentation, Human Factors, Standardization, Languages, Verification.

## Keywords

Content Management System, Accessibility, Mobility, Standards, Websites and Assistive Technology.

## 1. INTRODUCTION

For more and more organizations, the Web is an important resource for numerous aspects of life: social, economic, educational, governmental, etc. This has led to a desire for technological solutions allowing organizations to publish data with the speed and freedom provided by the Web.

Many organizations have turned to content management system (CMS) to fulfill this need. Unfortunately, the majority of content management systems do not respect Web standards nor do they enable organizations to develop websites accessible to people with disabilities. In order to thrive in the future, a website powered by a content management system should help organizations to accommodate the growing diversity of people, hardware, and software.

The lecture will be given by Sébastien Rainville-Pitt, Director of Research and Development at Netic Hypermedia Inc. and Jean-Marie D'Amour, expert in Web Accessibility at the Nazareth and Louis-Braille Institution. Both speakers have performed a demonstration of the technological advancement of Edimaster Plus™, an accessible content powering software for the Web, during the largest university-hosted event for professionals involved in the development of technology for persons with disabilities hosted by California State University, Northridge (CSUN) in Los Angeles in March 2007.

## 2. WEB ACCESSIBILITY WITH A CMS

Accessibility of a website powered by a CMS starts with the latter. A CMS that does not generate standard and accessible code

unfortunately allows very few user modifications to improve website accessibility, and these modifications are often insufficient to offer entirely accessible websites to people with disabilities.

## 2.1 The challenges

The biggest challenge is in developing creative and user-friendly solutions likely to meet the toughest standards regarding accessibility. Throughout this lecture, we will demonstrate through concrete examples the challenges we encountered and the solutions we came up with while developing the Edimaster Plus™ CMS for Netic Hypermedia Inc.

## 2.2 Generating accessible content despite users

Most CMS provide an environment in which users create and modify their website content, design and browsing. In this context, it seems practically impossible to control the data entry made by a CMS user, and for most of them, the WYSIWYG (what you see is what you get) systems seem to be the best solution to meet their objective, namely fast delivery of rich content. Yet, the WYSIWYG tend towards generating data that do not respect accessibility standards and whose nature and structure are practically impossible to determine.

In order to solve this problem, Netic Hypermedia Inc. developed a CMS containing a large number of automated functions and pre-formatted fields allowing website creation and management and meeting the strictest standards regarding accessibility for people with disabilities. Offering a basis to allow users to produce accessible content then becomes possible, while supporting them in the meantime to produce this content through a CMS.

Edimaster Plus™ actually enables saving content with all the necessary information to describe. What is stocked in the database is not the final code but the content and the information on its nature and structure; the accessible and valid code can therefore be generated rapidly. This way, the content durability is ensured since modification of the code generation filter is still possible to adapt to a new context or a new standard.

The Edimaster Plus™ CMS pre-formatted fields delimit and identify the data in order to process and display it automatically in a standard way. Entering a title in a CMS pre-formatted field allows an explicit delimitation of this element on the web cast page. Using this technique, the user easily respects the accessibility and Web standards identifying the title as such, i.e. with a title type (<h1>...<h6>) XHTML tag. The same operation then becomes possible, using the CMS, for images, date, time, browsing and any other relevant information with only a few clicks.

Functions that, notably, enable by-passing browsing, jumping to content, going to menu or submenu, and informing the internaut of an open link in a new window, are automatically added on the site's hypertext links or offered on a navigation bar available anytime to the internaut.

The speakers will demonstrate navigation tools, content management and dynamic content management tools, search function tools adapted to different users as well as a wide range of

other tools offering advanced functions of text, image, forms, and data table editing. The demonstration will be conducted using assistive technology such as screen reader and screen magnifier software.

Edimaster Plus™ powers Websites meeting the three WAI priority levels. It is furthermore normalized according to standards applying in Canada and the United States.

The presentation will demonstrate how the Edimaster Plus™ content management system was developed in order to support the highest Web accessibility standards for people with visual, hearing, motor or cognitive limitations. Messrs Rainville-Pitt and D'Amour, through concrete examples, will display the possibilities of a content management system (Edimaster Plus™) powered Website.

Experts at Netic Hypermedia spent five years developing a product normalized according to the W3C recommendations, meeting furthermore provincial, federal and international government standards and laws.

For these reason, the CSUN selected the presentation from the Quebec (Canada) experts among a wide range of international products. For a 22nd year, the CSUN conference is the largest university sponsored event gathering professionals involved in developing technologies for the physically challenged. From March 19 to March 24, 2007 more than 4000 people attended, notably those involved in developing accessible technologies: adaptation tools makers, software designers and users, for what has become an essential annual event.

## 3. BIOGRAPHY

Sébastien Rainville-Pitt is Director of Research and Development at Netic Hypermedia Inc. Holder of a Master's Degree in interactive multimedia communication from the Université du Québec à Montréal and, since 1995, of a Bachelor of Fine Arts from Concordia University in Montreal, he is renowned for his creativity in media arts and was awarded a Fellowship in creative development by the Canadian Council for the Arts in 1999. Sébastien is the original creator of Edimaster Plus™ and keeps an active part in refining and supervising this software production. Sébastien Rainville-Pitt is interested in the analysis, the experimentation and the introduction of the use of media and new technologies on the production and delivery level as well as on the reception level.

Jean-Marie D'Amour is an Expert in Web Accessibility at the Nazareth and Louis-Braille Institution. Holder of a Master's Degree in specialized education and founding President of the AccessibilitéWeb organization, he is the author of two user's manual for computing with JAWS and Window Eyes and is also the creator of an online training program on Web accessibility. He works as a rehabilitation specialist for the Institut Nazareth & Louis-Braille, the most important rehabilitation center for visual disabilities in the Province of Quebec. He teaches a course on Web Accessibility at the Montreal University. He acts as consultant for the development of a Web accessibility standard for the Government of the Province of Quebec. He divides his time between his job as a rehabilitation specialist and adapted computing trainer and his involvement in various projects regarding Web accessibility.