

Course Web: A Report On Converting Course Notes To Web Pages

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This paper provides the results of a survey which was given to the students in 1999 on the general effectiveness of CourseWeb. In addition, the paper will report the results of a survey given to the students in 2000 which assesses the effectiveness of the notes using WebCT² with its extra features, as well as the author's experience using WebCT.

Keywords

Internet delivery, online learning materials, WebCT

ABSTRACT

The author has been supplying course notes to students on the computer network for many years. These were usually developed using a word processor, but in 1999 the course notes were converted to web pages so they could be viewed by a web browser. This system, referred to as *CourseWeb*, allowed the use of hyperlinks to definitions and other resources available on the World Wide Web, which (hopefully) provided a richer source of course material as well as making the notes more enjoyable for the students to use.

One disadvantage of the 1999 version of the author's notes was that they were stored as files on the local network, which means they were inaccessible from outside The Waikato Polytechnic (TWP). This year, the notes have been incorporated into TWP's WebCT server, which in addition to making them available outside the Polytechnic also provides a bulletin board where students can post queries to the tutor and share ideas.

1. INTRODUCTION AND ORGANISATION

The experience of the author in making course notes available to students is described in this paper.

The paper is divided into the following sections:

- ◆ Section 1 is this introduction.
- ◆ Section 2 gives a historical background, giving the author's experience in making course notes available on computer systems through several versions.
- ◆ Section 3 describes CourseWeb 1, which was the first set of notes which were organised as web pages. The general structure of the notes, problems encountered in producing CourseWeb 1, and the results of a student survey are presented.
- ◆ Section 4 describes CourseWeb 2, which consists of CourseWeb reorganised and presented to the students using WebCT². As before, the general structure, problems encountered, and the results of a student survey are presented.
- ◆ Section 5 provides a conclusion.
- ◆ Section 6 presents references consisting of websites that can be accessed to provide material supporting this paper.



Note: an earlier version of this paper was submitted as a report for credit towards the Certificate in Tertiary Teaching.

2. HISTORICAL BACKGROUND

Since his early days teaching at the University of Waikato, the author has used a word processor to prepare slides for course notes. Students then began requesting a copy of the notes prepared as a handout. This seemed a good idea, as they could scribble their own notes in the margins and gaps of the text. Later, the author started distributing the notes files he created to students, though because of technicalities the author had to translate the files from MS Word format to text.

The students' reaction to this was generally positive. A downside was they started taking this for granted, and complained if the notes were not made available to them.

When the author took a job at Waikato Polytechnic, he continued this practice of using a word processor to prepare notes. As both the students and the author had access to the IT3 server (and MS Word), a natural step was to make a copy of the files available to the students on the network. The students' reaction to this has also been generally positive. They can now make their own copy of the file and modify it during class time if they wish.

As the web became more and more ubiquitous, more and more of the teaching here at the Polytechnic involved the use of the web for course and resource materials. A natural step for me, then, was to convert my MS Word notes into web pages so the students could view them with a web browser. Not only did students have the notes available on line, but links to pertinent websites can also be included right in the notes.

This process was begun at the beginning of 1999. Since then the author has been systematically converting the Word notes into HTML format, assembling them into a structure referred to as *CourseWeb*. The students' reaction to this has again been very positive.

3. COURSEWEB 1

This section describes the organisation, creation, and student reaction to the first implementation of CourseWeb.

3.1. CourseWeb 1 Organisation

In the first version of the author's online notes, the files were translated from Microsoft Word to HTML. The text of the Word notes was copied and pasted into a public domain web editor called **Arachnophilia**¹.

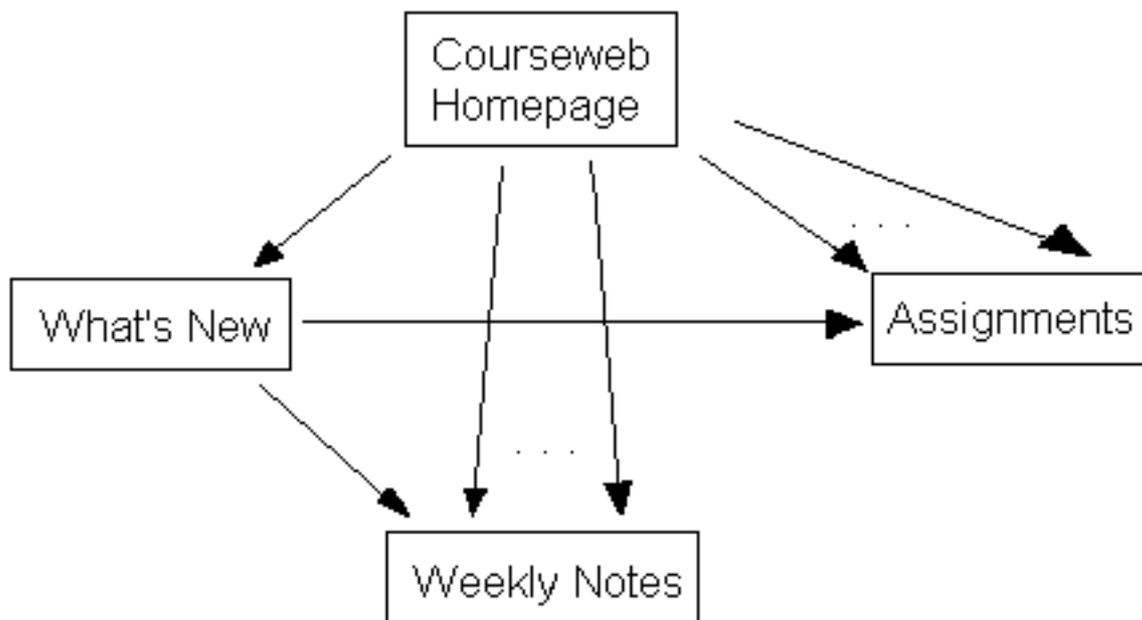


Figure 1- Course Web Organisation

This package was chosen not just because of its price, but because it is effectively a text editor with special HTML tools added, plus an internal web page viewer. Because the HTML text itself is edited, this gives the creator complete control of the result.

All of the course notes use the same format. There is a home page containing the following features:

- ◆ Course title.
- ◆ A link to a “What’s New” page (which may contain links to other pages in the courseweb).
- ◆ The purpose of the course.
- ◆ Lecturer’s name, office number, phone number, and email (including a link to send email directly from the page).
- ◆ Texts used in the course.
- ◆ A syllabus for the course, including topics covered each week, links to web pages for the notes for that week, and links to assignment pages with due dates.
- ◆ A description of the method of assessment used in the course and the assignments given.
- ◆ Other information pertaining to course organisation.

Each web page may contain links to other pages in the courseweb or to WWW links.

3.2. Problems with developing CourseWeb 1

One of the main problems with this approach is the sheer amount of time it takes to create a web page. Though in the main the task consists of merely copying and modifying notes which have been previously written, even this is an arduous process. The text must be reformatted in HTML, which often needs to be done line by line. Further, if there are any images in the notes these must be copied to bitmap format, then converted to GIF or JPEG format to be included in the web notes. Even more time-consuming is the process of trolling through the web searching for useful sites to link to. Two online computing dictionaries are frequently relied upon for definition of terms (FOLDOC³ and whatis.com⁴).

One problem with the original notes was font size. To make them readable as an overhead a large font size was used, which kept the amount of text per page to a minimum. This proved troublesome for the students’ version, as the large font was ponderous to read on a screen and took up a lot of paper if they tried to print it out. Students frequently spent (or wasted) a fair amount of time or paper reformatting or printing the document.

This problem had been solved in Word by defining a second document template which duplicated all the paragraph styles in the slide template, but in a smaller font. The page breaks were then removed as appropriate and this version was made available to students on the network.

The problem of large, sparse text for slides and small, dense text for online notes was present in the HTML version of the notes. To solve this a cascading style sheet was used to redefine the standard HTML styles in a larger font on the lecturer’s machine when using Internet Explorer (but not Netscape, which allows the students’ version to be viewed). The style sheet is not present on the network, so the text appears in the standard size in the students’ version.

The problem of page breaks not being available in web pages is solved by selecting the text in page-sized blocks and printing each selection separately on a slide. This is somewhat problematic because it’s easy to miss some of the notes or forget to click the “Selection” button on the Print dialog box, in which case the entire document is printed by accident. At present no better way has been found.

3.3. The First Survey

A survey was drawn up and given to the students in class. The survey consisted of a web page with a form for questions. Answers were generally in the form of a number, ie. 1 - disagree, 5 - agree, etc. There was also text boxes for including long answers.

Some of the notes supplied to the students were several pages long. Conventional wisdom has it that web pages shouldn’t be more than two pages long, although this doesn’t always apply if the topic is interesting enough and/or can’t be easily compressed or broken up. Accordingly, the survey also included a count of people who thought the pages were too long.

Email was sent to students in the courses I am currently teaching. They were told the URL and invited to participate in the survey. After the online form was filled out, students’ answers were submitted to an ASP document and inserted as a record in an Access database.

3.4. First Survey Results

A simple Access database application was developed to assess the responses. The application produced a report of statistics on the survey, namely the number of each numerical response entered for each question, the percentage of ticks indicating the notes were

too long, and a list of the written responses. Each report was generated in turn and converted to a web page.

The response to the survey was generally positive. Approximately 40% of the students responded, which gave some feedback on CourseWeb and the courses I've taught as a whole. The results are summarised in Figure 2.

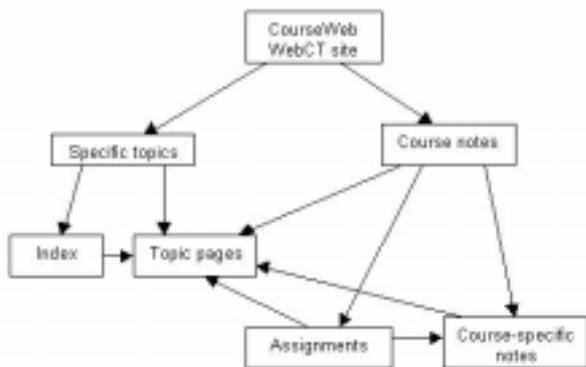


Figure 2. Responses from the first survey.

Question	Answer	Author's comments
How would you rate the usefulness of the course notes for your study?	4.1 – Useful	

I have used the notes for preparation for classes. 3.24 – Often **Students may have been somewhat hampered by the notes sometimes not being made available until just before class.**

I have used the notes to catch up on missed classes. 3.88 – A lot

I have used the notes for review. 3.76 – A lot

I have followed the weblinks provided in the notes. 3.41 – sometimes to a lot

I have found the notes helpful. 3.29 – agree

4. COURSEWEB 2

One major disadvantage to CourseWeb 1 was that it was not available outside The Waikato Polytechnic. The student had to be onsite and logged in to the student server.

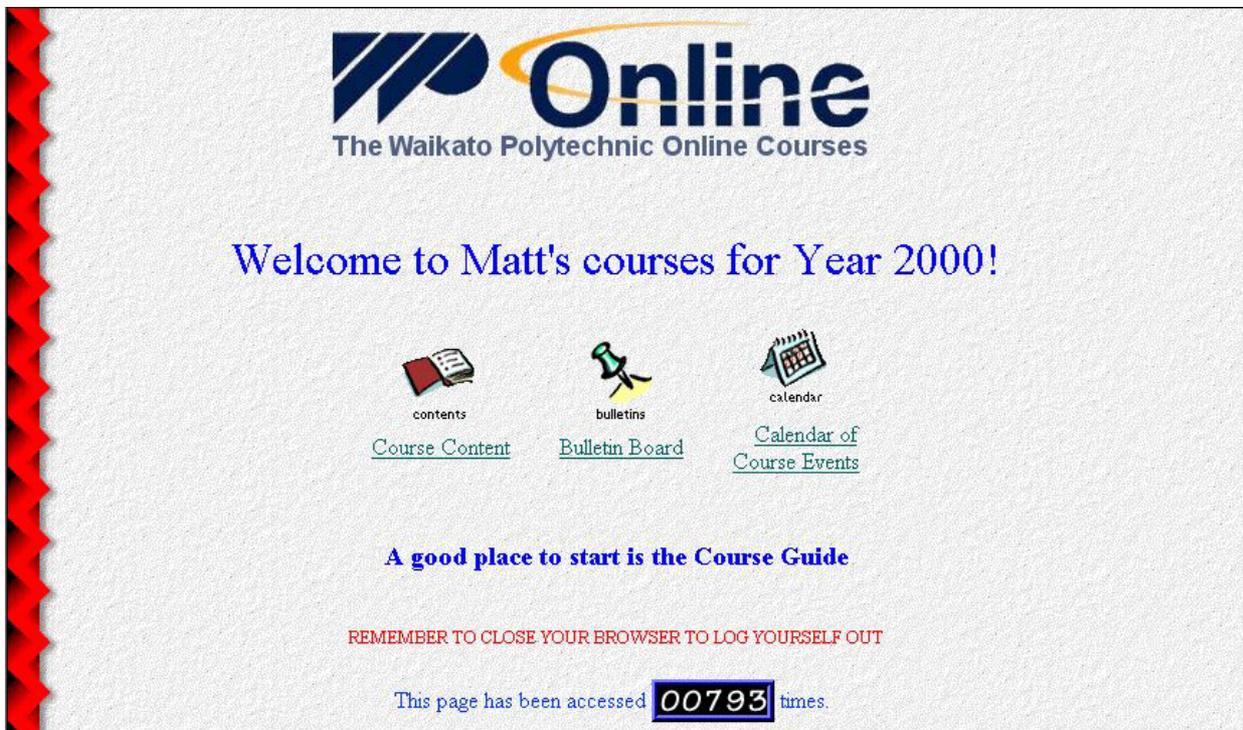


Figure 3. CourseWeb's WebCT welcome screen.

Partly to rectify this, it was decided to integrate CourseWeb into TWP's WebCT² system, which is maintained by the Polytechnic's Innovation Centre.

During the integration the notes were reorganised, with material presented either by course or by topic as appropriate.

Using WebCT has the following advantages:

- ◆ The notes could be accessed from outside the Polytechnic.
- ◆ The new structure allows any course to access general notes more easily.
- ◆ WebCT also includes a bulletin board, where information can be dispersed by the lecturer and questions can be raised by students and answered in a timely manner.

4.1. CourseWeb 2 Organisation

In CourseWeb 2, students access the notes by using a browser to get to the WebCT website. This takes you to the screen shown in Figure 4:

The URL⁵ for CourseWeb's WebCT site is given in the references.

There are three areas the student can access by clicking on the links:

- ◆ **Course Content.** This is the area where the course notes are stored.
- ◆ **Bulletin Board.** This is an area where the lecturer and students can share information and raise questions.
- ◆ **Calendar of Course Events.** This is an online calendar where students can record important events related to their coursework.

4.1.1. Course Content Organisation

Clicking on the "Course Content" link takes you to a screen with a menu. The menu contains the following:

- ◆ **Matt's Home Page.** This is a general page describing the information which is available on CourseWeb.
- ◆ **PR204 home page.** Information on the BIT course PR204.
- ◆ **IT230 Notes.** Information on the BIT course IT230.
- ◆ **C++ Programming notes.** Reference notes on C++ programming.
- ◆ **Prototyping Framework.** Reference notes on prototyping methodologies.
- ◆ **Operating Systems Framework.** Notes on operating systems.

- ◆ **Creating command line programs.** The first few programs in PR204 and IT230 required students to generate a command line program using Borland's C++ Builder development tool. This was a link to the instructions to do this.

Thus, CourseWeb 2 using WebCT has the following structure:

At the time of writing, the WebCT implementation of CourseWeb has been accessed 816 times so far this semester. Subtracting perhaps 200 accesses by the lecturer for maintenance, this averages to around three or four accesses per week per student.

4.2. Problems with Developing CourseWeb 2

Compared with translating the course notes from Microsoft Word format to HTML, adapting them to WebCT was easily done. Most of the work consisted of pulling the material for specific topics out of the course notes and reorganising it. Adapting it to WebCT was mainly a matter of copying files to the WebCT server, then creating a front end (see Figure 3 above) for the students to access the notes easily.

However, a number of problems occurred with the setup and maintenance of CourseWeb 2 on WebCT. Firstly, there were problems with the file names, many of which contained space characters. These are allowed in Windows 95, but because WebCT is implemented on a Linux server, the Windows 95 file names with spaces could not be accessed properly. This meant changing not just the file names, but the links in the web pages to the file names, which was a tiresome task.

There are bugs in WebCT. Most notable perhaps is the fact that WebCT had difficulty presenting web pages with a combination of frames and cascading style sheet file references when Netscape was used.

This meant that Internet Explorer had to be used when viewing the specific topic pages, which consist of an index in one frame and the page contents in another.

Many people, including both the author and the students, found WebCT's interface confusing. This is particularly true of the Bulletin Board, the web links of which are not clearly marked as to function. For the lecturer, it was difficult to find tools which had been used previously, as again the hierarchy of buttons can be misleading and the buttons labeled in a way that is not terribly helpful. However, this became less of a problem when familiarity with the system was gained.

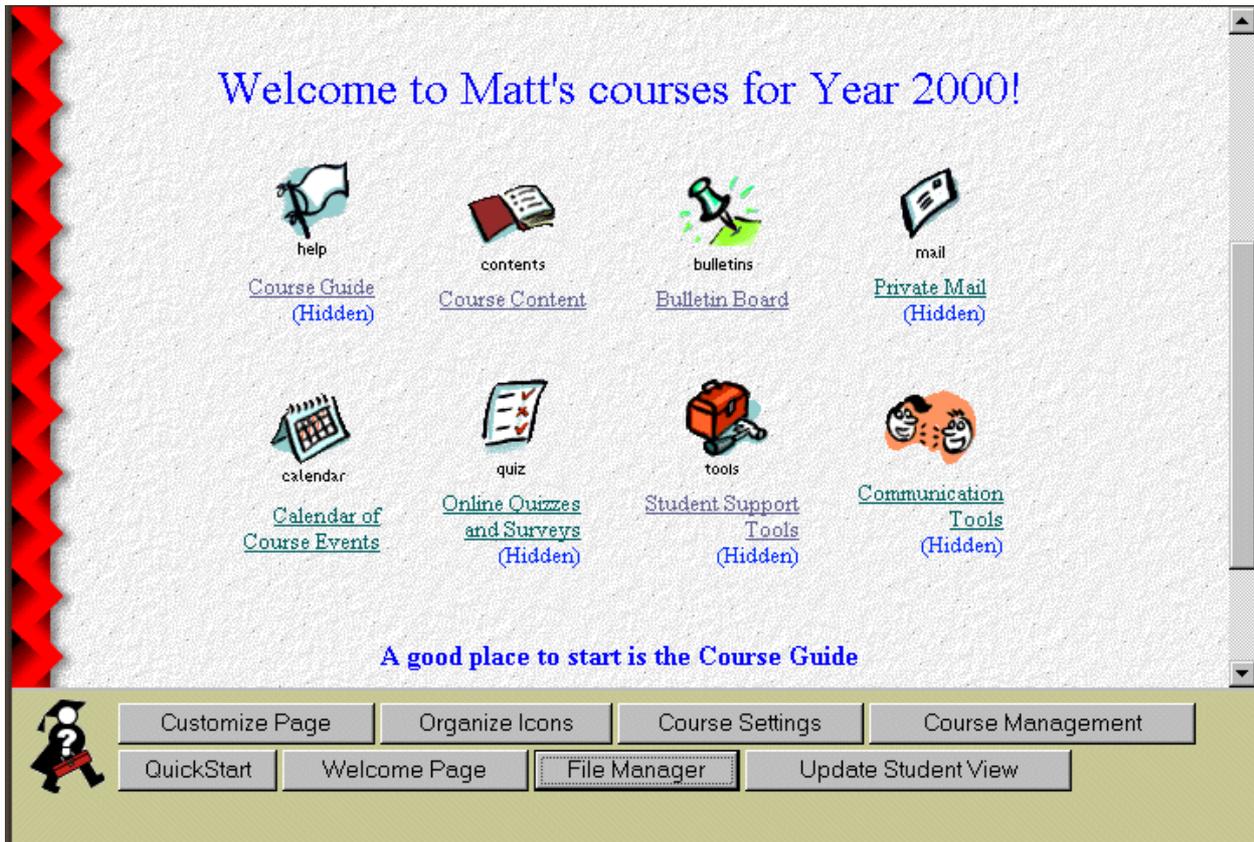


Figure 4: Course Web 2 Structure

One exasperating problem experienced by the lecturer is the problem of updating files. This can be done in two ways:

- ◆ Edit the file using the WebCT editor. This is rather unpleasant, as the editing tools provided are distinctly unfriendly.
- ◆ FTP an updated file to the WebCT site. The preferred method, as it allows the author to use more sophisticated tools for editing. However, if the files are not FTP'd correctly, it can prove embarrassing in class.

However, editing and/or FTP'ing the files is only the first step! The lecturer must also remember to click the **Update Student View** button. Confusingly, the files which are in the lecturer's WebCT directory are not the pages which the students see. It is therefore necessary to click the afore-mentioned button to update the files which make up the student's view. If the student's view is not updated, it is still possible for the instructor's view to show the updated version even though the students can't see it.

Further, web pages are cached at several levels: on the server machine, on the client machine, and additionally the author uses a web accelerator called **Netsonic**⁷ which maintains its own cache. Therefore, it is possible for the student's view to be updated, even though it doesn't look like it from the instructor's machine. These varied complications can make maintaining a WebCT site like wandering through a hall of mirrors.

At the beginning of the year, the lecturer carefully recorded all important dates such as assignment due dates, test dates, etc. on the WebCT calendar. Unfortunately, this information did not show up on the students' calendars, as unbeknownst to the lecturer each WebCT account comes with its own individual calendar. Another embarrassing moment in class.

4.3. The Second Survey

A second survey, similar in style and content to the first, was prepared and given to the class online as a web page. The questions on this survey centred mainly on the

WebCT implementation of CourseWeb. This time, students were told of the survey in class and by using the WebCT bulletin board. As before, an online form was filled out by the students and submitted to an ASP document. The survey answers were inserted as a record in an Access database as before.

4.4. Second Survey Results

Rather disappointingly, the response rate to the survey was even poorer than the first, with 3 students (around 8% of the classes) answering the survey. This is perhaps an indication of how often students checked the bulletin board. The number of postings to the bulletin board was quite high in the first week or two, but dropped off dramatically after that. Perhaps the novelty wore off, or students found it was quicker and easier to ask the lecturer or other students in person than it was to post a question on the bulletin board.

Seven questions were asked to be answered on a scale from one to five. The results of these questions is as in the table below.

In addition to the quantitative questions, two qualitative questions were asked regarding general comments and suggestions for improvements. To summarize briefly, one student liked the course overview page (see Figure 3) because it helped with navigation. Another student complained that a lot of hunting was still required to find what they were looking for and that the user interface “leaves a lot to be desired”, though whether this referred to WebCT or the author’s notes is not clear. The third student declined to answer the qualitative questions.

Question	Answer	Interpretation
How would you rate the usefulness of the WebCT notes for your study?	3.3 – “Sort of useful” to “Useful”	Students found CourseWeb rather useful
I have used the web links included in the notes...	3.3 – “Sometimes” to “Often”	Links to other sites were followed from time to time
For the Web links I have used, in terms of helping my understanding I would rate them...	3.0 – “OK”	The web links were reasonably helpful
Compared with last year, I have found the WebCT implementation of the course notes...	4.0 – “Somewhat better”	Students regarded WebCT as something of an improvement over HTML files on the local network
The WebCT bulletin board feature is...	3.0 – “OK”	Students were lukewarm about the bulletin board
I found accessing the WebCT notes offsite...	2.7 – “OK”	One student never tried, the others found it reasonably helpful
How much trouble I had accessing the notes offsite:	1.7 – “Never tried” to “No trouble”	One student never tried, the others had no trouble accessing the notes from offsite

Figure 5. Table of Quantitative Responses

5. CONCLUSION

To summarise:

- ◆ Students like having course notes provided.
- ◆ The WebCT implementation was generally regarded as an improvement because of the greater integration and cohesiveness it provides to CourseWeb. Also, offsite access was appreciated by students able to take advantage of it.
- ◆ WebCT is not perfect. It can be rather awkward to maintain and use.
- ◆ The bulletin board was, surprisingly, not as popular as the author expected.

Some work on the user interface needs to be done, though more feedback from students is required to ascertain what needs to be improved.

6. REFERENCES

Arachnophila home page: www.arachnoid.com/arachnophilia .

WebCT page: www.webct.com.

FOLDOC (Free OnLine Dictionary Of Computing) page: wombat.doc.ic.ac.uk/foldoc/index.html .

WhatIs page: whatis.com .

The author's CourseWeb WebCT site: 202.14.32.200:8900/SCRIPT/itmpm/scripts/serve_home.pl . Visitors will be asked for an ID and password. "NACCQ" can be used for both.

Borland's C++ Builder page: www.borland.com/bcppbuilder .

Netsonic page: www.agenet.com/netsonic/netsonic.html